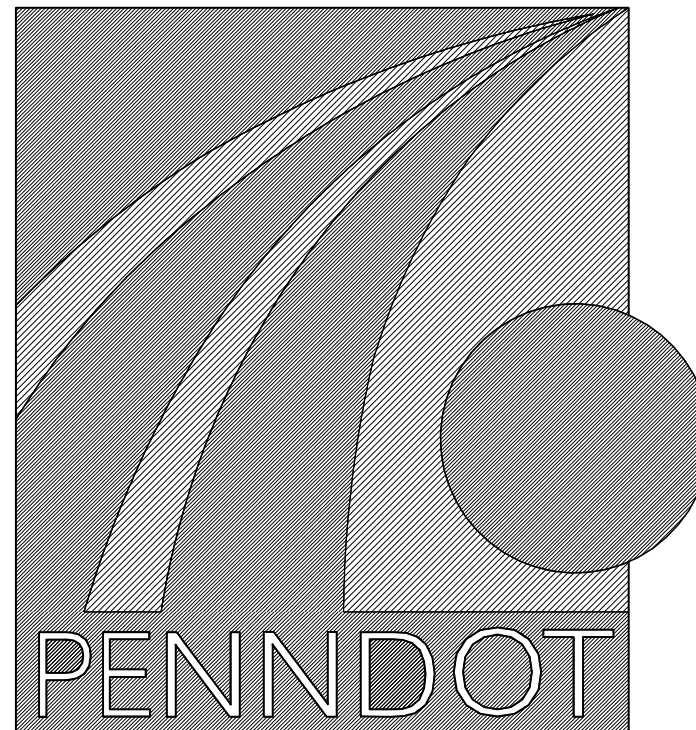


**COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION**



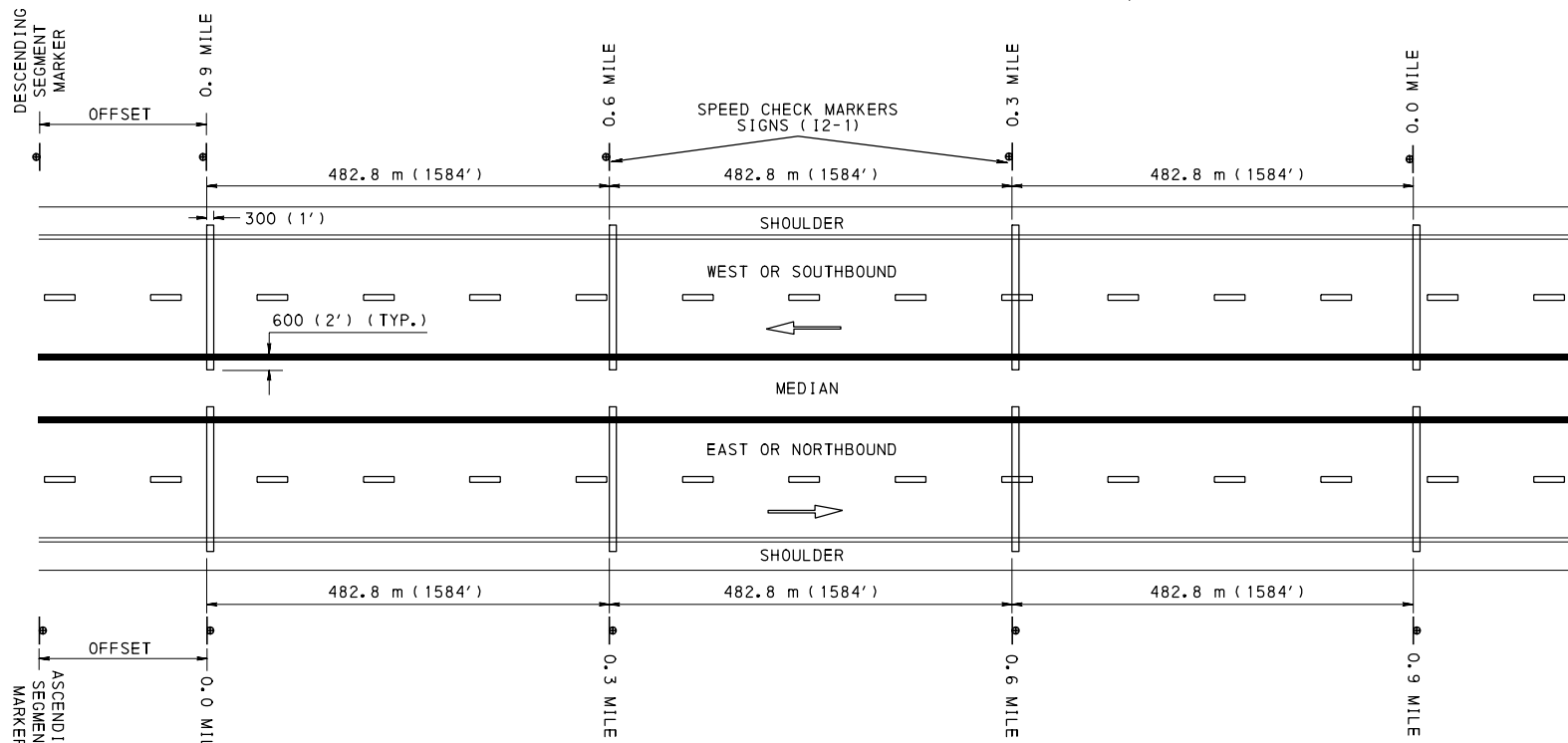
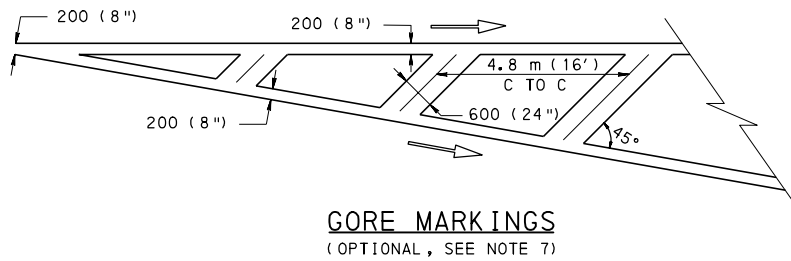
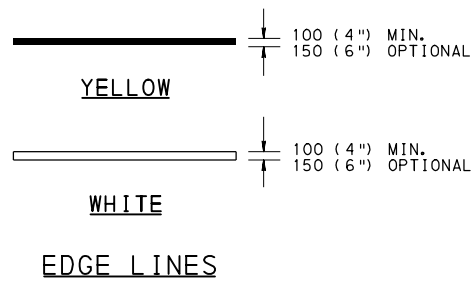
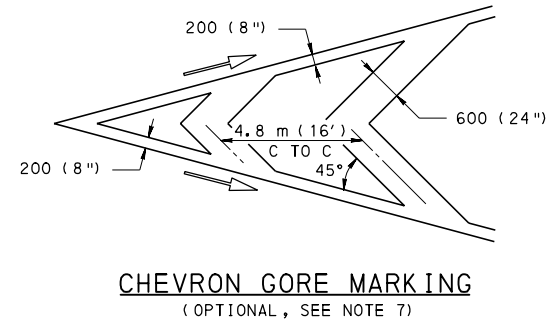
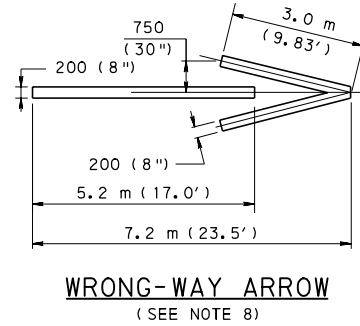
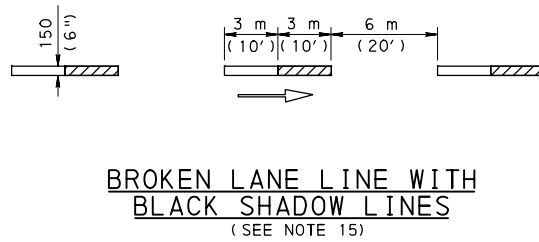
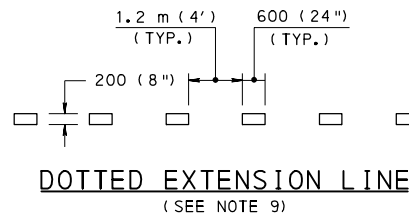
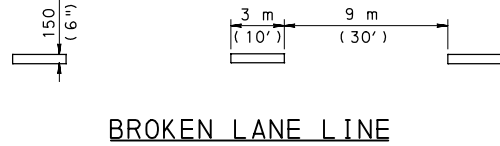
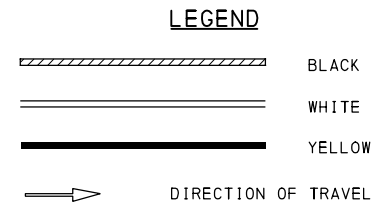
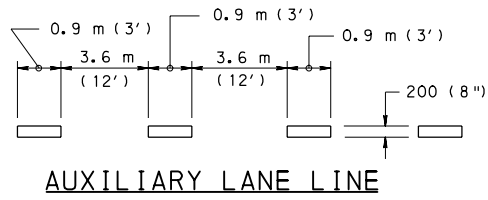
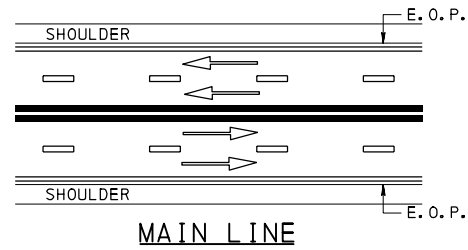
**TRAFFIC CONTROL – PAVEMENT MARKINGS AND SIGNING STANDARDS  
PUBLICATION 111M  
TC-8600 AND TC-8700 SERIES**

**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**MAY 2007**

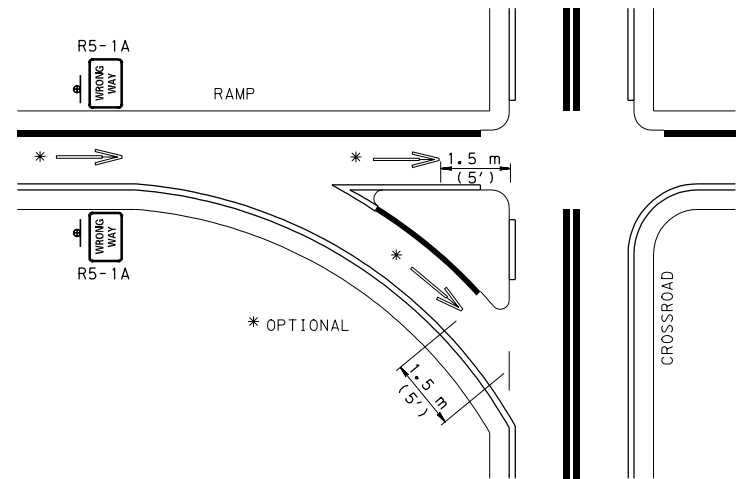
# INDEX OF TRAFFIC CONTROL – PAVEMENT MARKINGS AND SIGNING STANDARDS

<u>STANDARD DRAWING NO.</u>	<u>DATE</u>	<u>DESCRIPTION</u>
TC-8600 ( 8 SHEETS)	MAY 25, 2007	PAVEMENT MARKINGS (EXPRESSWAY / FREEWAY, CONVENTIONAL, LEGENDS & SYMBOLS)
TC-8602 ( 4 SHEETS)	MAY 25, 2007	SNOWPLOWABLE RAISED PAVEMENT MARKERS
TC-8604 ( 4 SHEETS)	MAY 25, 2007	DELINEATION
TC-8700C ( 18 SHEETS)	MAY 25, 2007	SPACING CHARTS / DIRECT APPLIED LETTERS, NUMERALS & ARROWS
TC-8701A ( 7 SHEETS)	MAY 25, 2007	ADVANCE SIGNING FOR INTERCHANGES
TC-8701D ( 9 SHEETS)	MAY 25, 2007	SIGN DETAILS / FREEWAY & EXPRESSWAY GUIDE SIGNS
TC-8701E ( 2 SHEETS)	MAY 25, 2007	EXTRUDED ALUMINUM CHANNEL SIGNS
TC-8701P ( 2 SHEETS)	MAY 25, 2007	FREEWAY & EXPRESSWAY ADVANCE SIGNING FOR PARKING AREAS
TC-8701R ( 2 SHEETS)	MAY 25, 2007	FREEWAY & EXPRESSWAY ADVANCE SIGNING FOR REST AREAS
TC-8701S ( 3 SHEETS)	MAY 25, 2007	FLAT SHEET ALUMINUM SIGNS WITH EXTRUDED ALUMINUM STIFFENERS
TC-8701W ( 2 SHEETS)	MAY 25, 2007	FREEWAY & EXPRESSWAY ADVANCE SIGNING FOR WELCOME CENTERS
TC-8702A ( 8 SHEETS)	MAY 25, 2007	POST-MOUNTED SIGNS, TYPE A
TC-8702B ( 9 SHEETS)	MAY 25, 2007	POST-MOUNTED SIGNS, TYPE B
TC-8702C ( 2 SHEETS)	MAY 25, 2007	POST-MOUNTED SIGNS, TYPE C
TC-8702D ( 2 SHEETS)	MAY 25, 2007	POST-MOUNTED SIGNS, TYPE D
TC-8702E ( 5 SHEETS)	MAY 25, 2007	POST-MOUNTED SIGNS, TYPE E
TC-8710 ( 1 SHEET)	MAY 25, 2007	DISTANCE MARKERS
TC-8715 ( 5 SHEETS)	MAY 25, 2007	SIGN LIGHTING
TC-8716 ( 1 SHEET)	MAY 25, 2007	TYPE III BARRICADE



**NOTES:**

1. MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION'S PUBLICATION 408, UNLESS NOTED OTHERWISE.
2. REFLECTORIZE ALL NON-BLACK PAVEMENT MARKINGS.
3. EDGE LINES SHOULD BE 100 mm (4") MINIMUM WIDE SOLID LINE OF THE COLOR INDICATED AND PLACED 100 mm (4") INSIDE THE EDGE OF THE PAVEMENT SHOULDER.
4. ON EXPRESSWAYS / FREEWAYS MAKE BROKEN LANE LINES 150 mm (6") WIDE AND LOCATE 100 mm (4") TO THE RIGHT OF THE PAVEMENT JOINT OR SEAM.
5. APPLY ALL PAINTED CENTER LINES, LANE LINES AND LEGENDS AT 380 μm (15 MILS) MINIMUM WET THICKNESS.
6. APPLY PAINTED EDGE LINES AT 300 μm (12 MILS) MINIMUM WET THICKNESS.
7. USE CROSSHATCHING AT EXIT GORE AREAS WHEN VISIBILITY OR SIGHT DISTANCE OF THE GORE IS RESTRICTED.
8. PLACE OPTIONAL WRONG-WAY ARROWS IN CENTER OF EACH LANE OF AN EXIT RAMP, 1.5 m (5') FROM STOP BAR OR PAVEMENT EDGE AND ACROSS FROM WRONG-WAY SIGNS.
9. DOTTED EXTENSION LINES ON EXPRESSWAY / FREEWAYS MAY ONLY BE USED TO EXTEND RAMP / MAIN LINE / INTERSECTION EDGE LINES IN ORDER TO PROVIDE GUIDANCE WHERE THE PROPER TRAVEL PATH IS UNCLEAR BECAUSE OF THE HORIZONTAL OR VERTICAL CURVATURE.
10. TYPICAL S.P.A.R.E. ZONE LENGTH IS 1.44 km (0.9 MILE), MINIMUM IS 0.96 km (0.6 MILE).
11. FOR ADDITIONAL DETAILS REFER TO MARKINGS, CHAPTER 3, MUTCD.
12. FOR CONVENTIONAL HIGHWAY PAVEMENT MARKINGS, SEE TC-8600 SHEETS 3 AND 4 OF 8.
13. FOR LEGENDS & SYMBOLS PAVEMENT MARKINGS, SEE TC-8600 SHEETS 6, 7 AND 8 OF 8.
14. FOR LOCATION AND INSTALLATION OF SNOWPLOWABLE RAISED PAVEMENT MARKERS, SEE TC-8602.
15. BLACK SHADOW LINES REQUIRED FOR CONCRETE ROADWAY SURFACES WITH EPOXY MARKINGS ONLY.
16. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
17. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



**RAMP CROSSROAD TERMINAL MARKINGS WITH WRONG-WAY ARROWS**  
 (SEE MUTCD FIGURE 3B-23 FOR MORE DETAILS)

COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

**PAVEMENT MARKINGS**

**EXPRESSWAY / FREEWAY**

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
 CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

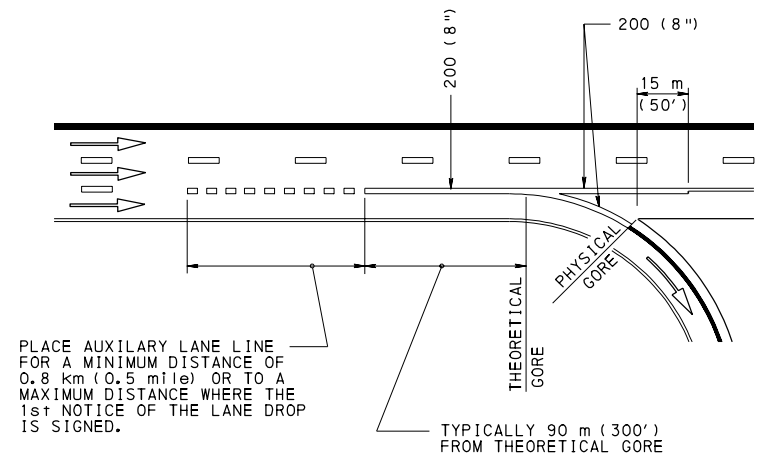
RECOMMENDED MAY 25, 2007  
*m. Glatzel*  
 CHIEF HIGHWAY ENGINEER

SHT. 1 OF 8

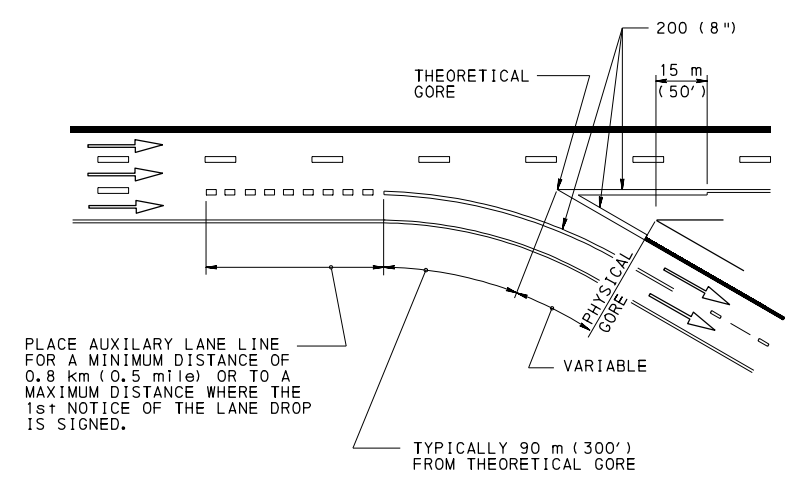
TC-8600

**STATE POLICE AERIAL RECONNAISSANCE ENFORCEMENT (S.P.A.R.E.) MARKING DETAIL**

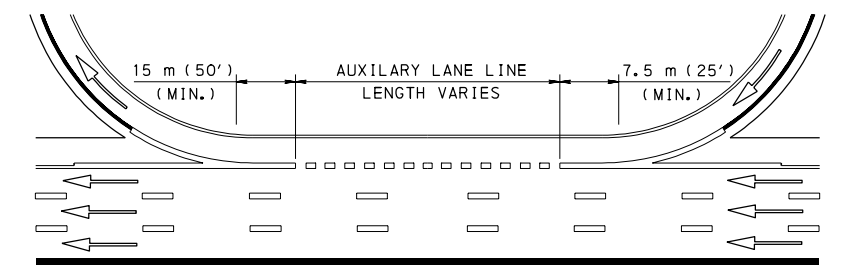
(LOCATE ON TANGENT SECTION OF ROADWAY, SEE NOTE 10)



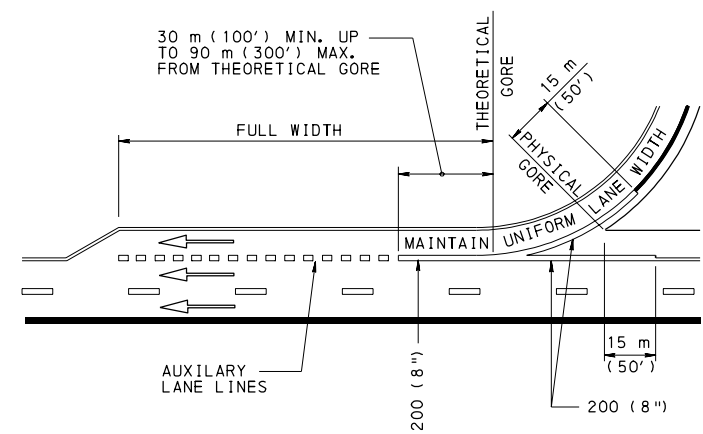
**EXIT ONLY LANE DROP**



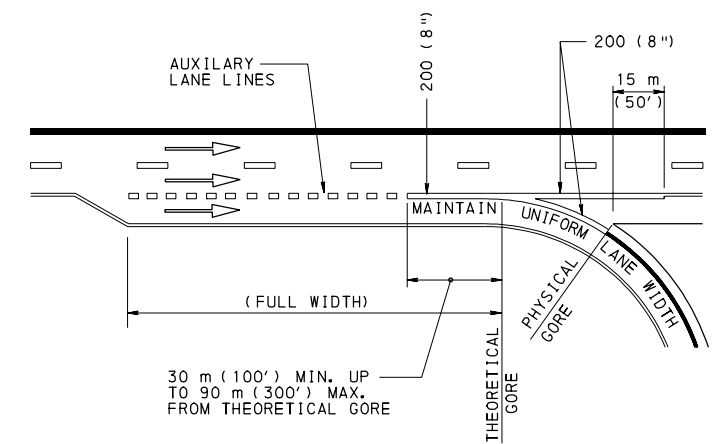
**MULTIPLE EXIT LANES**



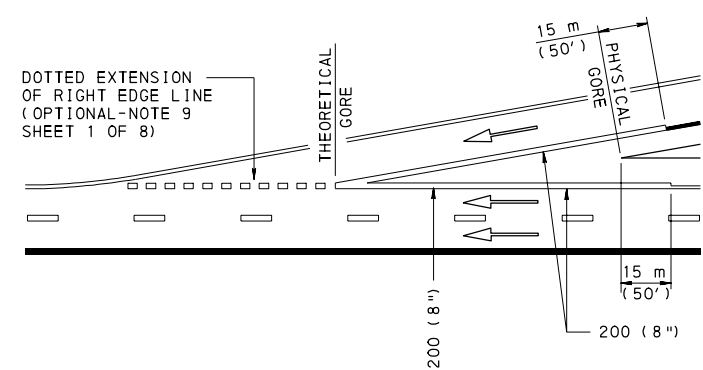
**CLOVERLEAF INTERCHANGE**



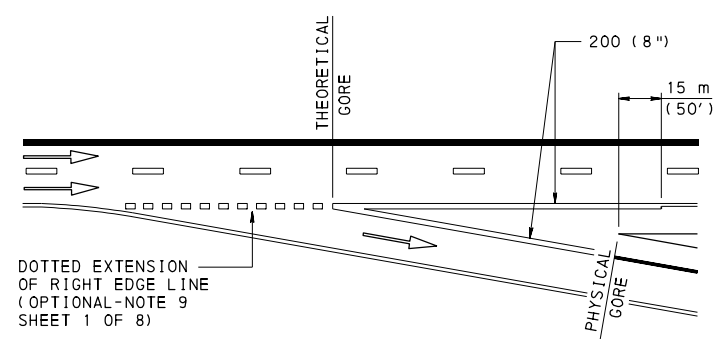
**PARALLEL LANE**



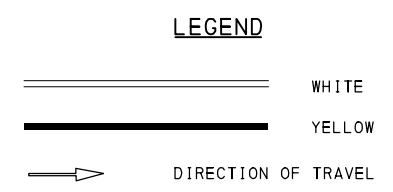
**PARALLEL LANE**



**TAPERED LANE  
ACCELERATION LANE**



**TAPERED LANE  
DECELERATION LANE**



**NOTE:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

---

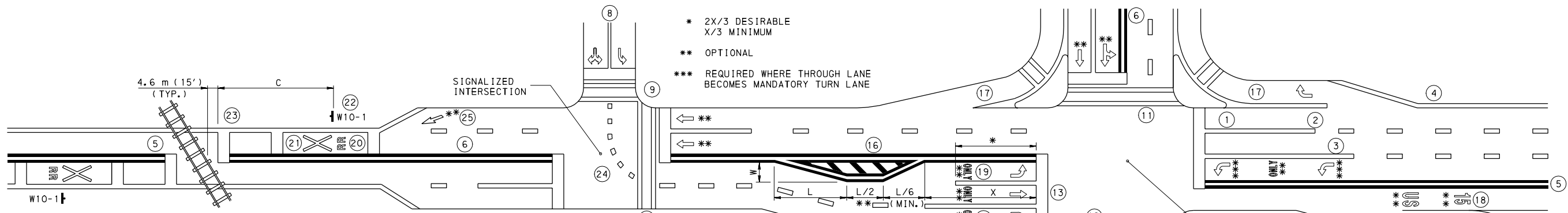
**PAVEMENT MARKINGS**

---

**EXPRESSWAY / FREEWAY**

---

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 8 <b>TC-8600</b>
---	--	-------------------------------



POSTED OR 85 <sup>TH</sup> PERCENTILE SPEED km/h (MPH)	C m (FT)
30 (20)	30 (100)
40 (25)	30 (100)
50 (30)	30 (100)
60 (35)	45 (150)
65 (40)	70 (225)
70 (45)	90 (300)
80 (50)	115 (375)
90 (55)	137 (450)
100 (60)	168 (550)
105 (65)	198 (650)

**METRIC UNITS**

$L = \frac{WS^2}{155}$  FOR CONVENTIONAL ROADWAYS WHERE THE 85<sup>TH</sup> PERCENTILE SPEED IS 65 km/h OR LESS

$L = \frac{WS}{1.6}$  FOR CONVENTIONAL ROADWAYS WHERE THE 85<sup>TH</sup> PERCENTILE SPEED IS 70 km/h OR GREATER AND FOR ALL FREEWAYS AND EXPRESSWAYS

WHERE: S = 85<sup>TH</sup> PERCENTILE SPEED (KMH)  
W = OFFSET

X = 7.5 m PER 30 TURNING V.P.H. THE MINIMUM IS 22.5 m

**ENGLISH UNITS**

$L = \frac{WS^2}{60}$  FOR CONVENTIONAL ROADWAYS WHERE THE 85<sup>TH</sup> PERCENTILE SPEED IS 40 MPH OR LESS

$L = W \times S$  FOR CONVENTIONAL ROADWAYS WHERE THE 85<sup>TH</sup> PERCENTILE SPEED IS 45 MPH OR GREATER AND FOR ALL FREEWAYS AND EXPRESSWAYS

WHERE: S = 85<sup>TH</sup> PERCENTILE SPEED (MPH)  
W = OFFSET

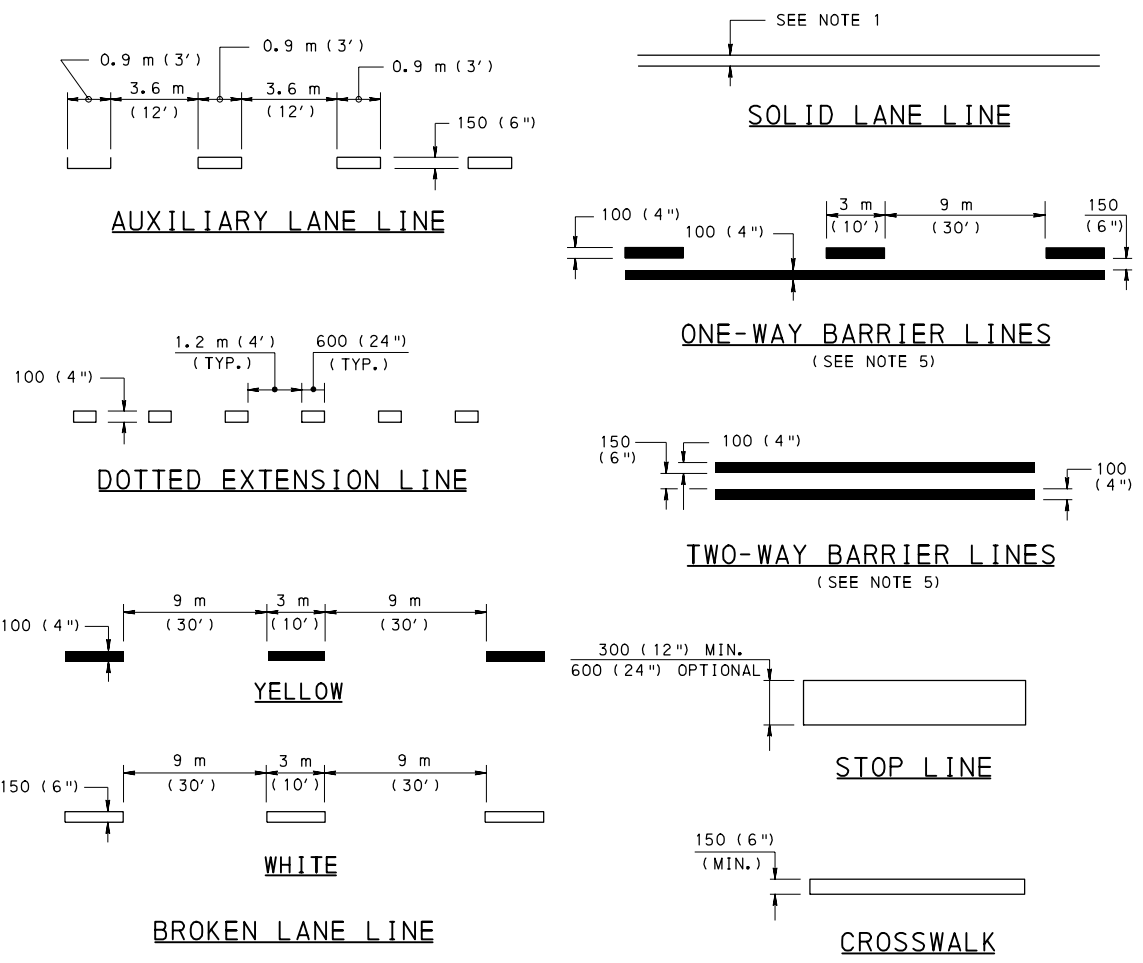
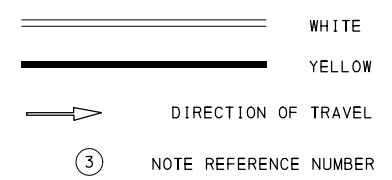
X = 25' PER 30 TURNING V.P.H. THE MINIMUM IS 75'

SPEED LIMIT OR 85 <sup>TH</sup> PERCENTILE SPEED km/h (MPH)	DISTANCE m (FT)
60 (35) OR LESS	90 (300)
65 (40)	105 (350)
70 (45)	120 (400)
80 (50)	135 (450)
90 (55)	150 (500)

**TABLE A**  
(SEE NOTE 5)

**LOCATION OF RAILROAD CROSSING SIGN**

**LEGEND**



**NOTES:**

**LANE, EDGE AND CENTER LINES**

- MAKE ALL LANE LINES, EITHER SOLID OR BROKEN WHITE, 100 mm (4") MINIMUM WIDE ON TWO-LANE, TWO-WAY HIGHWAYS AND 150 mm (6") WIDE ON MULTI-LANE HIGHWAYS.
- LANE LINES ON AN APPROACH TO A SIGNALIZED INTERSECTION SHALL BE SOLID WHITE FOR A DISTANCE OF 45 m (150') MEASURED FROM THE STOP BAR.
- LANE LINES THAT DELINEATE THE EDGE OF A TURNING LANE ARE TO BE SOLID WHITE LINES WITH A LENGTH EQUAL 2X/3, BUT NOT LESS THAN 1/3 THE LENGTH OF THE TURN LANE, MEASURED FROM THE STOP BAR.
- MAKE EDGE LINES SOLID WHITE LINES 100 mm (4") WIDE, EXCEPT USE SOLID YELLOW LINES WHEN ADJACENT TO A MEDIAN WHICH SEPARATES OPPOSING DIRECTIONS OF VEHICULAR TRAFFIC FLOW.
- ON TWO-LANE, TWO-WAY HIGHWAYS, THE CENTER LINES ARE YELLOW, 100 mm (4") WIDE EITHER SOLID, BROKEN OR A COMBINATION THEREOF. A SOLID BARRIER LINE SHALL PRECEDE ALL APPROACHES TO RAILROAD CROSSINGS AND CONTROLLED INTERSECTIONS BY THE MINIMUM DISTANCE NOTED IN TABLE A.
- ON FOUR OR MORE LANE UNDIVIDED HIGHWAYS, FOR CENTER LINES USE THE TWO-WAY BARRIER LINES.
- "CENTER LANE LEFT TURN ONLY" MARKINGS ARE TWO (2) SETS OF ONE-WAY BARRIER LINES WITH BROKEN YELLOW LINES INSIDE OF THE SOLID YELLOW LINES.
- EXTEND THE LANE LINES, EDGE LINES AND/OR CENTER LINES A DISTANCE OF 45 m (150') FROM THE STOP BAR ON MINOR APPROACHES, WHERE CONDITIONS PERMIT.

**CROSSWALKS** (FOR TYPES SEE SHEET 4 OF 8)

- MAKE THE CROSSWALK LINES SOLID WHITE AND NOT LESS THAN 150 mm (6") WIDE, MARKING BOTH EDGES OF THE CROSSWALK AREA.
- EXTEND THE CROSSWALK LINES FROM FACE OF CURB TO FACE OF CURB OR EDGE OF SHOULDER AS APPLICABLE.
- MAKE THE LINES FORMING A CROSSWALK PARALLEL.
- THE MINIMUM WIDTH OF CROSSWALKS IS 1.8 m (6').

**STOP LINE**

- STOP LINES ARE SOLID WHITE LINES THAT COMPLETELY TRAVERSE EACH TRAFFIC LANE. AT AN INTERSECTION WITH A STOP SIGN, THE STOP LINE SHOULD BE PLACED AT A LOCATION NO LESS THAN 1.2 m (4') OR MORE THAN 9 m (30') FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY TO ENSURE MAXIMUM SIGHT DISTANCE TO VEHICLES ON THE CROSSING ROUTE. WHEN USED ON MULTI-LANE APPROACH TO A SIGNALIZED INTERSECTION, THE STOP LINE MAY BE STAGGERED TO ASSIST TURNING VEHICLES AND TO IMPROVE SIGHT DISTANCE FOR MOTORIST DESIRING TO MAKE A TURN ON RED.
- LOCATE STOP LINES AT A MINIMUM OF 1.2 m (4') IN ADVANCE OF AND PARALLEL TO THE CROSSWALK LINES UNLESS OTHERWISE NOTED.

**YIELD LINE** (FOR DETAILS SEE SHEET 5 OF 8)

- YIELD LINES ARE TO CONSIST OF A ROW OF SOLID WHITE ISOSCELES TRIANGLES POINTING TOWARD APPROACHING VEHICLES EXTENDING ACROSS APPROACH LANES TO INDICATE THE POINT AT WHICH THE YIELD IS INTENDED OR REQUIRED TO BE MADE.

**MEDIAN MARKINGS**

- TRANSVERSE MEDIAN MARKINGS ARE 600 mm (24") WIDE YELLOW LINES SPACED AS INDICATED ON SHEET 4 OF 7, WITHIN TWO (2) SETS OF TWO-WAY BARRIER LINES. USE TRANSVERSE LINES ONLY WHEN REQUIRED TO PROVIDE EMPHASIS IF THE SIGHT DISTANCE OR VISIBILITY IS RESTRICTED.

**GORE MARKINGS**

- EDGE LINES ARE 100 mm (4") SOLID WHITE LINES. USE TRANSVERSE OR DIAGONAL LINES ONLY WHEN REQUIRED TO PROVIDE ADDITIONAL EMPHASIS IF THE SIGHT DISTANCE OR VISIBILITY OF GORE IS RESTRICTED.

**PAVEMENT LEGENDS**

- WORD AND SYMBOL MARKINGS SHOULD NOT EXCEED THREE LINES OF INFORMATION. IF A PAVEMENT MARKING WORD MESSAGE CONSISTS OF MORE THAN ONE LINE OF INFORMATION, IT SHOULD READ IN THE DIRECTION OF TRAVEL. THE FIRST WORD OF THE MESSAGE SHOULD BE NEAREST TO THE ROAD USER. LOCATE ANY SPECIFIED WORD MESSAGES IN ADVANCE OF ITS ACCOMPANYING SYMBOL BY A DISTANCE NOT LESS THAN 4 TIMES THE LETTER HEIGHT FOR LOW-SPEED [ $\leq 55$  km/h (35MPH)], NOR MORE THAN 10 TIMES THE LETTER HEIGHT FOR HIGH-SPEED [ $> 55$  km/h (35 MPH)]. ON ALL APPROACHES, CENTER THE LEGENDS WITHIN THE LANE.

- ALIGN THE LEGENDS TRANSVERSELY ACROSS EACH PAVEMENT. THE MINIMUM DISTANCE BETWEEN THE ARROW SYMBOL AND STOP BAR IS 6 m (20').

**RAILROAD CROSSING MARKINGS**

- CENTER THE RAILROAD SYMBOLS WITHIN EACH LANE ON ALL PAVED APPROACHES TO HIGHWAY-RAIL GRADE CROSSINGS. IN THOSE SITUATIONS WHERE THERE IS INADEQUATE SPACE FOR THE PAVEMENT MARKINGS OR WHERE THE INSTALLATION WOULD CREATE OPERATIONAL PROBLEMS WITH TURNING LANES OR OTHER SPECIAL CONDITIONS, PAVEMENT MARKINGS ARE NOT REQUIRED PROVIDING AN ENGINEERING STUDY INDICATES THAT OTHER TRAFFIC CONTROL DEVICES PROVIDE SUITABLE WARNING AND CONTROL.
- ON MULTI-LANE ROADS EXTEND THE TRANSVERSE LINES ACROSS ALL TRAFFIC LANES ON EACH APPROACH AND USE INDIVIDUAL SYMBOLS IN EACH APPROACH LANE.
- LOCATE A PORTION OF RAILROAD PAVEMENT MARKING SYMBOL DIRECTLY OPPOSITE THE ADVANCE WARNING SIGN W10-1. USE DIMENSION "C" FOR PLACEMENT OF ADVANCE WARNING SIGN W10-1.
- LOCATE STOP LINES 2.4 m (8') FROM THE GATE (IF PRESENT), BUT NO CLOSER THAN 4.6 m (15') FROM THE NEAREST RAIL.

**DOTTED EXTENSION LINES**

- DOTTED EXTENSION LINES MAY BE USED TO DELINEATE TRAVEL PATHS FOR TURNING TRAFFIC MOVEMENTS AT OFFSET, SKEWED OR COMPLEX INTERSECTIONS AND FOR MULTIPLE TURN LANES.

**LANE REDUCTION ARROW (LRA)**

- FOR DETAILS SEE SHEET 7 OF 8.

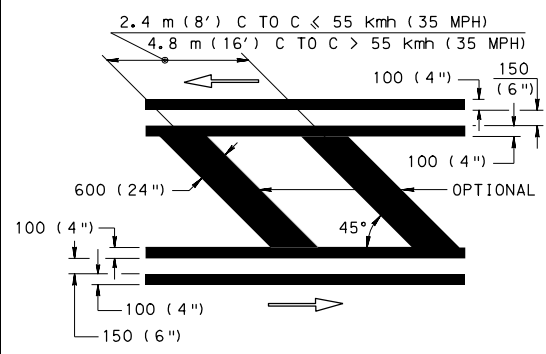
**GENERAL**

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

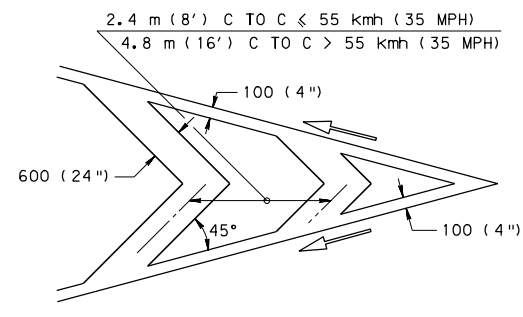
COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

**PAVEMENT MARKINGS**

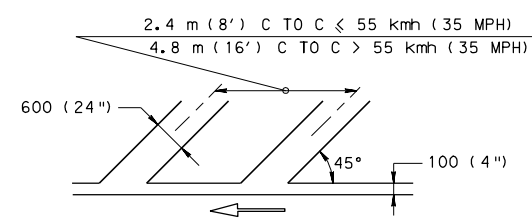
**CONVENTIONAL**



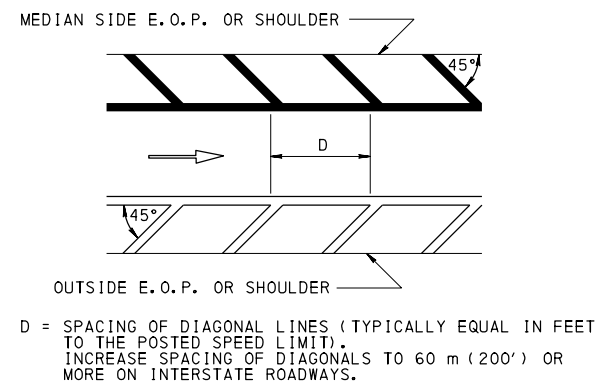
**TRANSVERSE MEDIAN MARKING**



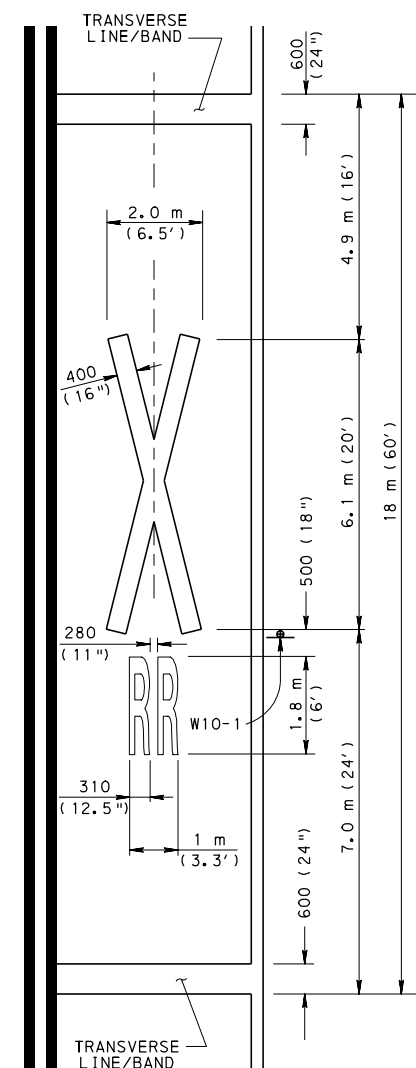
**CHEVRON GORE MARKING**  
(OPTIONAL)



**ONE-WAY BARRIER GORE MARKING**  
(OPTIONAL)

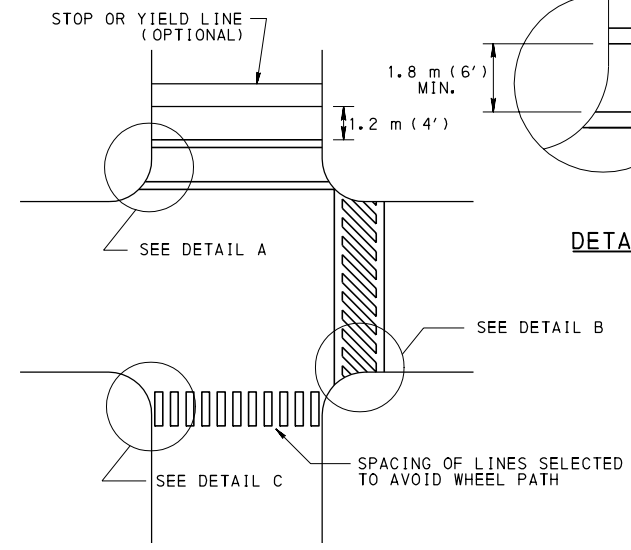


**EDGE OF PAVEMENT OR SHOULDER ISLAND**



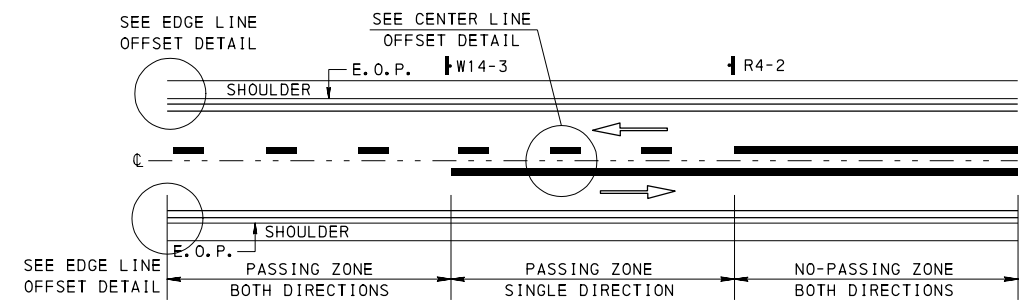
**RAILROAD CROSSING MARKING**

(SEE MUTCD FIG. 8B-6 AND 8B-7 FOR MORE DETAILS)

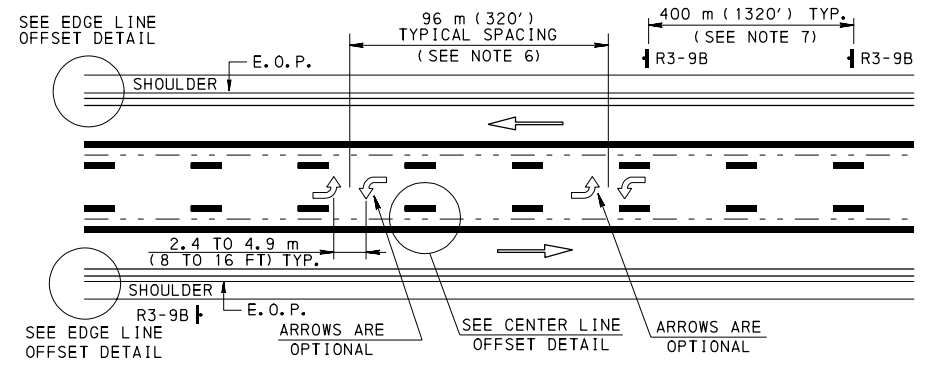


**TYPICAL TYPES OF CROSSWALK MARKINGS**

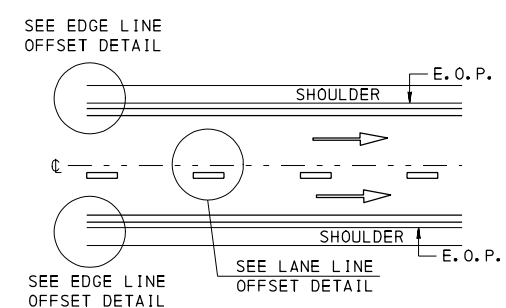
(SEE PUBLICATION 72M, RC-67M FOR PLACEMENT OF CROSSWALKS AT WHEELCHAIR RAMPS)



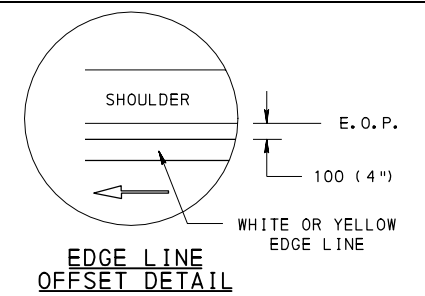
**TWO-LANE, TWO-WAY UNDIVIDED ROADWAY**



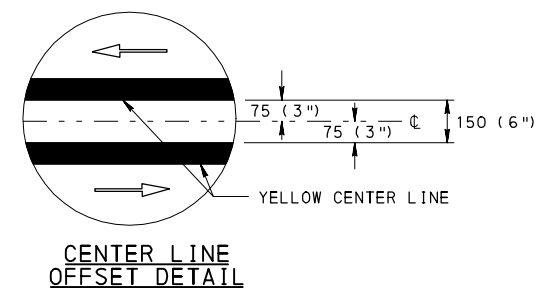
**TWO-LANE, TWO-WAY UNDIVIDED ROADWAY WITH TWO-WAY LEFT TURN LANE**



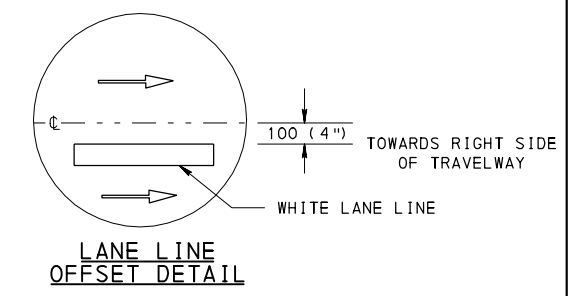
**MULTI-LANE ROADWAY**



**EDGE LINE OFFSET DETAIL**



**CENTER LINE OFFSET DETAIL**



**LANE LINE OFFSET DETAIL**

**NOTES:**

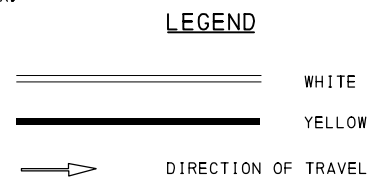
- OFFSET PAVEMENT MARKING LINES 100 mm (4") FROM LONGITUDINAL PAVEMENT CONSTRUCTION JOINTS, AS DETERMINED BY THE ENGINEER OR AS INDICATED BELOW:
  - YELLOW SKIP LINES ON TWO-LANE, TWO-WAY ROADWAYS (WHERE PASSING IS ALLOWED IN BOTH DIRECTIONS) CAN BE OFFSET 75 mm (3") FROM THE CENTER LINE TO ALLOW FOR FUTURE REPAINTING OF THE LINES WITH COMPATIBLE DEPARTMENT EQUIPMENT.
  - OFFSET DOUBLE YELLOW CENTER LINES 75 mm (3") ON EACH SIDE OF THE CENTER LINE TO ALLOW FOR PLACEMENT OF PAVEMENT MARKERS (PRESENT OR FUTURE PLACEMENT).
- PASSING - NO PASSING ZONES WILL BE DETERMINED BY THE ENGINEER.
- EDGE LINES ARE NOT REQUIRED ALONG CURB AND GUTTER LOCATIONS.
- DO NOT CONTINUE EDGE LINES THRU INTERSECTIONS, AND DO NOT BREAK EDGE LINES AT DRIVEWAYS.
- PLACE EDGE LINES AT RAISED ISLAND LOCATIONS, OUTLINING THE SHAPE OF THE RAISED ISLAND.
- 96 m (320') TYPICAL SPACING BETWEEN SETS OF ARROW SYMBOLS CAN BE INCREASED OR DECREASED AS DETERMINED BY THE ENGINEER.
- 400 m (1320') TYPICAL DISTANCE BETWEEN CENTER LANE - LEFT TURN ONLY SIGNS (R3-9B) CAN BE INCREASED OR DECREASED AS DETERMINED BY THE ENGINEER.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

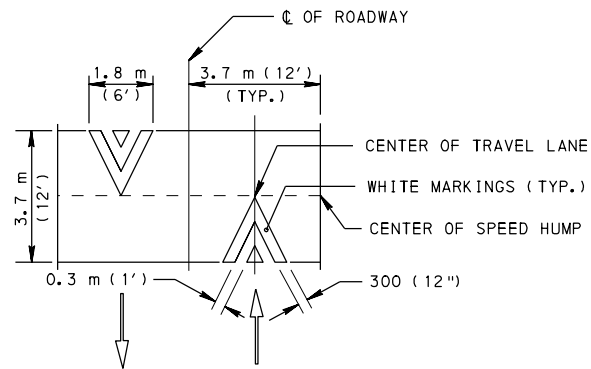
**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**PAVEMENT MARKINGS**

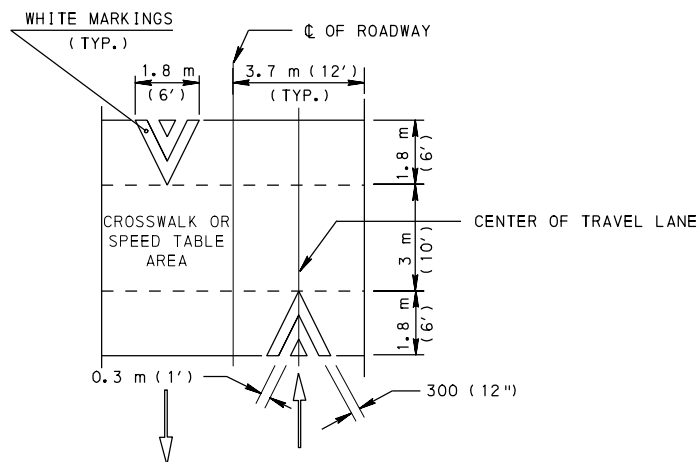
**CONVENTIONAL**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Latal</i> CHIEF HIGHWAY ENGINEER	SHT. 4 OF 8 <b>TC-8600</b>
---	--	-------------------------------

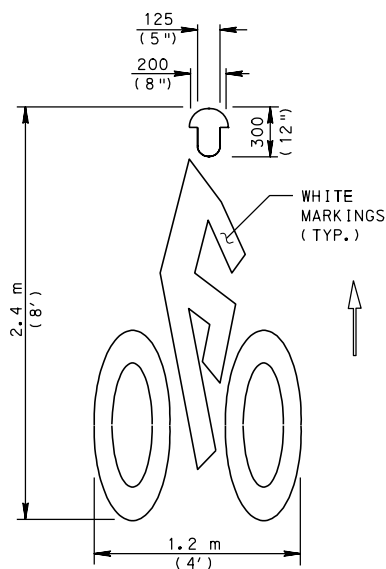




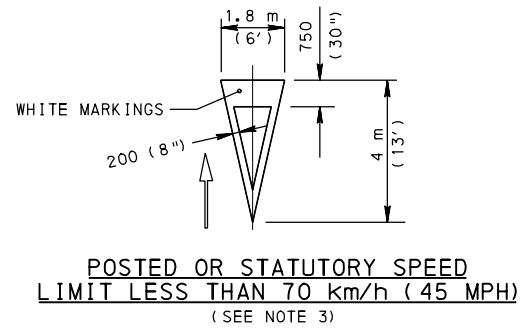
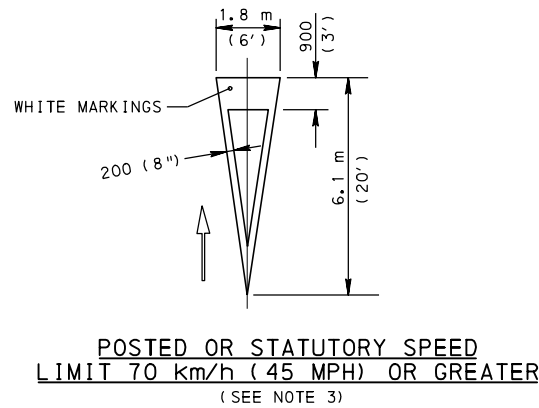
**TYPICAL PAVEMENT MARKINGS FOR SPEED HUMPS**



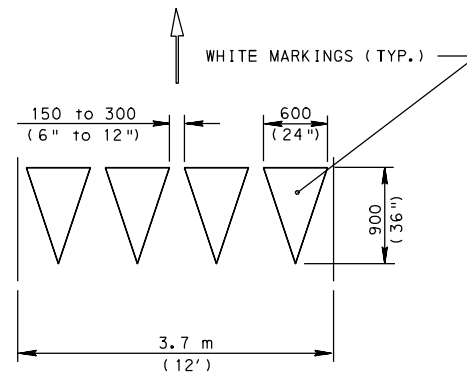
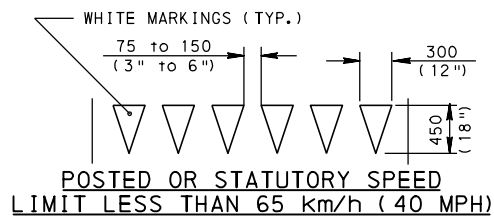
**TYPICAL PAVEMENT MARKINGS FOR SPEED TABLES OR SPEED HUMPS WITH CROSSWALKS**



**BICYCLE WITH RIDER SYMBOL**  
(SEE NOTE 2)



**TYPICAL YIELD AHEAD TRIANGLE SYMBOLS**



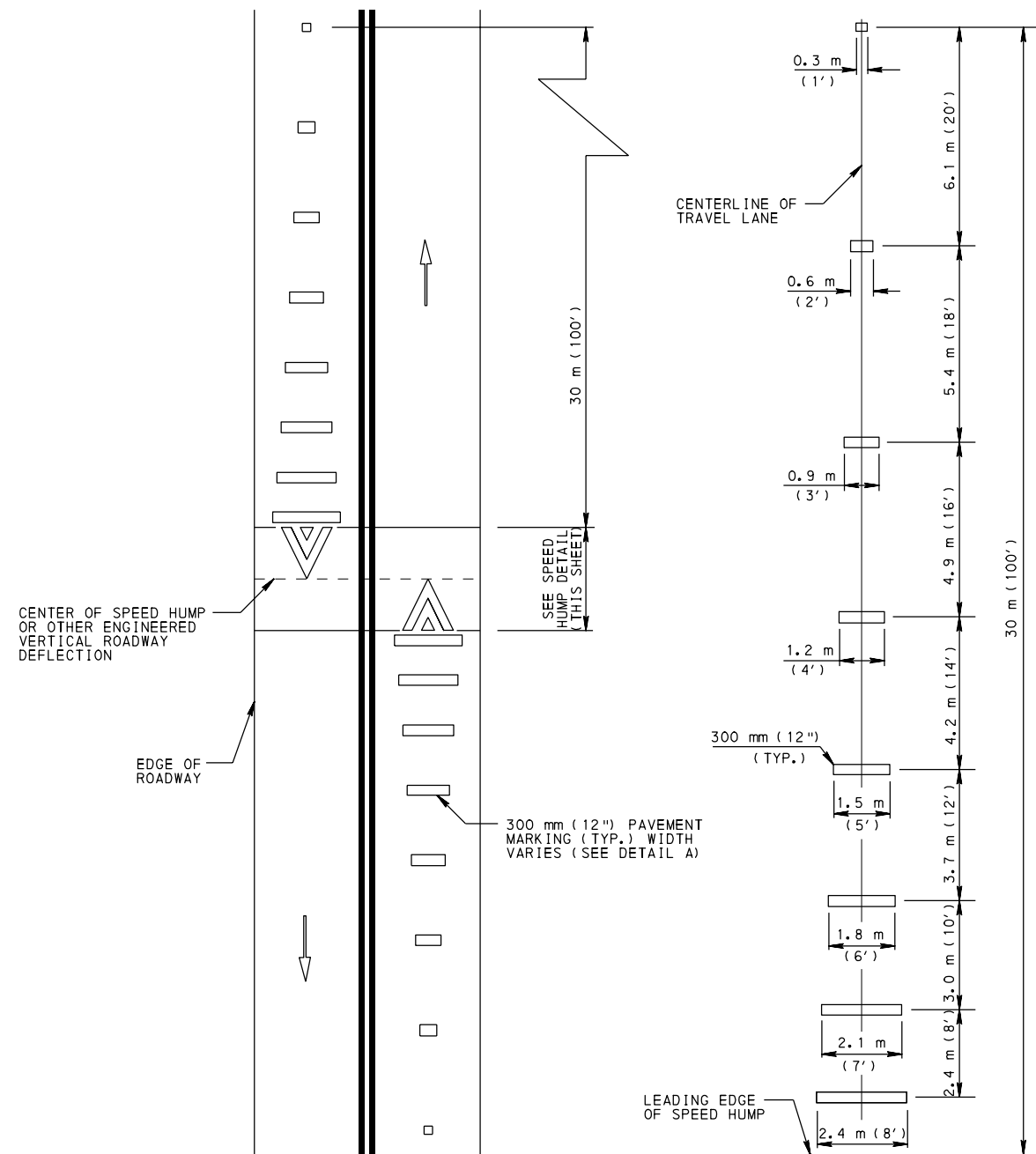
**TYPICAL YIELD LINE LAYOUT**  
(OPTIONAL)

**LEGEND**

- ===== WHITE
- YELLOW
- ➔ DIRECTION OF TRAVEL

**NOTES:**

1. YIELD LINES MAY BE USED TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO YIELD IN COMPLIANCE WITH A YIELD SIGN.
2. YIELD LINES AND BICYCLE RIDER SYMBOL MAY BE SMALLER THAN SUGGESTED WHEN INSTALLED ON MUCH NARROWER, SLOW-SPEED FACILITIES SUCH AS SHARED-USE PATHS.
3. USE MUTCD CHAPTER 2C, TABLE 2C-4, CONDITION "B" FOR ADVANCE PLACEMENT DISTANCE OF YIELD AHEAD TRIANGLE SYMBOL.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
5. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



**TYPICAL ADVANCE WARNING MARKING FOR SPEED HUMPS OR OTHER ENGINEERED VERTICAL ROADWAY DEFLECTIONS**

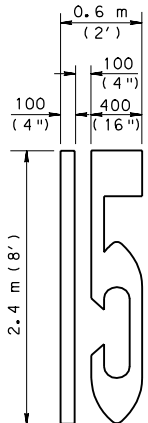
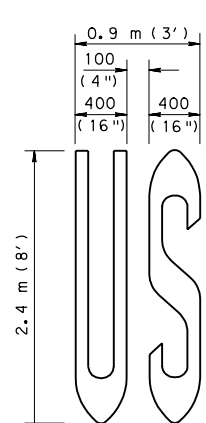
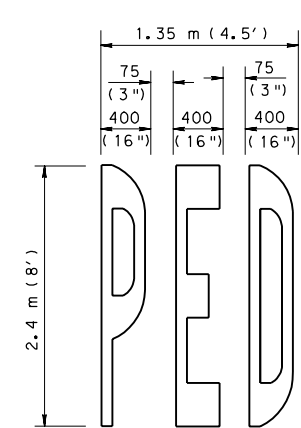
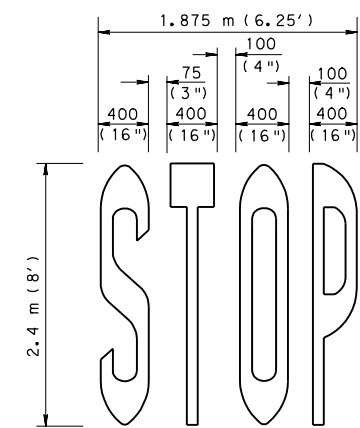
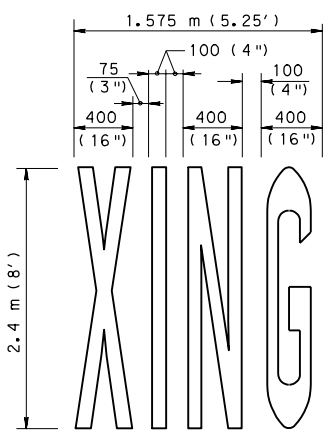
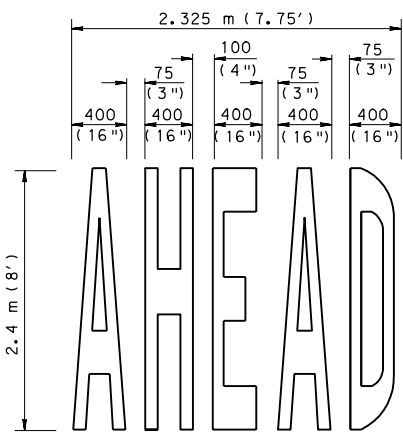
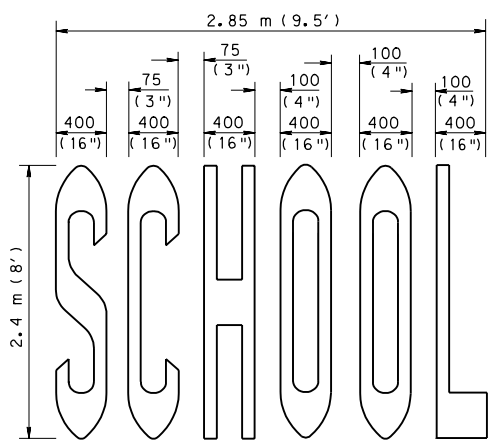
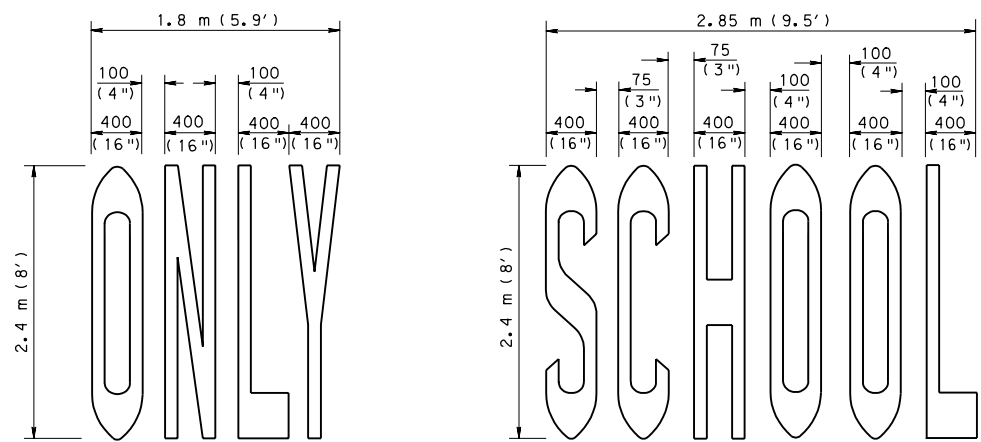
**DETAIL A**

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

**PAVEMENT MARKINGS**

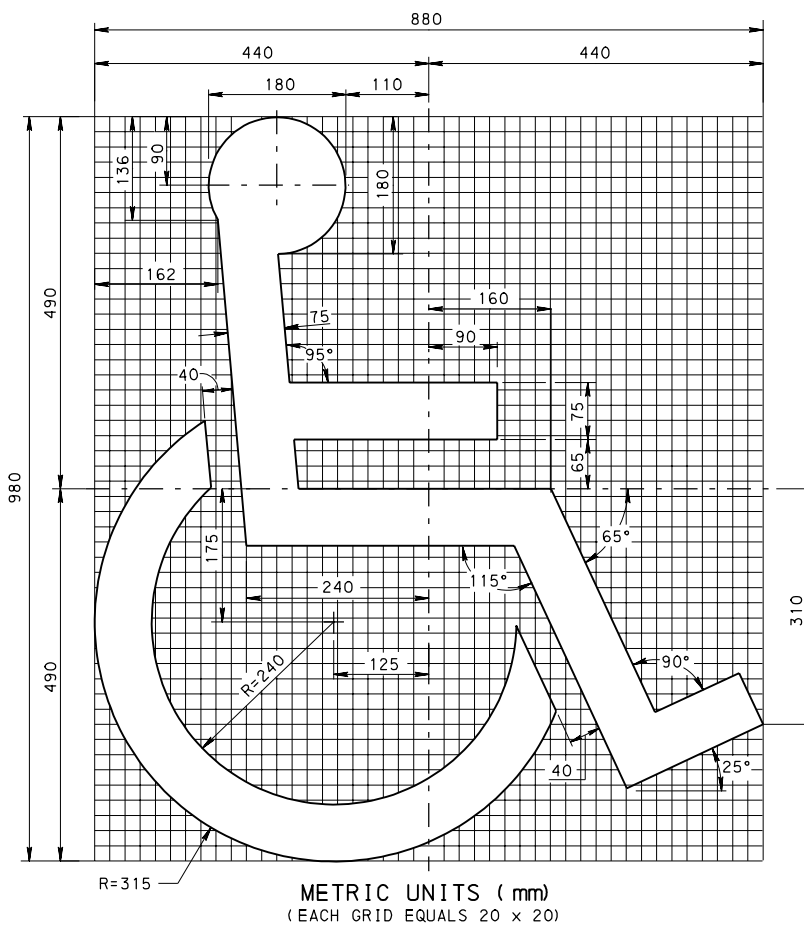
**CONVENTIONAL SPEED HUMPS, YIELD AND BICYCLE**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Patel</i> CHIEF HIGHWAY ENGINEER	SHT. 5 OF 8 <b>TC-8600</b>
---	--	-------------------------------

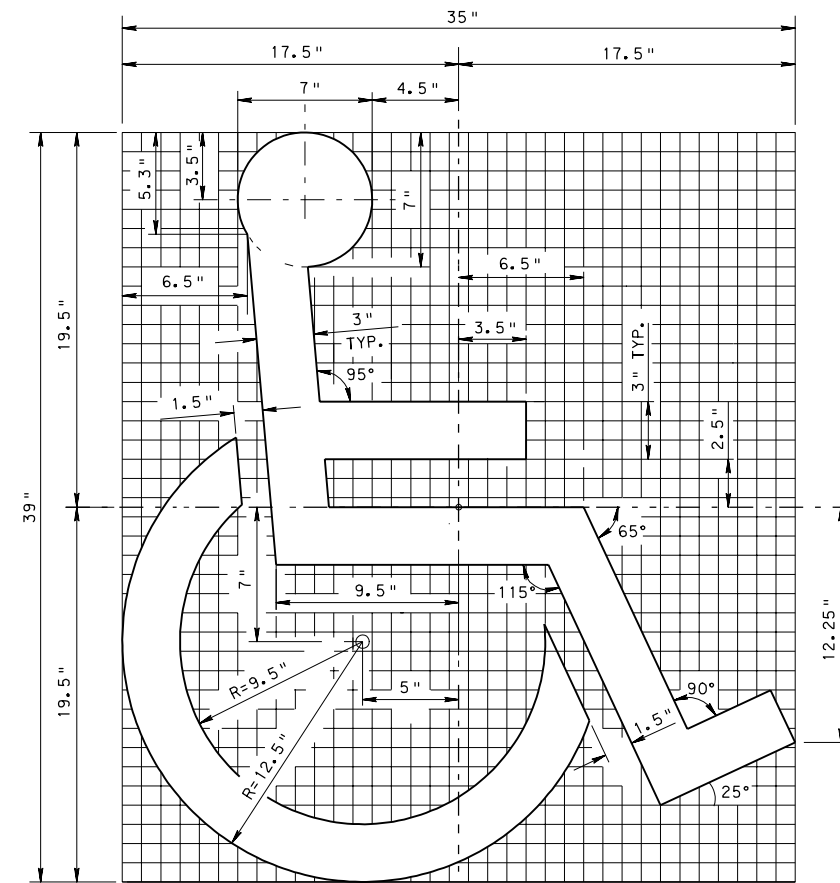


SEE FHWA'S STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS FOR OTHER DETAILS.

**LEGENDS**



METRIC UNITS (mm)  
(EACH GRID EQUALS 20 x 20)



ENGLISH UNITS (INCHES)  
(EACH GRID EQUALS 1" x 1")

**HANDICAPPED MARKING**

**NOTES:**

- HANDICAPPED SYMBOL SHALL BE WHITE. IT MAY BE INSTALLED ALONE OR WITH A BLUE BACKGROUND WHICH EXTENDS A MINIMUM OF 75 mm (3") BEYOND THE SYMBOL. IF MATERIAL THICKNESS OF SYMBOL IS GREATER THAN 500 μm (20 MILS) THE BLUE BACKGROUND MUST BE USED. ANY REDUCTION IN DIMENSIONS MUST BE APPROVED BY THE DEPARTMENT.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

PAVEMENT MARKINGS

LEGENDS AND SYMBOLS

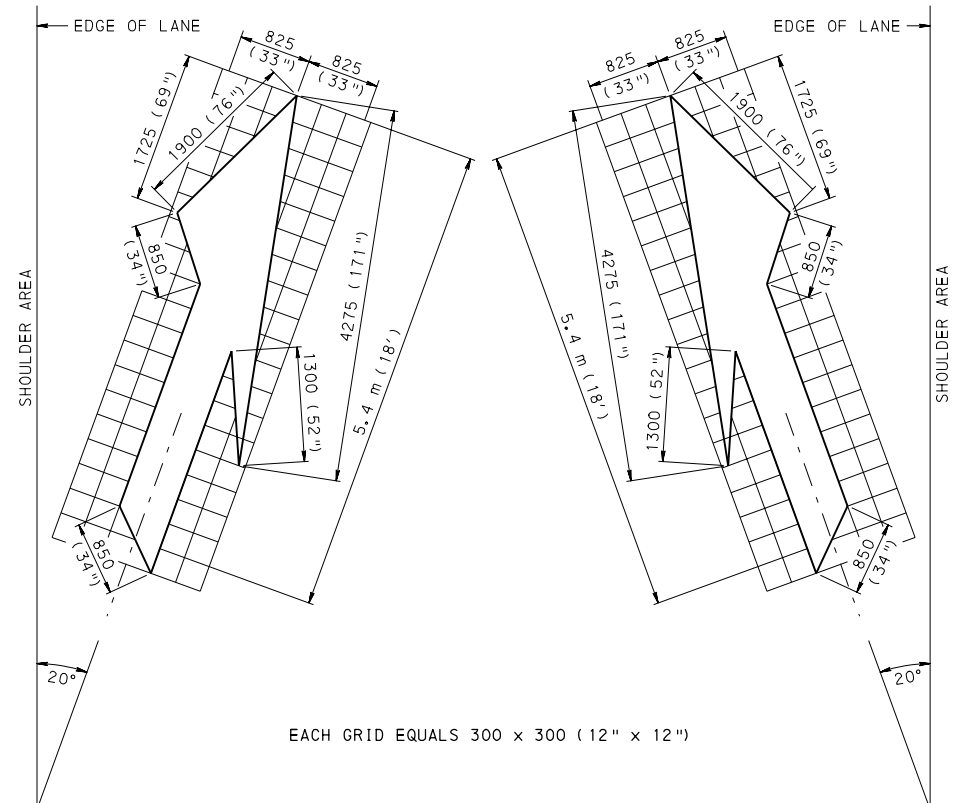
RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*M. G. Latel*  
CHIEF HIGHWAY ENGINEER

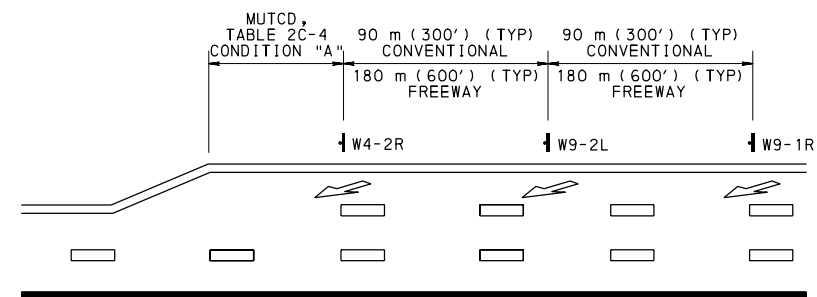
SHT. 6 OF 8

TC-8600



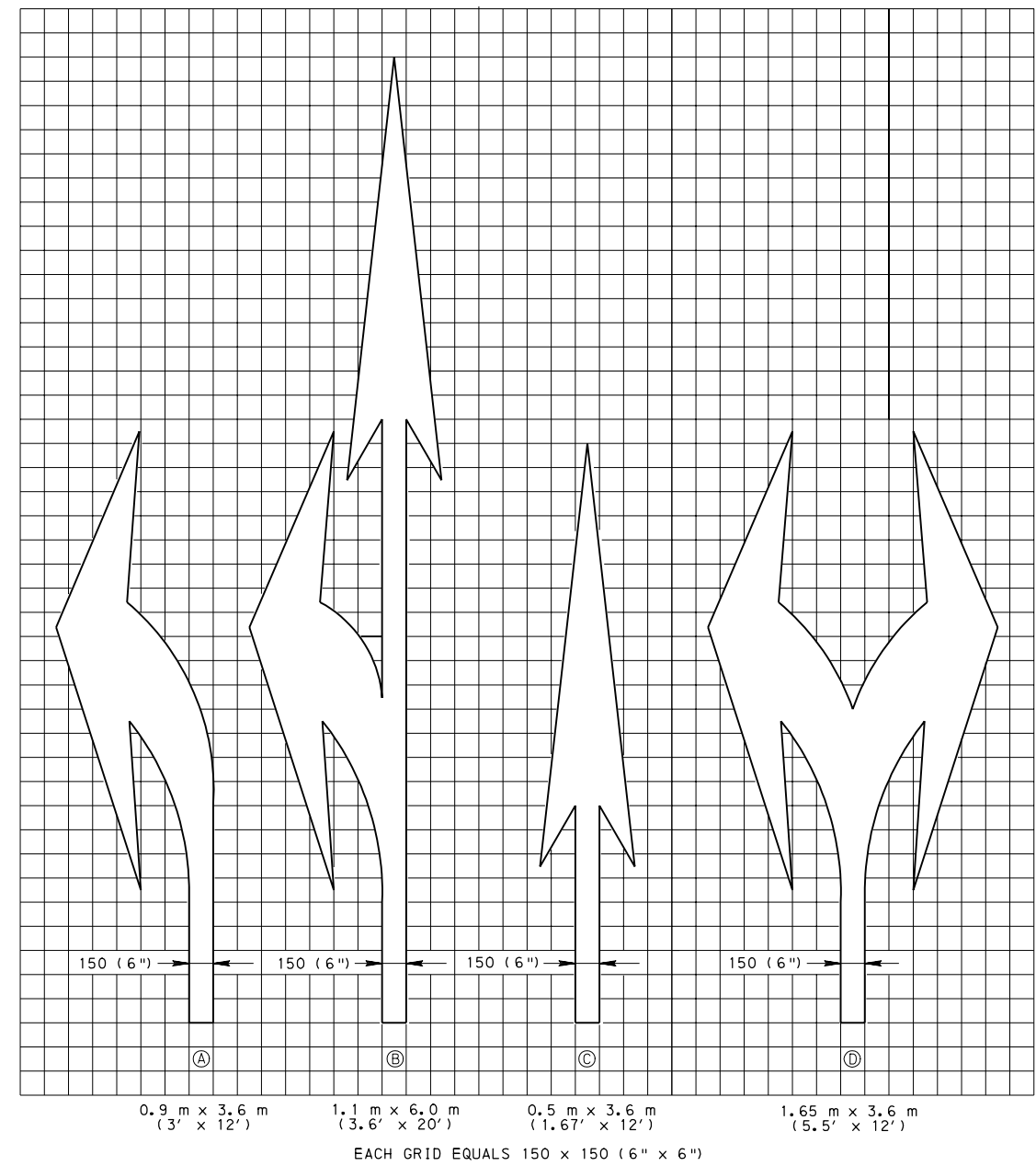


LEFT LANE  
(MERGE RIGHT)  
RIGHT LANE  
(MERGE LEFT)  
**LANE REDUCTION TRANSITION ARROW**



1. LOCATE LRA IN CENTER OF LANE.
  2. PLACE LRAS IN GROUPS OF THREE WHEN CONDITIONS PERMIT.
  3. FOLLOW MUTCD - TABLE 2C-4 (CONDITION A) FOR PLACEMENT OF FIRST LANE REDUCTION ARROW IN ADVANCE OF TAPER.
- INTERSTATE - EXPRESSWAY/FREEWAY**
4. PLACE ADDITIONAL LANE REDUCTION ARROWS AT 180 m (600') INTERVALS.
- CONVENTIONAL ROADWAYS**
5. PLACE ADDITIONAL LANE REDUCTION ARROWS AT 90 m (300') INTERVALS.

**LANE REDUCTION ARROW PLACEMENT**



ARROW	QUANTITY FOR PAVEMENT MARKING REMOVAL
Ⓐ	1.11 m <sup>2</sup> (20 FT <sup>2</sup> )
Ⓑ	2.04 m <sup>2</sup> (32 FT <sup>2</sup> )
Ⓒ	0.84 m <sup>2</sup> (13 FT <sup>2</sup> )
Ⓓ	1.95 m <sup>2</sup> (32 FT <sup>2</sup> )

**MARKING ARROWS**

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

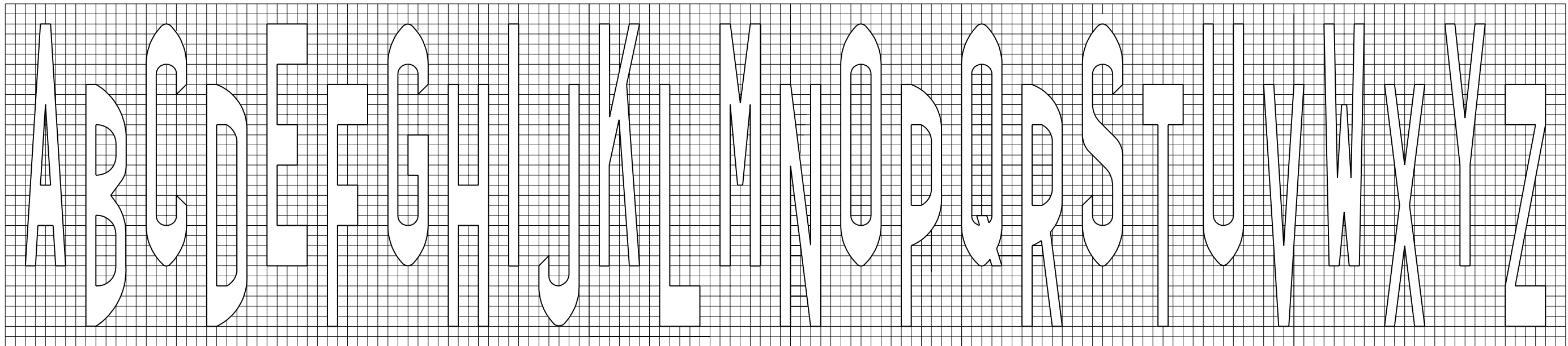
**PAVEMENT MARKINGS**

**LEGENDS AND SYMBOLS**

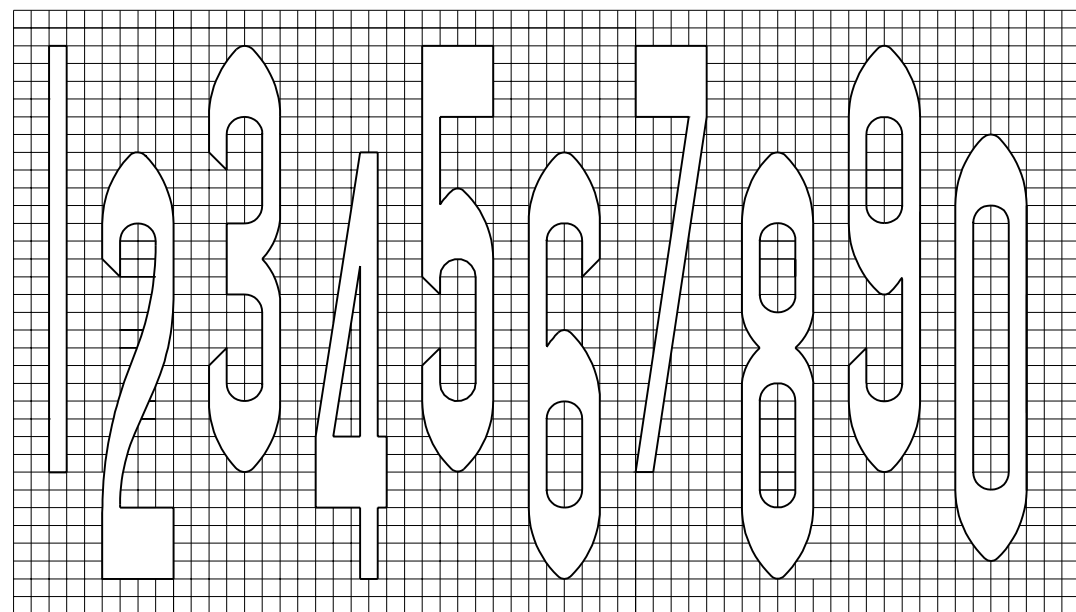
RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. Glatel*  
CHIEF HIGHWAY ENGINEER

SHT. 7 OF 8  
TC-8600



STANDARD ALPHABET



STANDARD NUMERALS

**NOTES:**

1. STANDARD CHARACTERS ARE 24 GRID UNITS HIGH AND 4 UNITS WIDE (EXCEPT LETTER "I" AND THE NUMBER "1" WHICH ARE 1 UNIT WIDE).
2. VERTICAL STROKES ARE 1 UNIT WIDE, HORIZONTAL STROKES ARE 4 UNITS HIGH.
3. SPACE 1 UNIT (MIN.) BETWEEN CHARACTERS OR AS OTHERWISE SHOWN (OPTICAL SPACING MAY BE USED).
4. STANDARD CHARACTER HEIGHTS ARE 2.4 m (8'), EXCEPT FOR THE 1.8 m (6') RAILROAD "R" SYMBOL.
5. FOR 2.4 m (8') HIGH CHARACTERS, THE WIDTH IS 400 mm (16") (USE 100 mm (4") FOR EACH GRID SQUARE).
6. FOR 3.0 m (10') HIGH CHARACTERS, THE WIDTH IS 500 mm (20") (USE 125 mm (5") FOR EACH GRID SQUARE).
7. FOR 1.8 m (6') HIGH CHARACTERS, THE WIDTH IS 300 mm (12") (USE 75 mm (3") FOR EACH GRID SQUARE).

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

PAVEMENT MARKINGS

LEGEND AND SYMBOLS  
(STANDARD ALPHABET & NUMERALS)

RECOMMENDED MAY 25, 2007

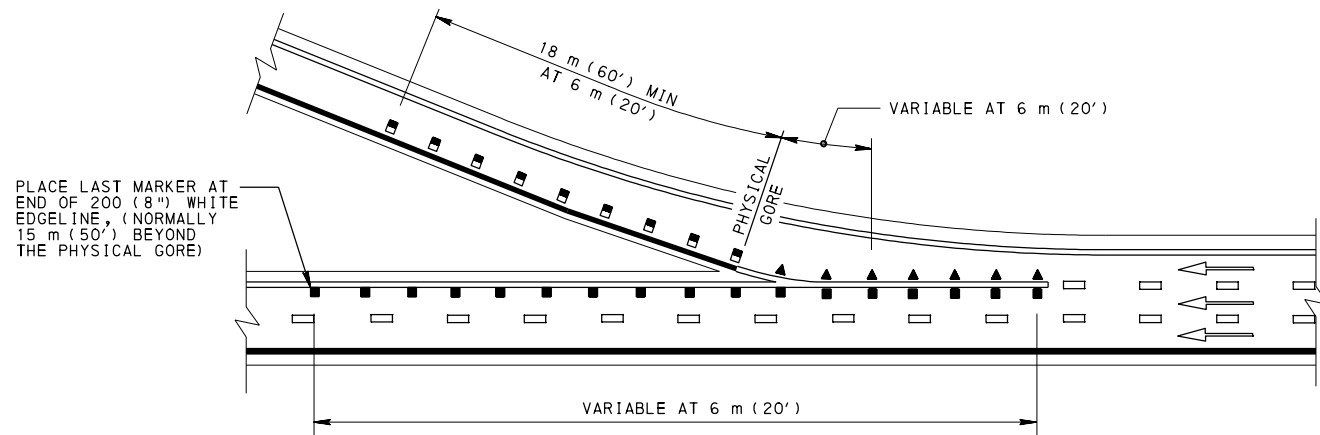
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007

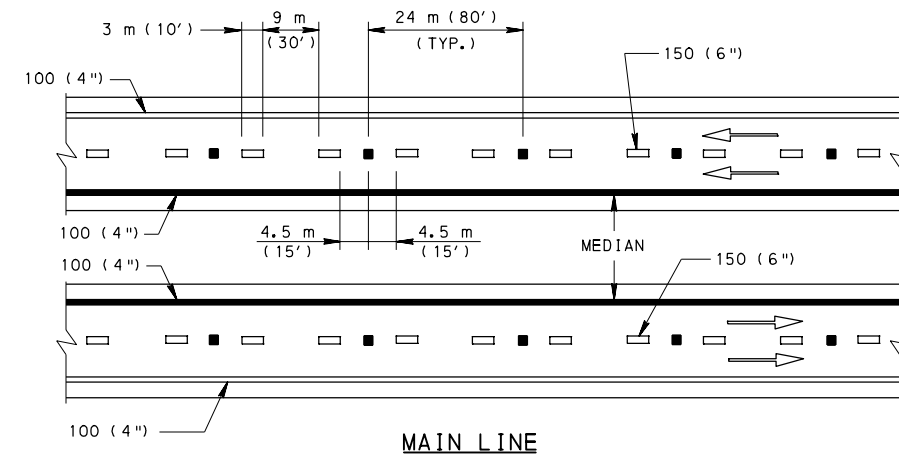
*m. Glatel*  
CHIEF HIGHWAY ENGINEER

SHT. 8 OF 8

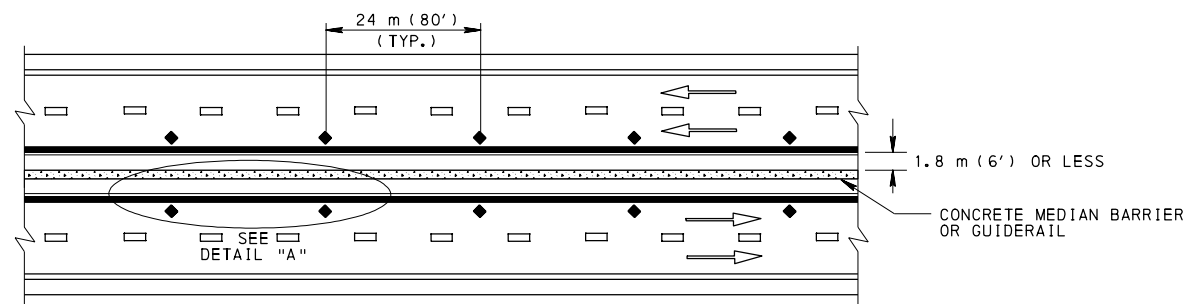
TC-8600



EXIT GORE AREA

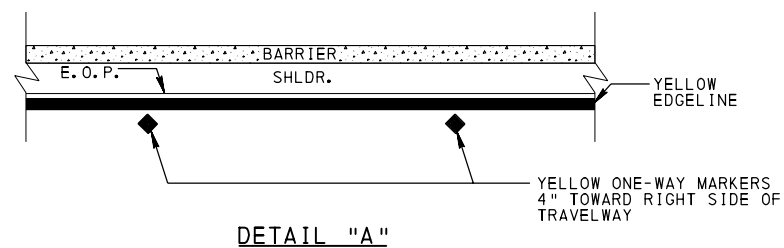


MAIN LINE



CONCRETE MEDIAN BARRIER OR GUIDERAIL  
WITHIN 6 FEET OF TRAVEL LANE

INSTALLATION PATTERNS - FREEWAYS & EXPRESSWAYS



DETAIL "A"

LEGEND

- WHITE ONE-WAY MARKER
- ◆ YELLOW ONE-WAY MARKER
- ▲ WHITE/RED TWO-WAY MARKER
- YELLOW/RED TWO-WAY MARKER
- ══ WHITE
- ══ YELLOW
- BROKEN WHITE
- DIRECTION OF TRAVEL

NOTES:

1. MATERIAL AND WORKMANSHIP IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, OR AS INDICATED OR DIRECTED.
2. PLACE MARKERS ALONG A LANE LINE (BROKEN LINE) MIDWAY BETWEEN THE PAINTED PORTIONS.
3. PLACE MARKERS ALONG AN EDGE OR CHANNELIZING LINE WITH NEAR EDGE OF MARKER CASTING 100 mm (4") FROM NEAR EDGE OF PAINTED LINE, WHEN CONCRETE MEDIAN BARRIER OR GUIDERAIL IS WITHIN 1.8 m (6') OF TRAVEL LANE.
4. INSTALL MARKERS 100 mm (4") MIN. FROM ANY PAVEMENT SEAM, JOINT OR EDGE.
5. SEE SHEET 4 OF 4 FOR MARKER DETAILS.
6. FOR MARKER SPACING ON CURVES SEE SHEET 3 OF 4.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
8. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

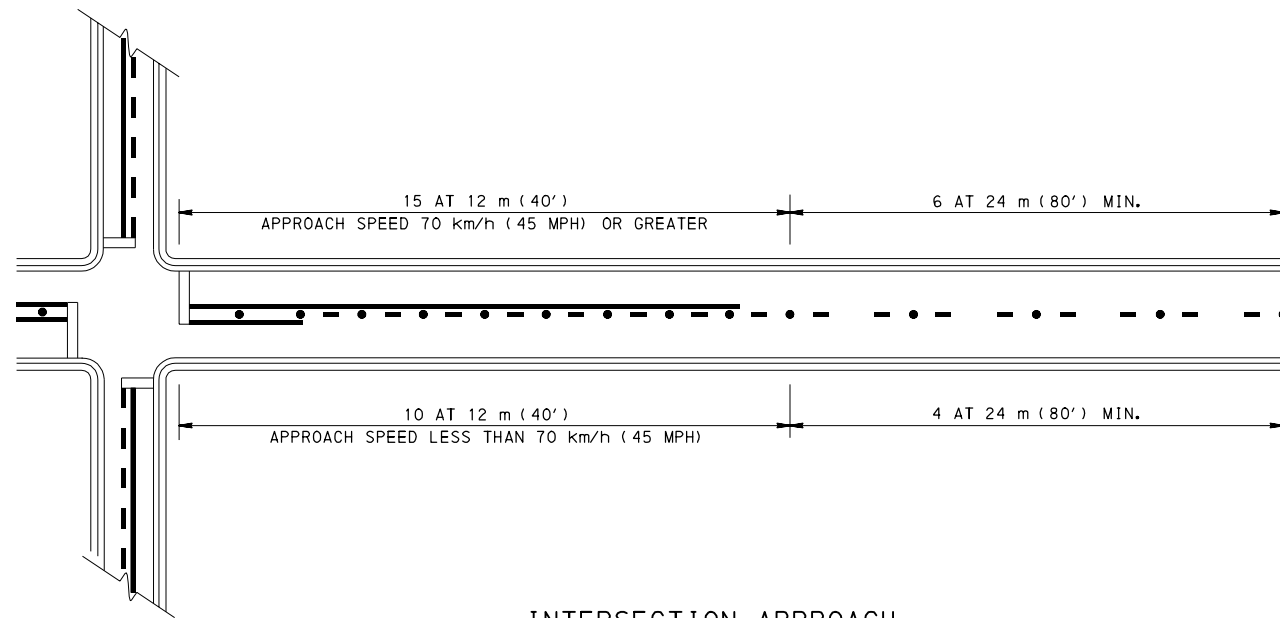
SNOWPLOWABLE RAISED  
PAVEMENT MARKERS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

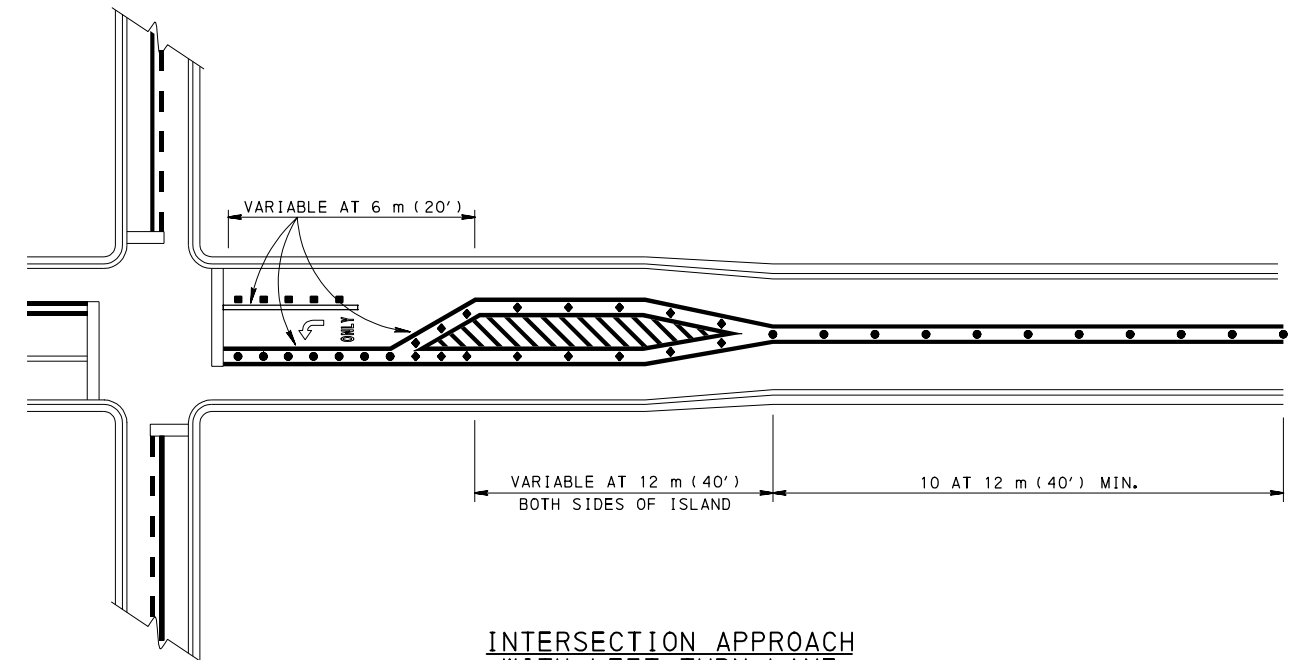
RECOMMENDED MAY 25, 2007  
*m. Chitel*  
CHIEF HIGHWAY ENGINEER

SHT. 1 OF 4

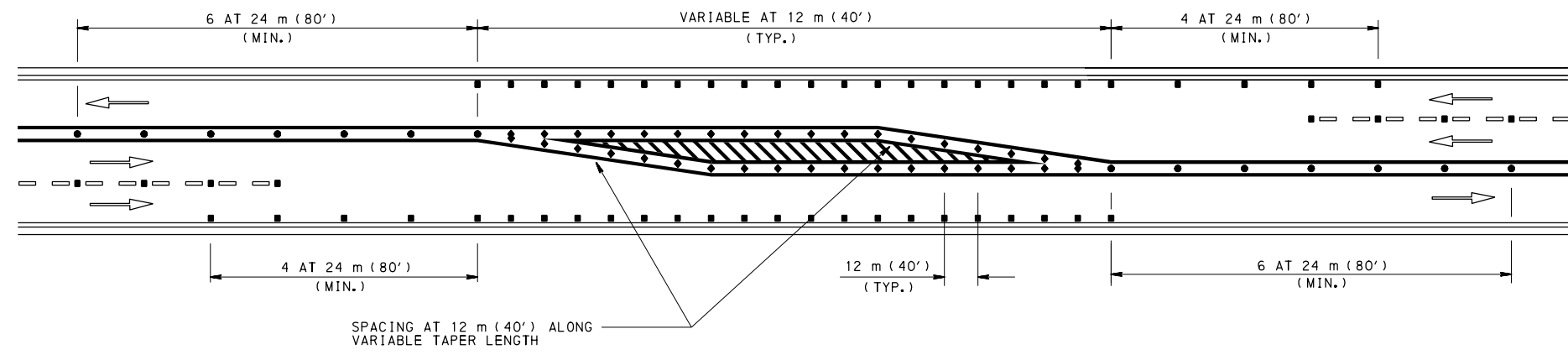
TC-8602



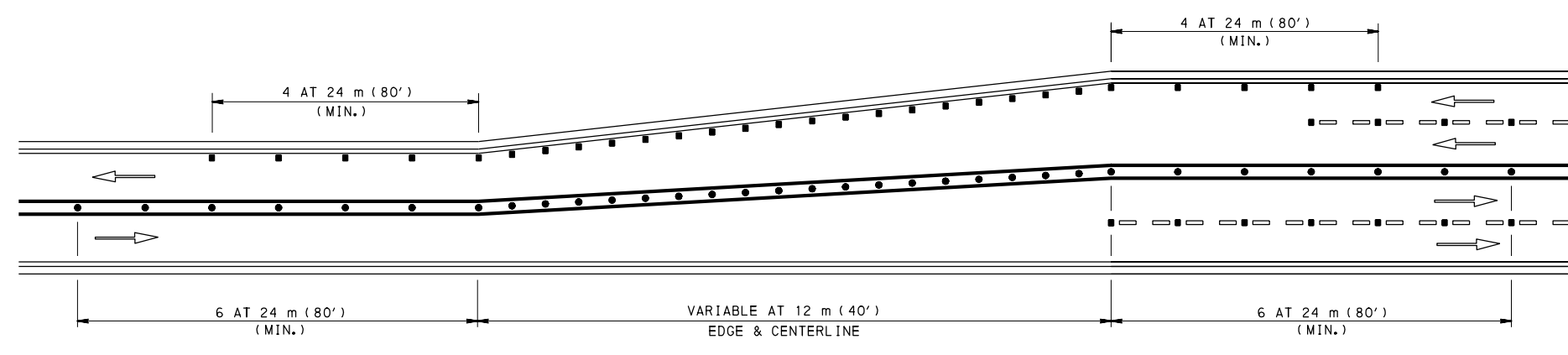
INTERSECTION APPROACH



INTERSECTION APPROACH WITH LEFT-TURN LANE



TWO LANES TO ONE LANE



FOUR LANES TO TWO LANES  
TRANSITION

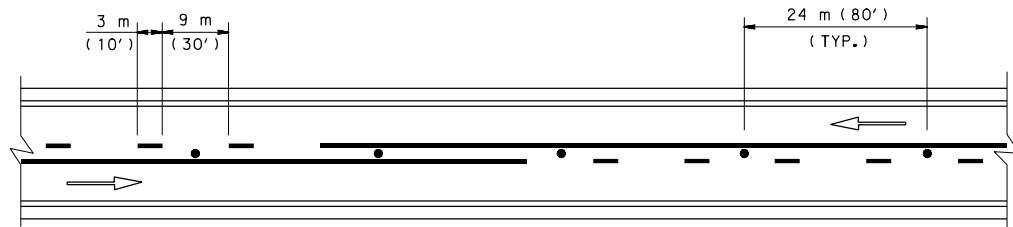
- LEGEND**
- WHITE ONE-WAY MARKER
  - ◆ YELLOW - ONE-WAY MARKER
  - YELLOW/YELLOW - TWO-WAY MARKER
  - ══ WHITE
  - ══ YELLOW
  - BROKEN WHITE
  - BROKEN YELLOW
  - DIRECTION OF TRAVEL

- NOTES:**
1. SEE SHEET 3 OF 4 FOR ADDITIONAL NOTES.
  2. FOR MARKER SPACING ON CURVES SEE SHEET 3 OF 4.
  3. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

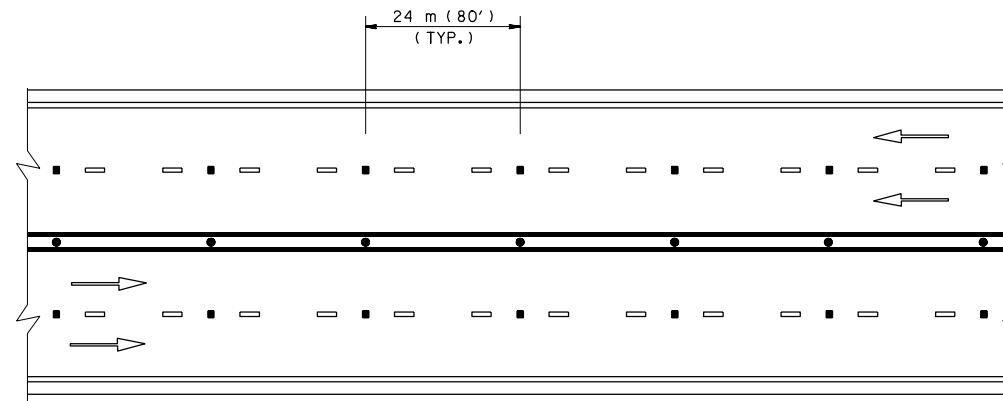
COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

SNOWPLOWABLE RAISED  
PAVEMENT MARKERS

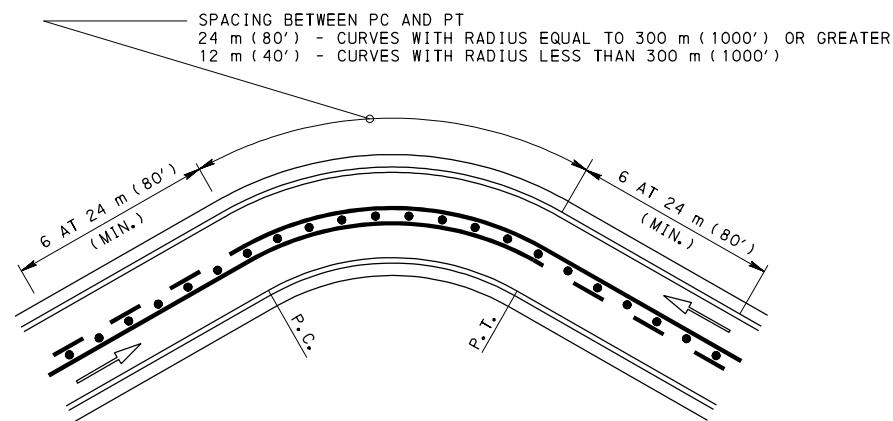
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. Chitel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 4 TC-8602
---	--	------------------------



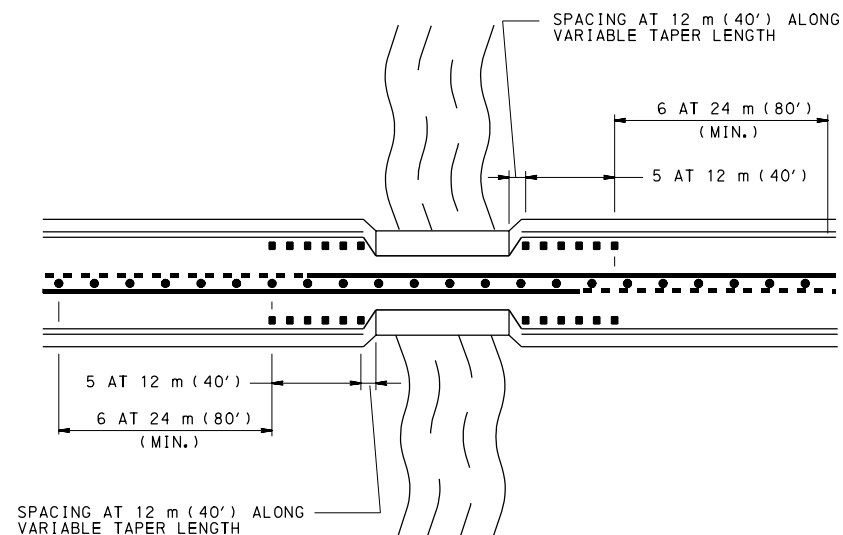
TWO-LANE ROADWAY



UNDIVIDED FOUR LANES

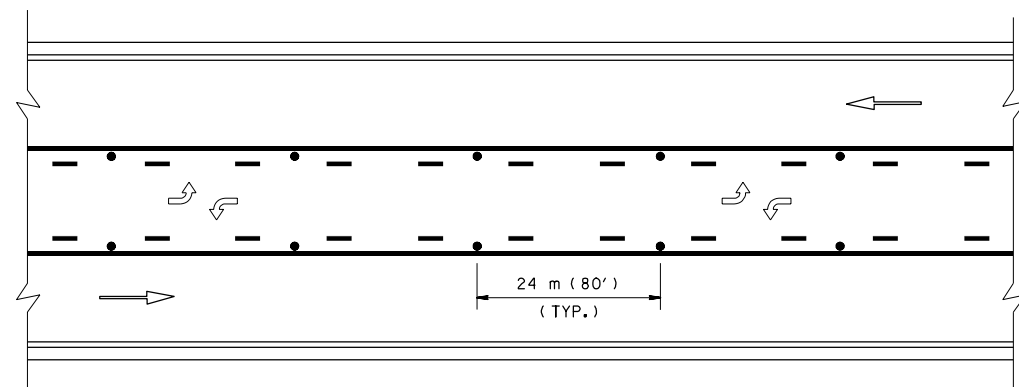


CURVES



NARROW BRIDGE

ACROSS STRUCTURE USE BARRIER-MOUNT DELINEATORS



CENTER LANE LEFT-TURN ONLY

**LEGEND**

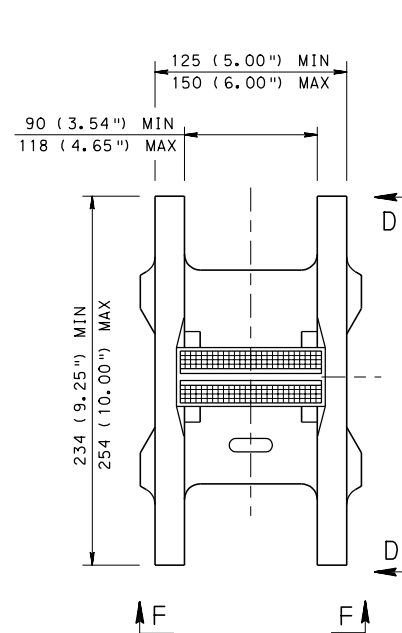
- WHITE ONE-WAY MARKER
- YELLOW/YELLOW - TWO-WAY MARKER
- ══ WHITE
- ══ YELLOW
- - - BROKEN WHITE
- - - BROKEN YELLOW
- DIRECTION OF TRAVEL

**NOTES:**

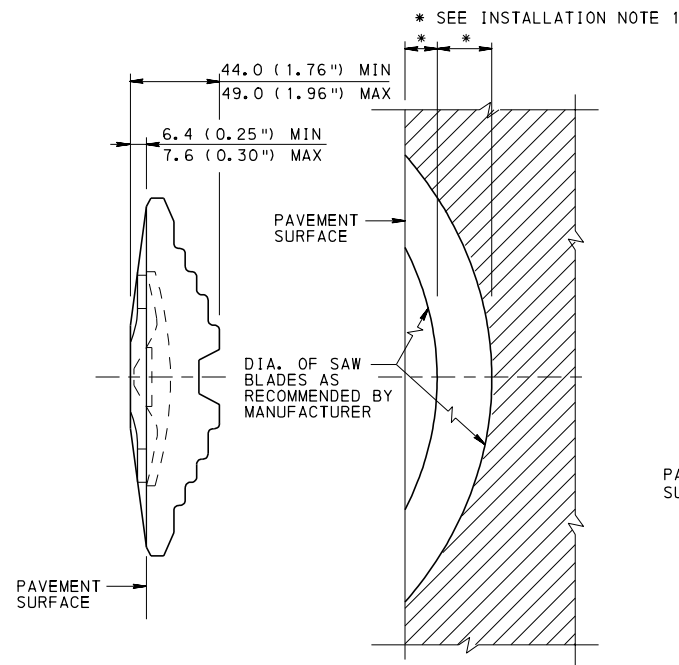
1. MARKERS INSTALLED AT THE DOUBLE YELLOW CENTER LINE SHALL BE PLACED BETWEEN THE TWO PAINTED LINES. MARKERS SHALL NOT BE PLACED WITHIN THE LIMITS OF THE PAINTED LINES EXCEPT WHERE LINES DEVIATE VISIBLY FROM THEIR CORRECT ALIGNMENT, AND THEN ONLY WITH THE APPROVAL OF THE ENGINEER.
2. PLACE MARKERS INSTALLED ALONG A LANE LINE (BROKEN LINE) MIDWAY BETWEEN THE PAINTED PORTION.
3. PLACE MARKERS ALONG AN EDGE OR CHANNELIZING LINE WITH THE NEAR EDGE OF THE MARKER CASTING 25 mm (1") MAXIMUM FROM THE NEAR EDGE OF THE PAINTED LINE.
4. SPACE MARKERS INSTALLED AT THE CENTERLINE AT 24 m (80') UNLESS OTHERWISE SHOWN ON THE DRAWINGS. (AT LOCATIONS IDENTIFIED AS FOG AREAS OR AREAS WITH A HIGH INCIDENCE OF HEAD-ON OR SIDESWIPE ACCIDENTS, SPACE THE CENTERLINE MARKERS AT 12 m (40')).
5. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

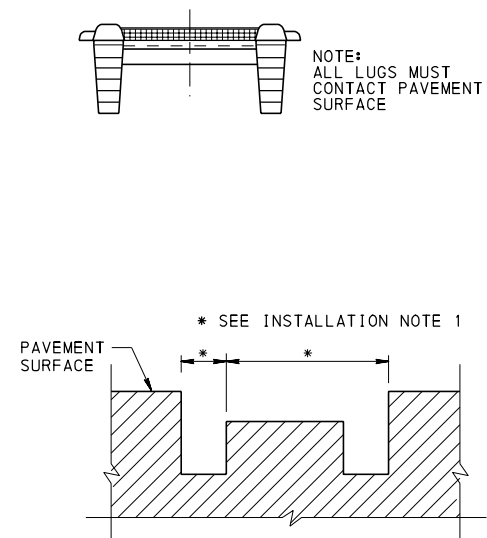
SNOWPLOWABLE RAISED  
PAVEMENT MARKERS



PLAN VIEW  
TWO-WAY



SECTION D-D

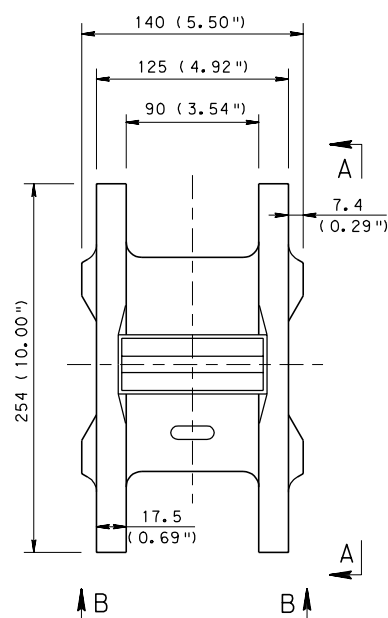


SECTION F-F

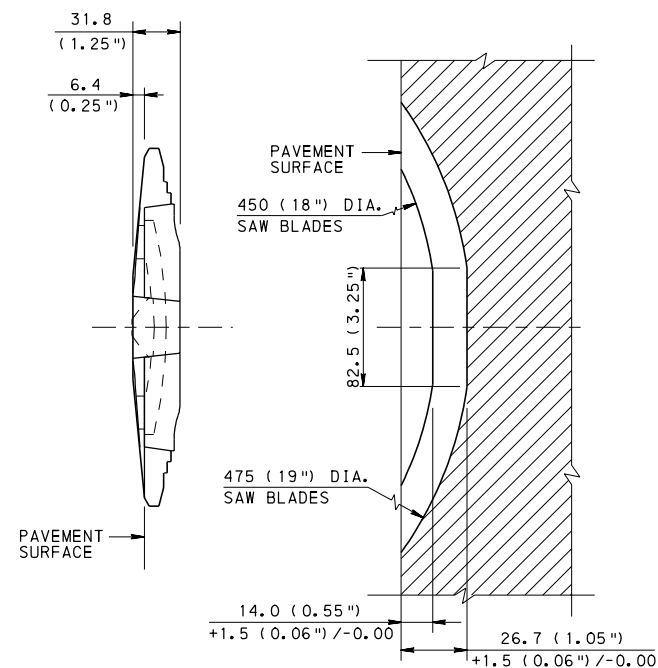
RAISED PAVEMENT MARKERS

INSTALLATION NOTES:

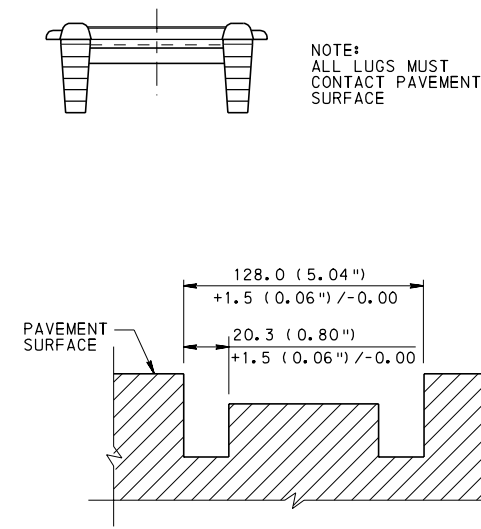
1. SAW CUT TO DIMENSIONS RECOMMENDED BY MANUFACTURER.
2. INSPECT SAW CUT FOR PROPER FIT OF THE MARKER.
  - PROVIDE APPROXIMATELY 3.2 mm (0.125") CLEARANCE (SIDE-TO-SIDE MOVEMENT) FOR THE CASTING WHEN INSERTED INTO THE CUT.
  - INSTALL MARKER WITH ALL LEVELING LUGS IN CONTACT WITH THE PAVEMENT.
  - INSURE THE LEADING EDGES OF THE CASTING LIE BELOW THE PAVEMENT SURFACE.
3. SAW CUT AREAS TO BE DRY AND FREE OF MATERIAL THAT ADVERSELY AFFECTS THE ADHESIVE BOND.
4. INSTALL THE MARKERS WITH AN APPROVED TWO-COMPONENT EPOXY ADHESIVE, LISTED IN BULLETIN 15, BY FIRST FILLING THE SAW CUT TO WITHIN APPROXIMATELY 10 mm (0.375") OF PAVEMENT SURFACE AND THEN PLACING THE MARKER BY HAND INTO THE EPOXY FILLED SAW CUT. AFTER PLACEMENT OF MARKER, MAKE THE EPOXY FLUSH OR SLIGHTLY BELOW PAVEMENT SURFACE. NO EPOXY SHOULD OBSCURE OR BLOCK THE LENS.



PLAN VIEW



SECTION A-A



SECTION B-B

BRIDGE DECK MARKER

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

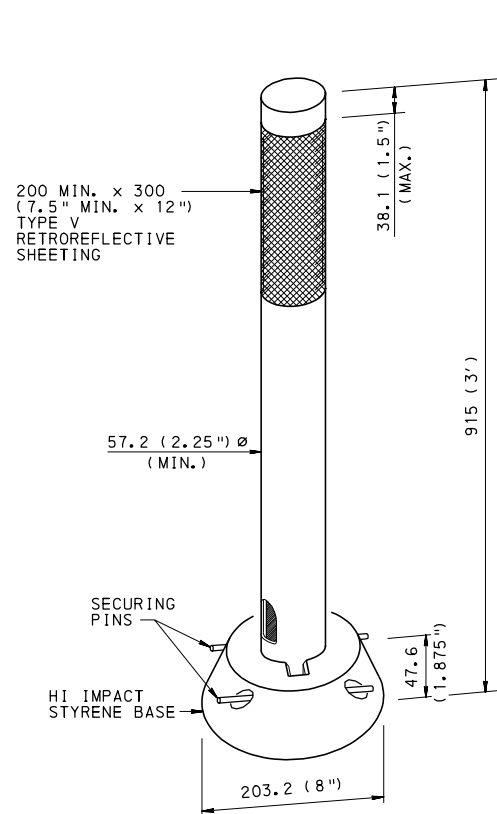
SNOWPLOWABLE RAISED  
PAVEMENT MARKERS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

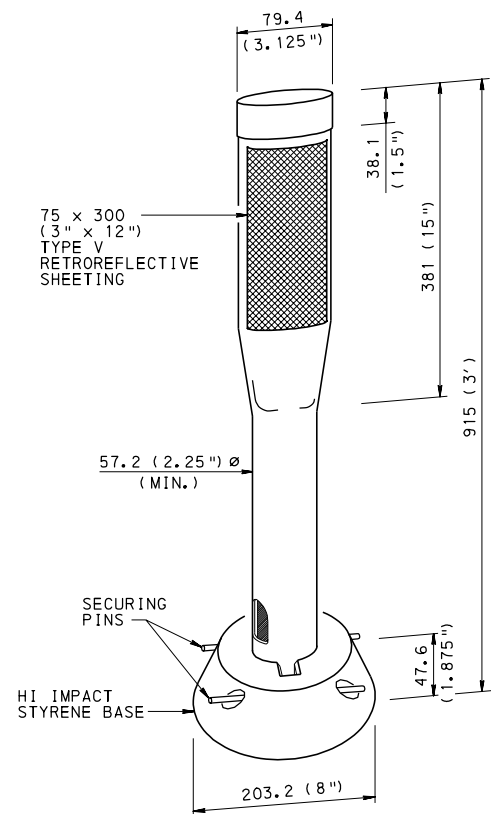
RECOMMENDED MAY 25, 2007  
*m. Chitel*  
CHIEF HIGHWAY ENGINEER

SHT. 4 OF 4

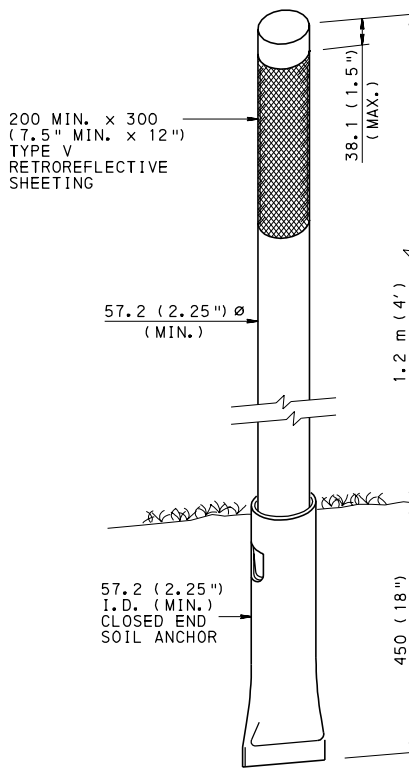
TC-8602



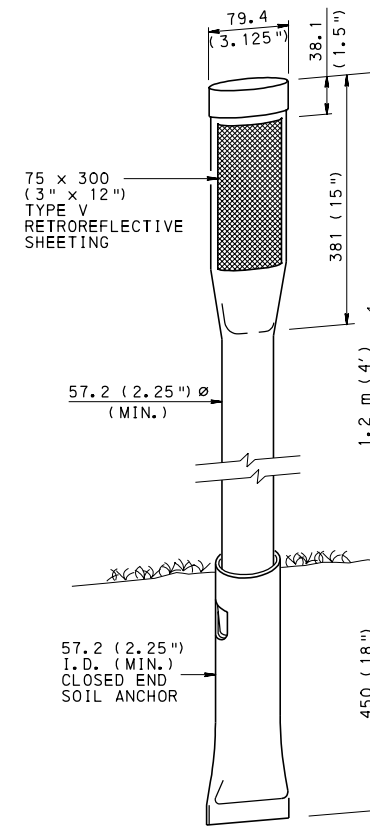
TYPE SM-1



TYPE SM-2



TYPE GM-1



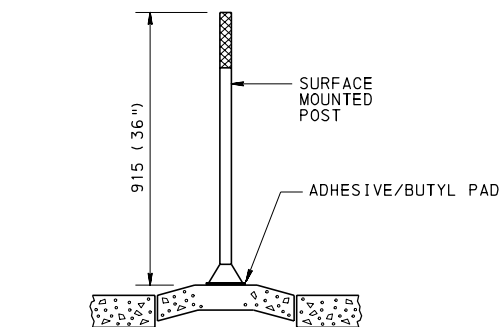
TYPE GM-2

SURFACE-MOUNTED POSTS

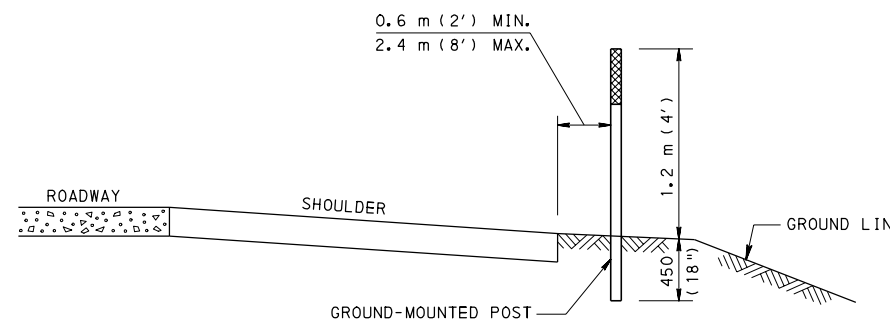
GROUND-MOUNTED POSTS

**NOTES:**

1. USE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH PUBLICATION 408.
2. GALVANIZED METAL SOIL ANCHOR, AFTER FABRICATION, IN ACCORDANCE WITH ASTM A 123.
3. FOR GUIDE RAIL AND BARRIER DELINEATORS, SEE SHEET 2 OF 4.
4. FOR INTERCHANGE AREAS LOCATION DETAILS, SEE SHEET 3 OF 4.
5. FOR LOCATION/PLACEMENT NOTES, SEE SHEET 4 OF 4.
6. FOR DELINEATOR SPACING ON CURVES, SEE SHEET 3 OF 4.
7. USE TYPE SM-1 AND GM-1 POSTS IN AREAS WHERE TRAFFIC MOVEMENTS NEED MULTI-DIRECTION DELINEATION, SUCH AS ISLANDS, RADII AT INTERSECTIONS AND THE ENDS OF MEDIANS.
8. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
9. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



CONCRETE MEDIAN/TRAFFIC ISLAND  
TYPICAL SECTION



TYPICAL SECTION

PLACEMENT

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

DELINEATION

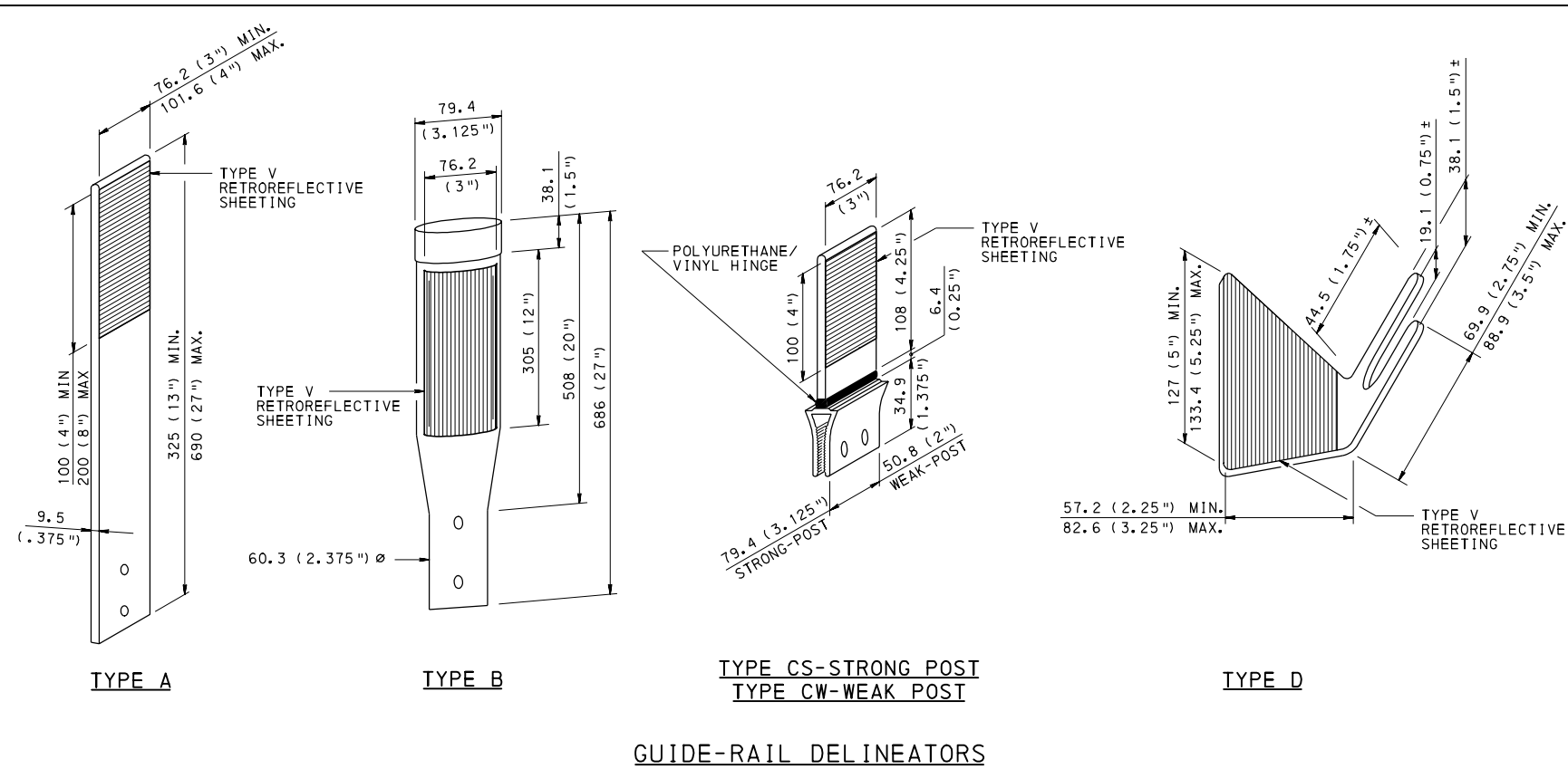
FLEXIBLE POSTS DETAILS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

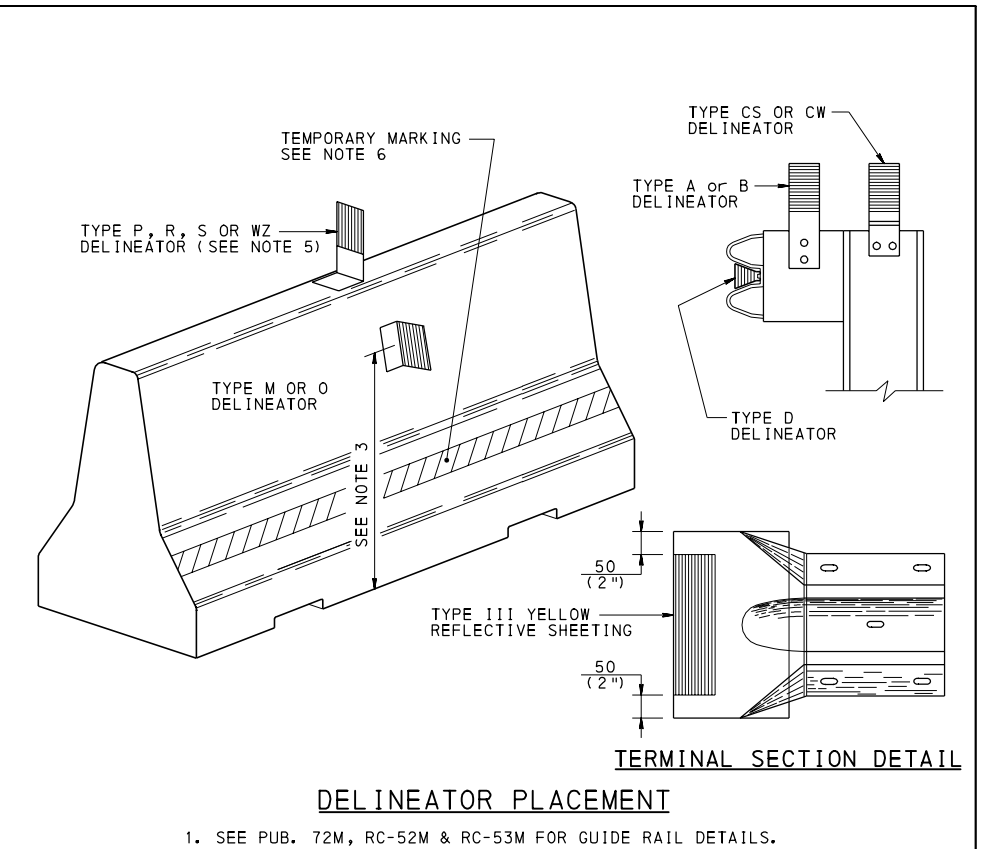
RECOMMENDED MAY 25, 2007  
*m. Glatel*  
CHIEF HIGHWAY ENGINEER

SHT. 1 OF 4

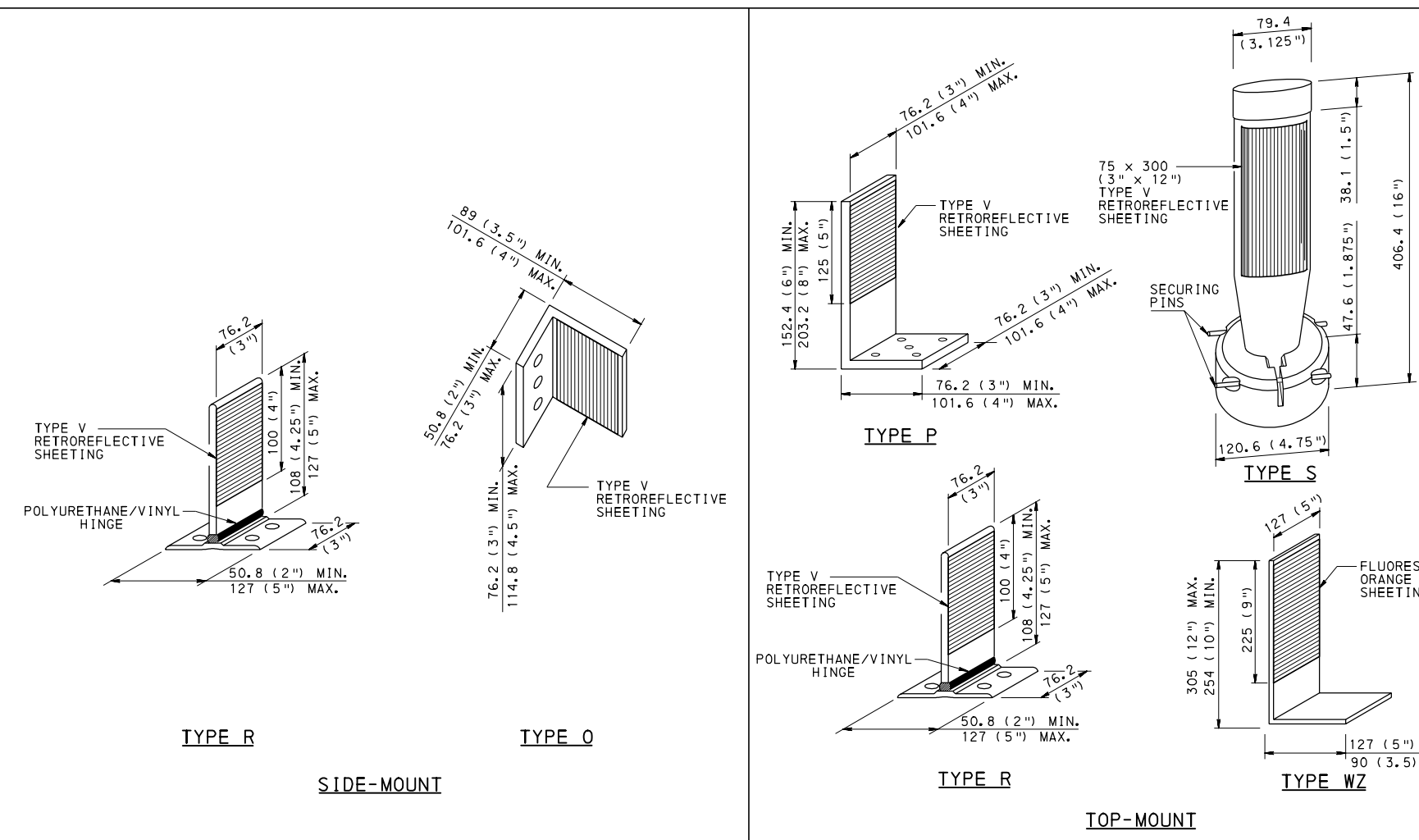
TC-8604



**GUIDE-RAIL DELINEATORS**



1. SEE PUB. 72M, RC-52M & RC-53M FOR GUIDE RAIL DETAILS.
2. SEE PUB. 72M, RC-57M FOR CONCRETE MEDIAN BARRIER DETAILS.



**BARRIER DELINEATORS**

**NOTES:**

1. USE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH PUBLICATION 408.
2. INSTALL DELINEATORS ON GUIDE RAIL AT 11.43 m (37.5') SPACING ON HORIZONTAL CURVES WITH A RADIUS LESS THAN OR EQUAL TO 305 m (1000') AND AT 22.86 m (75') SPACING ON HORIZONTAL CURVES WITH A RADIUS GREATER THAN 305 m (1000') AND TANGENTS. INSTALL 0.092 m (1 FT<sup>2</sup>) MINIMUM OF TYPE III YELLOW REFLECTIVE SHEETING ON TERMINAL SECTION END TREATMENTS.
3. SIDE-MOUNTED DELINEATORS TYPE "R" OR TYPE "O" SHALL BE LOCATED 660 mm (26") FROM THE PAVEMENT TO THE CENTER OF THE DELINEATOR. AN ADDITIONAL SIDE-MOUNTED DELINEATOR MAY BE LOCATED ON THE LOWER SLOPE OF THE BARRIER WHEN JUSTIFIED BY ENGINEERING JUDGEMENT.
4. MOUNT DELINEATORS ON THE TOP AND/OR SIDE OF BARRIERS OR BRIDGE PARAPETS AS SPECIFIED AT A MAXIMUM LONGITUDINAL SPACING OF 24 m (80') FOR TANGENT SECTIONS AND 12 m (40') FOR CURVE SECTIONS WITH A RADIUS LESS THAN 305 m (1,000').
5. IN WORK ZONES, INSTALL TYPE WZ DELINEATORS ON THE TOP OF ALL TEMPORARY BARRIERS THAT ARE ADJACENT TO TRAVEL LANES AT MAXIMUM 12 m (40') SPACING. USE FLUORESCENT ORANGE SHEETING. USE SHEETING ON BOTH SIDES OF DELINEATOR WHEN USED BETWEEN TRAFFIC TRAVELING IN OPPOSITE DIRECTIONS. TYPE WZ DELINEATORS MAY BE MADE OF ANY LIGHTWEIGHT MATERIALS THAT MAINTAIN A VERTICAL ORIENTATION (±10 DEGREES) AND DO NOT NEED TO BE OF AN APPROVED TYPE LISTED IN BULLETIN 15.
6. IN AN EFFORT TO MINIMIZE ERADICATION IN WORK ZONES, CONTINUOUS WHITE OR YELLOW 150 mm (6") WIDE PAVEMENT MARKINGS MAY BE INSTALLED AS SHOWN ON TEMPORARY BARRIER INSTEAD OF BEING PLACED ON THE ROAD SURFACE. THE LINE MAY BE ANY APPROVED PAINT OR PAVEMENT MARKING TAPE THAT SATISFIES THE MINIMUM RETROREFLECTIVITY REQUIREMENTS.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
8. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

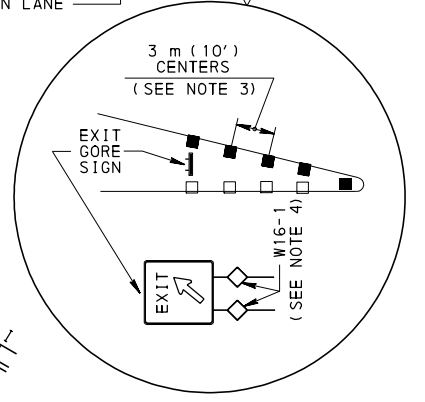
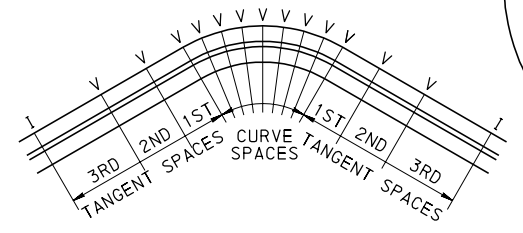
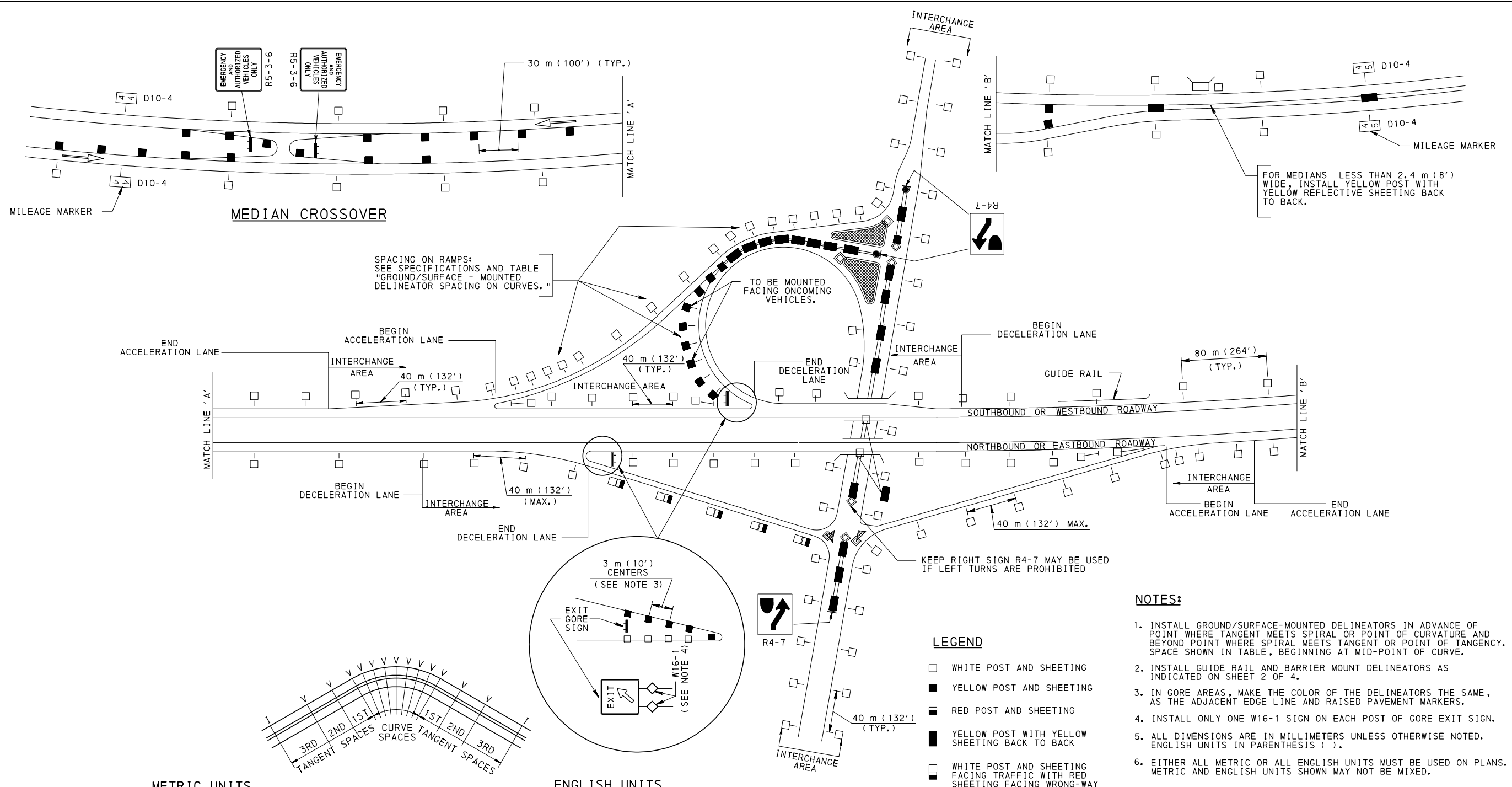
**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**DELINEATION**

**GUIDE RAIL AND BARRIER DETAILS**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. Glatel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 4 <b>TC-8604</b>
---	--	-------------------------------





**METRIC UNITS**

RADIUS ON CURVE MAX. MIN. m	SPACING ON CURVE m	SPACING IN ADVANCE OF AND BEYOND CURVES		
		FIRST SPACE m	SECOND SPACE m	THIRD SPACE m
2100 TO 1651	66	80	80	80
1650 TO 1201	60			
1200 TO 881	54			
880 TO 741	48			
740 TO 601	42			
600 TO 471	36	60	54	72
470 TO 351	30			
350 TO 226	24			
225 TO 101	18	36	36	54
100 TO 51	12			
50 TO 30	6	12	24	48

**ENGLISH UNITS**

RADIUS ON CURVE MAX. MIN. FEET	SPACING ON CURVE FEET	SPACING IN ADVANCE OF AND BEYOND CURVES		
		FIRST SPACE FEET	SECOND SPACE FEET	THIRD SPACE FEET
7000 TO 5501	220	264	264	264
5500 TO 4001	200			
4000 TO 2901	180			
2900 TO 2451	160			
2450 TO 2001	140			
2000 TO 1551	120	200	180	240
1550 TO 1151	100			
1150 TO 751	80			
750 TO 351	60	120	120	180
350 TO 151	40			
150 TO 100	20	40	80	160

**GROUND/SURFACE-MOUNTED  
DELINEATOR SPACING ON CURVES**

- LEGEND**
- WHITE POST AND SHEETING
  - YELLOW POST AND SHEETING
  - ▣ RED POST AND SHEETING
  - YELLOW POST WITH YELLOW SHEETING BACK TO BACK
  - WHITE POST AND SHEETING FACING TRAFFIC WITH RED SHEETING FACING WRONG-WAY MOVEMENT
  - ▣ DELINEATORS LOCATED AS DIRECTED BY THE ENGINEER
  - ◇ W16-1 OR YELLOW FLEXIBLE DELINEATOR POST (FOR NARROW MEDIANS)
  - DIRECTION OF TRAVEL

- NOTES:**
- INSTALL GROUND/SURFACE-MOUNTED DELINEATORS IN ADVANCE OF POINT WHERE TANGENT MEETS SPIRAL OR POINT OF CURVATURE AND BEYOND POINT WHERE SPIRAL MEETS TANGENT OR POINT OF TANGENCY. SPACE SHOWN IN TABLE, BEGINNING AT MID-POINT OF CURVE.
  - INSTALL GUIDE RAIL AND BARRIER MOUNT DELINEATORS AS INDICATED ON SHEET 2 OF 4.
  - IN GORE AREAS, MAKE THE COLOR OF THE DELINEATORS THE SAME, AS THE ADJACENT EDGE LINE AND RAISED PAVEMENT MARKERS.
  - INSTALL ONLY ONE W16-1 SIGN ON EACH POST OF GORE EXIT SIGN.
  - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
  - EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**DELINEATION**

**LOCATION DETAILS  
INTERCHANGE AREAS**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. Patel</i> CHIEF HIGHWAY ENGINEER	SHT. 3 OF 4 <b>TC-8604</b>
---	---	-------------------------------

1. LOCATION:

- A. LIGHTED THROUGH ROADWAYS - DO NOT PLACE DELINEATORS ON THE THROUGH ROADWAY BETWEEN INTERCHANGES WHERE FIXED SOURCE LIGHTING IS INSTALLED UNLESS OTHERWISE SPECIFIED.
- B. UNLIGHTED THROUGH ROADWAYS - ON ROADWAYS WITHOUT FIXED SOURCE LIGHTING, CONTINUOUSLY PLACE DELINEATORS ALONG THE RIGHT SIDE OF THE THROUGH ROADWAYS. PLACE DELINEATORS ON THE LEFT SIDE OF THROUGH ROADWAYS AT THE FOLLOWING LOCATIONS:
  - I. WHERE GUIDE RAIL OR CONCRETE BARRIER IS LOCATED ON THE LEFT WITHIN 1.8 m (6') OF THE EDGE OF SHOULDER.
  - II. ALONG RIGHT-HAND HORIZONTAL CURVES WITH A RADIUS OF 600 m (2000') OR LESS.
  - III. ALONG COMBINATIONS OF OVER-VERTICALS AND RIGHT-HAND HORIZONTAL CURVES WITH A RADIUS LESS THAN 880 m (2900').
  - IV. ON THE APPROACH AND THROUGHOUT LEFT LANE DROPS OR PAVEMENT WIDTH TRANSITIONS.
  - V. WITHIN THE LIMITS OF MEDIAN CROSSOVERS (AS SHOWN ON SHEET 3 OF 4).
  - VI. WITHIN THE LIMITS OF VARIABLE MEDIAN WIDTHS (AS SHOWN ON SHEET 3 OF 4).
  - VII. ALONG PAVED MEDIANS WITH CURBING.
- C. INTERCHANGE AREAS - PLACE DELINEATORS ALONG THE RIGHT SIDE IN ALL INTERCHANGE AREAS AND ALONG THE LEFT SIDE WITHIN THE LIMITS OF ALL LEFT-HAND RAMPS. PLACE DELINEATORS ALONG ACCELERATION, DECELERATION AND SPEED CHANGE LANES; ALONG THE RIGHT SIDE OF THE THROUGH ROADWAY AND ALONG THE OUTSIDE OR BOTH SIDES AS SPECIFIED ON ALL RAMPS.
- D. BRIDGE PARAPETS - PLACE DELINEATORS ON PARAPETS OF ALL BRIDGES WHERE RPMs ARE USED ON APPROACH ROADWAY.
- E. SPECIAL PURPOSE DELINEATION - PLACE OBJECT AND CLEARANCE MARKER GROUP (W16 SERIES) ALONG THE THROUGH ROADWAY AND WITHIN THE INTERCHANGE AREA AS SPECIFIED IN ADDITION TO THE ABOVE SPECIFIED DELINEATORS.
- F. MAINTENANCE MARKERS - PLACE ONE RED FLEXIBLE DELINEATOR POST ADJACENT TO NEAR EDGE OF MAINTENANCE APPURTENANCE (END PIPE, END WALL, INLET, ETC....). MATCH REFLECTIVE SHEETING COLOR WITH THE NEAREST PAVEMENT MARKING EDGE LINE COLOR.

2. LONGITUDINAL SPACING:

- A. RIGHT SIDE OF THROUGH ROADWAYS - INSTALL DELINEATORS AT 80 m (264') EXCEPT IN INTERCHANGE AREAS WITH RIGHT-HAND RAMPS, ACCELERATION OR DECELERATION LANES AND ALONG HORIZONTAL CURVES.
- B. LEFT SIDE OF THROUGH ROADWAYS - WHEN REQUIRED, INSTALL DELINEATORS AT 80 m (264') EXCEPT IN INTERCHANGE AREAS WITH LEFT-HAND RAMPS, ACCELERATION OR DECELERATION LANES, ON MEDIAN BARRIERS AND ALONG HORIZONTAL CURVES.
- C. INTERCHANGE AREAS - SPACE DELINEATORS IN INTERCHANGE AREA AT 40 m (132').
- D. HORIZONTAL CURVES - SPACE DELINEATORS AS INDICATED IN THE TABLE "GROUND/SURFACE-MOUNTED DELINEATOR SPACING ON CURVES," SEE SHEET 3 OF 4.
- E. EXIT GORES, CHANNELIZING ISLANDS AND RAMP TERMINALS - THE DESIGN VARIES SUFFICIENTLY AT THESE LOCATIONS MAKING TYPICAL SPACING UNAVAILABLE FOR EVERY SITUATION. DETERMINE DELINEATOR SPACING AND APPLICATION ON SITE AND AS DIRECTED BY THE ENGINEER. HOWEVER, USE A MINIMUM SPACING OF 6 m (20') EXCEPT AS INDICATED.
- F. SPECIAL PURPOSE DELINEATION - PLACE SPECIAL PURPOSE DELINEATION (W16 SERIES) ALONG THE ROADWAY WITHOUT REGARD TO LONGITUDINAL SPACING. SPACE DELINEATION ON MEDIAN BARRIERS IN ACCORDANCE WITH NOTE 4 ON SHEET 2 OF 4.
- G. MEDIAN CROSSOVERS - PLACE DELINEATORS AT 30 m (100') SPACING AS INDICATED ON SHEET 3 OF 4 WITH A MINIMUM OF FIVE DELINEATORS ON THE APPROACH TO THE CROSSOVER AND THREE DELINEATORS BEYOND THE CROSSOVER.
- H. MAINTENANCE MARKERS - PLACE MAINTENANCE MARKERS ALONG THE ROADWAY WITHOUT REGARD TO LONGITUDINAL SPACING.

3. VERTICAL PLACEMENT:

INSTALL DELINEATORS THAT THE TOPS ARE APPROXIMATELY 1.2 m (4') ABOVE THE GROUND. INSTALL ON CONCRETE BARRIERS OR GUIDE RAIL AS INDICATED ON SHEET 2 OF 4.

4. LATERAL PLACEMENT:

- A. NO GUIDE RAIL - INSTALL DELINEATORS 0.6 m (2') TO 2.4 m (8') BEHIND THE OUTER EDGE OF THE SHOULDER, OR AS DIRECTED.
- B. GUIDE RAIL - INSTALL DELINEATORS IN THE WEB OF GUIDE RAIL OR ON GUIDE RAIL POSTS, AS INDICATED ON SHEET 2 OF 4, IF THE GUIDE RAIL IS LESS THAN 2.4 m (8') FROM THE OUTER EDGE OF SHOULDER. DO NOT USE GROUND-MOUNTED DELINEATORS IN AREAS WITH GUIDE RAIL. IF THE GUIDE RAIL IS MORE THAN 2.4 m (8') FROM THE OUTER EDGE OF THE SHOULDER, INSTALL DELINEATORS AS SPECIFIED IN NOTE 4.A.
- C. CURB IN PLACE - INSTALL DELINEATORS IMMEDIATELY BEHIND CURB PROVIDED PLACEMENT WILL NOT EXCEED 2.4 m (8') BEHIND THE EDGE OF SHOULDER. IF THE CURB IS MORE THAN 2.4 m (8') FROM THE EDGE OF SHOULDER, INSTALL DELINEATORS AS SPECIFIED IN NOTE 4.A.
- D. OBSTRUCTION MARKERS - INSTALL OBSTRUCTION MARKER DELINEATORS ADJACENT TO NEAR EDGE OF THE OBSTRUCTION.
- E. MAINTENANCE MARKERS - INSTALL MARKERS ADJACENT TO NEAR EDGE OF THE APPURTENANCE (END PIPE, END WALL, INLET, ETC....).

5. TYPES OF DELINEATOR:

- A. WHITE DELINEATORS - PLACE ON RIGHT SIDE OF THROUGH ROADWAYS, ALONG RIGHT-HAND ACCELERATION, DECELERATION AND SPEED-CHANGE LANES, RAMPS AND ON CHANNELIZING OR DIVISIONAL ISLANDS WHERE TRAFFIC IN THE SAME DIRECTION MAY PROCEED ON BOTH SIDES OF THE ISLAND.
- B. YELLOW DELINEATORS - PLACE ON LEFT SIDE OF THROUGH ROADWAYS, RAMPS AND ON CHANNELIZING OR DIVISIONAL ISLANDS WHERE TRAFFIC IN THE SAME DIRECTION TRAVELS TO THE RIGHT OF THE ISLAND AND ALONG LEFT-HAND ACCELERATION, DECELERATION AND SPEED CHANGE LANES AND ON FAR SIDE OF MEDIAN CROSSOVERS. ALSO AT EDGE OF OBSTRUCTIONS ADJACENT TO THE ROADWAY AND AT POINT WHERE GUIDE RAIL BECOMES TANGENT TO THE ROADWAY.
- C. RED DELINEATORS - PLACE ON RIGHT, LEFT, OR BOTH SIDES OF ROADWAYS OR RAMPS TO INDICATE WRONG-WAY MOVEMENT. ALSO PLACE ON BOTH SIDES OF RUN-AWAY TRUCK ESCAPE RAMPS.
- D. SPECIAL PURPOSE DELINEATOR (W16-1) MARKERS - PLACE MARKERS AT LOCATIONS SHOWN ON SHEET 3 OF 4.
- E. MAINTENANCE MARKERS - PLACE RED POST WITH WHITE REFLECTIVE SHEETING ON RIGHT SIDE OF THROUGH HIGHWAY. PLACE RED POST WITH YELLOW REFLECTIVE SHEETING ON LEFT SIDE OF THROUGH HIGHWAY.

NOTES:

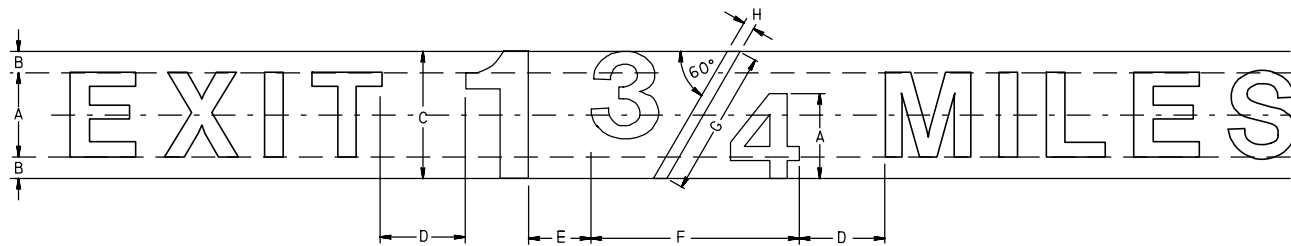
- 1. MAINTENANCE MARKERS ARE RED FLEXIBLE DELINEATOR POSTS INSTALLED TO CALL OUT THE LOCATION OF END PIPES, END WALLS, INLETS, ETC... FOR MAINTENANCE PURPOSES ONLY. ANY MAINTENANCE APPURTENANCE WITHIN OR ADJACENT TO THE ROADWAY THAT IS DEEMED A HAZARD SHOULD BE REMOVED, MODIFIED OR DELINEATED AS SUCH.
- 2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

DELINEATION AND MARKERS

LOCATION / PLACEMENT NOTES

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 4 OF 4 TC-8604
---	--	------------------------



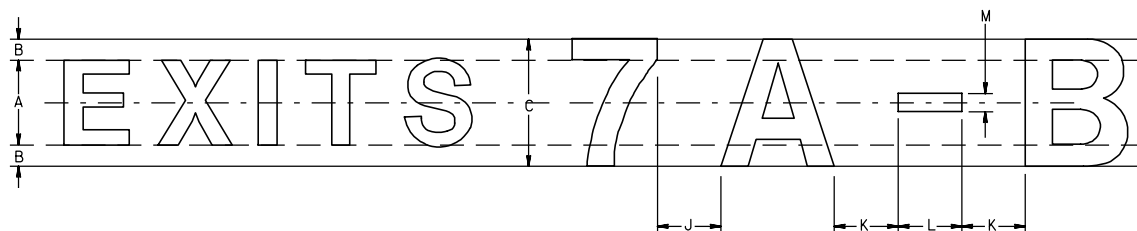
SIZE OF THE FRACTION RECTANGLE IS DETERMINED AS FOLLOWS:

SYMBOL	TITLE	RATIO TO HEIGHT OF UPPER CASE
A	LETTER HEIGHT	1.0 x UPPER CASE
B	SPACE TO TOP OR BOTTOM OF RECTANGLE	0.25 x A
C	HEIGHT OF RECTANGLE	1.5 x A
D	SPACE TO NEXT CHARACTER	1.5 x A
E	SPACE FROM WHOLE NUMBER TO A FRACTION OR DECIMAL POINT	0.75 x A
F	WIDTH OF RECTANGLE	SEE NOTE 2
G	LENGTH OF DIAGONAL	1.7 x A
H	THICKNESS OF DIAGONAL	LETTER STROKE WIDTH

**NOTES:**

- DIAGONAL OF FRACTION TO BE CENTERED OPTICALLY.
- WHEN THE NUMERATOR OF A FRACTION IS 1 (ONE), USE 2.2 x A. FOR ALL OTHER NUMERATORS, USE 2.5 x A.

SIZE AND SPACING OF FRACTIONS  
(EXCEPT SEE SHEET 5 OF 8 OF TC-8701D FOR FRACTIONS ON LINES WITH UPPER/LOWER CASE LEGEND)



SIZE AND SPACING OF DASHES ARE DETERMINED AS FOLLOWS:

SYMBOL	TITLE	RATIO TO HEIGHT OF UPPER CASE
A	LETTER HEIGHT	1.0 x UPPER CASE
B	SPACE TO TOP OR BOTTOM OF RECTANGLE	0.25 x A
C	HEIGHT OF RECTANGLE	1.5 x A
J	SPACE FROM NUMBER TO A CHARACTER	0.75 x A
K	SPACE FROM DASH TO A CHARACTER	0.75 x A
L	LENGTH OF DASH	0.75 x A
M	THICKNESS OF DASH	STROKE WIDTH

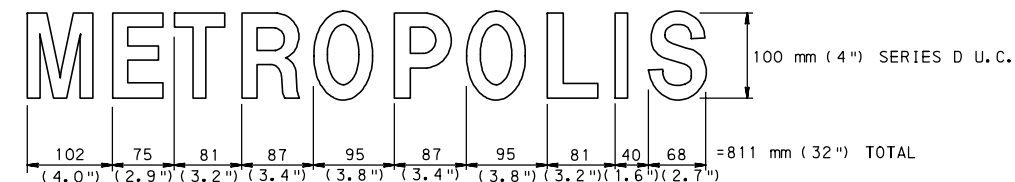
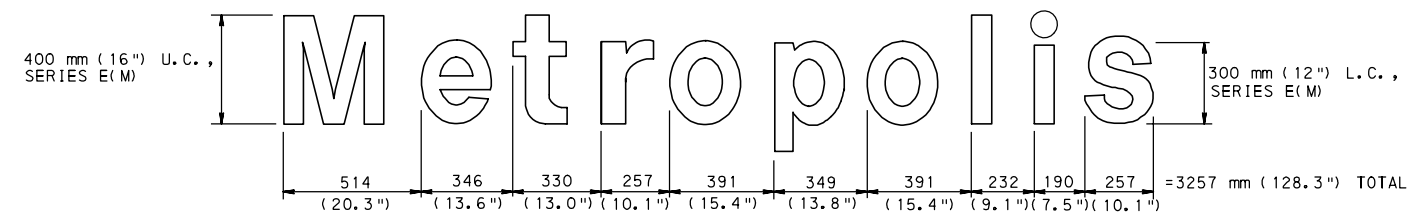
SIZE AND SPACING OF DASHES

**NOTE:**

THE DASH IS TO BE CENTERED OPTICALLY.

**HOW TO USE THE SPACING CHARTS ON THE FOLLOWING SHEETS:**

- SELECT THE PROPER CHART FROM SHEETS 2 THROUGH 17. (FOR LETTER AND NUMERAL SIZES WHERE A SPACING CHART HAS NOT BEEN PROVIDED, USE ONE OR MORE OF THE EXISTING CHARTS TO DETERMINE PROPER SPACING. FOR EXAMPLE, FOR 375 mm (15") SERIES E NUMERALS, USE 1.5 TIMES THE VALUES SHOWN FOR 250 mm (10") SERIES E NUMERALS.)
- IN THE LEFT-HAND VERTICAL COLUMN, LOCATE THE FIRST LETTER OF THE WORD BEING SPACED.
- LOCATE THE NEXT LETTER OF THE WORD BEING SPACED IN THE TOP HORIZONTAL COLUMN.
- THE FIGURE AT THE INTERSECTION OF THE TWO COLUMNS IS THE TOTAL WIDTH IN MILLIMETERS (INCHES) OF THE FIRST LETTER PLUS THE SPACE TO THE LEFT EDGE OF THE NEXT LETTER.
- TO COMPUTE THE LENGTH OF A WORD, ADD THE FIGURES OBTAINED BY REPEATING STEPS a, b, c AND d FOR EACH SUCCESSIVE LETTER PLUS THE LETTER WIDTH ONLY OF THE LAST LETTER. SEE EXAMPLES. (THE LETTER WIDTHS ARE GIVEN IN THE EXTREME LEFT-HAND COLUMN OF EACH CHART.)
- THE MINIMUM SPACING BETWEEN WORDS IN THE SAME LINE SHOULD BE THE HEIGHT OF THE UPPER CASE LETTER USED IN THAT LINE.



**EXAMPLES**

**NOTES:**

- SEE TC-8701D FOR SIGN LAYOUT DETAILS FOR FREEWAY AND EXPRESSWAY SIGNS.
- TO DETERMINE THE PROPER SIZE, SERIES AND TYPE OF LEGEND TO BE USED, SEE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND TC-8701D.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**SPACING CHARTS**  
**DIRECT APPLIED LETTERS & NUMERALS**

**GENERAL INFORMATION**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. G. Patel</i> CHIEF HIGHWAY ENGINEER	SHT. 1 OF 18 <b>TC-8700C</b>
---	--	---------------------------------





450 mm UPPER CASE to 450 mm UPPER CASE	
450	A J T V W Y B D E F H I K L M N P R U C G O Q S X Z
457 A	489
365 B	460
365 C	428
365 D	460
335 E	398
335 F	398
365 G	460
365 H	460
79 I	174
342 J	437
371 K	434
335 L	367
421 M	516
365 N	460
378 O	473
365 P	460
378 Q	473
365 R	460
365 S	460
335 T	367
365 U	460
414 V	446
479 W	511
394 X	457
457 Y	489
365 Z	428

300 mm UPPER CASE to 300 mm UPPER CASE	
300	A J T V W Y B D E F H I K L M N P R U C G O Q S X Z
305 A	326
243 B	306
243 C	285
243 D	306
224 E	266
224 F	266
243 G	306
243 H	306
52 I	115
229 J	292
248 K	290
224 L	245
281 M	344
243 N	306
252 O	315
243 P	306
252 Q	315
243 R	306
243 S	306
224 T	245
243 U	306
276 V	297
319 W	340
262 X	304
305 Y	326
243 Z	285

250 mm UPPER CASE to 250 mm UPPER CASE	
250	A J T V W Y B D E F H I K L M N P R U C G O Q S X Z
254 A	271
202 B	254
202 C	237
202 D	254
186 E	221
186 F	221
202 G	254
202 H	254
44 I	96
190 J	242
206 K	241
186 L	203
234 M	286
202 N	254
210 O	262
202 P	254
210 Q	262
202 R	254
202 S	254
186 T	203
202 U	254
230 V	247
266 W	283
218 X	253
205 Y	271
202 Z	237

200 mm UPPER CASE to 200 mm UPPER CASE	
200	A J T V W Y B D E F H I K L M N P R U C G O Q S X Z
203 A	217
162 B	204
162 C	190
162 D	204
149 E	177
149 F	177
162 G	204
162 H	204
35 I	77
152 J	194
165 K	193
149 L	163
187 M	229
162 N	204
168 O	210
162 P	204
168 Q	210
162 R	204
162 S	204
149 T	163
162 U	204
184 V	198
213 W	227
175 X	203
203 Y	217
162 Z	190

450 mm DIGIT to 450 mm DIGIT	
450	0 2 3 6 8 9 1 5 4 7
378 0	473
135 1	252
365 2	460
365 3	460
421 4	516
365 5	460
365 6	460
365 7	460
365 8	460
365 9	460

300 mm DIGIT to 300 mm DIGIT	
300	0 2 3 6 8 9 1 5 4 7
252 0	315
90 1	168
243 2	306
243 3	306
281 4	344
243 5	306
243 6	306
243 7	306
243 8	306
243 9	306

250 mm DIGIT to 250 mm DIGIT	
250	0 2 3 6 8 9 1 5 4 7
210 0	262
75 1	141
202 2	254
202 3	254
234 4	286
202 5	254
202 6	254
202 7	254
202 8	254
202 9	254

200 mm DIGIT to 200 mm DIGIT	
200	0 2 3 6 8 9 1 5 4 7
168 0	210
60 1	112
162 2	204
162 3	204
187 4	229
162 5	204
162 6	204
162 7	204
162 8	204
162 9	204

150 mm UPPER CASE to 150 mm UPPER CASE	
150	A J T V W Y B D E F H I K L M N P R U C G O Q S X Z
152 A	162
121 B	153
121 C	142
121 D	153
112 E	133
112 F	133
121 G	153
121 H	153
26 I	58
114 J	146
124 K	145
112 L	122
140 M	172
121 N	153
126 O	158
121 P	153
126 Q	158
121 R	153
121 S	153
112 T	122
121 U	153
138 V	148
160 W	170
131 X	152
152 Y	162
121 Z	142

150 mm DIGIT to 150 mm DIGIT	
150	0 2 3 6 8 9 1 5 4 7
126 0	158
45 1	84
121 2	153
121 3	153
140 4	172
121 5	153
121 6	153
121 7	153
121 8	153
121 9	153

100 mm UPPER CASE to 100 mm UPPER CASE	
100	A J T V W Y B D E F H I K L M N P R U C G O Q S X Z
102 A	109
81 B	102
81 C	95
81 D	102
75 E	89
75 F	89
81 G	102
81 H	102
18 I	39
76 J	97
83 K	97
75 L	82
94 M	115
81 N	102
84 O	105
81 P	102
84 Q	105
81 R	102
81 S	102
75 T	82
81 U	102
92 V	99
106 W	113
87 X	101
102 Y	109
81 Z	95

100 mm DIGIT to 100 mm DIGIT	
100	0 2 3 6 8 9 1 5 4 7
84 0	105
30 1	56
81 2	102
81 3	102
94 4	115
81 5	102
81 6	102
81 7	102
81 8	102
81 9	102

METRIC UNITS

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**SPACING CHARTS**  
**DIRECT APPLIED LETTERS & NUMERALS**

**UPPER CASE**  
**SERIES E (METRIC)**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. G. Patel</i> CHIEF HIGHWAY ENGINEER	SHT. 4 OF 18 TC-8700C
---	--	--------------------------

NOTE:

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. SEE SHEETS 12 THROUGH 17 FOR CORRESPONDING ENGLISH UNITS.







250		250 mm UPPER CASE to 250 mm UPPER CASE																																																			
250		135	111	95	117	159	135	107	95	107	32	111	95	123	107	115	107	117	107																																		
250		A	J	T	V	W	Y	B	D	E	F	H	I	K	L	M	N	P	R	U	C	G	O	Q	S	X	Z																										
135	A		148											173													173																										
107	B		145											155													145																										
107	C		132											145													145																										
107	D		145											155													145																										
95	E		120											133													133																										
95	F		120											133													133																										
107	G		145											155													145																										
107	H		145											155													155																										
32	I		70											80													80																										
111	J		149											159													159																										
111	K		136											149													149																										
95	L		108											133													133																										
123	M		161											171													171																										
107	N		145											155													155																										
115	O		153											163													153																										
107	P		145											155													145																										
115	Q		153											163													153																										
107	R		145											155													145																										
107	S		145											155													145																										
95	T		108											133													133																										
107	U		145											155													155																										
117	V		130											155													155																										
159	W		172											197													197																										
117	X		142											155													155																										
135	Y		148											173													173																										
107	Z		132											145													145																										

200		200 mm UPPER CASE to 200 mm UPPER CASE																																																			
200		108	89	76	94	127	108	86	76	86	25	89	76	99	86	92	86	94	86																																		
200		A	J	T	V	W	Y	B	D	E	F	H	I	K	L	M	N	P	R	U	C	G	O	Q	S	X	Z																										
108	A		118											138													138																										
86	B		116											124													116																										
86	C		106											116													116																										
86	D		116											124													116																										
76	E		96											106													106																										
76	F		96											106													106																										
86	G		116											124													116																										
86	H		116											124													124																										
25	I		55											63													63																										
89	J		119											127													127																										
89	K		109											119													119																										
76	L		86											106													106																										
99	M		129											137													137																										
86	N		116											124													124																										
92	O		122											130													122																										
86	P		116											124													116																										
92	Q		122											130													122																										
86	R		116											124													116																										
86	S		116											124													116																										
76	T		86											106													106																										
86	U		116											124													124																										
94	V		104											124													124																										
127	W		137											157													157																										
94	X		114											124													124																										
108	Y		118											138													138																										
86	Z		106											116													116																										

150		150 mm UPPER CASE to 150 mm UPPER CASE																																																			
150		81	66	57	70	95	81	64	57	64	19	66	57	74	64	69	64	70	64																																		
150		A	J	T	V	W	Y	B	D	E	F	H	I	K	L	M	N	P	R	U	C	G	O	Q	S	X	Z																										
81	A		89											104													104																										
64	B		87											93													87																										
64	C		79											87													87																										
64	D		87											93													87																										
57	E		72											80													80																										
57	F		72											80													80																										
86	G		87											93													87																										
64	H		87											93													93																										
19	I		42											48													48																										
66	J		89											95													95																										
66	K		81											89													89																										
57	L		65											80													80																										
74	M		97											103													103																										
64	N		87											93													93																										
69	O		92											98													92																										
64	P		87											93													87																										
69	Q		92											98													92																										
64	R		87											93													87																										
64	S		87											93													87																										
57	T		65											80													80																										
64	U		87											93													93																										
70	V		78											93													93																										
95	W		103											118													118																										
70	X		85											93													93																										
81	Y		89											104													104																										
64	Z		79											87													87																										

250		250 mm DIGIT to 250 mm DIGIT																								
250		115	107					52	107	123	107															
250		0	2	3	6	8	9	1	5	4	7															
115	0		153							163	153															
52	1		100							100	90															
107	2		145							155	145															
107	3		145							155	145															
123	4		161							161	136															
107	5		145							155	145															
107	6		145							155																

		20" UPPER CASE to lower case																										
20		20" UPPER CASE to lower case																										
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
18.8	A	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0	32.4	32.8	33.2	
15.2	B	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2
16.4	C	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6
16.2	D	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0	32.4
12.8	E	18.2	18.6	19.0	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6
12.2	F	17.4	17.8	18.2	18.6	19.0	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8
17.4	G	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0	32.4	32.8	33.2	33.6
15.4	H	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0	32.4
4.0	I	10.6	11.0	11.4	11.8	12.2	12.6	13.0	13.4	13.8	14.2	14.6	15.0	15.4	15.8	16.2	16.6	17.0	17.4	17.8	18.2	18.6	19.0	19.4	19.8	20.2	20.6	21.0
11.2	J	17.8	18.2	18.6	19.0	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2
15.6	K	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4
11.8	L	16.8	17.2	17.6	18.0	18.4	18.8	19.2	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2
18.4	M	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0	31.4	31.8	32.2	32.6	33.0	33.4	33.8	34.2	34.6	35.0	35.4
16.6	N	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0	32.4	32.8	33.2	33.6
18.6	O	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0	32.4	32.8	33.2	33.6	34.0	34.4	34.8
14.6	P	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0
18.6	Q	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0	32.4	32.8	33.2	33.6	34.0	34.4	34.8
15.0	R	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0
14.4	S	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0
14.4	T	19.0	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4
15.6	U	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0	31.4	31.8	32.2	32.6
17.0	V	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0	31.4	31.8
26.6	W	31.2	31.6	32.0	32.4	32.8	33.2	33.6	34.0	34.4	34.8	35.2	35.6	36.0	36.4	36.8	37.2	37.6	38.0	38.4	38.8	39.2	39.6	40.0	40.4	40.8	41.2	41.6
17.2	X	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0	31.4	31.8
17.6	Y	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0
14.4	Z	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0

		16" UPPER CASE to lower case																										
16		16" UPPER CASE to lower case																										
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
15.0	A	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3	24.6	24.9	25.2	25.5	25.8	26.1	26.4
12.2	B	16.6	17.0	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5
13.1	C	17.0	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5	24.8
13.0	D	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5	24.8	25.1	25.4
10.2	E	14.6	14.9	15.2	15.5	15.8	16.1	16.4	16.7	17.0	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4
9.8	F	13.9	14.2	14.6	14.9	15.2	15.5	15.8	16.1	16.4	16.7	17.0	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8
13.9	G	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3	24.6	24.9	25.2	25.5	25.8	26.1	26.4
12.3	H	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5	24.8	25.1	25.4
3.2	I	8.5	8.8	9.1	9.4	9.7	10.0	10.3	10.6	10.9	11.2	11.5	11.8	12.1	12.4	12.7	13.0	13.3	13.6	13.9	14.2	14.5	14.8	15.1	15.4	15.7	16.0	16.3
9.0	J	14.2	14.6	14.9	15.2	15.5	15.8	16.1	16.4	16.7	17.0	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1
12.5	K	16.0	16.3	16.6	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.2	20.5	20.8	21.1	21.4	21.7	22.0	22.3	22.6	22.9	23.2	23.5	23.8
9.4	L	13.4	13.8	14.1	14.4	14.7	15.0	15.3	15.6	15.9	16.2	16.5	16.8	17.1	17.4	17.7	18.0	18.3	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3
14.7	M	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5	24.8	25.1	25.4	25.7	26.0	26.3	26.6	26.9	27.2	27.5	27.8
13.3	N	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3	24.6	24.9	25.2	25.5	25.8	26.1	26.4
14.9	O	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3	24.6	24.9	25.2	25.5	25.8	26.1	26.4	26.7	27.0	27.3
11.7	P	15.7	16.0	16.3	16.6	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.2	20.5	20.8	21.1	21.4	21.7	22.0	22.3	22.6	22.9	23.2	23.5
14.9	Q	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3	24.6	24.9	25.2	25.5	25.8	26.1	26.4	26.7	27.0	27.3
12.0	R	16.5	16.8	17.1	17.4	17.7	18.0	18.3	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3
11.5	S	15.7	16.0	16.3	16.6	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.2	20.5	20.8	21.1	21.4	21.7	22.0	22.3	22.6	22.9	23.2	23.5
11.5	T	15.2	15.5	15.8	16.1	16.4	1																					



		20" UPPER CASE to lower case																									
20		20" UPPER CASE to lower case																									
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
18.8	A	22.0	22.4	22.4	22.8	23.2	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2
15.2	B	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6
16.4	C	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0
16.2	D	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8
12.8	E	17.0	17.4	17.8	18.2	18.6	19.0	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0
12.2	F	16.2	16.6	17.0	17.4	17.8	18.2	18.6	19.0	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2
17.4	G	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0
15.4	H	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0	31.4
4.0	I	9.4	9.8	10.2	10.6	11.0	11.4	11.8	12.2	12.6	13.0	13.4	13.8	14.2	14.6	15.0	15.4	15.8	16.2	16.6	17.0	17.4	17.8	18.2	18.6	19.0	19.4
11.2	J	16.6	17.0	17.4	17.8	18.2	18.6	19.0	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6
15.6	K	18.8	19.2	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8
11.8	L	15.6	16.0	16.4	16.8	17.2	17.6	18.0	18.4	18.8	19.2	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6
18.4	M	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0	31.4	31.8	32.2	32.6	33.0	33.4	33.8
16.6	N	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0
18.6	O	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0	32.4	32.8	33.2
14.6	P	18.4	18.8	19.2	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4
18.6	Q	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0	32.4	32.8	33.2
15.0	R	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4
14.4	S	18.4	18.8	19.2	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4
14.4	T	17.8	18.2	18.6	19.0	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8
15.6	U	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0
17.0	V	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2
26.6	W	30.0	30.4	30.8	31.2	31.6	32.0	32.4	32.8	33.2	33.6	34.0	34.4	34.8	35.2	35.6	36.0	36.4	36.8	37.2	37.6	38.0	38.4	38.8	39.2	39.6	40.0
17.2	X	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2
17.6	Y	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4
14.4	Z	18.4	18.8	19.2	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6	28.0	28.4

		16" UPPER CASE to lower case																									
16		16" UPPER CASE to lower case																									
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
15.0	A	17.6	18.0	18.4	18.8	19.2	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6
12.2	B	15.7	16.1	16.5	16.9	17.3	17.7	18.1	18.5	18.9	19.3	19.7	20.1	20.5	20.9	21.3	21.7	22.1	22.5	22.9	23.3	23.7	24.1	24.5	24.9	25.3	25.7
13.1	C	16.0	16.4	16.8	17.2	17.6	18.0	18.4	18.8	19.2	19.6	20.0	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.8	25.2	25.6	26.0
13.0	D	16.6	17.0	17.4	17.8	18.2	18.6	19.0	19.4	19.8	20.2	20.6	21.0	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6
10.2	E	13.6	13.9	14.2	14.6	14.9	15.3	15.6	16.0	16.3	16.7	17.0	17.4	17.7	18.1	18.4	18.8	19.1	19.5	19.8	20.2	20.5	20.9	21.2	21.6	21.9	22.3
9.8	F	13.0	13.3	13.6	13.9	14.2	14.5	14.8	15.1	15.4	15.7	16.0	16.3	16.6	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.2	20.5
13.9	G	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5	24.8	25.1
12.3	H	17.1	17.4	17.7	18.0	18.3	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3	24.6
3.2	I	7.5	7.8	8.2	8.5	8.9	9.2	9.5	9.8	10.1	10.4	10.7	11.0	11.3	11.6	11.9	12.2	12.5	12.8	13.1	13.4	13.7	14.0	14.3	14.6	14.9	15.2
9.0	J	13.3	13.6	13.9	14.2	14.5	14.8	15.1	15.4	15.7	16.0	16.3	16.6	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.2	20.5	20.8
12.5	K	15.0	15.4	15.7	16.0	16.4	16.7	17.1	17.4	17.8	18.1	18.5	18.8	19.2	19.5	19.9	20.2	20.6	20.9	21.3	21.6	22.0	22.3	22.7	23.0	23.4	23.7
9.4	L	12.5	12.8	13.1	13.4	13.7	14.0	14.3	14.6	14.9	15.2	15.5	15.8	16.1	16.4	16.7	17.0	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0
14.7	M	19.0	19.4	19.7	20.0	20.4	20.7	21.1	21.4	21.8	22.1	22.5	22.8	23.2	23.5	23.9	24.2	24.6	24.9	25.3	25.6	26.0	26.3	26.7	27.0	27.4	27.7
13.3	N	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5	24.8	25.1
14.9	O	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3	24.6	24.9	25.2	25.5	25.8	26.1
11.7	P	14.7	15.0	15.4	15.7	16.0	16.3	16.6	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.2	20.5	20.8	21.1	21.4	21.7	22.0	22.3
14.9	Q	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7	24.0	24.3	24.6	24.9	25.2	25.5	25.8	26.1
12.0	R	15.5	15.8	16.2	16.5	16.8	17.1	17.4	17.7	18.0	18.3	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1
11.5	S	14.7	15.0	15.4	15.7	16.0	16.3	16.6	16.9	17.2	17.5	17.8	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.2	20.5	20.8	21.1	21.4	21.7	22.0	22.3
11.5	T	14.2	14.6	14.9	15.2	15.5	15.8	16.1	16.4	16.7	17.0	17.3	17.6	17.9	18.2	18.5	18.8	19.1	19.4	19.7	20.0	20.3	20.6	20.9	21.2	21.5	21.8
12.5	U	16.8	17.1	17.4	17.7	18.0	18.3	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.6	21.9	22.2	22.5	22.8	23.1				

20		20" lower case to lower case																											
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z		
14.8	a	18.8	19.2	19.2	19.6																								
14.4	b	18.8	19.2	19.2	19.6																								
13.6	c	17.0	17.4	17.4	17.8																								
14.6	d	19.8	20.2	20.2	20.6																								
14.8	e	19.2	19.6	19.6	20.0																								
9.6	f	13.0	13.4	13.4	13.8																								
14.6	g	19.8	20.2	20.2	20.6																								
13.8	h	19.0	19.4	19.4	19.8																								
4.6	i	9.4	9.8	9.8	10.2																								
8.8	j	13.6	14.0	14.0	14.4																								
14.2	k	17.0	17.4	17.4	17.8																								
6.4	l	10.0	10.4	10.4	10.8																								
22.6	m	27.8	28.2	28.2	28.6																								
13.8	n	19.0	19.4	19.4	19.8																								
15.4	o	19.8	20.2	20.2	20.6																								
14.6	p	19.0	19.4	19.4	19.8																								
16.0	q	19.8	20.2	20.2	20.6																								
9.2	r	12.6	13.0	13.0	13.4																								
12.8	s	16.8	17.2	17.2	17.6																								
9.8	t	13.6	14.0	14.0	14.4																								
13.6	u	18.8	19.2	19.2	19.6																								
15.2	v	18.0	18.4	18.4	18.8																								
23.2	w	26.2	26.6	26.6	27.0																								
15.4	x	18.0	18.4	18.4	18.8																								
15.6	y	18.4	18.8	18.8	19.2																								
12.2	z	16.0	16.4	16.4	16.8																								

16		16" lower case to lower case																											
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z		
11.8	a	15.0	15.4	15.4	15.7																								
11.5	b	15.0	15.4	15.4	15.7																								
10.9	c	13.6	13.9	13.9	14.2																								
11.7	d	15.8	16.2	16.2	16.5																								
11.8	e	15.4	15.7	15.7	16.0																								
7.7	f	10.4	10.7	10.7	11.0																								
11.7	g	15.8	16.2	16.2	16.5																								
11.0	h	15.2	15.5	15.5	15.8																								
3.7	i	7.5	7.8	7.8	8.2																								
7.0	j	10.9	11.2	11.2	11.5																								
11.4	k	13.6	13.9	13.9	14.2																								
5.1	l	8.0	8.3	8.3	8.6																								
18.1	m	22.2	22.6	22.6	22.9																								
11.0	n	15.2	15.5	15.5	15.8																								
12.3	o	15.8	16.2	16.2	16.5																								
11.7	p	15.2	15.5	15.5	15.8																								
12.8	q	15.8	16.2	16.2	16.5																								
7.4	r	10.1	10.4	10.4	10.7																								
10.2	s	13.4	13.8	13.8	14.1																								
7.8	t	10.9	11.2	11.2	11.5																								
10.9	u	15.0	15.4	15.4	15.7																								
12.2	v	14.4	14.7	14.7	15.0																								
18.6	w	21.0	21.3	21.3	21.6																								
12.3	x	14.4	14.7	14.7	15.0																								
12.5	y	14.7	15.0	15.0	15.4																								
9.8	z	12.8	13.1	13.1	13.4																								

13.3		13.3" lower case to lower case																											
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z		
9.8	a	12.5	12.8	12.8	13.0																								
9.6	b	12.5	12.8	12.8	13.0																								
9.0	c	11.3	11.6	11.6	11.8																								
9.7	d	13.2	13.4	13.4	13.7																								
9.8	e	12.8	13.0	13.0	13.3																								
6.4	f	8.6	8.9	8.9	9.2																								
9.7	g	13.2	13.4	13.4	13.7																								
9.2	h	12.6	12.9	12.9	13.2																								
3.1	i	6.3	6.5	6.5	6.8																								
5.9	j	9.0	9.3	9.3	9.6																								
9.4	k	11.3	11.6	11.6	11.8																								
4.3	l	6.7	6.9	6.9	7.2																								
15.0	m	18.5	18.8	18.8	19.0																								
9.2	n	12.6	12.9	12.9	13.2																								
10.2	o	13.2	13.4	13.4	13.7																								
9.7	p	12.6	12.9	12.9	13.2																								
10.6	q	13.2	13.4	13.4	13.7																								
6.1	r	8.4	8.6	8.6	8.9																								
8.5	s	11.2	11.4	11.4	11.7																								
6.5	t	9.0	9.3	9.3	9.6																								
9.0	u	12.5	12.8	12.8	13.0																								
10.1	v	12.0	12.2	12.2	12.5																								
15.4	w	17.4	17.7	17.7	18.0																								
10.2	x	12.0	12.2	12.2	12.5																								
10.4	y	12.2	12.5	12.5	12.8																								
8.1	z	10.6	10.9	10.9	11.2																								





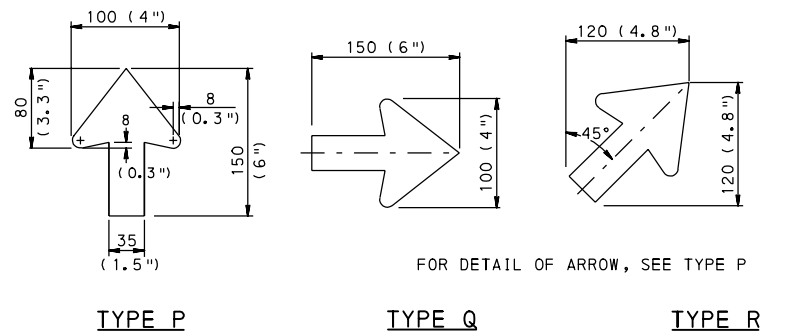




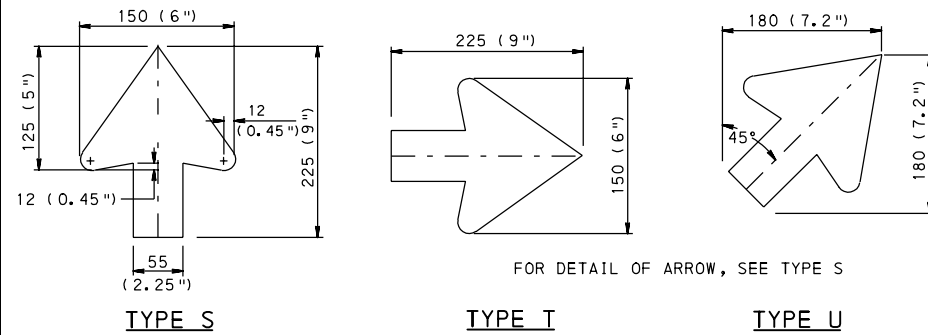




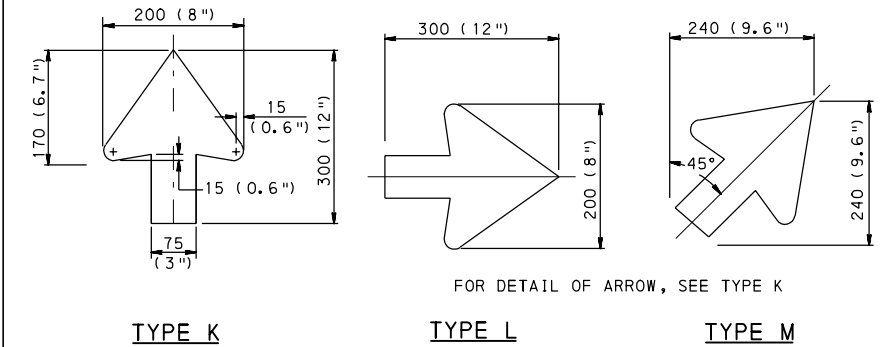




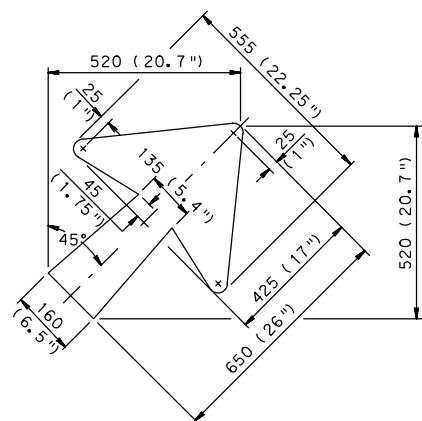
DESTINATION SIGN ARROWS (100 mm (4") LEGEND)



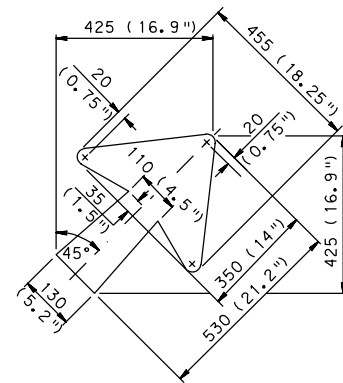
DESTINATION SIGN ARROWS (150 mm (6") LEGEND)



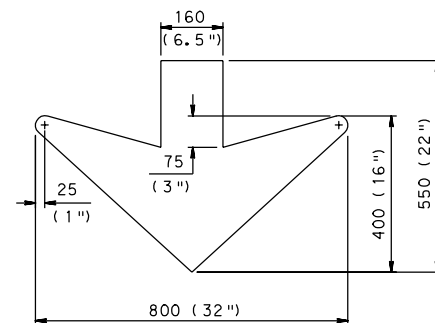
FREEWAY / EXPRESSWAY RAMP SIGNING



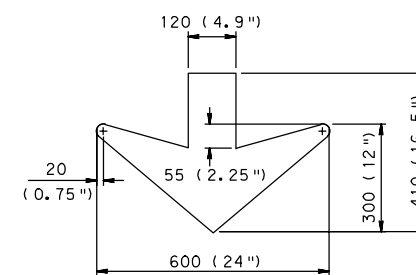
TYPE A



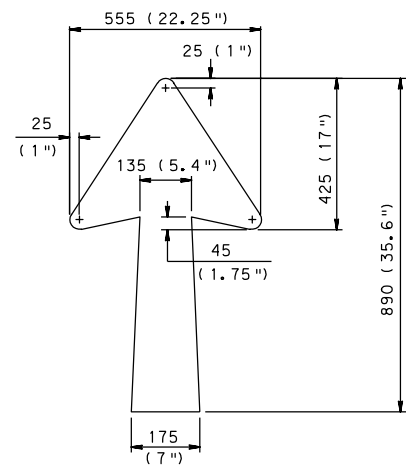
TYPE B



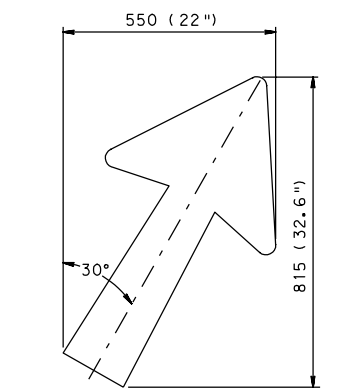
TYPE C



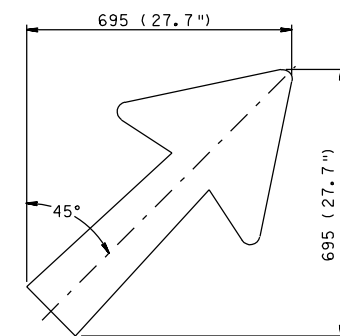
TYPE D



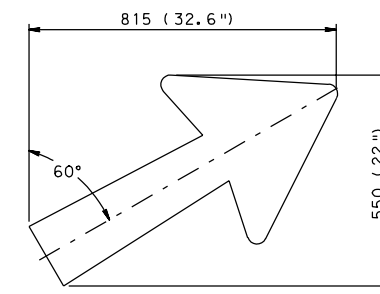
TYPE E



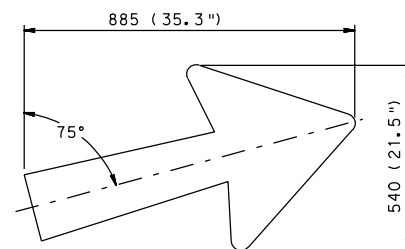
TYPE F



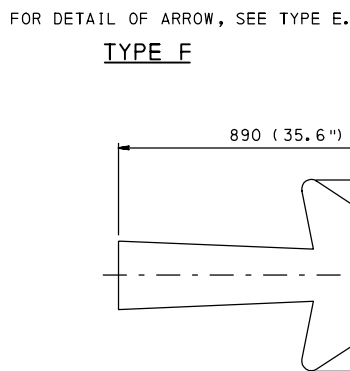
TYPE G



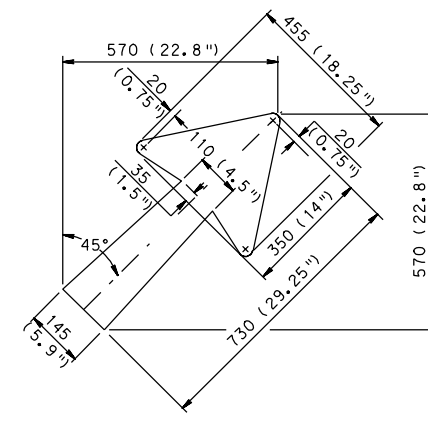
TYPE H



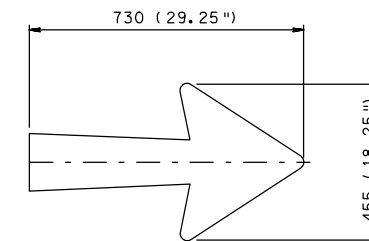
TYPE I



TYPE J



TYPE N



TYPE O

FREEWAY / EXPRESSWAY SIGNING

NOTES:

1. ARROW TYPES A THROUGH J, N AND O ARE FOR USE ON FREEWAY AND EXPRESSWAY SIGNS.
2. ARROW TYPES K, L AND M ARE FOR USE ON FREEWAY AND EXPRESSWAY RAMP SIGNS.
3. ARROW TYPES P, Q AND R ARE FOR USE ON DESTINATION SIGNS WITH 100 mm (4") LEGEND.
4. ARROW TYPES S, T AND U ARE FOR USE ON DESTINATION SIGNS WITH 150 mm (6") LEGEND.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
6. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

SPACING CHARTS  
DIRECT APPLIED

ARROWS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

SHT. 18 OF 18

TC-8700C

## SIGNING PLANS

1. THE SIGNING PLANS SHOULD BE DRAWN TO A SCALE OF 1 : 1000 (1" = 100'). A PLAN VIEW OF THE SIGNS AND SIGN SUPPORTS SHOULD BE DEPICTED AT THE APPROXIMATE LOCATIONS AND SMALL PICTORIAL DRAWINGS OF THE SIGN FACES SHOULD BE INCLUDED NEAR THE PLAN VIEW, ALONG WITH THE TYPE OF POST AND/OR SUPPORT. A NUMBER SHALL BE ASSIGNED TO EACH SIGN NOT INCLUDED IN THE DEPARTMENT'S PUBLICATION 236M AND CROSS-REFERENCED TO THE SIGN FABRICATION DETAILS.
2. ALL SIGNS SHALL BE DESIGNED IN ACCORDANCE TO THE LAYOUT DETAILS INCLUDED IN TRAFFIC STANDARD TC-8701D.
3. SIGN LIGHTING SHOULD BE INCLUDED FOR ALL OVERHEAD GUIDE SIGNS EXCEPT SIGNS ON TANGENT ROADWAYS WHERE MOTORISTS HAVE A CLEARVIEW OF THE SIGN FOR A MINIMUM OF 360 m (800') AND WHERE THE VERTICAL ALIGNMENT IS SUCH THAT LOW BEAM HEADLIGHTS WILL ILLUMINATE THE SIGNS.

## DESCRIPTION OF SIGNS

1. MAJOR GUIDE SIGNS PROVIDE MOTORISTS ADVANCE INFORMATION ON THE PRINCIPAL DESTINATIONS SERVED BY THE INTERCHANGE. TWO OR THREE MAJOR GUIDE SIGNS SHOULD BE USED, WITH TYPICAL PLACEMENT BEING 3.2 km (2 miles), 1.6 km (1 mile) AND 0.8 km (0.5 mile) IN ADVANCE OF THE EXIT. THE FOLLOWING INFORMATION SHOULD BE DISPLAYED ON MAJOR GUIDE SIGNS, BEGINNING FROM THE TOP OF THE SIGN.
  - A. AN EXIT PANEL WHEN THE EXIT IS NUMBERED. THE PANEL SHOULD BE ON THE RIGHT SIDE FOR RIGHT-HAND EXITS, AND ON THE LEFT SIDE FOR LEFT-HAND EXITS.
  - B. A SHIELD FOR EACH NUMBERED TRAFFIC ROUTE ASSIGNED TO THE CROSSING ROUTE OR WHICH IS VERY CLOSE TO THE INTERCHANGE. A CARDINAL DIRECTION SHOULD BE ASSOCIATED WITH EACH ROUTE WHERE TRAFFIC CAN ONLY GO IN ONE DIRECTION, AND THE WORD "TO" SHOULD BE USED ABOVE THE SHIELD OF ROUTES WHICH ARE CLOSE TO THE INTERCHANGE.
  - C. THE NAME OF THE TWO NEAREST COMMUNITIES AS IDENTIFIED ON THE OFFICIAL TRANSPORTATION MAP, ONE TO THE LEFT AND ONE TO THE RIGHT, UNLESS ALTERNATE DESTINATIONS ARE APPROVED IN ACCORDANCE WITH DEPARTMENT POLICY. AT SINGLE EXIT INTERCHANGES, THE COMMUNITY NAME TO THE LEFT SHOULD BE ABOVE THE COMMUNITY NAME TO THE RIGHT; AT DOUBLE EXIT INTERCHANGES, THE TOP NAME SHOULD BE THE COMMUNITY SERVED BY THE FIRST EXIT. IN URBAN AREAS, THE STREET NAME SHOULD BE USED IN LIEU OF COMMUNITY NAMES.
  - D. THE DISTANCE TO THE EXIT IN MILES AND/OR FRACTIONS OF MILES SHOULD BE SHOWN BELOW THE COMMUNITY NAMES OR THE STREET NAME. FRACTIONS SHOULD TYPICALLY BE SHOWN TO THE NEAREST 1/4 MILE, ALTHOUGH THE FRACTIONS "1/8" AND "3/8" ARE ACCEPTABLE. THE WORD "EXIT" OR "EXITS" SHOULD PRECEDE THE DISTANCE IF THE EXIT IS NOT NUMBERED.
2. A SUPPLEMENTAL GUIDE SIGN MAY INCLUDE ONE OR TWO DESTINATIONS, WHICH MAY BE A LARGE COMMUNITY NOT IDENTIFIED ON THE MAJOR GUIDE SIGNS OR ANY OTHER LARGE TRAFFIC GENERATOR IN ACCORDANCE WITH DEPARTMENT POLICY.
3. SERVICE SIGNS ARE USED TO IDENTIFY GAS, FOOD, LODGING, CAMPING, VISITOR INFORMATION, HOSPITAL, DIESEL, AND STATE POLICE. WITH THE EXCEPTION OF STATE POLICE, GENERAL MOTORIST SERVICE SIGNS INSTALLED ON NEW PANELS SHALL BE THE SYMBOL TYPE AS ILLUSTRATED IN TRAFFIC STANDARD TC-8701D.  
  
AS AN ALTERNATE TO GENERAL MOTORISTS SERVICE SIGNS, LOGO SIGNS MAY BE INSTALLED ON SELECTED INTERSTATE HIGHWAYS AND OTHER FREEWAYS IN ACCORDANCE WITH DEPARTMENT POLICY. WHEN LOGO SIGNS ARE INSTALLED, ALL GENERAL MOTORIST SERVICE SIGNS WILL BE REMOVED, UNLESS A SPECIFIC SERVICE IS NOT REPRESENTED BY A LOGO SIGN.
4. EXIT DIRECTION SIGNS SHOULD INCLUDE THE SAME TRAFFIC ROUTES AND DESTINATIONS AS INCLUDED ON THE MAJOR GUIDE SIGNS, AS APPROPRIATE, PLUS AN UPWARD-POINTING OR SLANTING ARROW. THE ALIGNMENT OF THE ARROW SHOULD APPROXIMATE THE ANGLE RELATED TO THE SHARPNESS OF THE TURN.
5. GORE SIGNS SHALL BE LOCATED IN THE AREA BETWEEN THE MAIN ROADWAY AND THE RAMP AT ALL EXITS. THE SIGNS SHALL HAVE THE WORD "EXIT" AND AN ARROW; IF THE EXIT IS NUMBERED, THE NUMBER OR NUMBER AND LETTER SHOULD ALSO BE INCLUDED.
6. CONFIRMATION ROUTE MARKERS SHOULD NOT BE USED BETWEEN CLOSELY SPACED INTERCHANGES OR WHEN A "PULL-THRU SIGN" FOLLOWS THE INTERCHANGE.

7. OFF-RAMP DIRECTIONAL SIGNS ARE USED ON ALL DIAMOND INTERCHANGE OFF-RAMPS, AND SHOULD INCLUDE ALL DESTINATIONS INCLUDED ON THE MAJOR AND SUPPLEMENTAL GUIDE SIGNS. THE DISTANCE IN THE NEAREST NUMBER OF WHOLE MILES TO THE DESTINATION SHOULD BE INCLUDED IF THE DESTINATION IS OVER 3.2 km (2 miles) AWAY, WHERE THE DISTANCE IS THE DISTANCE TO THE CENTER OF THE COMMUNITY OR ENTRANCE TO THE TRAFFIC GENERATOR.
8. POST-INTERCHANGE DISTANCE SIGNS SHOULD BE USED IN RURAL AREAS AND WHERE UNDUE REPETITION OF MESSAGES WILL NOT OCCUR. WHEN USED, IT SHOULD INCLUDE TWO OR THREE DESTINATION POINTS AND THE DISTANCES IN THE NEAREST NUMBER OF WHOLE MILES TO THOSE POINTS. THE FIRST DESTINATION SHOULD BE THE CLOSEST MEANINGFUL COMMUNITY WHICH IS NEAR AN INTERCHANGE; THE LAST DESTINATION IS THE NEAREST NATIONAL CONTROL CITY; AND AN INTERMEDIATE DESTINATION MAY BE INCLUDED BETWEEN THE TWO OTHER DESTINATIONS. CONSIDERATION MAY ALSO BE GIVEN TO INCLUDING MAJOR INTERSECTING HIGHWAY ROUTES AS DESTINATIONS USING THE ROUTE NUMBER (i.e., PA 30, US 30, etc.) EXCEPT PA TURNPIKE MAY BE USED. SHIELDS ARE NOT REQUIRED.
9. NEXT ( ) EXITS AREA SIGNS MAY BE USED IN ADVANCE OF MORE THAN THREE INTERCHANGES SERVING AN URBAN AREA OR HISTORICAL OR RECREATIONAL REGION. INTERCHANGE SEQUENCE SERIES SIGNS MAY BE USED PRIOR TO ALL BUT THE LAST INTERCHANGE.
10. INTERCHANGE SEQUENCE SIGNS ARE USED IN LARGE URBAN AREAS WHEN THE INTERCHANGES ARE CLOSELY SPACED IN ORDER TO IDENTIFY THE NEXT TWO OR THREE INTERCHANGES. WHEN USED, THE INTERCHANGE SEQUENCE SIGNS SHOULD NORMALLY BE INSTALLED IN THE MEDIAN OR ON AN OVERHEAD STRUCTURE. THEY FREQUENTLY CAN BE INSTALLED BACK-TO-BACK, ONE IN EACH DIRECTION.
11. COMMUNITY INTERCHANGES IDENTIFICATION SIGNS MAY BE USED FOR SUBURBAN OR RURAL COMMUNITIES SERVED BY TWO OR THREE INTERCHANGES. THE SIGN IS IDENTICAL TO THE INTERCHANGE SEQUENCE SIGN EXCEPT THE NAME OF THE COMMUNITY AND THE WORD "EXITS" IS SHOWN ON THE TOP OF THE SIGN. THE SIGN SHOULD BE LOCATED IN ADVANCE OF THE FIRST INTERCHANGE FOR THE COMMUNITY.
12. LANE ASSIGNMENT SIGNS MAY BE USED TO ASSIGN A PARTICULAR LANE FOR A GIVEN DESTINATION. A DOWN ARROW IS NORMALLY USED, BUT ALTERNATE MESSAGES SUCH AS "LEFT LANE", "RIGHT LANES", ETC. MAY BE USED.
13. PULL-THRU SIGNS MAY BE USED WHEN THE GEOMETRICS OF THE INTERCHANGE ARE COMPLEX, SUCH AS AT THE JUNCTION OF FREEWAYS AND WHEN IT IS NOT CLEAR TO THE DRIVER WHICH ROADWAY IS THE THROUGH ROADWAY. A NATIONAL OR REGIONAL CONTROL CITY SHOULD BE USED AS THE DESTINATION. DOWN ARROWS MAY BE USED WHEN THE ALIGNMENT AND NUMBER OF THROUGH LANES IS NOT READILY EVIDENT. (PULL-THRU SIGNS ARE SIMILAR TO LANE ASSIGNMENT SIGNS BUT NEVER HAVE DISTANCES OR EXIT PANELS.)
14. EXIT ONLY PANELS SHOULD BE USED FOR ALL INTERCHANGE LANE DROPS AT WHICH THE THROUGH ROUTE IS CARRIED ON THE MAINLINE. EXIT ONLY PANELS SHOULD ALWAYS BE INSTALLED OVERHEAD, IN CONJUNCTION WITH LANE ASSIGNMENT SIGNS, EXIT DIRECTION SIGNS AND DIAGRAMMATIC SIGNS.
15. DIAGRAMMATIC SIGNS PROVIDE A GRAPHIC VIEW OF THE EXIT IN RELATIONSHIP TO THE MAIN HIGHWAY. THEY SHOULD BE USED FOR SPLITS HAVING OFF-RAMP MOVEMENTS TO THE LEFT, OPTIONAL LANE SPLITS, EXITS WITH ROUTE DISCONTINUITY, AND LEFT EXIT LANE DROPS; AND THEY ALSO MAY BE USED AT TWO-LANE EXITS WITH AN OPTIONAL LANE. DIAGRAMMATIC SIGNS SHOULD BE DESIGNED IN ACCORDANCE WITH THE STANDARD HIGHWAY SIGNS BOOK, AS PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
16. EXIT PANELS SHALL BE USED ON ALL MAJOR GUIDE, EXIT DIRECTION, LANE ASSIGNMENT, AND DIAGRAMMATIC SIGNS WHEN EXIT NUMBERS HAVE BEEN ASSIGNED. THE PLURAL "EXITS" SHOULD BE USED IN ADVANCE OF INTERCHANGES WITH MORE THAN ONE EXIT, ALONG WITH THE RAMP DESIGNATIONS "A-B" OR "B-A", DEPENDING UPON WHICH RAMP DESIGNATION IS SERVED FIRST. (WHEN THERE ARE TWO EXITS, THE FIRST ONE IN THE DIRECTION OF INCREASING DISTANCE MARKERS IS DESIGNATED AS "A", THE SECOND ONE AS "B".)
17. ADVISORY EXIT SPEED SIGNS (W13-2) AS DETAILED IN THE DEPARTMENT'S PUBLICATION 236M SHALL BE INSTALLED ALONGSIDE THE DECELERATION LANE, POSITIONED APPROXIMATELY AT THE MID-POINT.
18. NEXT EXIT ( ) MILES SIGN SHOULD BE USED BELOW THE ADVANCE GUIDE SIGN NEAREST THE INTERCHANGE (NORMALLY THE 1 MILE ADVANCE GUIDE SIGN) WHEN THE DISTANCE BETWEEN SUCCESSIVE RURAL INTERCHANGES IS MORE THAN 8 km (5 miles). THIS SIGN MAY BE FABRICATED AS AN INTEGRAL PART OF THE ADVANCE GUIDE SIGN OR MAY BE A SEPARATE SUPPLEMENTARY PANEL, WHEN A SEPARATE PANEL IS USED, ENSURE THAT IT IS INSTALLED ON THE POST ABOVE THE HINGE PLATE.

### NOTE:

EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

## INTERCHANGE ADVANCE SIGNING GENERAL NOTES

RECOMMENDED MAY 25, 2007

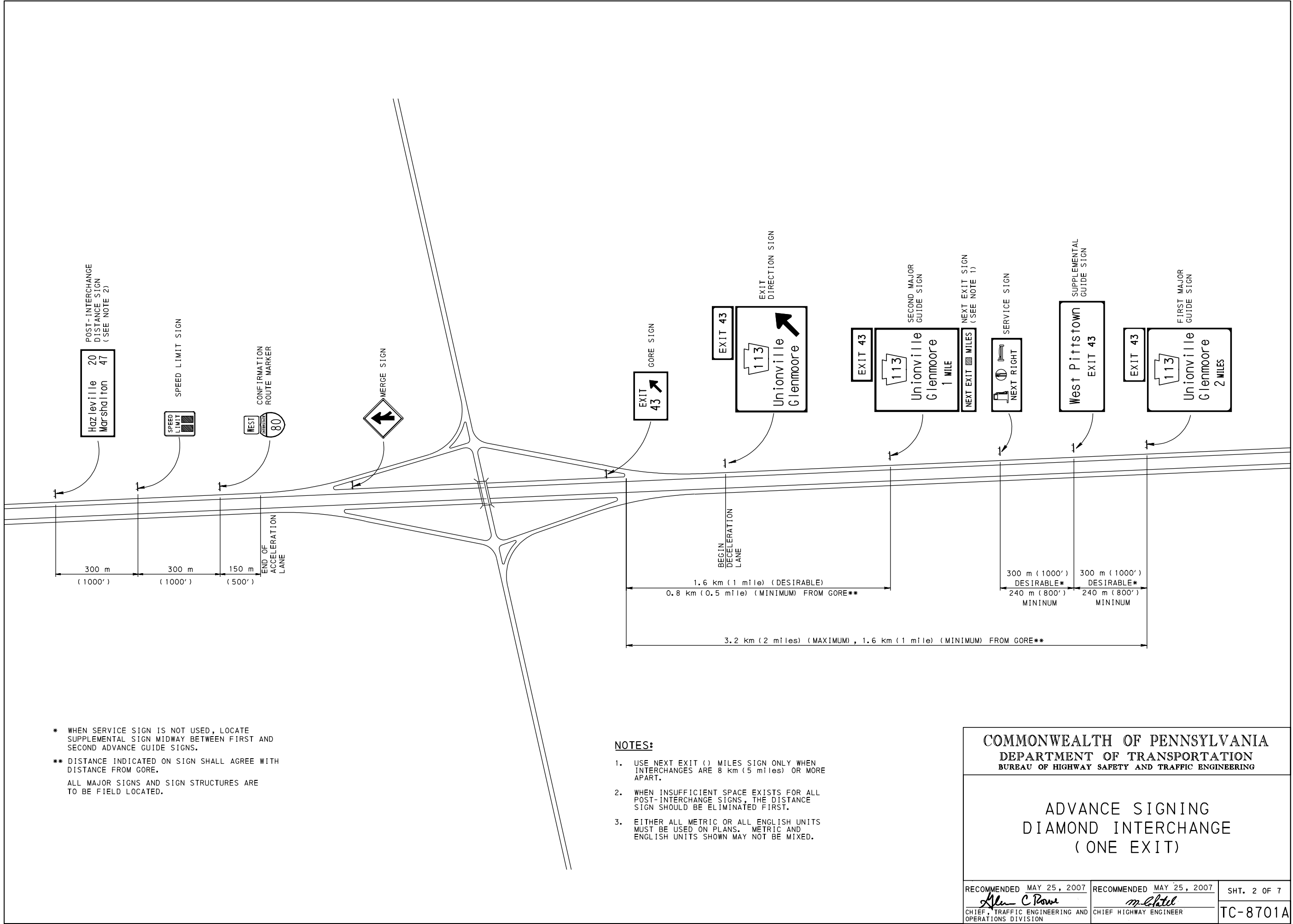
*Alan C. Rowe*  
 CHIEF, TRAFFIC ENGINEERING AND  
 OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007

*m. G. Patel*  
 CHIEF HIGHWAY ENGINEER

SHT. 1 OF 7

TC-8701A



POST-INTERCHANGE DISTANCE SIGN (SEE NOTE 2)  
 Hazleville 20  
 Marshallton 47

SPEED LIMIT SIGN  
 SPEED LIMIT 80

CONFIRMATION ROUTE MARKER  
 WEST 80

MERGE SIGN

EXIT 43  
 GORE SIGN

EXIT DIRECTION SIGN  
 113  
 Unionville  
 Glenmoore

EXIT 43  
 SECOND MAJOR GUIDE SIGN  
 113  
 Unionville  
 Glenmoore  
 1 MILE  
 NEXT EXIT SIGN (SEE NOTE 1)

SERVICE SIGN  
 NEXT RIGHT

SUPPLEMENTAL GUIDE SIGN  
 West Pittstown  
 EXIT 43

EXIT 43  
 FIRST MAJOR GUIDE SIGN  
 113  
 Unionville  
 Glenmoore  
 2 MILES

300 m (1000')  
 300 m (1000')  
 150 m (500')

END OF ACCELERATION LANE

BEGIN DECELERATION LANE  
 1.6 km (1 mile) (DESIRABLE)  
 0.8 km (0.5 mile) (MINIMUM) FROM GORE\*\*  
 3.2 km (2 miles) (MAXIMUM), 1.6 km (1 mile) (MINIMUM) FROM GORE\*\*  
 300 m (1000') DESIRABLE\*  
 240 m (800') MINIMUM  
 300 m (1000') DESIRABLE\*  
 240 m (800') MINIMUM

\* WHEN SERVICE SIGN IS NOT USED, LOCATE SUPPLEMENTAL SIGN MIDWAY BETWEEN FIRST AND SECOND ADVANCE GUIDE SIGNS.  
 \*\* DISTANCE INDICATED ON SIGN SHALL AGREE WITH DISTANCE FROM GORE.  
 ALL MAJOR SIGNS AND SIGN STRUCTURES ARE TO BE FIELD LOCATED.

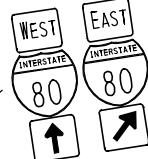
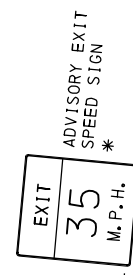
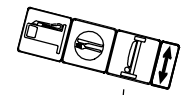
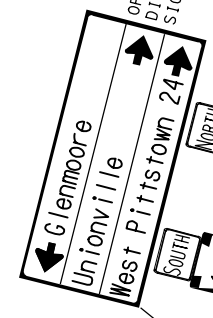
- NOTES:**
1. USE NEXT EXIT ( ) MILES SIGN ONLY WHEN INTERCHANGES ARE 8 km (5 miles) OR MORE APART.
  2. WHEN INSUFFICIENT SPACE EXISTS FOR ALL POST-INTERCHANGE SIGNS, THE DISTANCE SIGN SHOULD BE ELIMINATED FIRST.
  3. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

ADVANCE SIGNING  
 DIAMOND INTERCHANGE  
 ( ONE EXIT )

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 7 TC-8701A
---	--	-------------------------

YIELD SIGN NOT BE USED IF  
(SHOULD NOT BE USED IF  
ADEQUATE ACCELERATION  
LANE EXISTS).



BEGIN DECELERATION LANE

100 m (300')

100 m (300')

\* IF NEEDED.

**NOTE:**

EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

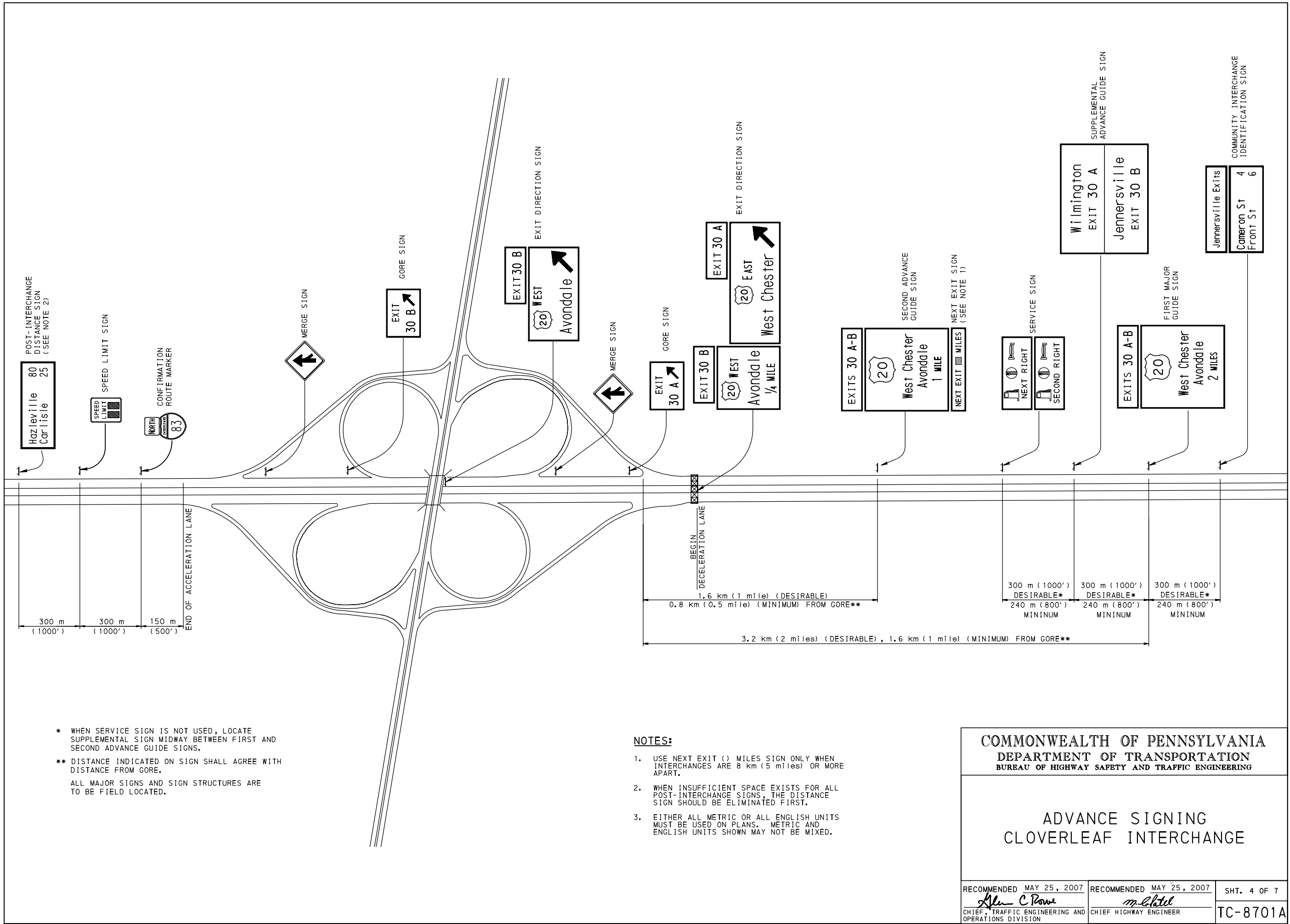
SIGNING  
DIAMOND INTERCHANGE

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Latel*  
CHIEF HIGHWAY ENGINEER

SHT. 3 OF 7

TC-8701A



POST-INTERCHANGE DISTANCE SIGN (SEE NOTE 2)

Hazleville 80  
Carlisle 25

SPEED LIMIT SIGN

SPEED LIMIT 80

CONFIRMATION ROUTE MARKER

NORTH INTERSTATE 83

300 m (1000')  
300 m (1000')  
150 m (500')

END OF ACCELERATION LANE

GORE SIGN

EXIT 30 B

EXIT 30 B

20 WEST  
Avondale

GORE SIGN

EXIT 30 A

EXIT 30 B

20 WEST  
Avondale  
1/4 MILE

EXIT 30 A

20 EAST  
West Chester

EXITS 30 A-B

20  
West Chester  
Avondale  
1 MILE

NEXT EXIT SIGN (SEE NOTE 1)

NEXT EXIT MILES

SERVICE SIGN

NEXT RIGHT  
SECOND RIGHT

SUPPLEMENTAL ADVANCE GUIDE SIGN

Wilmington  
EXIT 30 A  
Jenner'sville  
EXIT 30 B

FIRST MAJOR GUIDE SIGN

EXITS 30 A-B

20  
West Chester  
Avondale  
2 MILES

COMMUNITY INTERCHANGE IDENTIFICATION SIGN

Jenner'sville Exits  
Cameron St  
Front St

1.6 km (1 mile) (DESIRABLE)  
0.8 km (0.5 mile) (MINIMUM) FROM GORE\*\*

3.2 km (2 miles) (DESIRABLE), 1.6 km (1 mile) (MINIMUM) FROM GORE\*\*

300 m (1000') DESIRABLE\*  
240 m (800') MINIMUM

300 m (1000') DESIRABLE\*  
240 m (800') MINIMUM

300 m (1000') DESIRABLE\*  
240 m (800') MINIMUM

\* WHEN SERVICE SIGN IS NOT USED, LOCATE SUPPLEMENTAL SIGN MIDWAY BETWEEN FIRST AND SECOND ADVANCE GUIDE SIGNS.

\*\* DISTANCE INDICATED ON SIGN SHALL AGREE WITH DISTANCE FROM GORE.

ALL MAJOR SIGNS AND SIGN STRUCTURES ARE TO BE FIELD LOCATED.

- NOTES:**
1. USE NEXT EXIT ( ) MILES SIGN ONLY WHEN INTERCHANGES ARE 8 km (5 miles) OR MORE APART.
  2. WHEN INSUFFICIENT SPACE EXISTS FOR ALL POST-INTERCHANGE SIGNS, THE DISTANCE SIGN SHOULD BE ELIMINATED FIRST.
  3. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

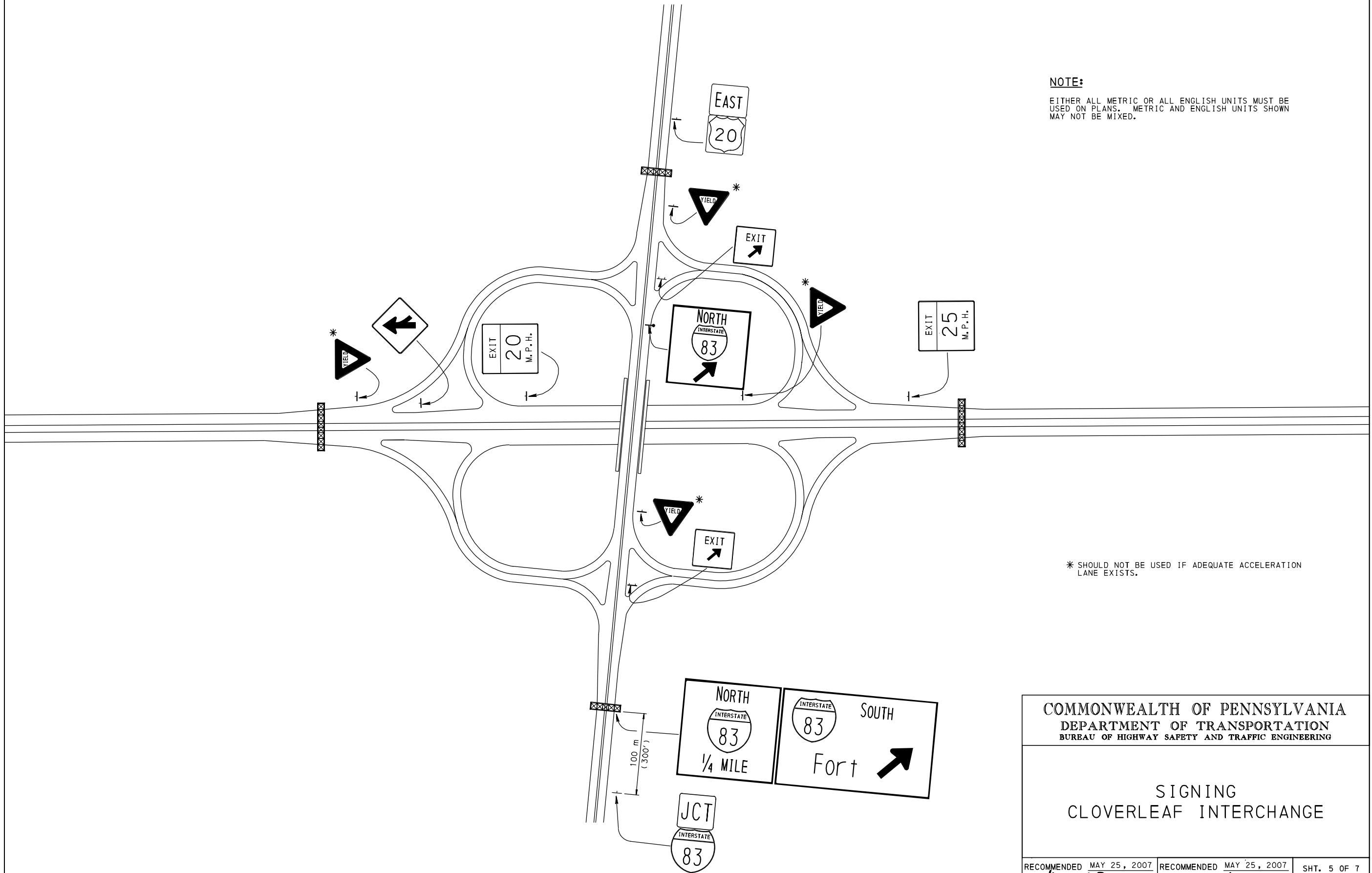
ADVANCE SIGNING  
CLOVERLEAF INTERCHANGE

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 4 OF 7 TC-8701A
---	--	-------------------------



**NOTE:**

EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



\* SHOULD NOT BE USED IF ADEQUATE ACCELERATION LANE EXISTS.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

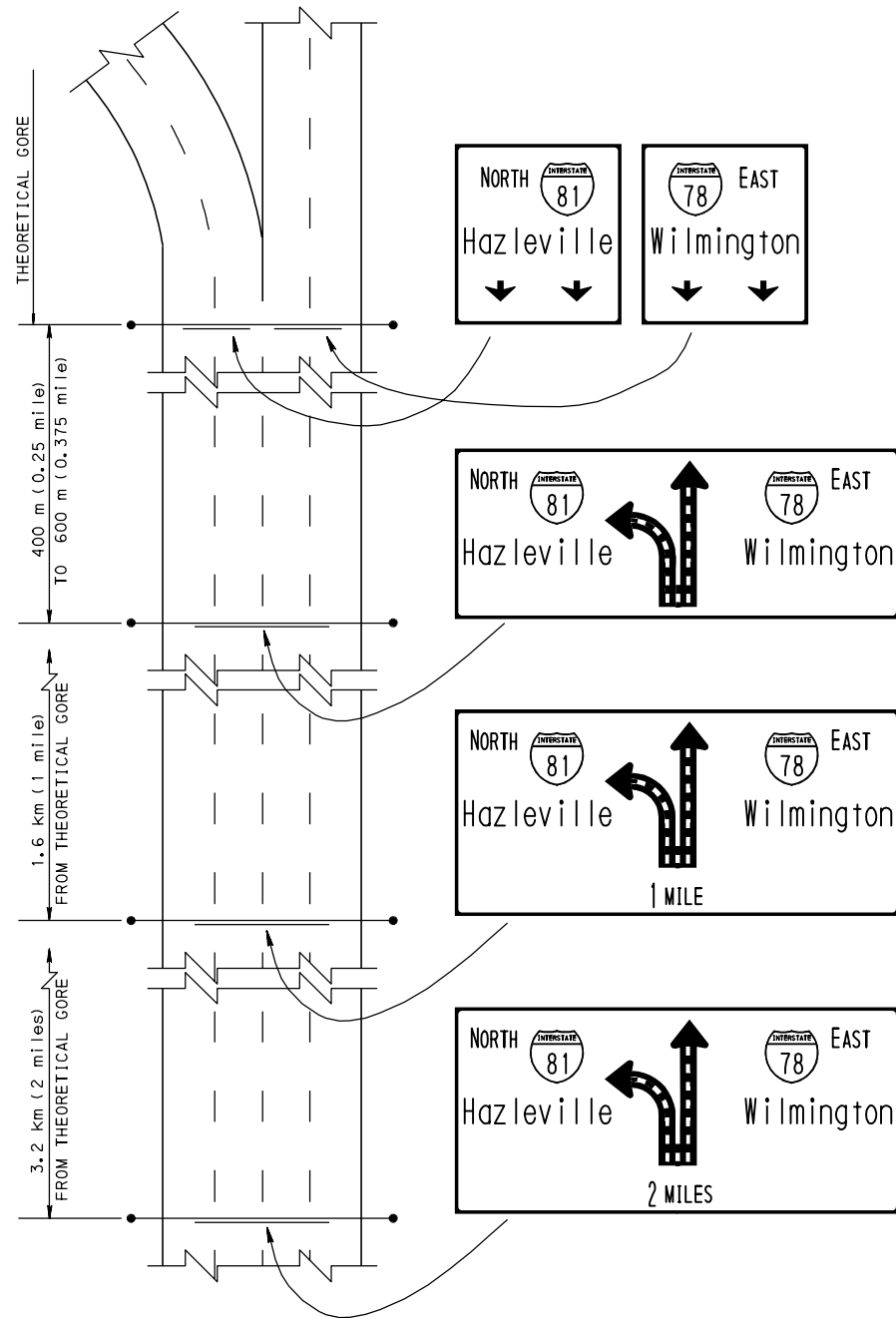
SIGNING  
CLOVERLEAF INTERCHANGE

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

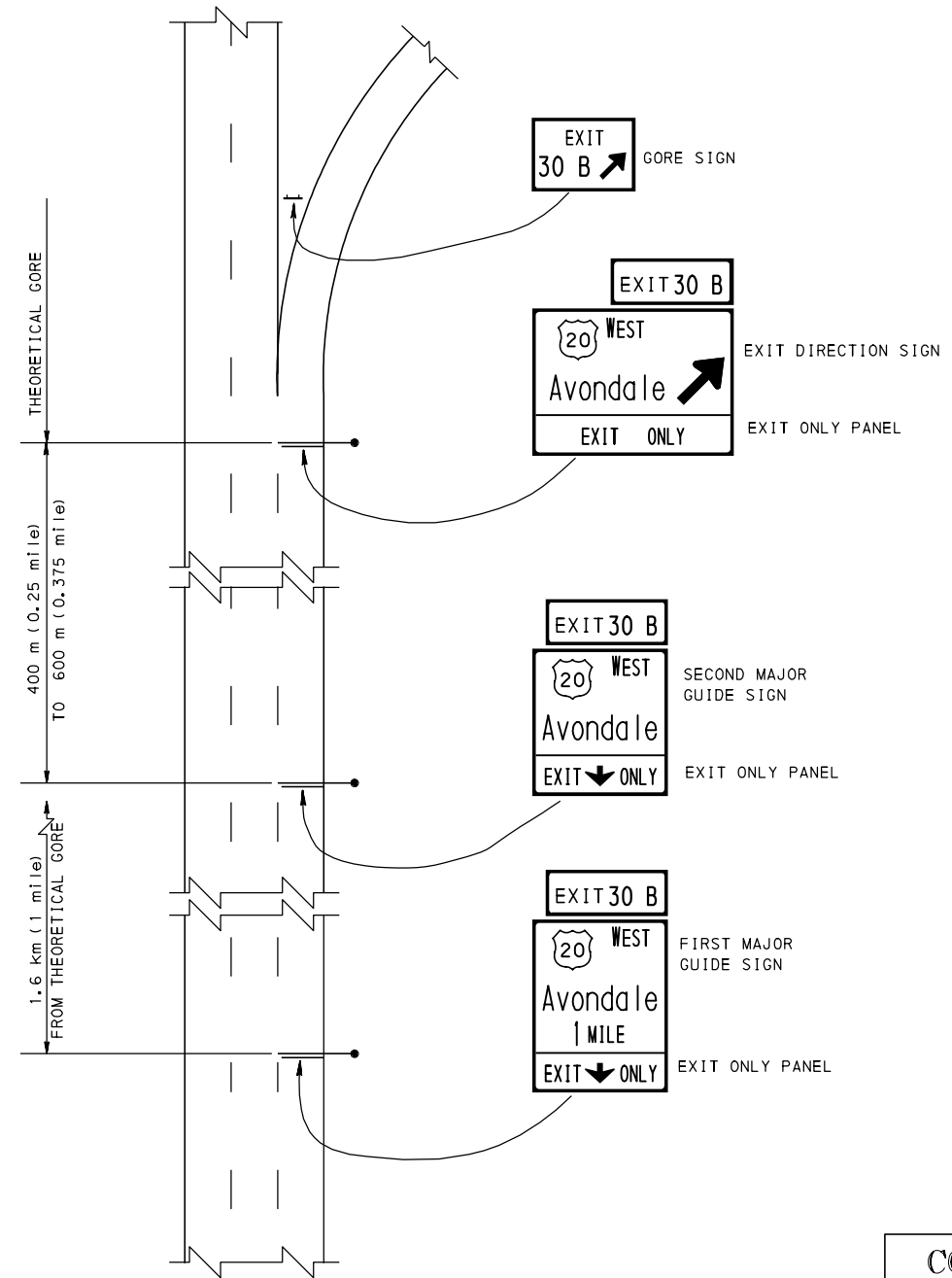
RECOMMENDED MAY 25, 2007  
*m. G. Latel*  
CHIEF HIGHWAY ENGINEER

SHT. 5 OF 7

TC-8701A



DIAGRAMMATIC SIGNING



LANE DROP SIGNING

**NOTE:**

EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

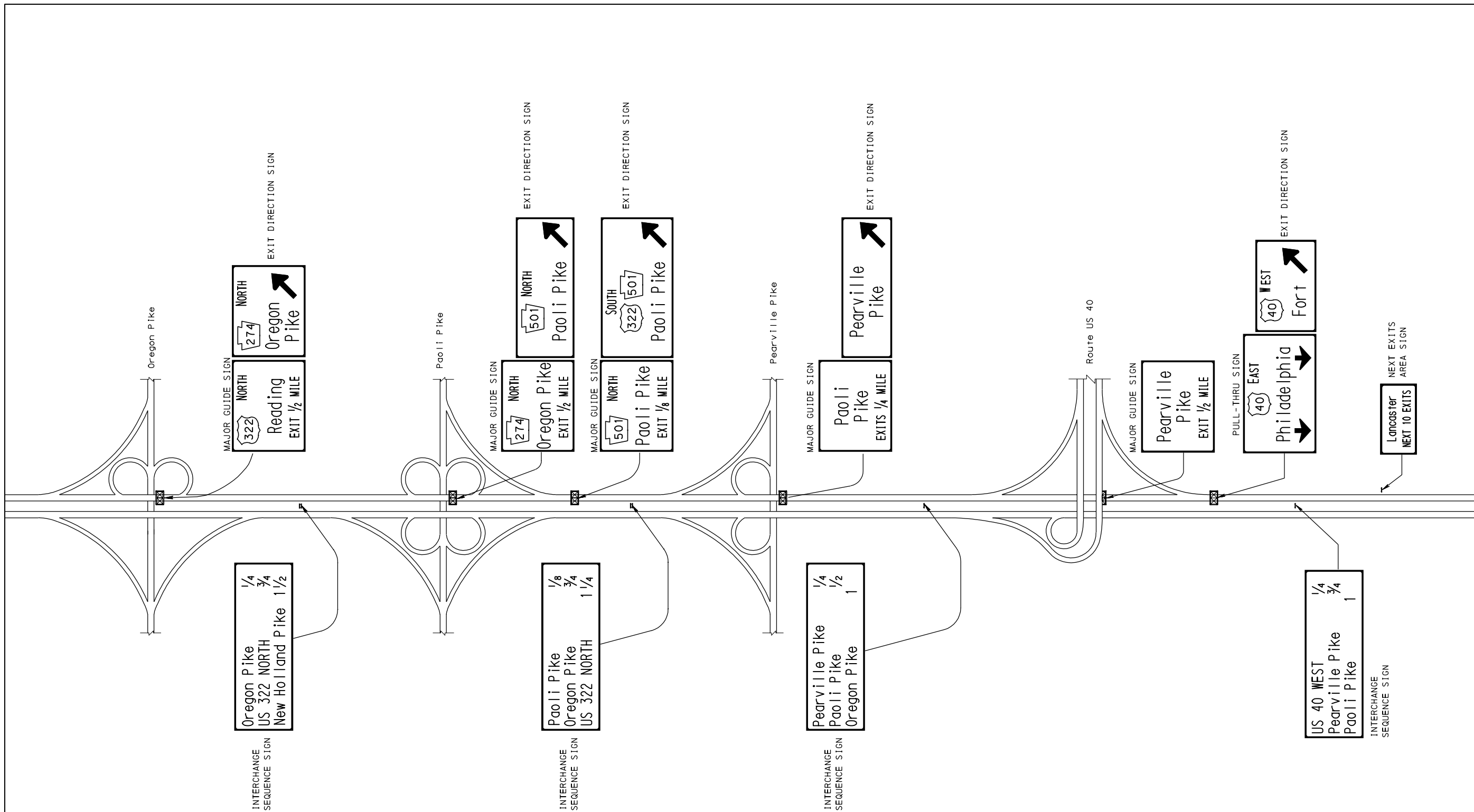
SIGNING  
DIAGRAMMATIC & LANE DROP

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

SHT. 6 OF 7

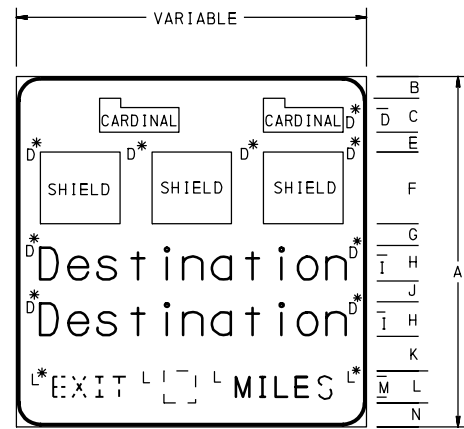
TC-8701A



COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

TYPICAL SIGNING  
 CLOSELY SPACED  
 INTERCHANGES

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 7 OF 7 TC-8701A
---	--	-------------------------

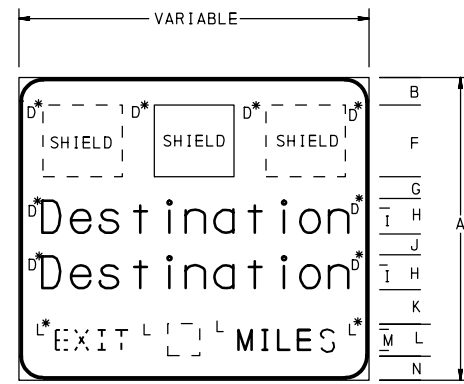


METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
500/375	1	4200	450	450	375	300	900	350	500	375	375	350	450	300	450
500/375	2	4950	400	450	375	300	900	350	500	375	375	350	450	300	375
400/300	1	3600	335	375	300	250	900	300	400	300	300	325	375	250	340
400/300	2	4200	335	375	300	250	900	275	400	300	300	300	375	250	290
330/250	1	3150	275	300	250	200	900	250	330	250	250	250	375	250	270
330/250	2	3750	290	300	250	200	900	250	330	250	250	250	375	250	275

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
20/15	1	168	18	18	15	12	36	14	20	15	15	14	18	12	18
20/15	2	198	16	18	15	12	36	14	20	15	15	14	18	12	15
16/12	1	144	13.5	15	12	10	36	12	16	12	12	13	15	10	13.5
16/12	2	168	13.5	15	12	10	36	11	16	12	12	12	15	10	11.5
13.3/10	1	126	10.9	12	10	8	36	10	13.3	10	10	10	15	10	10.8
13.3/10	2	150	11.4	12	10	8	36	10	13.3	10	10	10	15	10	11

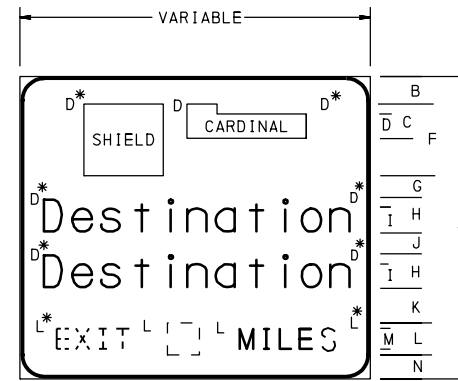


METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)												
		A	B	D	F	G	H	I	J	K	L	M	N	
500/375	1	3300	375	375	900	350	500	375	375	350	450	300	375	
500/375	2	4200	385	375	900	350	500	375	375	350	450	300	390	
400/300	1	3000	335	300	900	325	400	300	300	325	375	250	340	
400/300	2	3600	310	300	900	300	400	300	300	300	300	375	250	315
330/250	1	2700	295	250	900	250	330	250	250	250	375	250	300	
330/250	2	3300	305	250	900	250	330	250	250	250	375	250	310	

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)												
		A	B	D	F	G	H	I	J	K	L	M	N	
20/15	1	132	15	15	36	14	20	15	15	14	18	12	15	
20/15	2	168	15.5	15	36	14	20	15	15	14	18	12	15.5	
16/12	1	120	13.5	12	36	13	16	12	12	13	15	10	13.5	
16/12	2	144	12.5	12	36	12	16	12	12	12	15	10	12.5	
13.3/10	1	108	11.8	10	36	10	13.3	10	10	10	15	10	11.9	
13.3/10	2	132	12.2	10	36	10	13.3	10	10	10	15	10	12.2	

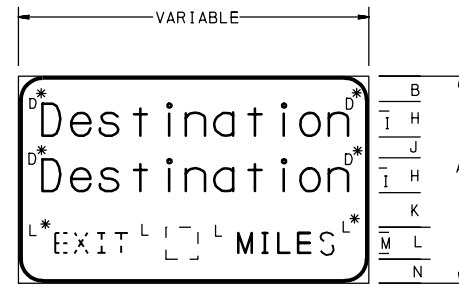


METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)												
		A	B	C	D	F	G	H	I	J	K	L	M	N
500/375	1	3300	375	450	375	900	350	500	375	375	350	450	300	375
500/375	2	4200	385	450	375	900	350	500	375	375	350	450	300	390
400/300	1	3000	335	375	300	900	325	400	300	300	325	375	250	340
400/300	2	3600	310	375	300	900	300	400	300	300	300	375	250	315
330/250	1	2700	295	300	250	900	250	330	250	250	250	375	250	300
330/250	2	3300	305	300	250	900	250	330	250	250	250	375	250	310

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)												
		A	B	C	D	F	G	H	I	J	K	L	M	N
20/15	1	132	15	18	15	36	14	20	15	15	14	18	12	15
20/15	2	168	15.5	18	15	36	14	20	15	15	14	18	12	15.5
16/12	1	120	13.5	15	12	36	13	16	12	12	13	15	10	13.5
16/12	2	144	12.5	15	12	36	12	16	12	12	12	15	10	12.5
13.3/10	1	108	11.8	12	10	36	10	13.3	10	10	10	15	10	11.9
13.3/10	2	132	12.2	12	10	36	10	13.3	10	10	10	15	10	12.2



METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)												
		A	B	D	H	I	J	K	L	M	N			
500/375	1	2100	400	375	500	375	375	350	450	300	400			
500/375	2	3000	410	375	500	375	375	350	450	300	415			
400/300	1	1800	350	300	400	300	300	325	375	250	350			
400/300	2	2400	310	300	400	300	300	300	300	375	250	315		
330/250	1	1500	270	250	330	250	250	250	375	250	275			
330/250	2	2100	280	250	330	250	250	250	375	250	285			

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)												
		A	B	D	H	I	J	K	L	M	N			
20/15	1	84	16	15	20	15	15	14	18	12	16			
20/15	2	120	16.5	15	20	15	15	14	18	12	16.5			
16/12	1	72	14	12	16	12	12	13	15	10	14			
16/12	2	96	12.5	12	16	12	12	12	15	10	12.5			
13.3/10	1	60	10.8	10	13.3	10	10	10	15	10	10.9			
13.3/10	2	84	11.2	10	13.3	10	10	10	15	10	11.2			

NOTES:

- SIGN DIMENSIONS: WIDTHS AND HEIGHTS OF SIGNS SHALL BE IN MULTIPLES OF 150 mm (6"). THE SIGN HEIGHTS OF EXTRUDED ALUMINUM PANEL SIGNS ARE ACCEPTABLE IN MULTIPLES OF 152 mm (6"). THE INCREASED HEIGHTS OF SIGNS SHALL BE DISTRIBUTED EQUALLY BETWEEN THE LEGEND CLEARANCE DIMENSIONS AT THE TOP AND BOTTOM OF THE SIGN, WHEN THE USE OF EXTRUDED ALUMINUM PANELS RESULTS IN A VERTICAL SIGN DIMENSION GREATER THAN REQUIRED.
- SINGLE SHIELD: WHEN MOUNTED ALONE, SHIELD SHALL BE CENTERED WITHIN THE WIDTH DIMENSION.
- MULTIPLE SHIELDS: WHEN MULTIPLE SHIELDS ARE USED, THEY SHALL BE EVENLY SPACED WITHIN THE WIDTH DIMENSION AND SHALL BE ON THE SAME VERTICAL ALIGNMENT.
- SINGLE SHIELD WITH CARDINAL DIRECTION: THE CARDINAL DIRECTION SHALL BE MOUNTED ON THE SAME SIDE OF THE SHIELD AS THE EXIT, WITH THE TOP LINE OF THE SHIELD AND THE CARDINAL AT THE SAME ELEVATION. CARDINALS MAY BE CENTERED OVER THE SHIELD WHEN THE SHIELD/CARDINAL BECOMES THE CONTROLLING LINE FOR THE WIDTH DIMENSION.
- MULTIPLE SHIELDS AND CARDINALS: WHEN MULTIPLE SHIELDS ARE USED WITH CARDINALS, THE CARDINALS SHALL BE CENTERED OVER THE APPROPRIATE SHIELDS. A CARDINAL MAY BE CENTERED OVER TWO SHIELDS WHEN APPLICABLE.
- DESTINATION: THE DESTINATION MESSAGE SHOULD ORDINARILY CONSIST OF NOT MORE THAN TWO DESTINATIONS. A DESTINATION MAY BE A CITY, TOWN OR VILLAGE NAME; A STREET NAME; OR THE NAME OF A LARGE TRAFFIC GENERATOR. FOR SUPPLEMENTAL GUIDE SIGNS, THE DESTINATION MAY BE ANY APPROVED SUPPLEMENTAL DESTINATION.
- ACTION MESSAGE: THE ACTION MESSAGE SHALL CONSIST OF EITHER A DISTANCE INDICATION, A DIRECTION INDICATION, OR A LANE ASSIGNMENT ARROW.
- EXIT PANELS: EXIT PANELS SHALL BE USED ON MAJOR GUIDE SIGNS WHENEVER EXIT NUMBERS HAVE BEEN ASSIGNED. WHEN USED, THEY SHALL BE INSTALLED ON THE SAME SIDE OF THE SIGN AS THE EXIT. WHEN EXIT PANELS ARE USED, THE WORD "EXIT" SHALL NOT BE USED IN THE MAIN SIGN'S ACTION MESSAGE.
- EXIT ONLY PANELS: EXIT ONLY PANELS SHALL BE USED ONLY FOR A LANE DROP. THE PANELS SHALL BE YELLOW REFLECTORIZED BACKGROUND WITH BLACK LEGEND, AND SHALL BE DESIGNED TO FIT WITHIN THE WHITE BORDER OF THE COMPLETE SIGN PANEL. THE TOP OF THE EXIT ONLY PANEL SHOULD BE A MINIMUM OF 260 mm (10.5") BELOW THE BOTTOM OF THE LOWEST DESTINATION. SEE SHEET 5 OF THIS STANDARD FOR DETAILS OF EXIT PANELS.
- INTERCHANGE CLASSIFICATION: FOR FREEWAY AND EXPRESSWAY SIGNING PURPOSES, INTERCHANGES ARE CLASSIFIED AS MAJOR OR INTERMEDIATE AS DEFINED BELOW:
  - MAJOR/CATEGORY A -- INTERCHANGES WITH OTHER FREEWAYS OR EXPRESSWAYS.
  - MAJOR/CATEGORY B -- INTERCHANGES WITH HIGH-VOLUME MULTILANE HIGHWAYS, PRINCIPAL URBAN ARTERIALS AND MAJOR RURAL ROUTES WHERE THE INTERCHANGING TRAFFIC IS HEAVY OR INCLUDES MANY DRIVERS UNFAMILIAR WITH THE AREA.
  - INTERMEDIATE -- MOST INTERCHANGES WITH URBAN OR RURAL ROUTES.
- LEGEND SIZES: WITH RESPECT TO NOTE 10, LETTER AND NUMERAL SIZES FOR ADVANCE GUIDE, EXIT DIRECTION, AND OVERHEAD SIGNS ARE:

LEGEND TYPE		FREEWAYS			EXPRESSWAYS			OVER-HEAD SIGNS
		MAJOR		INTER-MEDIATE	MAJOR		INTER-MEDIATE	
		CAT. A	CAT. B		CAT. A	CAT. B		
CARDINAL DIRECTION	FIRST LETTER	450 (18")	450 (18")	375 (15")	450 (18")	375 (15")	300 (12")	375 (15")
	OTHER LETTERS	375 (15")	375 (15")	300 (12")	375 (15")	300 (12")	250 (10")	300 (12")
DESTINATION		500/375 (20"/15")	500/375 (20"/15")	400/300 (16"/12")	500/375 (20"/15")	400/300 (16"/12")	330/250 (13.3"/10")	400/300 (16"/12")
DISTANCE	NUMERAL	450 (18")	450 (18")	375 (15")	450 (18")	375 (15")	300 (12")	375 (15")
	WORD	300 (12")	300 (12")	250 (10")	300 (12")	250 (10")	250 (10")	250 (10")
ACTION MESSAGE		300 (12")	300 (12")	250 (10")	300 (12")	250 (10")	250 (10")	250 (10")

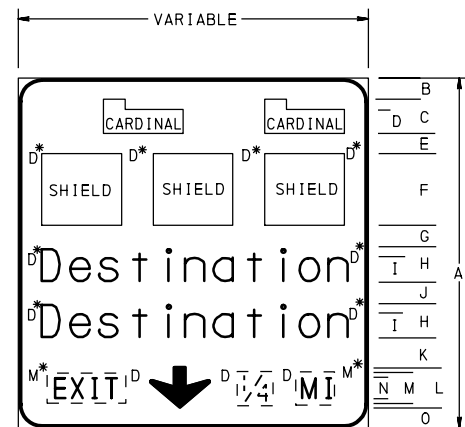
- LEGEND SPACING: LEGEND SPACING SHALL FOLLOW THE PROCEDURES AND CHARTS SHOWN IN TC-8700C. SEE SHEET 9 OF THIS STANDARD FOR DESIGN DETAILS OF SHIELDS AND FOR THE SPACING OF CARDINAL DIRECTIONS.
- SERIES: ALL UPPER CASE/LOWER CASE LEGEND SHALL BE DETAILED WITH CLEARVIEW FONTS AS SHOWN ON TC-8700C SHEETS 8 THROUGH 11. CLEARVIEW 5W SHALL BE USED FOR SIGNS ON NEW SUPPORTS AND INSTALLATIONS WHERE EXISTING SUPPORTS WILL ACCOMMODATE A SIGN SIZED USING CLEARVIEW 5W, OTHERWISE USE CLEARVIEW 5WR. ALL CAPITAL LEGEND AND NUMERALS SHALL BE SERIES E, UNLESS OTHERWISE NOTED.
- COLOR: UNLESS NOTED OTHERWISE, ALL SIGNS SHALL HAVE A GREEN REFLECTORIZED BACKGROUND WITH WHITE REFLECTORIZED LEGEND AND BORDER OF THE TYPE SPECIFIED IN SECTION 1103 OF PUBLICATION 408.
- BORDERS: ALL SIGNS SHALL HAVE A 50 mm (2") BORDER WITH 300 mm (12") CORNER RADIUS, UNLESS OTHERWISE NOTED.
- MUTCD: SIGN DETAILS SHALL COMPLY WITH THIS STANDARD DRAWING AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

SIGN DETAILS  
FREEWAY AND EXPRESSWAY  
GUIDE SIGNS

ADVANCE GUIDE SIGNS

\* INDICATES MINIMUM SPACING.

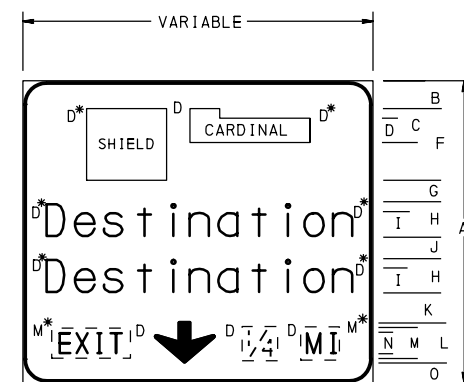


METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
500/375	1	4200	450	450	375	300	900	350	500	375	*	300	550	450	300	400
500/375	2	4950	400	450	375	300	900	350	500	375	*	300	550	450	300	325
400/300	1	3600	335	375	300	250	900	300	400	300	*	240	550	375	250	250
400/300	2	4200	310	375	300	250	900	275	400	300	*	300	215	550	375	225
330/250	1	3150	295	300	250	200	900	250	330	250	*	215	410	375	250	250
330/250	2	3750	305	300	250	200	900	250	330	250	*	225	410	375	250	250

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
20/15	1	168	18	18	15	12	36	14	20	15	*	12	22	18	12	16
20/15	2	198	16	18	15	12	36	14	20	15	*	12	22	18	12	13
16/12	1	144	13.4	15	12	10	36	12	16	12	*	9.6	22	15	10	10
16/12	2	168	12.4	15	12	10	36	11	16	12	*	8.6	22	15	10	9
13.3/10	1	126	11.6	12	10	8	36	10	13.3	10	*	8.6	16.5	15	10	10
13.3/10	2	150	11.9	12	10	8	36	10	13.3	10	*	9	16.5	15	10	10



METRIC UNITS

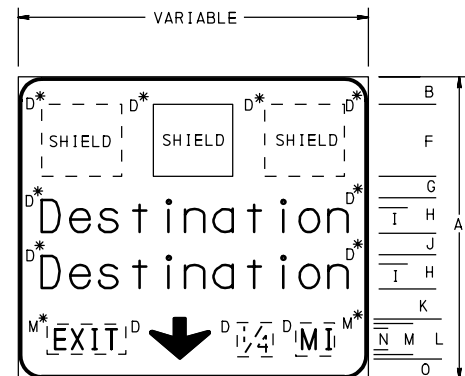
DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)													
		A	B	C	D	F	G	H	I	J	K	L	M	N	O
500/375	1	3300	375	450	375	900	350	500	375	*	300	550	450	300	325
500/375	2	4200	385	450	375	900	350	500	375	*	300	550	450	300	340
400/300	1	3000	335	375	300	900	325	400	300	*	240	550	375	250	250
400/300	2	3600	300	375	300	900	300	400	300	*	300	215	550	375	235
330/250	1	2700	300	300	250	900	250	330	250	*	235	410	375	250	275
330/250	2	3300	310	300	250	900	250	330	250	*	235	410	375	250	285

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)													
		A	B	C	D	F	G	H	I	J	K	L	M	N	O
20/15	1	132	15	18	15	36	14	20	15	*	12	22	18	12	13
20/15	2	168	15.4	18	15	36	14	20	15	*	12	22	18	12	13.6
16/12	1	120	13.4	15	12	36	13	16	12	*	9.6	22	15	10	10
16/12	2	144	12	15	12	36	12	16	12	*	8.6	22	15	10	9.4
13.3/10	1	108	12	12	10	36	10	13.3	10	*	9.4	16.5	15	10	10.8
13.3/10	2	132	12.4	12	10	36	10	13.3	10	*	9.4	16.5	15	10	11.1

NOTES:

- SIGNS ON THIS SHEET ARE TO BE USED OVERHEAD FOR LANE ASSIGNMENTS.
- REFER TO TC-8700C FOR ARROW DETAILS. THE TYPE C ARROW SHALL BE USED FOR THE 500 mm / 375 mm (20"/15") AND 400 mm / 300 mm (16"/12") LEGEND SIZES, AND THE TYPE D ARROW SHALL BE USED FOR THE 330 mm / 250 mm (13.3"/10") LEGEND SIZE.
- LANE ASSIGNMENT ARROW USAGE SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

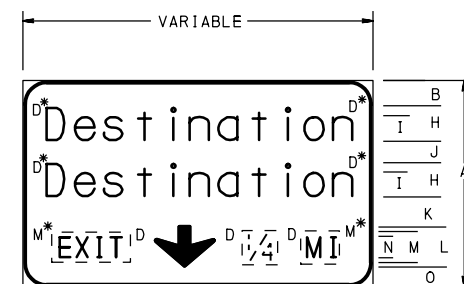


METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)													
		A	B	D	F	G	H	I	J	K	L	M	N	O	
500/375	1	3300	375	375	900	350	500	375	*	300	550	450	300	325	
500/375	2	4200	385	375	900	350	500	375	*	300	550	450	300	340	
400/300	1	3000	335	300	900	325	400	300	*	240	550	375	250	250	
400/300	2	3600	300	300	900	300	400	300	*	300	215	550	375	235	
330/250	1	2700	300	250	900	250	330	250	*	235	410	375	250	275	
330/250	2	3300	310	250	900	250	330	250	*	235	410	375	250	285	

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)													
		A	B	D	F	G	H	I	J	K	L	M	N	O	
20/15	1	132	15	15	36	14	20	15	*	12	22	18	12	13	
20/15	2	168	15.4	15	36	14	20	15	*	12	22	18	12	13.6	
16/12	1	120	13.4	12	36	13	16	12	*	9.6	22	15	10	10	
16/12	2	144	12	12	36	12	16	12	*	8.6	22	15	10	9.4	
13.3/10	1	108	12	10	36	10	13.3	10	*	9.4	16.5	15	10	10.8	
13.3/10	2	132	12.4	10	36	10	13.3	10	*	9.4	16.5	15	10	11.1	



METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)													
		A	B	D	H	I	J	K	L	M	N	O			
500/375	1	2100	400	375	500	375	*	300	550	450	300	350			
500/375	2	3000	410	375	500	375	*	300	550	450	300	365			
400/300	1	1800	350	300	400	300	*	240	550	375	250	260			
400/300	2	2400	310	300	400	300	*	300	215	550	375	225			
330/250	1	1500	280	250	330	250	*	235	410	375	250	245			
330/250	2	2100	285	250	330	250	*	235	410	375	250	260			

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)													
		A	B	D	H	I	J	K	L	M	N	O			
20/15	1	84	16	15	20	15	*	12	22	18	12	14			
20/15	2	120	16.4	15	20	15	*	12	22	18	12	14.6			
16/12	1	72	14	12	16	12	*	9.6	22	15	10	10.4			
16/12	2	96	12.4	12	16	12	*	8.6	22	15	10	9			
13.3/10	1	60	11	10	13.3	10	*	9.4	16.5	15	10	9.8			
13.3/10	2	84	11.2	10	13.3	10	*	9.4	16.5	15	10	10.3			

\* INDICATES MINIMUM SPACING.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

SIGN DETAILS  
FREEWAY AND EXPRESSWAY  
GUIDE SIGNS

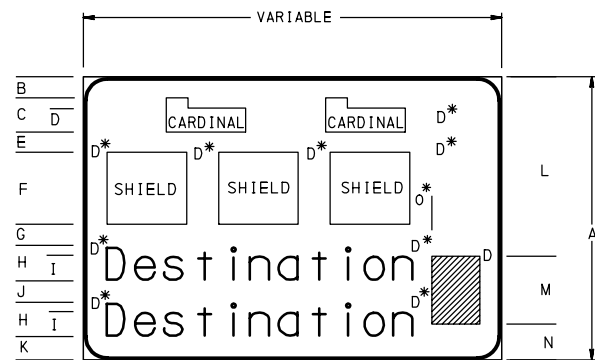
OVERHEAD LANE  
ASSIGNMENT SIGNS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

SHT. 2 OF 9

TC-8701D

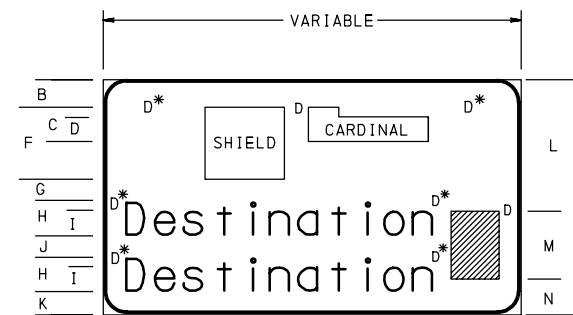


METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
500/375	1	3300	400	450	375	300	900	350	500	375	400	2085	815	400		
500/375	2	4200	415	450	375	300	900	350	500	375	375	410	2760	815	625	
400/300	1	2850	325	375	300	250	900	275	400	300		325	1710	815	325	200
400/300	2	3600	325	375	300	250	900	300	400	300	300	350	2310	815	475	
330/250	1	2550	285	300	250	200	900	250	330	250		285	1450	815	285	200
330/250	2	3150	295	300	250	200	900	250	330	250	250	295	1935	815	400	

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
20/15	1	132	16	18	15	12	36	14	20	15		16	83.4	32.6	16	
20/15	2	168	16.6	18	15	12	36	14	20	15	15	16.4	110.4	32.6	25	
16/12	1	114	13	15	12	10	36	11	16	12		13	68.4	32.6	13	8
16/12	2	144	13	15	12	10	36	12	16	12	12	14	92.4	32.6	19	
13.3/10	1	102	11.3	12	10	8	36	10	13.3	10		11.4	58	32.6	11.4	8
13.3/10	2	126	11.7	12	10	8	36	10	13.3	10	10	11.7	77.4	32.6	16	

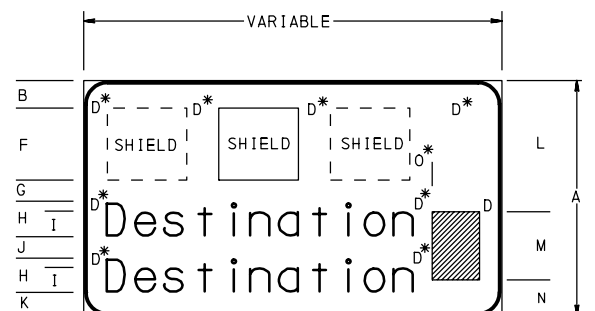


METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)													
		A	B	C	D	F	G	H	I	J	K	L	M	N	
500/375	1	2550	400	450	375	900	350	500	375		400	1335	815	400	
500/375	2	3450	415	450	375	900	350	500	375	375	410	2010	815	625	
400/300	1	2250	325	375	300	900	300	400	300		325	1110	815	325	
400/300	2	3000	350	375	300	900	300	400	300	300	350	1710	815	475	
330/250	1	2100	300	300	250	900	275	330	250		295	990	815	295	
330/250	2	2700	310	300	250	900	275	330	250	250	305	1485	815	400	

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)													
		A	B	C	D	F	G	H	I	J	K	L	M	N	
20/15	1	102	16	18	15	36	14	20	15		16	53.4	32.6	16	
20/15	2	138	16.6	18	15	36	14	20	15	15	16.4	80.4	32.6	25	
16/12	1	90	13	15	12	36	12	16	12		13	44.4	32.6	13	
16/12	2	120	14	15	12	36	12	16	12	12	14	68.4	32.6	19	
13.3/10	1	84	12	12	10	36	11	13.3	10		11.7	39.6	32.6	11.8	
13.3/10	2	108	12.4	12	10	36	11	13.3	10	10	12	59.4	32.6	16	

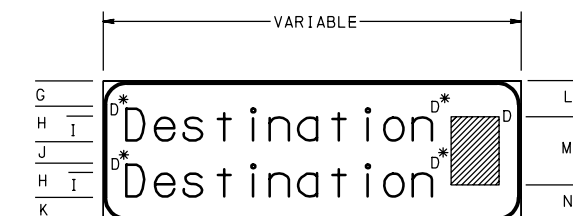


METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)													
		A	B	D	F	G	H	I	J	K	L	M	N	O	
500/375	1	2550	400	375	900	350	500	375		400	1335	815	400		
500/375	2	3450	415	375	900	350	500	375	375	410	2010	815	625		
400/300	1	2250	325	300	900	300	400	300		325	1110	815	325		
400/300	2	3000	350	300	900	300	400	300	300	350	1710	815	475		
330/250	1	2100	300	250	900	275	330	250		295	990	815	295		
330/250	2	2700	310	250	900	275	330	250	250	305	1485	815	400		

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)													
		A	B	D	F	G	H	I	J	K	L	M	N	O	
20/15	1	102	16	15	36	14	20	15		16	53.4	32.6	16		
20/15	2	138	16.6	15	36	14	20	15	15	16.4	80.4	32.6	25		
16/12	1	90	13	12	36	12	16	12		13	44.4	32.6	13		
16/12	2	120	14	12	36	12	16	12	12	14	68.4	32.6	19		
13.3/10	1	84	12	10	36	11	13.3	10		11.7	39.6	32.6	11.8		
13.3/10	2	108	12.4	10	36	11	13.3	10	10	12	59.4	32.6	16		



METRIC UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (MILLIMETERS)													
		A	D	G	H	I	J	K	L	M	N				
500/375	1	1350	375	425	500	375		425	270	815	265				
500/375	2	2250	375	440	500	375	375	435	720	815	715				
400/300	1	1350	300	475	400	300		475	270	815	265				
400/300	2	1800	300	350	400	300	300	350	495	815	490				
330/250	1	1350	250	510	330	250		510	270	815	265				
330/250	2	1500	250	295	330	250	250	295	345	815	340				

ENGLISH UNITS

DEST. SIZE	DEST. LINES	DIMENSIONS (INCHES)													
		A	D	G	H	I	J	K	L	M	N				
20/15	1	54	15	17	20	15		17	10.8	32.6	10.6				
20/15	2	90	15	17.6	20	15	15	17.4	28.8	32.6	28.6				
16/12	1	54	12	19	16	12		19	10.8	32.6	10.6				
16/12	2	72	12	14	16	12	12	14	19.8	32.6	19.6				
13.3/10	1	54	10	20.4	13.3	10		20.3	10.8	32.6	10.6				
13.3/10	2	60	10	11.7	13.3	10	10	11.7	13.8	32.6	13.6				

NOTES:

- REFER TO TC-8700C FOR ARROW DETAILS. TYPE F ARROW DIMENSIONS ARE SHOWN FOR ILLUSTRATIVE PURPOSES, BUT TYPE E THROUGH TYPE J ARROWS MAY ALSO BE USED FOR THE SIGNS SHOWN ON THIS SHEET.
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

SIGN DETAILS  
FREEWAY AND EXPRESSWAY  
GUIDE SIGNS

EXIT DIRECTION SIGNS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Latel*  
CHIEF HIGHWAY ENGINEER

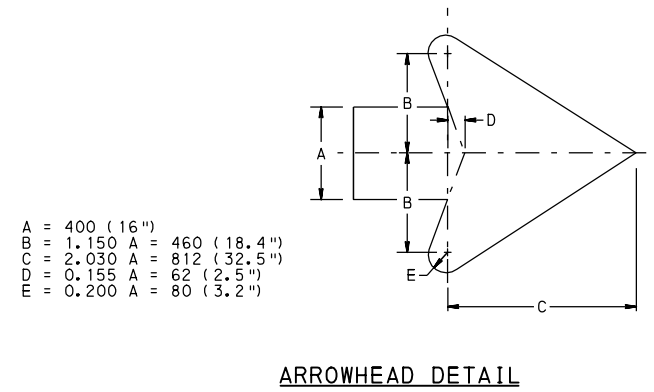
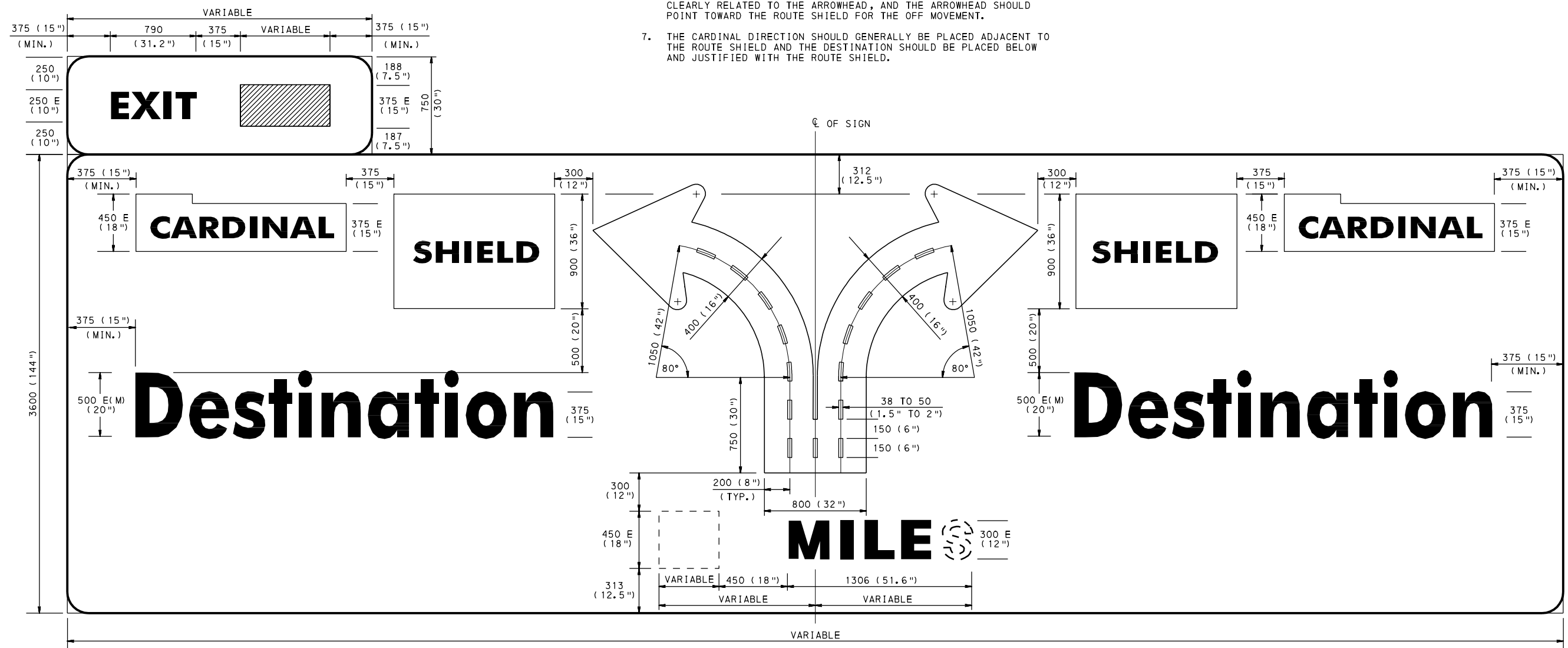
SHT. 3 OF 9

TC-8701D

\* INDICATES MINIMUM SPACING.

- NOTES:**
1. THE GRAPHIC LEGEND SHALL BE OF A PLAN VIEW SHOWING A SIMPLIFIED OFF-RAMP ARRANGEMENT.
  2. ONLY ONE DESTINATION MAY BE SHOWN FOR EACH ARROWHEAD, WITH A MAXIMUM OF TWO DESTINATIONS PER SIGN.
  3. THE GRAPHIC SHOULD NOT DEPICT DECELERATION LANES. A BLACK ON YELLOW "EXIT ONLY" PANEL SHOULD BE USED TO SUPPLEMENT A LANE DROP GRAPHIC.
  4. THE SHAFT FOR THE EXIT RAMP MOVEMENT SHOULD BE SHORTER THAN, BUT NOT SEPARATED FROM, THE THROUGH MOVEMENT GRAPHIC.
  5. ARROW SHAFTS SHOULD CONTAIN LANE LINES WHERE APPROPRIATE AND ROUTE SHIELDS SHALL NOT BE USED AS A SUBSTITUTE FOR ARROWHEADS.
  6. ROUTE SHIELDS, CARDINAL DIRECTIONS, AND DESTINATIONS SHOULD BE CLEARLY RELATED TO THE ARROWHEAD, AND THE ARROWHEAD SHOULD POINT TOWARD THE ROUTE SHIELD FOR THE OFF MOVEMENT.
  7. THE CARDINAL DIRECTION SHOULD GENERALLY BE PLACED ADJACENT TO THE ROUTE SHIELD AND THE DESTINATION SHOULD BE PLACED BELOW AND JUSTIFIED WITH THE ROUTE SHIELD.

8. EXIT NUMBER PANELS SHOULD BE LOCATED TOWARD THE TOP LEFT EDGE OF THE SIGN FOR A LEFT EXIT AND TOWARD THE TOP RIGHT EDGE FOR RIGHT EXITS.
9. SPECIFIC DESIGN STANDARDS FOR GRAPHIC COMPONENTS AND OTHER RECOMMENDED FEATURES ARE SHOWN IN THIS STANDARD.
10. SEE SHEET 9 OF THIS STANDARD FOR SHIELD AND CARDINAL DETAILS.
11. SEE TC-8701A SHEET 6 FOR ADVANCE PLACEMENT OF SIGN.
12. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESES ( ).
13. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

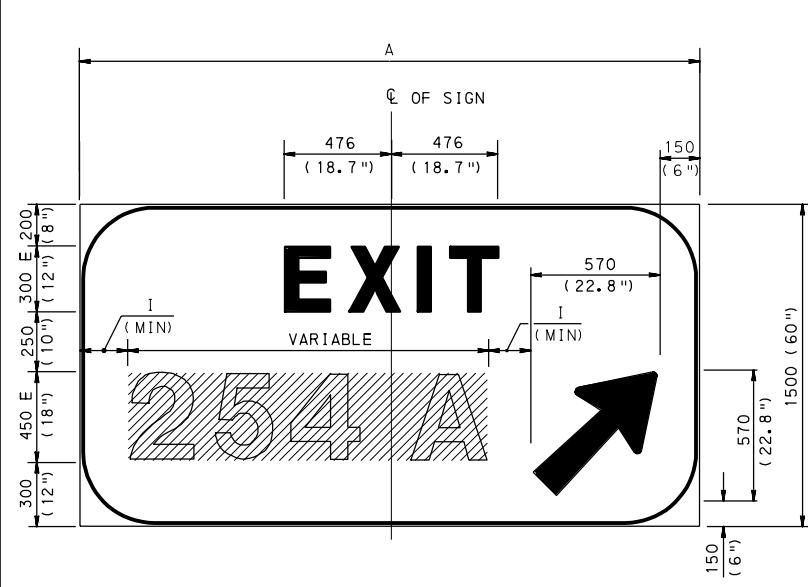
SIGN DETAILS  
 FREEWAY AND EXPRESSWAY  
 GUIDE SIGNS

DIAGRAMMATIC SIGNS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
 CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
 CHIEF HIGHWAY ENGINEER

SHT. 4 OF 9  
 TC-8701D



**METRIC UNITS**

NUMBER OF DIGITS	LETTERS	A (mm)	I (MIN) (mm)
1	0	1800	329
2	0	2100	243
1	1*	2400	288
3	0	2400	158
2	1*	2700	202
3	1*	3000	117

\*USE 225 mm (9") FOR DIGIT TO LETTER SPACING

**ENGLISH UNITS**

NUMBER OF DIGITS	LETTERS	A (INCHES)	I (MIN) (INCHES)
1	0	72	13.3
2	0	84	10
1	1*	96	11.8
3	0	96	6.7
2	1*	108	8.5
3	1*	120	5.2

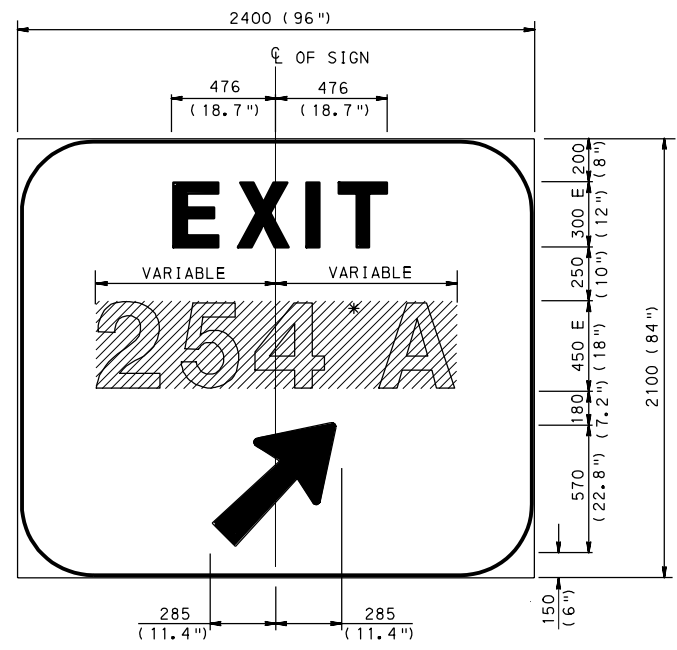


BORDER: 35 (1.4")  
CORNER RADII: 100 (4")

NUMBER OF DIGITS	LETTERS	A (mm)	A (INCHES)
1	0	900	(36)
2	0	900	(36)
1	1**	900	(36)
3	0	900	(36)
2	1**	1200	(48)
3	1**	1350	(54)

\*\*USE 125 mm (5") FOR DIGIT TO LETTER SPACING

**TYPE I**  
(STANDARD)



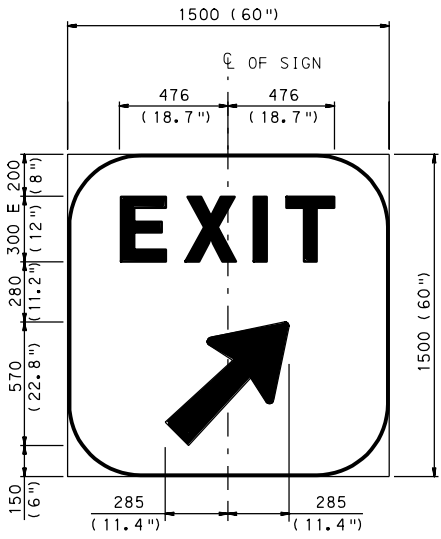
\*USE 225 mm (9") FOR DIGIT TO LETTER SPACING

**TYPE II**

(SPECIAL CASE - USE ONLY WHEN LATERAL SPACING PROHIBITS THE USE OF TYPE I)

**TYPE III**

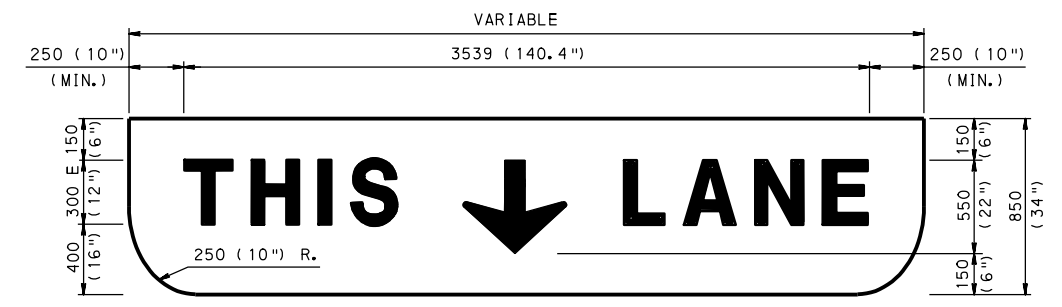
(SPECIAL CASE - USE ONLY WHEN LATERAL SPACING PROHIBITS THE USE OF TYPE II)



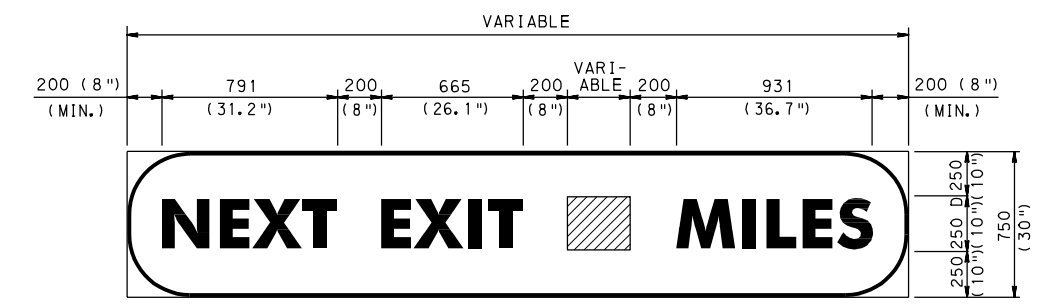
**TYPE IV**

(USE FOR UNNUMBERED EXITS ONLY)

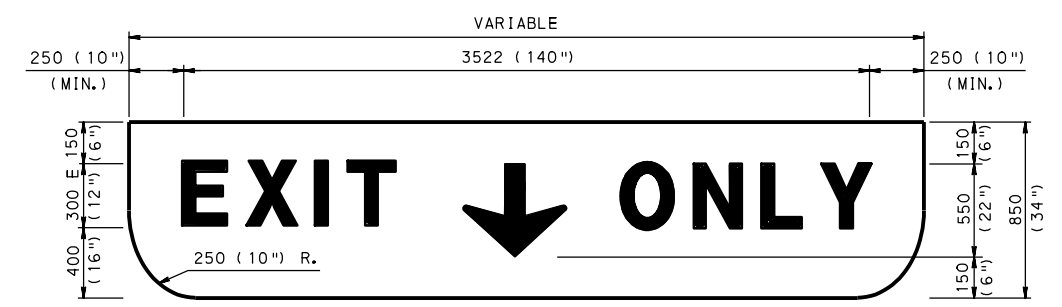
**GORE SIGNS**



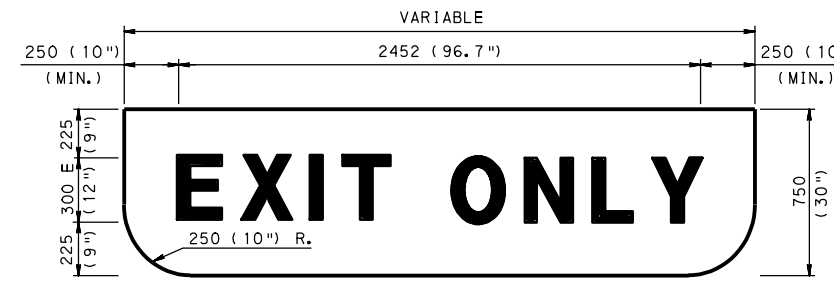
**THIS LANE PANEL**



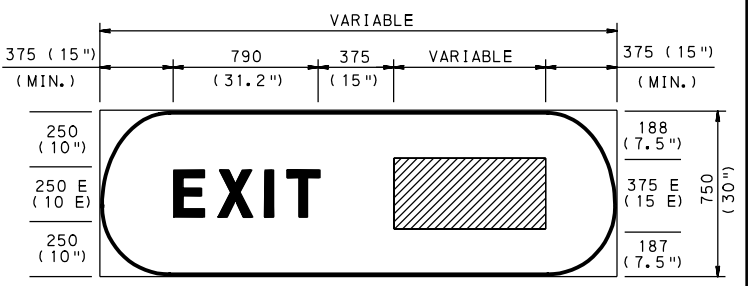
**NEXT EXIT PANEL**



**EXIT ONLY PANEL**



**EXIT ONLY PANEL**



**EXIT PANEL**

**NOTES:**

- EXIT ONLY AND THIS LANE PANELS SHALL HAVE A YELLOW REFLECTORIZED BACKGROUND AND BLACK NONREFLECTORIZED LEGEND.
- REFER TO TC-8700C FOR ARROW DETAILS. TYPE N ARROW SHALL BE USED ON THE GORE SIGNS, AND TYPE C ARROW SHALL BE USED ON THE EXIT ONLY AND THIS LANE PANELS.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

**SIGN DETAILS**  
FREEWAY AND EXPRESSWAY  
GUIDE SIGNS

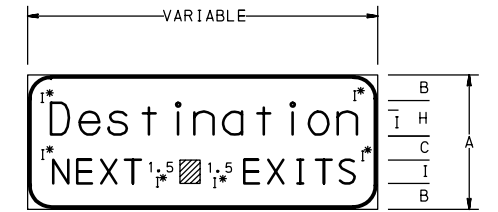
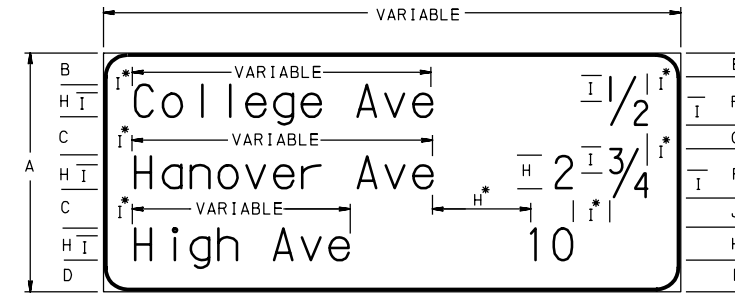
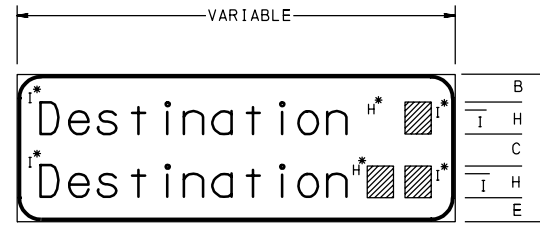
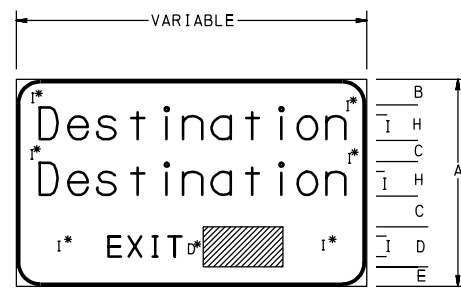
**GORE SIGNS, EXIT PANELS**  
& NEXT EXIT SIGNS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*M. Patel*  
CHIEF HIGHWAY ENGINEER

SHT. 5 OF 9  
TC-8701D





LEGEND AND NUMERALS - SERIES E MODIFIED

LEGEND AND NUMERALS - SERIES E MODIFIED

METRIC UNITS

TYPE FACILITY	DESTINATION LINES	DIMENSIONS (MILLIMETERS)						
		A	B	C	D	E	H	I
EXPRESSWAY	1	1200	205	225	300	205	265	200
	2	1800	235	250	300	235	265	200
FREEWAY	1	1500	260	275	375	260	330	250
	2	2100	260	275	375	255	330	250

ENGLISH UNITS

TYPE FACILITY	DESTINATION LINES	DIMENSIONS (INCHES)						
		A	B	C	D	E	H	I
EXPRESSWAY	1	48	8.2	9	12	8.2	10.6	8
	2	72	9.4	10	12	9.4	10.6	8
FREEWAY	1	60	10.4	11	15	10.3	13.3	10
	2	84	10.2	11	15	10.2	13.3	10

SINGLE EXIT SUPPLEMENTAL GUIDE SIGN

METRIC UNITS

TYPE FACILITY	DESTINATION LINES	DIMENSIONS (MILLIMETERS)					
		A	B	C	E	H	I
EXPRESSWAY	2	1200	275	250	275	200	150
	3	1500	250	200	250	200	150
FREEWAY	2	1350	275	270	275	265	200
	3	1800	245	250	265	200	150

ENGLISH UNITS

TYPE FACILITY	DESTINATION LINES	DIMENSIONS (INCHES)					
		A	B	C	E	H	I
EXPRESSWAY	2	48	11	10	11	8	6
	3	60	10	8	10	8	6
FREEWAY	2	54	11	10.8	11	10.6	8
	3	72	10.1	10	10.1	10.6	8

POST INTERCHANGE DISTANCE SIGN

METRIC UNITS

TYPE FACILITY	DESTINATION LINES	DIMENSIONS (MILLIMETERS)									
		A	B	C	D	E	F	G	H	I	J
EXPRESSWAY	2	1350	285	250	285	270	300	215	265	200	230
	3	1800	250	250	255	235	300	215	265	200	230
FREEWAY	2	1500	285	275	280	265	375	230	330	250	250
	3	2100	280	275	280	260	375	230	330	250	250

ENGLISH UNITS

TYPE FACILITY	DESTINATION LINES	DIMENSIONS (INCHES)									
		A	B	C	D	E	F	G	H	I	J
EXPRESSWAY	2	54	11.4	10	11.4	10.7	12	8.6	10.6	8	9.3
	3	72	10.1	10	10.1	9.4	12	8.6	10.6	8	9.3
FREEWAY	2	60	11.2	11	11.2	10.4	15	9.2	13.3	10	10.1
	3	84	11	11	11.1	10.2	15	9.2	13.3	10	10.2

INTERCHANGE SEQUENCE SIGN

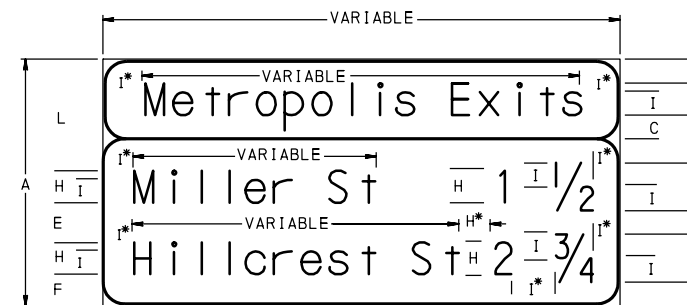
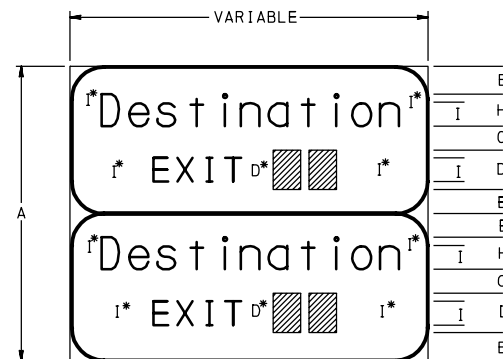
METRIC UNITS

TYPE FACILITY	DIMENSIONS (MILLIMETERS)				
	A	B	C	H	I
EXPRESSWAY	1200	245	245	265	200
FREEWAY	1350	260	250	330	250

ENGLISH UNITS

TYPE FACILITY	DIMENSIONS (INCHES)				
	A	B	C	H	I
EXPRESSWAY	48	9.8	9.8	10.6	8
FREEWAY	54	10.3	10.1	13.3	10

NEXT (NUMBER) EXITS AREA SIGN



LEGEND AND NUMERALS - SERIES E MODIFIED

\* INDICATES MINIMUM SPACING.

NOTES:

- SEE TC-8700C, SHEET 1 FOR LAYOUT OF FRACTIONS.
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

METRIC UNITS

TYPE FACILITY	DIMENSIONS (MILLIMETERS)						
	A	B	C	D	E	H	I
EXPRESSWAY	2400	220	200	300	215	265	200
FREEWAY	3000	275	250	375	270	330	250

ENGLISH UNITS

TYPE FACILITY	DIMENSIONS (INCHES)						
	A	B	C	D	E	H	I
EXPRESSWAY	96	8.8	8	12	8.6	10.6	8
FREEWAY	120	10.9	10	15	10.8	13.3	10

DOUBLE EXIT SUPPLEMENTAL GUIDE SIGN

METRIC UNITS

TYPE FACILITY	DESTINATION LINES	DIMENSIONS (MILLIMETERS)											
		A	B	C	D	E	F	G	H	I	J	K	L
EXPRESSWAY	2	1950	255	205	400	235	250	300	265	200	200	230	935
	3	2400	255	205	400	210	250	300	265	200	175	230	935
FREEWAY	2	2400	310	260	500	295	285	375	330	250	250	260	1160
	3	3000	285	260	500	295	285	375	330	250	250	260	1135

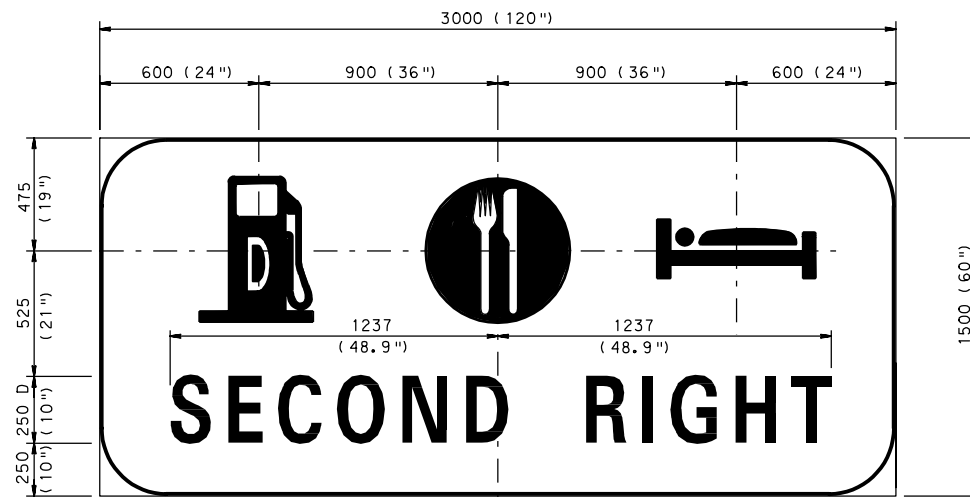
ENGLISH UNITS

TYPE FACILITY	DESTINATION LINES	DIMENSIONS (INCHES)											
		A	B	C	D	E	F	G	H	I	J	K	L
EXPRESSWAY	2	78	10.2	8.2	16	9.4	10	12	10.6	8	8	9.2	37.4
	3	96	10.2	8.2	16	8.4	10	12	10.6	8	7	9.2	37.4
FREEWAY	2	96	12.3	10.4	20	11.7	11.3	15	13.3	10	10	10.4	46.4
	3	120	11.3	10.4	20	11.7	11.3	15	13.3	10	10	10.4	45.4

COMMUNITY INTERCHANGES IDENTIFICATION SIGN

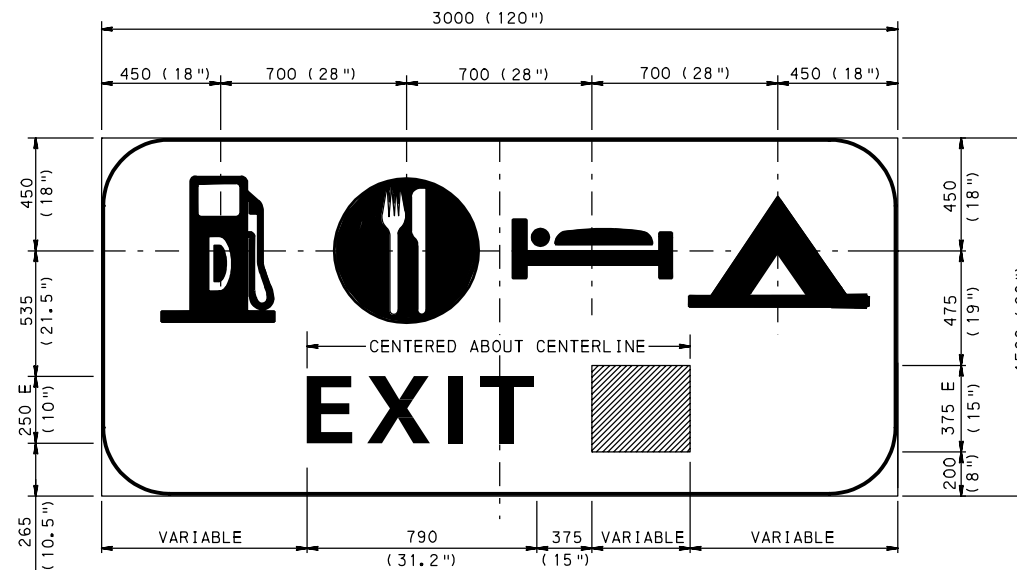
COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

SIGN DETAILS  
FREEWAY AND EXPRESSWAY  
GUIDE SIGNS  
SUPPLEMENTAL GUIDE SIGNS  
& MISCELLANEOUS  
INTERCHANGE SIGNS



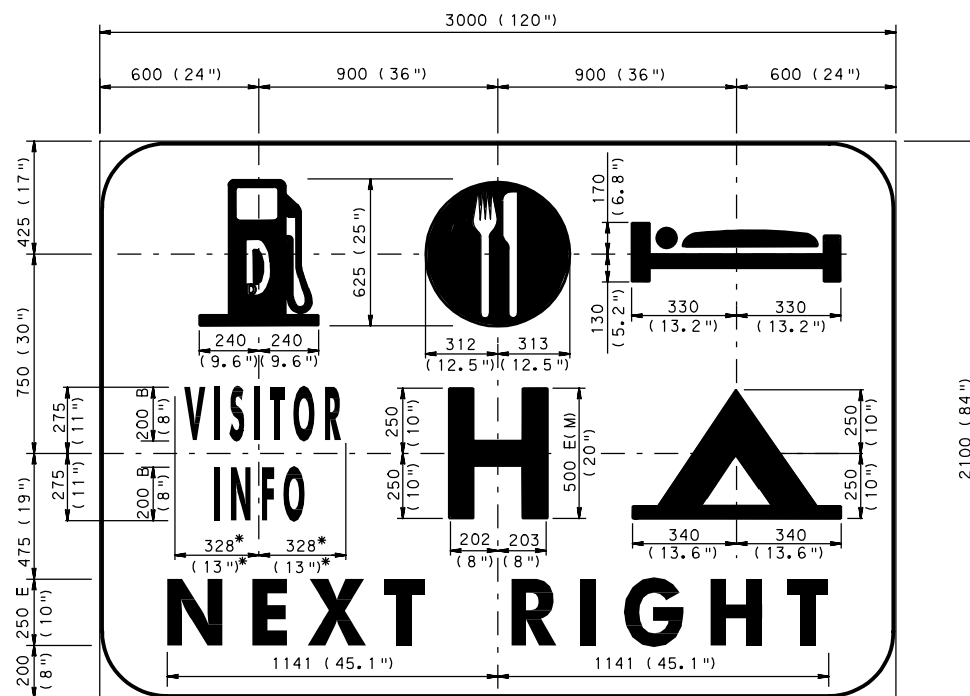
SEE 6-SERVICE SIGN FOR SERVICE SYMBOL DIMENSIONS

**3-SERVICE SIGN**



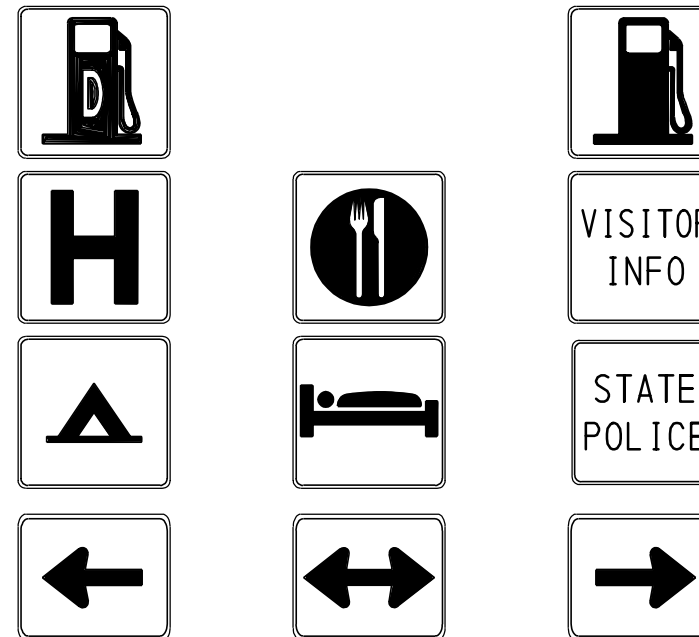
SEE 6-SERVICE SIGN FOR SERVICE SYMBOL DIMENSIONS

**4-SERVICE SIGN**



\* - 15% REDUCED SPACING

**6-SERVICE SIGN**



**RAMP SIGNING**

**NOTES:**

1. ALL SERVICE SIGNS SHALL HAVE A BLUE REFLECTORIZED BACKGROUND AND WHITE REFLECTORIZED SYMBOLS, LEGENDS, AND BORDERS. UNLESS NOTED OTHERWISE, THE TYPE OF REFLECTIVE SHEETING SHALL COMPLY WITH DEPARTMENT PUBLICATION 408.
2. ALL MAINLINE SERVICE SIGNS SHALL HAVE A 50 mm (2") BORDER WITH 225 mm (9") CORNER RADIUS.
3. THE STANDARD MAINLINE SERVICE SIGN SHALL USE A 3000 mm x 1500 mm (120" x 60") PANEL AND SHALL USE THE THREE-SYMBOL LAYOUT. IF FOUR SYMBOLS ARE REQUIRED, THE SYMBOLS SHALL BE AS INDICATED. IF MORE THAN FOUR SYMBOLS ARE REQUIRED, A 3000 mm x 2100 mm (120" x 84") PANEL SHALL BE USED.
4. WHEN THE EXIT IS NUMBERED, THE EXIT NUMBER SHOULD BE USED INSTEAD OF "NEXT RIGHT" OR "SECOND RIGHT".
5. FOR THE LAYOUT OF RAMP SIGNING [600 mm x 600 mm (24" x 24")], SEE D9 SERIES IN DEPARTMENT PUBLICATION 236M. USE 600 mm x 300 mm (24" x 12") SERVICES ARROW (D9-2-2) WITH RAMP SIGNING.
6. NORMAL SEQUENCE SHOULD BE GAS (DIESEL), FOOD, LODGING, AND THEN OTHERS.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
8. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

SIGN DETAILS  
FREEWAY AND EXPRESSWAY  
GUIDE SIGNS

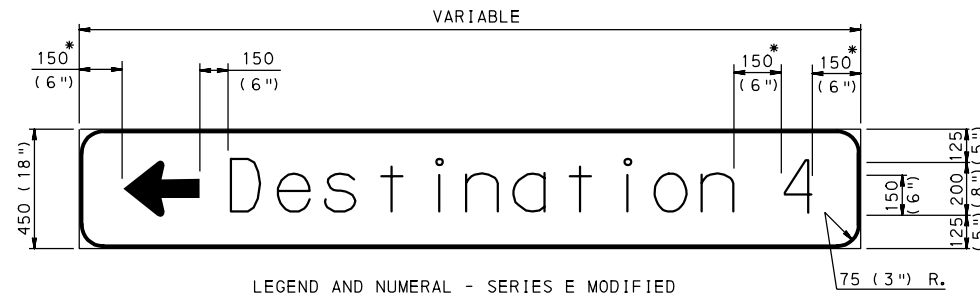
GENERAL MOTORIST  
SERVICE SIGNS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

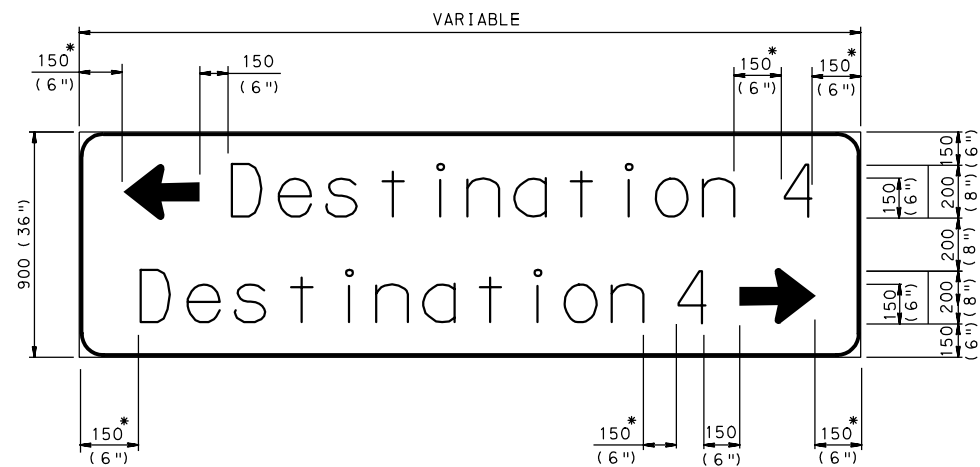
RECOMMENDED MAY 25, 2007  
*m. G. Latel*  
CHIEF HIGHWAY ENGINEER

SHT. 7 OF 9

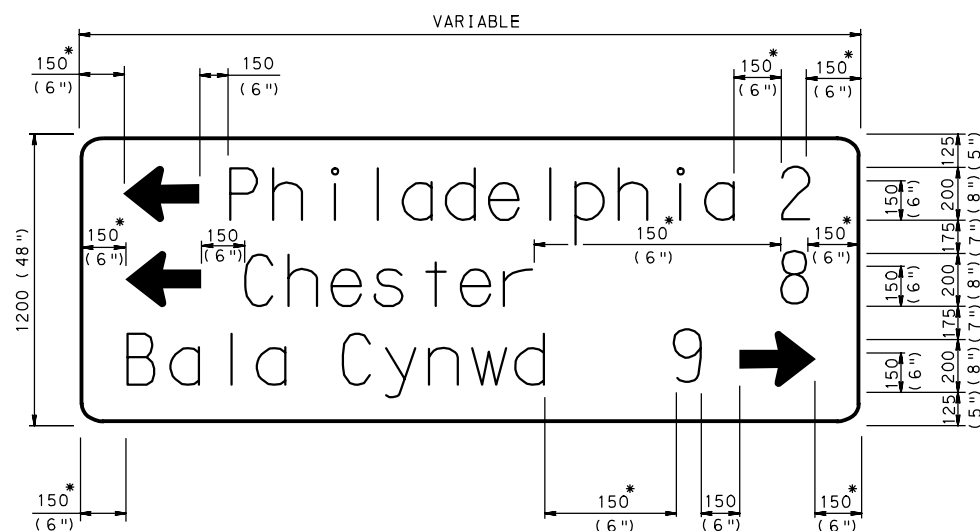
TC-8701D



LEGEND AND NUMERAL - SERIES E MODIFIED



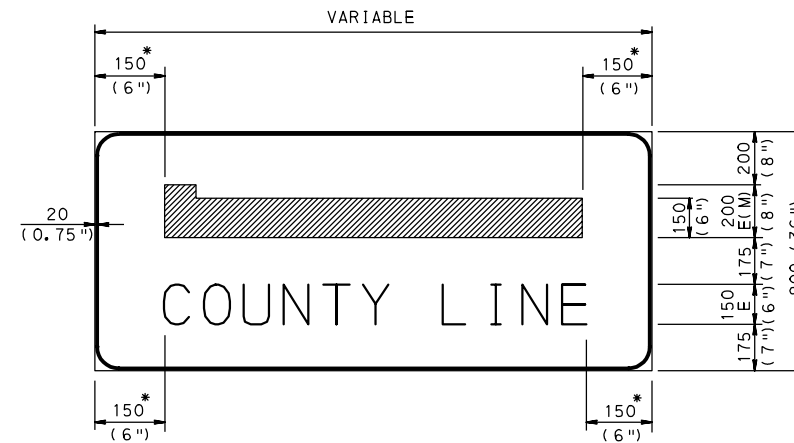
LEGEND AND NUMERALS - SERIES E MODIFIED



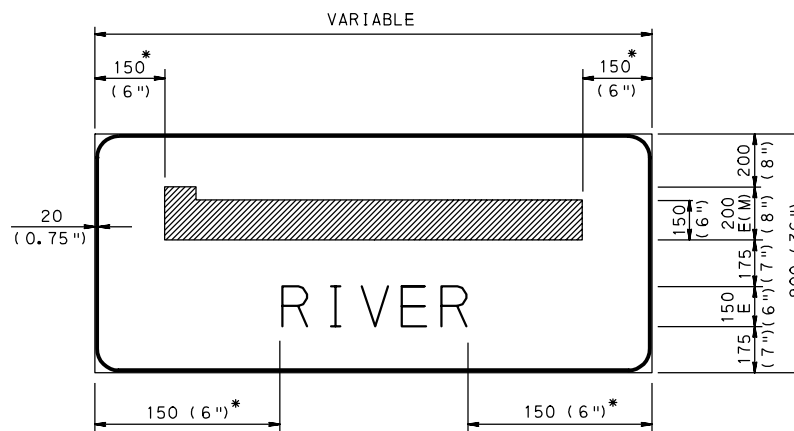
LEGEND AND NUMERALS - SERIES E MODIFIED

RAMP DESTINATION SIGNS

\* INDICATES MINIMUM SPACING



COUNTY BOUNDARY SIGNS



WATERWAY SIGNS

NOTES:

1. ALL SIGNS ON THIS SHEET SHALL HAVE A 30 mm (1.25") BORDER WITH 150 mm (6") CORNER RADII, UNLESS OTHERWISE NOTED.
2. REFER TO TC-8700C FOR ARROW DETAILS. TYPE K, TYPE L OR TYPE M ARROWS SHALL BE USED FOR THE RAMP DESTINATION SIGNS.
3. BOUNDARY AND WATERWAY SIGNS SHALL HAVE WHITE REFLECTORIZED BACKGROUND AND BLUE REFLECTORIZED LEGEND AND BORDER. UNLESS NOTED OTHERWISE, THE TYPE OF REFLECTIVE SHEETING SHALL COMPLY WITH DEPARTMENT PUBLICATION 408.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
5. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

SIGN DETAILS  
FREEWAY AND EXPRESSWAY  
GUIDE SIGNS

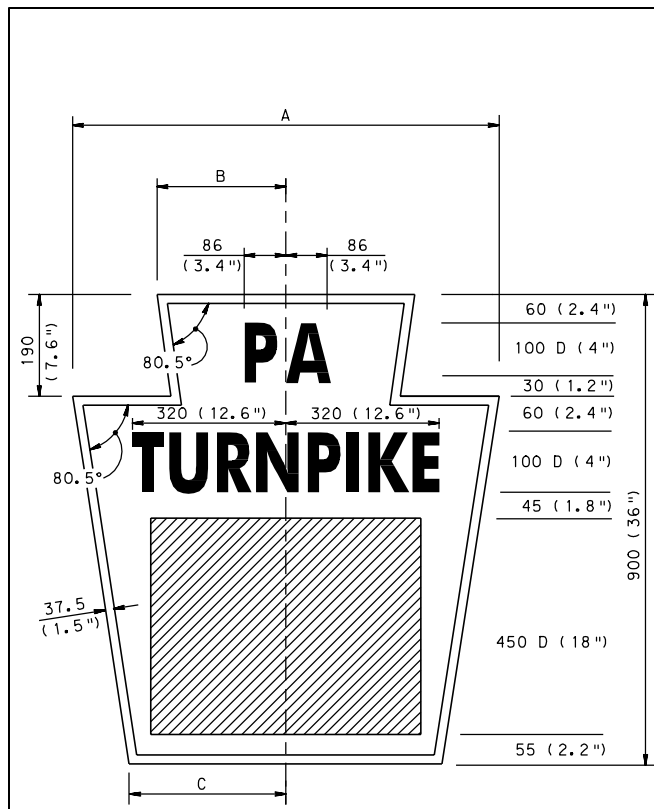
RAMP DESTINATION  
AND BOUNDARY SIGNS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

SHT. 8 OF 9

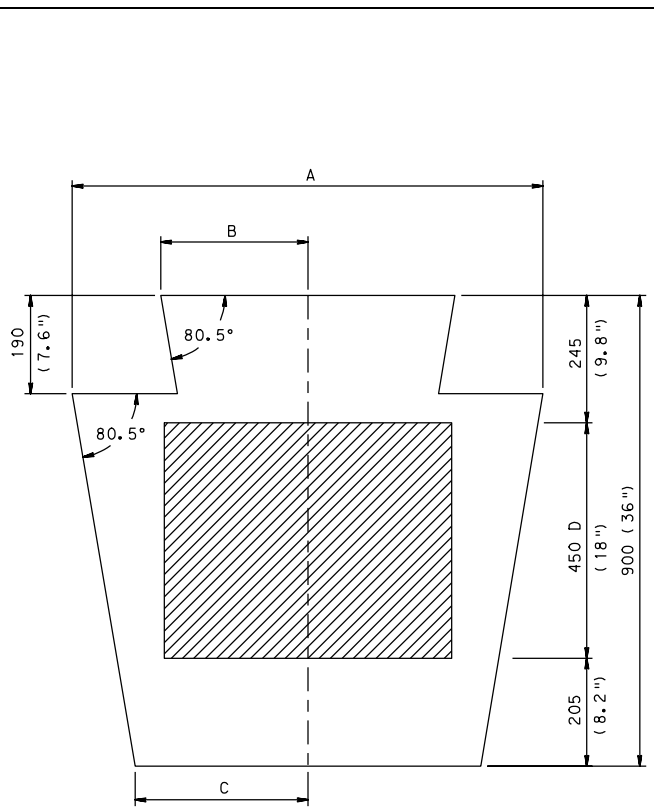
TC-8701D



COLOR: GREEN REFLECTORIZED BACKGROUND  
WHITE REFLECTORIZED LEGEND AND BORDER

METRIC UNITS			ENGLISH UNITS			
NUMBER OF DIGITS	DIMENSIONS (mm)		NUMBER OF DIGITS	DIMENSIONS (")		
	A	B		A	B	C
1 or 2	900	260	330	36	10.5	13.3
3	1125	375	445	45	15	17.8

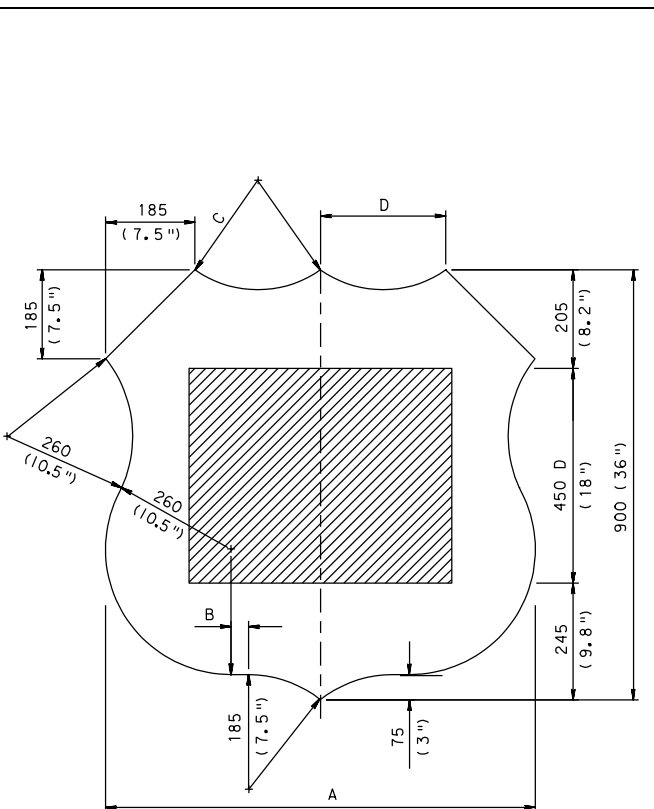
PA. TURNPIKE ROUTE SHIELD



COLOR: WHITE REFLECTORIZED BACKGROUND  
BLACK NONREFLECTORIZED LEGEND

METRIC UNITS			ENGLISH UNITS			
NUMBER OF DIGITS	DIMENSIONS (mm)		NUMBER OF DIGITS	DIMENSIONS (")		
	A	B		A	B	C
1 or 2	900	260	330	36	10.5	13.3
3	1125	375	445	45	15	17.8

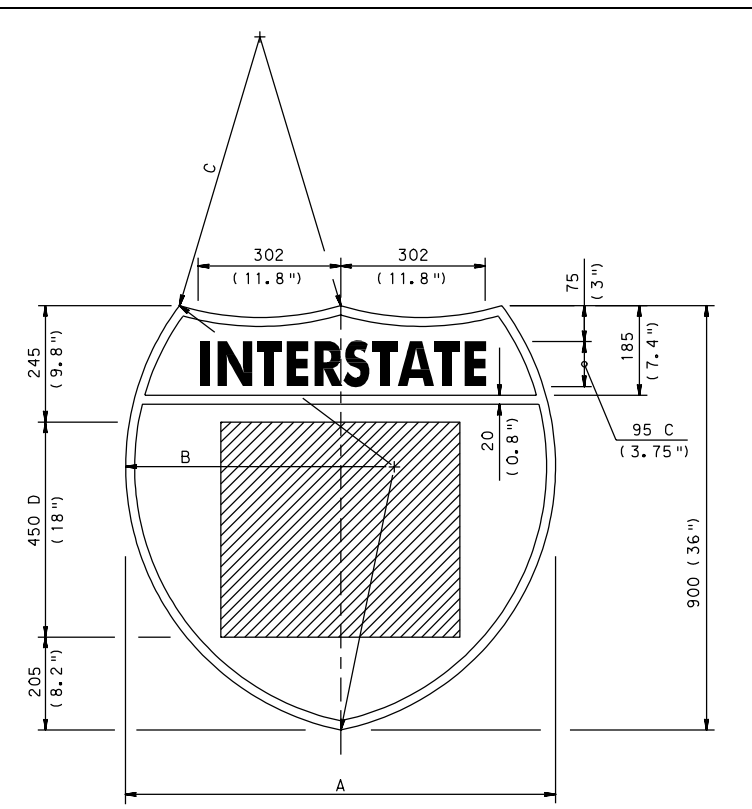
PA. SHIELD



COLOR: WHITE REFLECTORIZED BACKGROUND  
BLACK NONREFLECTORIZED LEGEND

METRIC UNITS				ENGLISH UNITS				
NUMBER OF DIGITS	DIMENSIONS (mm)			NUMBER OF DIGITS	DIMENSIONS (")			
	A	B	C		A	B	C	D
1 or 2	900	35	185	260	36	1.5	7.5	10.5
3	1125	135	335	375	45	5.5	13.5	15

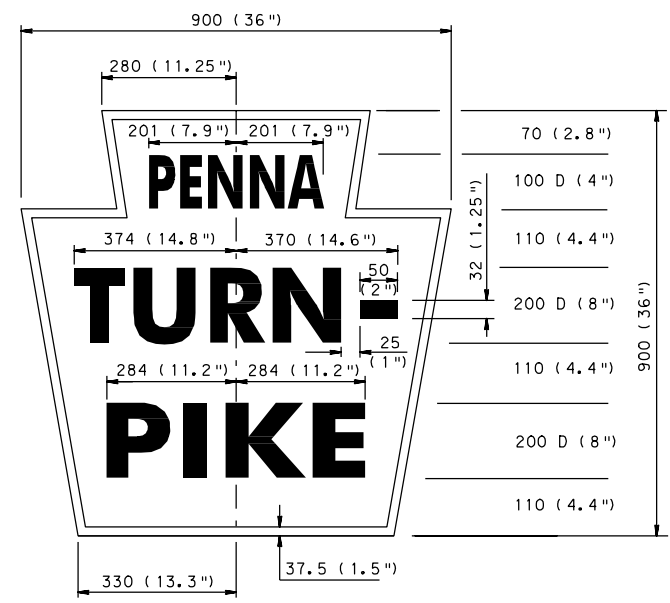
U.S. SHIELD



COLOR: WHITE REFLECTORIZED LEGEND AND BORDER  
RED REFLECTORIZED TOP BACKGROUND  
BLUE REFLECTORIZED BOTTOM BACKGROUND

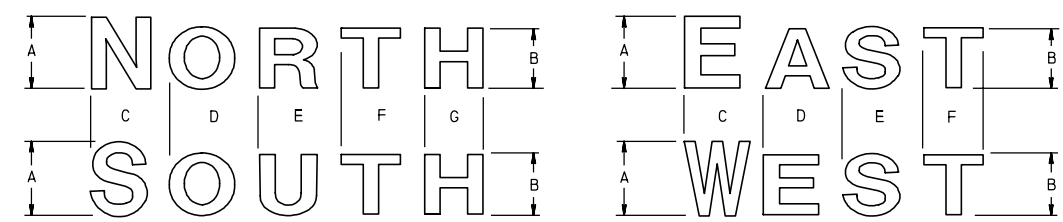
METRIC UNITS			ENGLISH UNITS			
NUMBER OF DIGITS	DIMENSIONS (mm)		NUMBER OF DIGITS	DIMENSIONS (")		
	A	B		A	B	C
1 or 2	900	571	571	36	22.5	22.5
3	1125	647	914	45	25.5	36

INTERSTATE SHIELD



COLOR: GREEN REFLECTORIZED BACKGROUND  
WHITE REFLECTORIZED LEGEND AND BORDER

PENNA. TURNPIKE SHIELD



SERIES E CAPITAL

	METRIC UNITS							TOTAL
	A	B	C	D	E	F	G	
NORTH	450	375	472	413	383	358	304	1930
	375	300	392	330	306	287	243	1558
SOUTH	300	250	315	276	254	238	202	1285
	450	375	452	413	383	358	304	1910
EAST	375	300	375	330	306	287	243	1541
	300	250	301	276	254	238	202	1271
WEST	450	375	393	460	383	279	243	1515
	375	300	326	368	306	224	224	1224
TOTAL	300	250	263	306	254	186	1009	1009
	450	375	566	358	383	279	243	1586
	375	300	470	287	306	224	224	1287
	300	250	377	238	254	186	1055	1055

	ENGLISH UNITS							TOTAL
	A	B	C	D	E	F	G	
NORTH	18	15	18.6	16.3	15.0	14.1	12.0	76.0
	15	12	15.4	13.0	12.0	11.3	9.6	61.3
SOUTH	12	10	12.4	10.9	10.0	9.4	8.0	50.7
	18	15	17.7	16.3	15.0	14.1	12.0	75.1
EAST	15	12	14.7	13.0	12.0	11.3	9.6	60.6
	12	10	11.8	10.9	10.0	9.4	8.0	50.1
WEST	18	15	15.5	18.1	15.0	11.0	11.0	59.6
	15	12	12.9	14.5	12.0	8.8	8.8	48.2
TOTAL	12	10	10.3	12.1	10.0	7.3	7.3	39.7
	18	15	22.2	14.1	15.0	11.0	11.0	62.3
	15	12	18.5	11.3	12.0	8.8	8.8	50.6
	12	10	14.8	9.4	10.0	7.3	7.3	41.5

CARDINAL DETAILS

NOTES:

1. THESE IRREGULAR-SHAPED SHIELDS SHALL BE FABRICATED FROM TYPE III OR IV REFLECTIVE SHEETING AND SHALL BE USED ON ALL GUIDE SIGNS IN LIEU OF THOSE SHIELDS DEPICTED IN PUBLICATION 236M.
2. THE PA TURNPIKE ROUTE SHIELD SHALL ONLY BE USED WITH PA NUMBERED TRAFFIC ROUTES, I.E., NOT WITH INTERSTATE ROUTES SUCH AS I-76, I-276, I-476, ETC.
3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
4. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

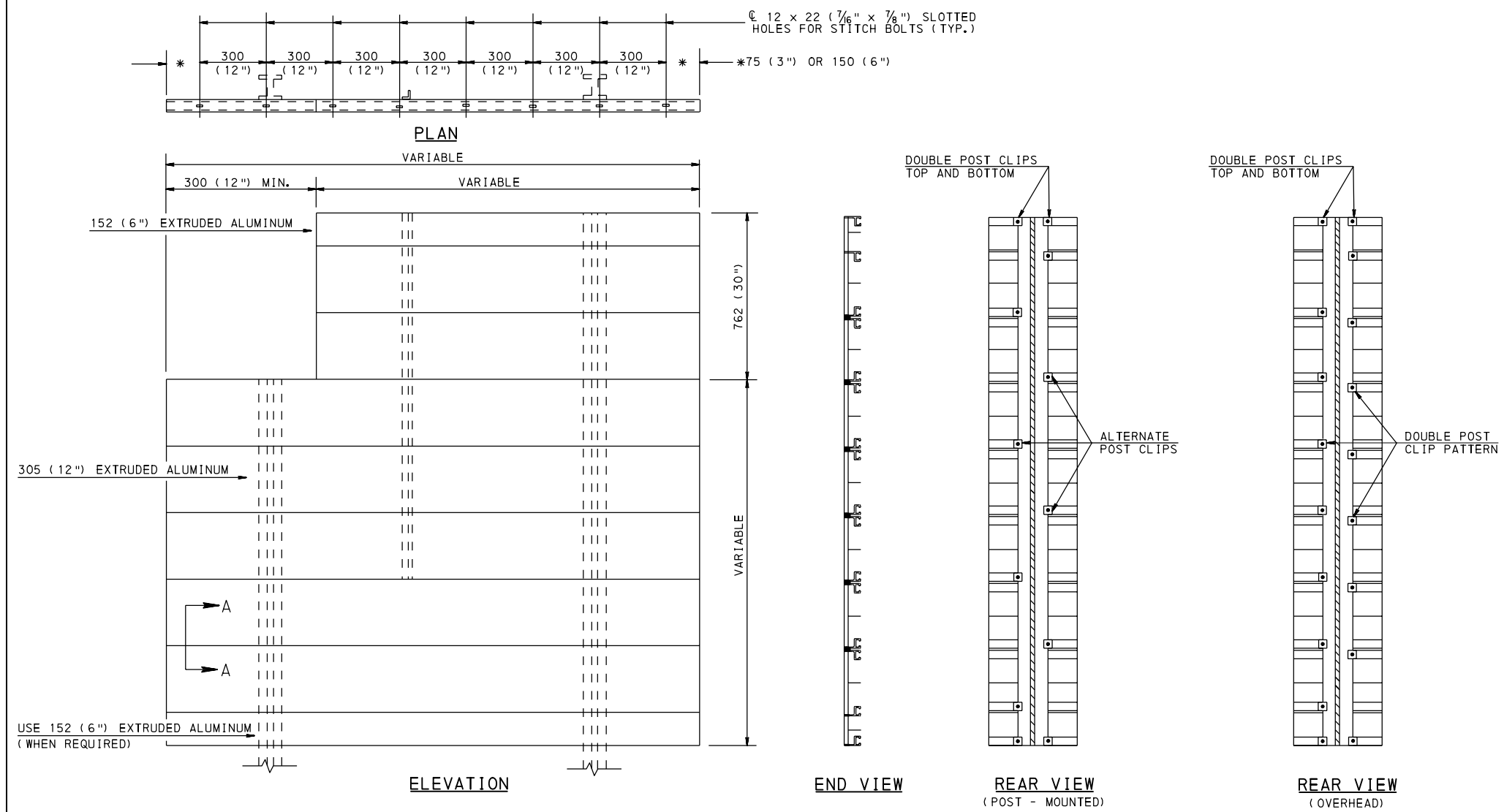
**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**SIGN DETAILS**  
**FREEWAY AND EXPRESSWAY**  
**GUIDE SIGNS**

**CARDINALS AND SHIELDS**

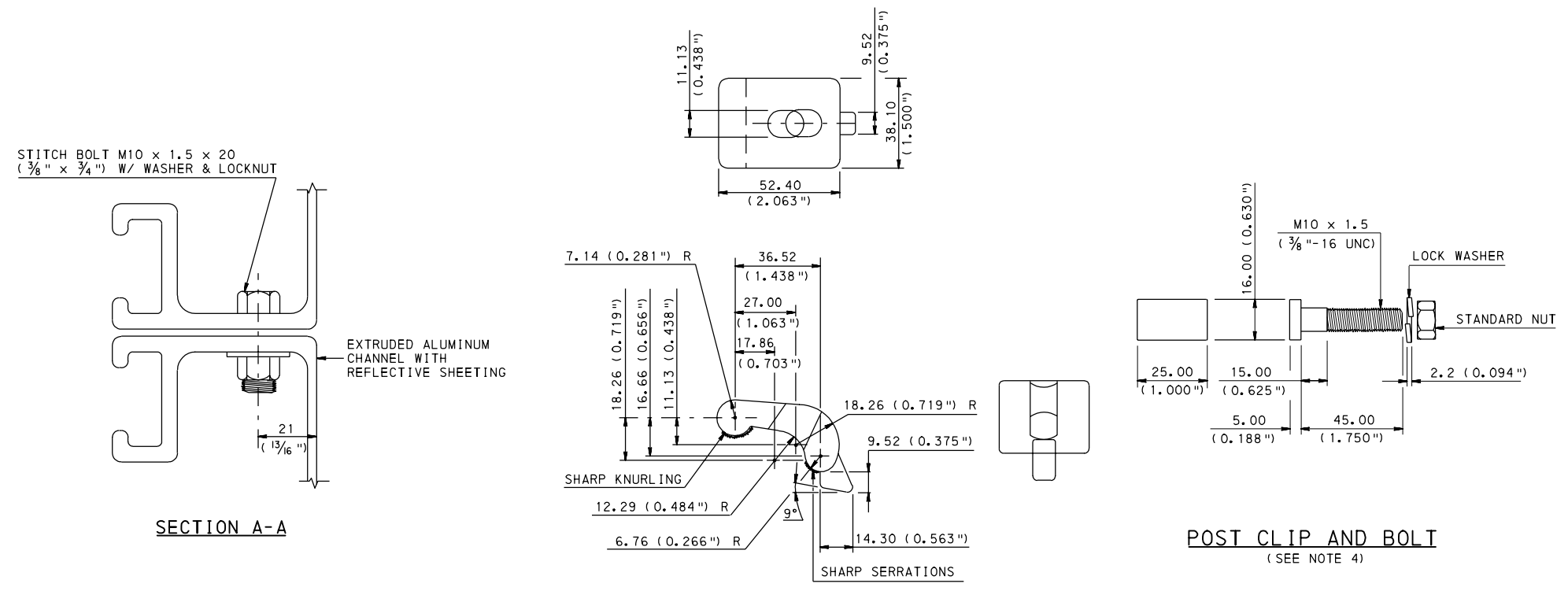
---

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 9 OF 9 <b>TC-8701D</b>
---	--	--------------------------------



- NOTES:**
- IF A 152 (6") SECTION IS REQUIRED, IT SHOULD BE PLACED AT THE TOP AND/OR THE BOTTOM OF THE SIGN.
  - STITCH BOLTS TO BE USED AT 300 (12") CENTERS THROUGHOUT THE SIGN PANEL.
  - A DOUBLE POST CLIP PATTERN IS REQUIRED FOR ALL OVERHEAD SIGNS.
  - A LOCK NUT AND M10 ( $\frac{3}{8}$ ") WASHER MAY BE USED IN LIEU OF LOCK WASHER AND STANDARD NUT FOR POST CLIPS.
  - SEE TC-8702E FOR INSTALLATION ON WOOD POSTS.
  - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
  - EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

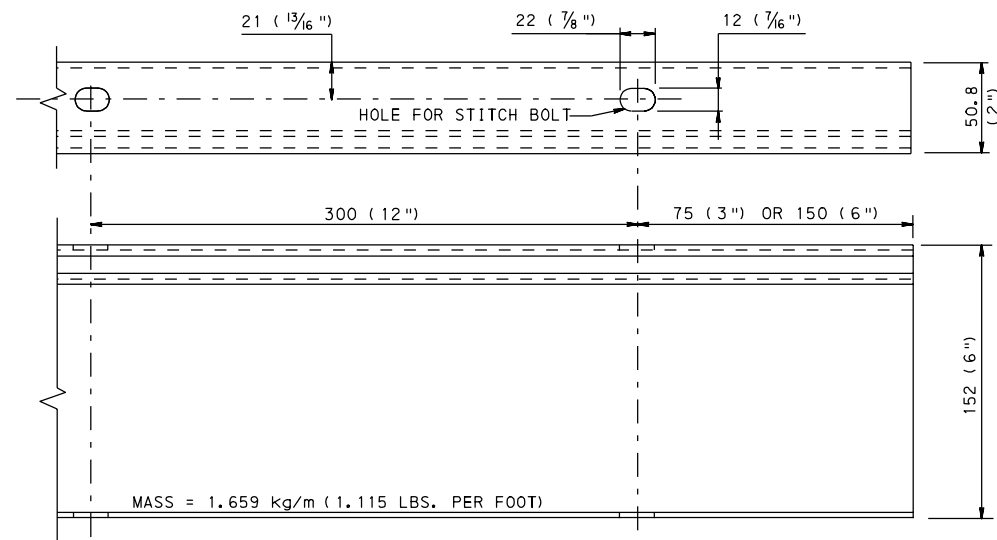
**EXTRUDED ALUMINUM CHANNEL SIGN**



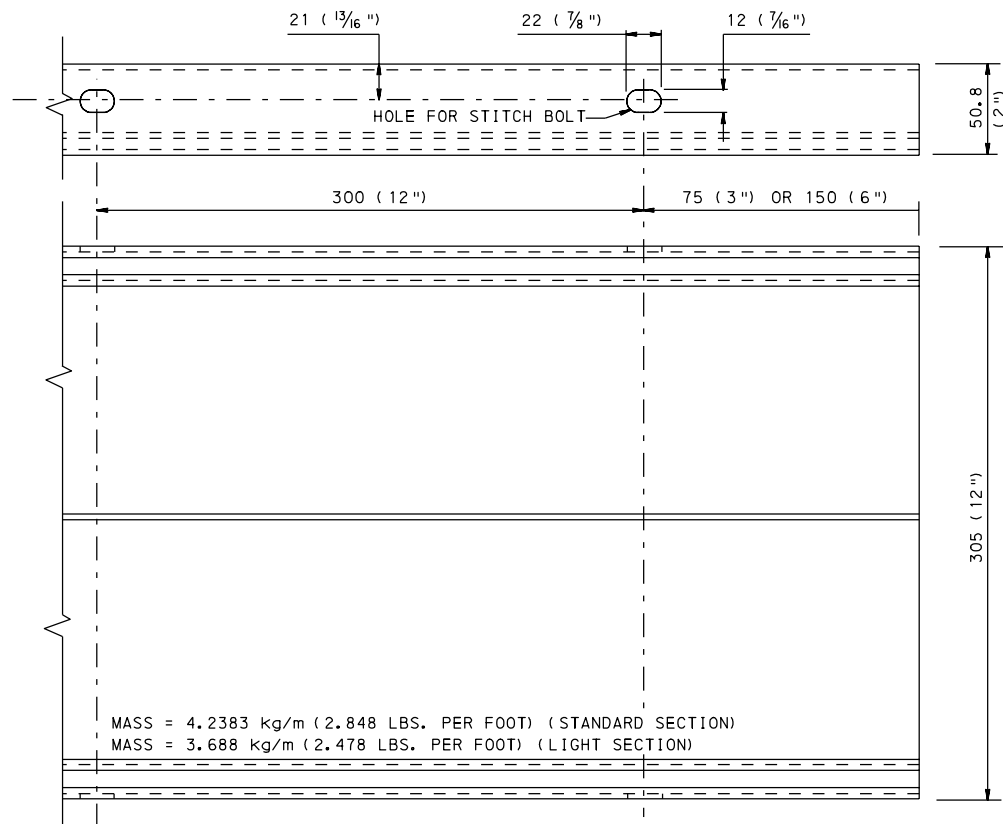
**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**EXTRUDED ALUMINUM CHANNEL SIGN**

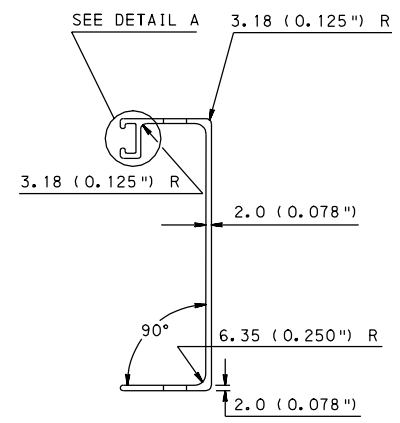
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. G. Patel</i> CHIEF HIGHWAY ENGINEER	SHT. 1 OF 2 <b>TC-8701E</b>
---	--	--------------------------------



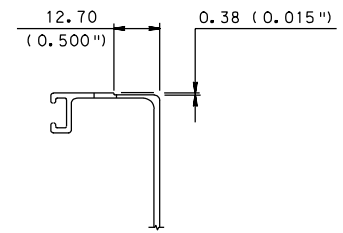
152 (6") EXTRUDED ALUMINUM CHANNEL  
REAR VIEW



305 (12") EXTRUDED ALUMINUM CHANNEL  
REAR VIEW

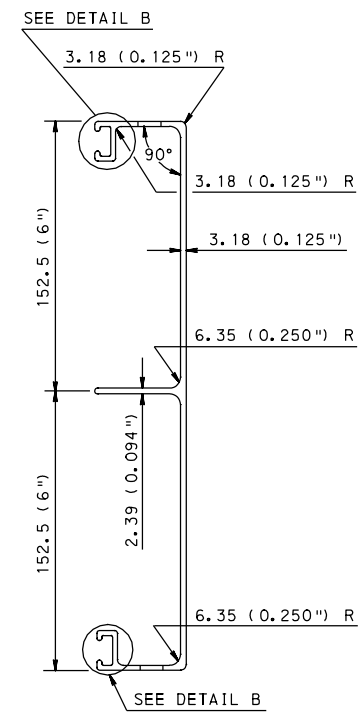


END VIEW

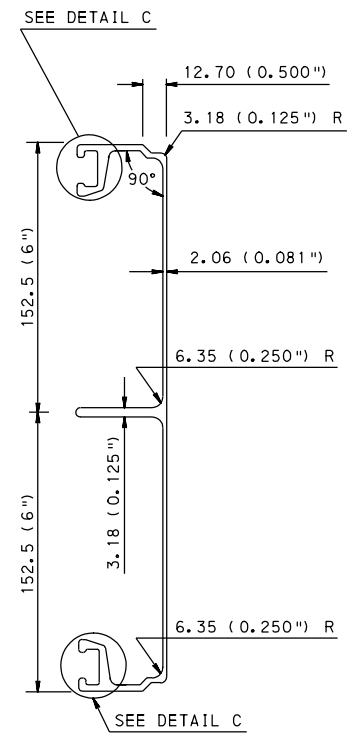


APPROVED ALTERNATE  
CORNER DETAIL

DIMENSIONS NOT SHOWN ARE  
SAME AS END VIEW



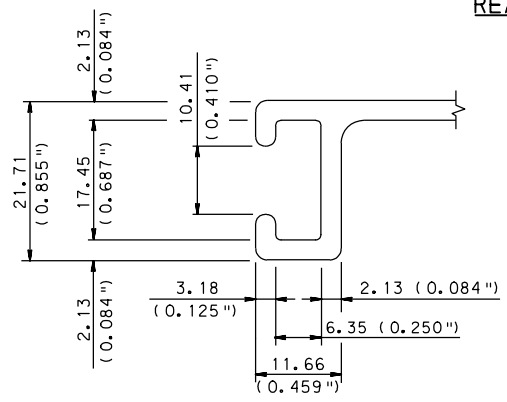
END VIEW



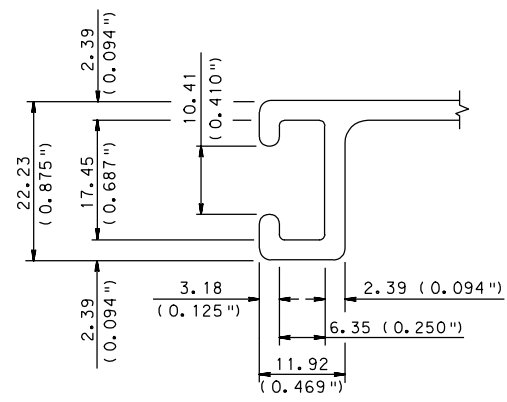
END VIEW  
LIGHT SECTION

NOTES:

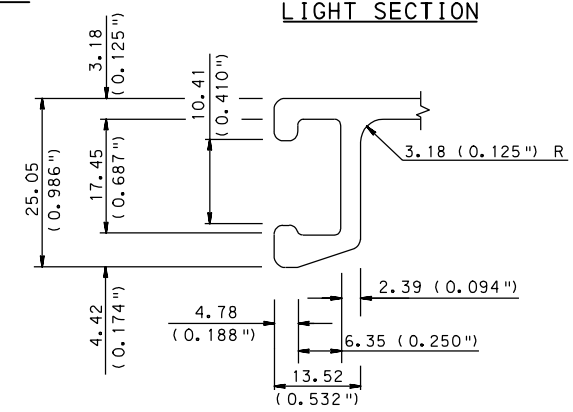
1. USE EITHER THE STANDARD SECTION (28008) OR THE LIGHT SECTION (401771).
2. FOR DETAILS A, B, AND C USE 1.6 (0.062") R ON ALL OUTSIDE CORNERS AND 0.8 (0.031") R ON ALL INSIDE CORNERS UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
4. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



DETAIL A



DETAIL B



DETAIL C

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

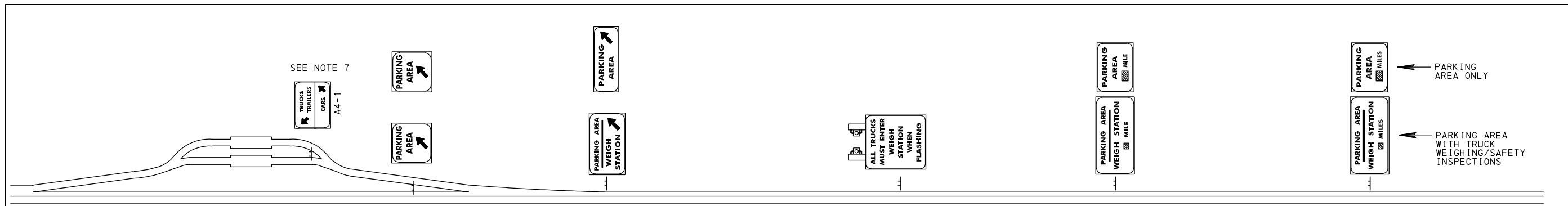
EXTRUDED ALUMINUM CHANNEL SIGN

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

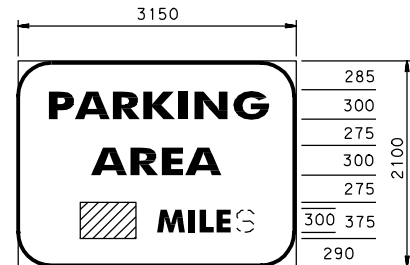
SHT. 2 OF 2

TC-8701E

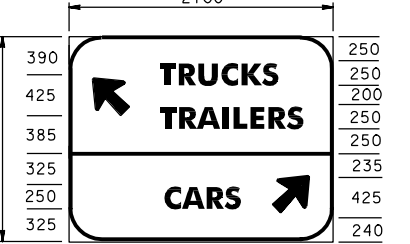


TYPE N ARROW

267	592	840	
262--P	312--A	570--ARROW	
312--A	276--R	840	
276--R	224--E	840	
267--K	255--A	2250	
119--I	591		
276--N	2250		
205--G			
266			
2250			

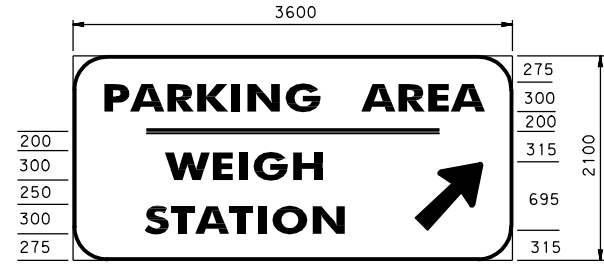


717	1042	--	--
262--P	312--A	450	450
312--A	276--R	307--M	307--M
276--R	224--E	119--I	119--I
267--K	255--A	243--L	243--L
119--I	1041	186--E	243--L
276--N	3150		205--S
205--G			
716			
3150			



50 mm BAR 250 mm SERIES D LEGEND TYPE B ARROWS

224	224	899
425--ARROW	425--ARROW	203--C
250	250	260--A
203--T	203--T	219--R
230--R	219--R	171--S
230--U	260--A	299
219--C	99--I	425--ARROW
223--K	203--L	224
171--S	203--E	2700
525	219--R	
2700	171--S	
	224	
	2700	



50 mm BAR TYPE G ARROW

258	550	719	506
262--P	2500--(BAR LENGTH)	324--W	262--S
312--A	550	243--E	205--T
276--R	3600	119--I	274--A
267--K		276--G	243--T
119--I		205--H	119--I
276--N		719	285--O
205--G		695--ARROW	205--N
300		300	506
312--A		3600	695--ARROW
276--R			300
224--E			3600
255--A			
258			
3600			



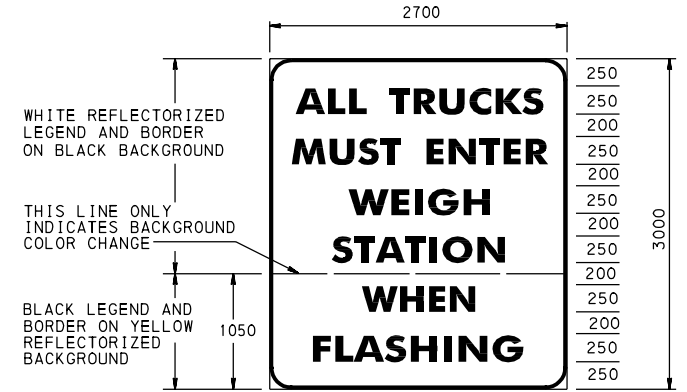
50 mm BAR

258	550	270	--	--
262--P	2500--(BAR LENGTH)	324--W	450	450
312--A	550	243--E	307--M	307--M
276--R	3600	119--I	119--I	119--I
267--K		276--G	243--L	243--L
119--I		205--H	186--E	243--L
276--N		300		205--S
205--G		262--S		
300		205--T		
312--A		274--A		
276--R		243--T		
224--E		119--I		
255--A		285--O		
258		205--N		
3600		270		
		3600		



TYPE G ARROW

294	619
262--P	312--A
312--A	276--R
276--R	224--E
267--K	255--A
119--I	619
276--N	695--ARROW
205--G	300
294	3300
695--ARROW	
300	
3300	



250 mm SERIES D LEGEND

278	296	864	686	913	553
260--A	255--M	270--W	219--S	270--W	203--F
203--L	230--U	203--E	171--T	230--H	171--L
155--L	219--S	99--I	228--A	203--E	260--A
250	155--T	230--G	203--T	171--N	230--S
203--T	250	171--H	99--I	913	230--H
230--R	203--E	863	238--O	2700	99--I
230--U	219--N	2700	171--N		230--N
219--C	203--T		685		171--G
223--K	203--E		2700		553
171--S	171--R				2700
278	296				
2700	2700				

- NOTES:**
- DEFINITION:** PARKING AREAS DO NOT HAVE PERMANENT REST ROOM FACILITIES.
  - DISTANCE:** USE DISTANCE FROM THEORETICAL GORE FOR DISTANCE INDICATED ON SIGNS.
  - COLOR:** USE BLUE REFLECTORIZED BACKGROUND WITH WHITE REFLECTORIZED DIRECT APPLIED LEGEND AND BORDER, UNLESS OTHERWISE NOTED.
  - BORDERS:** USE 50 mm WIDE BORDER WITH 300 mm CORNER RADIUS, UNLESS OTHERWISE NOTED.
  - LEGEND AND SIGN WIDTH:** UNLESS OTHERWISE NOTED, USE 300 mm SERIES D UPPER CASE FOR LEGEND, AND 375 mm SERIES D FOR DIGITS. SEE TC-8700C FOR LAYOUTS OF ARROWS AND FRACTIONS, AND FOR DETERMINING SIGN WIDTHS.
  - POSTS:** USE POSTS OF AN APPROVED BREAKAWAY DESIGN, EITHER STEEL (TC-8702A OR TC-8702B) OR WOOD (TC-8702E).
  - A4-1 SIGN:** USE ONLY WHEN SEPARATE PARKING AREAS ARE PROVIDED.
  - MINIMUM SIGN SPACING:** MAINTAIN 240 m MINIMUM SPACING FOR ALL SIGNS PRIOR TO DECELERATION LANE.
  - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.**

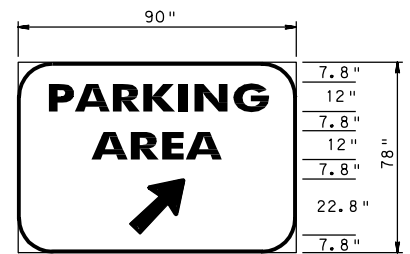
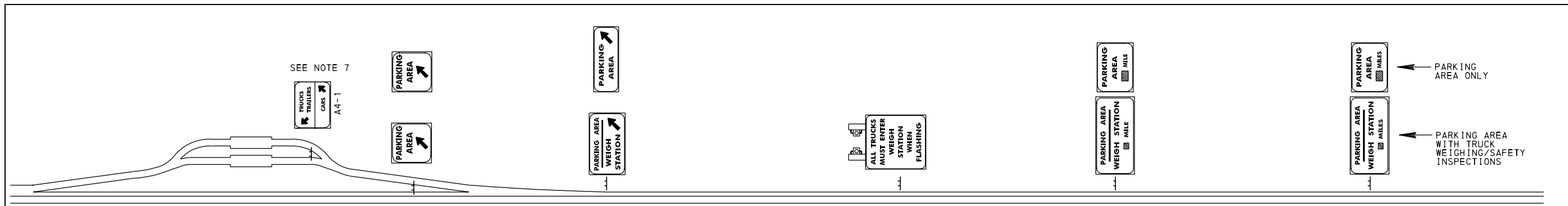
METRIC UNITS

**COMMONWEALTH OF PENNSYLVANIA**  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

**FREEWAY AND EXPRESSWAY  
ADVANCE SIGNING**

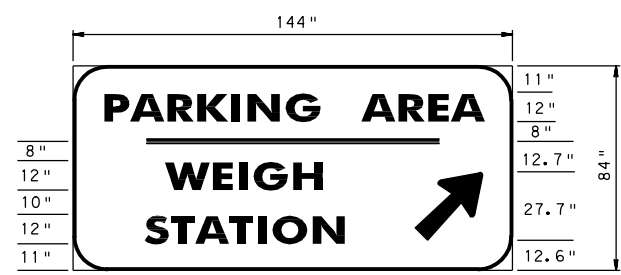
**PARKING AREAS**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Patel</i> CHIEF HIGHWAY ENGINEER	SHT. 1 OF 2 <b>TC-8701P</b>
---	--	--------------------------------



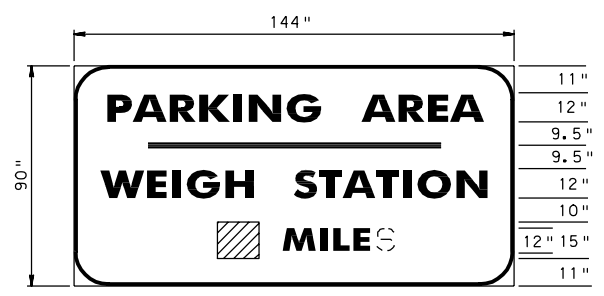
TYPE N ARROW

11.2	24.0	33.6	
10.3--P	12.3--A	22.8--ARROW	
12.3--A	10.9--R	33.6	
10.9--R	8.8--E	90.0"	
10.5--K	10.0--A		
4.7--I	24.0		
10.9--N	90.0"		
8.1--G			
11.1			
90.0"			



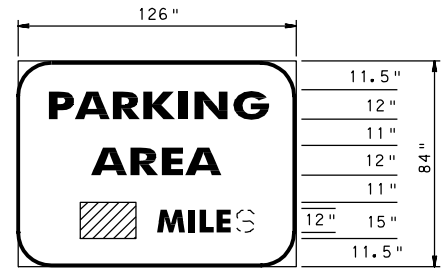
2" BAR TYPE G ARROW

11.2	22.0	29.1	20.7
10.3--P	100.0--(BAR LENGTH)	12.8--W	10.3--S
12.3--A	22.0	9.6--E	8.1--T
10.9--R	144.0"	4.7--I	10.8--A
10.5--K		10.9--G	9.6--T
4.7--I		8.1--H	4.7--I
10.9--N		29.1	11.3--O
8.1--G		27.7--ARROW	8.1--N
12.0		12.0	20.7
12.3--A		144.0"	27.7--ARROW
10.9--R			12.0
8.8--E			144.0"
10.0--A			
11.1			
144.0"			

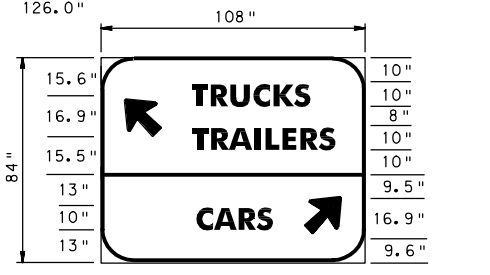


2" BAR

11.2	22.0	11.5		
10.3--P	100.0--(BAR LENGTH)	12.8--W	--	--
12.3--A	22.0	9.6--E	18.0	18.0
10.9--R	144.0"	4.7--I	12.1--M	12.1--M
10.5--K		10.9--G	4.7--I	4.7--I
4.7--I		8.1--H	9.6--L	9.6--L
10.9--N		12.0	7.3--E	8.1--S
8.1--G		10.3--S		
12.0		8.1--T		
12.3--A		10.8--A		
10.9--R		9.6--T		
8.8--E		4.7--I		
10.0--A		11.3--O		
11.1		8.1--N		
144.0"		11.5		
		144.0"		



29.2	42.0	--	--
10.3--P	12.3--A	18.0	18.0
12.3--A	10.9--R	12.1--M	12.1--M
10.9--R	8.8--E	4.7--I	4.7--I
10.5--K	10.0--A	9.6--L	9.6--L
4.7--I	42.0	7.3--E	9.6--E
10.9--N	126.0"		8.1--S
8.1--G			
29.1			
126.0"			



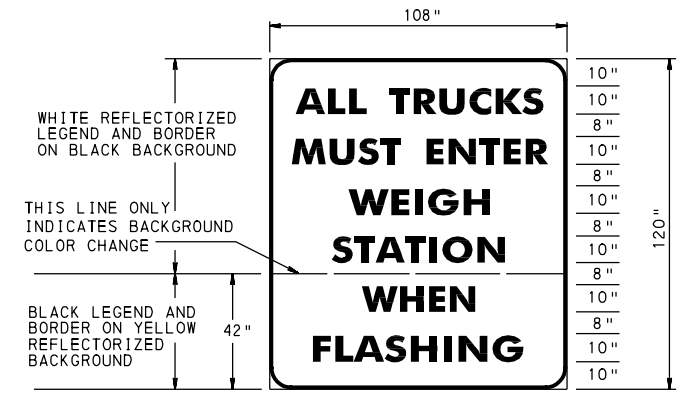
2" BAR 10" SERIES D LEGEND TYPE B ARROWS

9.6	9.6	36.5
16.9--ARROW	16.9--ARROW	8.0--C
10.0	10.0	10.2--A
8.0--T	8.0--T	8.6--R
9.1--R	8.6--R	6.7--S
9.1--U	10.2--A	11.5
8.6--C	3.9--I	16.9--ARROW
8.8--K	8.0--L	9.6
6.7--S	8.0--E	108.0"
21.2	8.6--R	
108.0"	6.7--S	
	9.5	
	108.0"	



TYPE G ARROW

12.3	25.2
10.3--P	12.3--A
12.3--A	10.9--R
10.9--R	8.8--E
10.5--K	10.0--A
4.7--I	25.1
10.9--N	27.7--ARROW
8.1--G	12.0
12.3	
27.7--ARROW	132.0"
12.0	
132.0"	



10" SERIES D LEGEND

11.7	12.4	34.9	27.9	36.8	22.6
10.2--A	10.1--M	10.6--W	8.6--S	10.6--W	8.0--F
8.0--L	9.1--U	8.0--E	6.7--T	9.1--H	6.7--L
6.1--L	8.6--S	3.9--I	9.0--A	8.0--E	10.2--A
10.0	6.1--T	9.1--G	8.0--T	6.7--N	9.1--S
8.0--T	10.0	6.7--H	3.9--I	36.8	9.1--H
9.1--R	8.0--E	34.8	9.4--O	108.0"	3.9--I
9.1--U	8.6--N	108.0"	6.7--N		9.1--N
8.6--C	8.0--T		27.8		6.7--G
8.8--K	8.0--E		108.0"		22.6
6.7--S	6.7--R				108.0"
11.7	12.4				
108.0"	108.0"				

- NOTES:**
- DEFINITION: PARKING AREAS DO NOT HAVE PERMANENT REST ROOM FACILITIES.
  - DISTANCE: USE DISTANCE FROM THEORETICAL GORE FOR DISTANCE INDICATED ON SIGNS.
  - COLOR: USE BLUE REFLECTORIZED BACKGROUND WITH WHITE REFLECTORIZED DIRECT APPLIED LEGEND AND BORDER, UNLESS OTHERWISE NOTED.
  - BORDERS: USE 2" WIDE BORDER WITH 12" CORNER RADII, UNLESS OTHERWISE NOTED.
  - LEGEND AND SIGN WIDTH: UNLESS OTHERWISE NOTED, USE 12" SERIES D UPPER CASE FOR LEGEND, AND 15" SERIES D FOR DIGITS. SEE TC-8700C FOR LAYOUTS OF ARROWS AND FRACTIONS, AND FOR DETERMINING SIGN WIDTHS.
  - POSTS: USE POSTS OF AN APPROVED BREAKAWAY DESIGN, EITHER STEEL (TC-8702A OR TC-8702B) OR WOOD (TC-8702E).
  - A4-1 SIGN: USE ONLY WHEN SEPARATE PARKING AREAS ARE PROVIDED.
  - MINIMUM SIGN SPACING: MAINTAIN 800' MINIMUM SPACING FOR ALL SIGNS PRIOR TO DECELERATION LANE.
  - ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

ENGLISH UNITS

**COMMONWEALTH OF PENNSYLVANIA**  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

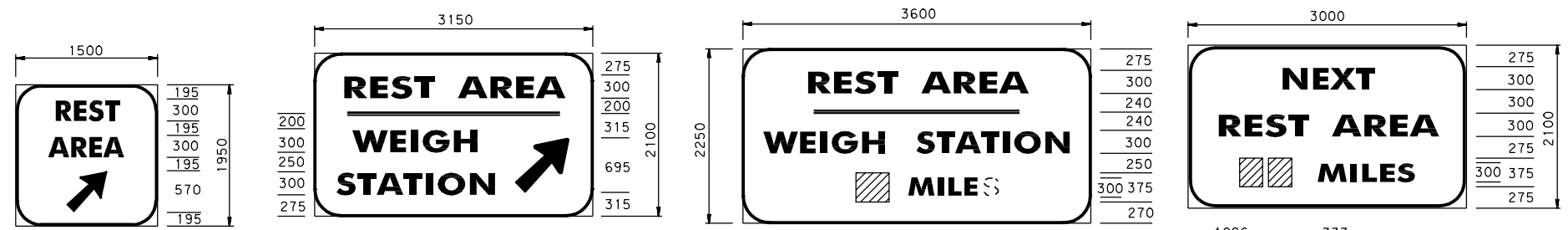
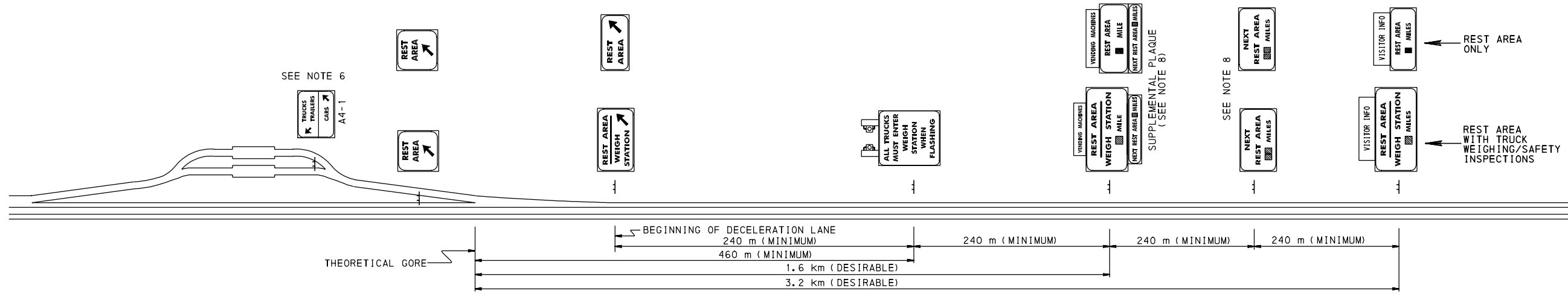
FREEWAY AND EXPRESSWAY  
ADVANCE SIGNING

PARKING AREAS

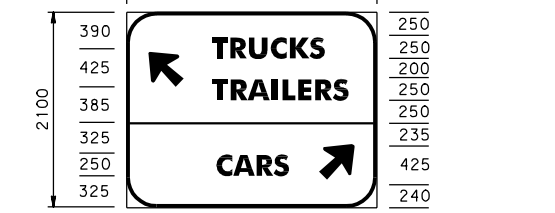
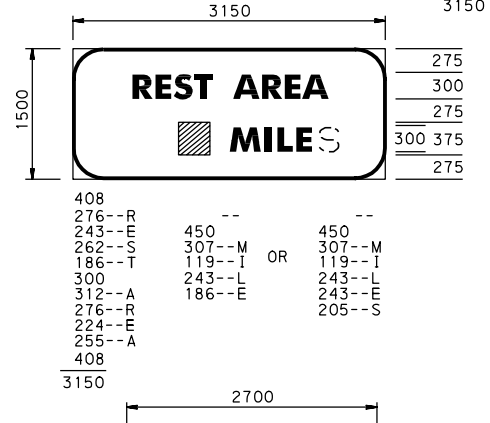
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 2 TC-8701P
---	--	-------------------------

A4-1

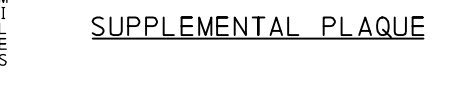
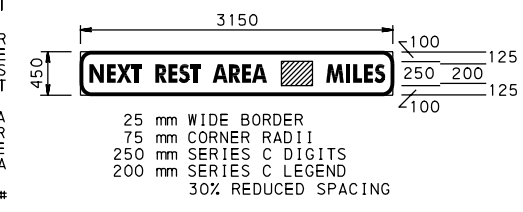




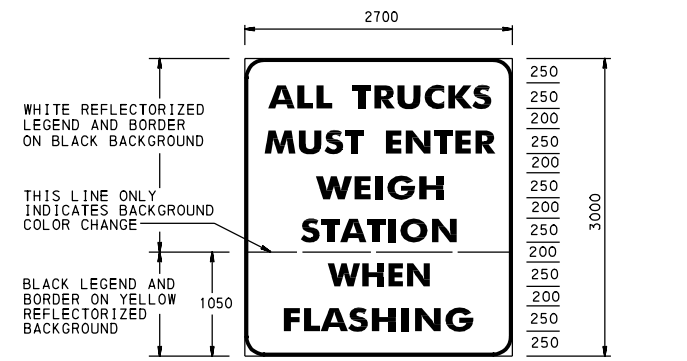
267--R	217	465	408	525	494	281	633	700	270	450	450
276--R	312--A	570--ARROW	276--R	2100--(BAR LENGTH)	324--W	262--S	276--R	2200--(BAR LENGTH)	324--W	450	450
243--E	276--R	465	243--E	525	243--E	205--T	243--E	243--E	243--E	307--M	307--M
262--S	224--E	1500	262--S	3150	119--I	274--A	262--S	700	119--I	119--I	119--I
186--T	255--A		186--T		276--G	243--T	186--T	3600	276--G	243--L	243--L
266	216		300		205--H	119--I	300		205--H	243--E	243--E
1500	1500		312--A		494	285--O	312--A		300	224--E	205--S
			276--R		695--ARROW	205--N	276--R		262--S	300	
			224--E		300	281	224--E		205--T	300	
			255--A		3150	695--ARROW	255--A		274--A	300	
			408		3150	300	408		243--T	300	
			408		3150	300	408		119--I	300	
									285--O	300	
									205--N	300	
									270	300	
									3600	3000	



224	224	899
425--ARROW	425--ARROW	203--C
250	260--A	260--A
203--T	203--T	219--R
230--R	219--R	171--S
230--U	260--A	299
219--C	99--I	425--ARROW
223--K	203--L	224
171--S	203--E	2700
525	219--R	
2700	171--S	
	224	
	2700	



369	319
276--R	312--A
243--E	276--R
262--S	224--E
186--T	255--A
369	319
695--ARROW	695--ARROW
300	300
2700	2700



278	296	864	686	913	553
260--A	255--M	270--W	219--S	270--W	203--F
203--L	230--U	203--E	171--T	230--H	171--L
155--L	219--S	99--I	228--A	203--E	260--A
250	155--T	230--G	203--T	171--N	230--S
203--T	203--T	171--H	99--I	913	230--H
230--R	203--E	863	238--O	2700	99--I
230--U	219--N	2700	171--N	2700	230--N
219--C	203--T		685		171--C
223--K	203--E		2700		553
171--S	171--R				2700
278	296				
2700	2700				

- NOTES:**
- DISTANCE:** USE DISTANCE FROM THEORETICAL GORE FOR DISTANCE INDICATED ON SIGNS.
  - COLOR:** USE BLUE REFLECTORIZED BACKGROUND WITH WHITE REFLECTORIZED DIRECT APPLIED LEGEND AND BORDER, UNLESS OTHERWISE NOTED.
  - BORDERS:** USE 50 mm WIDE BORDER WITH 300 mm CORNER RADIUS, UNLESS OTHERWISE NOTED.
  - LEGEND AND SIGN WIDTH:** UNLESS OTHERWISE NOTED, USE 300 mm SERIES D UPPER CASE FOR LEGEND, AND 375 mm SERIES D FOR DIGITS. SEE TC-8700C FOR LAYOUTS OF ARROWS AND FRACTIONS, AND FOR DETERMINING SIGN WIDTHS.
  - POSTS:** USE POSTS OF AN APPROVED BREAKAWAY DESIGN, EITHER STEEL (TC-8702A OR TC-8702B) OR WOOD (TC-8702E).
  - A4-1 SIGN:** USE ONLY WHEN SEPARATE PARKING AREAS ARE PROVIDED.
  - MINIMUM SIGN SPACING:** MAINTAIN 240 m MINIMUM SPACING FOR ALL SIGNS PRIOR TO DECELERATION LANE.
  - NEXT REST AREA SUPPLEMENTAL SIGN:** THIS SIGN MAY BE ELIMINATED IF SUFFICIENT SIGN SPACING DOES NOT EXIST. WHEN THIS SIGN IS ELIMINATED, ONLY THEN INSTALL "NEXT REST AREA -- MILES" SUPPLEMENTAL PLAQUE UNDER SECOND ADVANCE SIGN.
  - VISITOR INFO SIGN (D5-6-1):** USE AS SHOWN IF THE REST AREA IS STAFFED TO PROVIDE VISITOR (TOURIST) INFORMATION IN ACCORDANCE WITH DEPARTMENT POLICY. SEE PUBLICATION 236M FOR LAYOUT. IF THE SIGN NEEDS TO BE COVERED PERIODICALLY OR IF A FOLDING SIGN IS USED, IT MAY BE MOUNTED BELOW THE MAIN SIGN, PROVIDED PROPER SIGN HEIGHT IS MAINTAINED AND THE BREAKAWAY FEATURE OF THE POSTS IS UNAFFECTED.
  - VENDING MACHINES SIGN (D5-6-2):** USE IF VENDING MACHINES ARE AVAILABLE. SEE PUBLICATION 236M FOR LAYOUT. SEE NOTE 9 CONCERNING ALTERNATE LOCATION FOR FOLDING SIGNS.
  - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

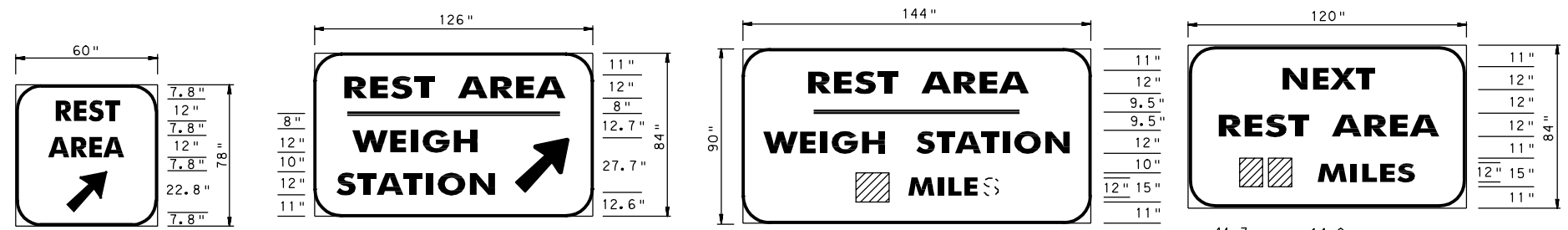
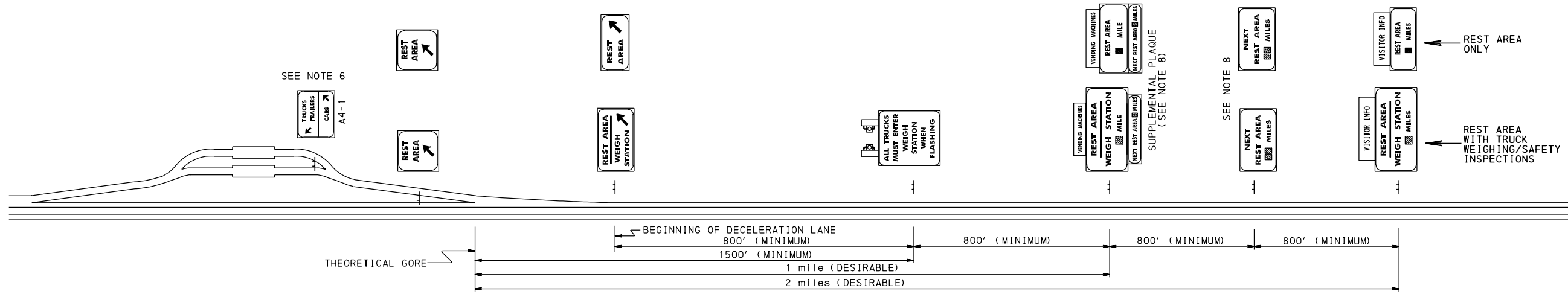
METRIC UNITS

**COMMONWEALTH OF PENNSYLVANIA**  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

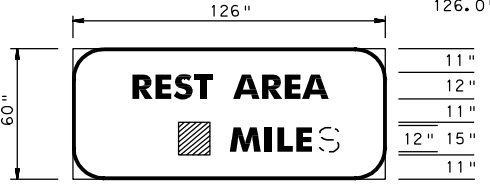
**FREEWAY AND EXPRESSWAY  
ADVANCE SIGNING**

**REST AREAS**

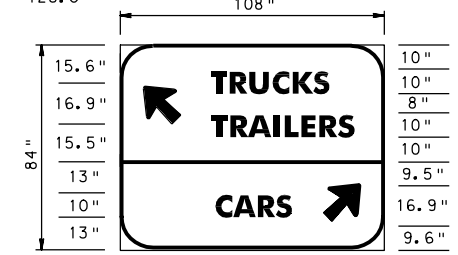
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Patel</i> CHIEF HIGHWAY ENGINEER	SHT. 1 OF 2 <b>TC-8701R</b>
---	--	--------------------------------



TYPE N ARROW	2" BAR	TYPE G ARROW	2" BAR	OR	OR
11.0	17.0	20.1	11.7	26.0	11.5
10.9--R	10.9--R	12.8--W	10.3--S	10.9--R	12.8--W
9.6--E	9.6--E	9.6--E	8.1--T	9.6--E	12.8--W
10.3--S	10.3--S	4.7--I	10.8--A	4.7--I	12.8--W
7.3--T	7.3--T	10.9--G	9.6--T	7.3--T	12.8--W
10.9	12.0	8.1--H	4.7--I	10.9--G	12.8--W
60.0"	12.3--A	20.1	11.3--O	8.1--H	12.8--W
60.0"	10.9--R	27.7--ARROW	8.1--N	12.3--A	12.8--W
	8.8--E	12.0	11.7	10.9--R	12.8--W
	10.0--A	126.0"	27.7--ARROW	9.6--T	12.8--W
	16.9		12.0	4.7--I	12.8--W
	126.0"		12.0	11.3--O	12.8--W
			25.9	8.1--N	12.8--W
			144.0"	10.0--A	12.8--W
				9.6--T	12.8--W
				4.7--I	12.8--W
				11.3--O	12.8--W
				8.1--N	12.8--W
				11.5	12.8--W
				144.0"	12.8--W



17.0	18.0	18.0
10.9--R	12.1--M	12.1--M
9.6--E	4.7--I	4.7--I
10.3--S	9.6--L	9.6--L
7.3--T	7.3--E	8.1--S
12.0		
12.3--A		
10.9--R		
8.8--E		
10.0--A		
16.9		
126.0"		



2" BAR	10" SERIES D LEGEND	TYPE B ARROWS
9.6	9.6	36.5
16.9--ARROW	16.9--ARROW	8.0--C
10.0	10.0	10.2--A
8.0--T	8.0--T	8.6--R
8.1--R	8.6--R	6.7--S
9.1--U	10.2--A	11.5
8.6--C	3.9--I	16.9--ARROW
8.8--K	8.0--L	9.6
6.7--S	8.0--E	108.0"
21.2	8.6--R	
108.0"	6.7--S	
	9.5	
	108.0"	

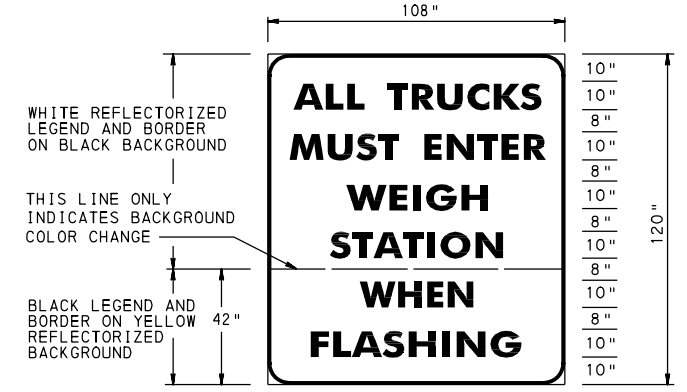


1" WIDE BORDER  
3" CORNER RADII  
10" SERIES C DIGITS  
8" SERIES C LEGEND  
30% REDUCED SPACING

**SUPPLEMENTAL PLAQUE**



TYPE G ARROW
15.1
10.9--R
9.6--E
10.3--S
7.3--T
15.1
27.7--ARROW
12.0
108.0"
13.2
12.3--A
10.9--R
8.8--E
10.0--A
13.1
27.7--ARROW
12.0
108.0"



10" SERIES D LEGEND
11.7
10.2--A
8.0--L
6.1--L
10.0
8.0--T
9.1--R
9.1--U
8.6--C
8.8--K
6.7--S
11.7
108.0"
12.4
10.1--M
9.1--U
8.6--S
6.1--T
10.0
8.0--E
8.6--N
8.0--T
8.0--E
6.7--R
12.4
108.0"
34.9
10.6--W
8.0--E
3.9--I
9.1--G
6.7--H
34.8
108.0"
27.9
8.6--S
6.7--T
9.0--A
8.0--T
3.9--I
9.4--O
6.7--N
27.8
108.0"
36.8
10.6--W
8.0--E
6.7--N
36.8
108.0"
22.6
8.0--F
6.7--L
10.2--A
9.1--S
9.1--H
3.9--I
9.1--N
3.9--I
6.7--G
22.6
108.0"

- NOTES:**
- DISTANCE:** USE DISTANCE FROM THEORETICAL GORE FOR DISTANCE INDICATED ON SIGNS.
  - COLOR:** USE BLUE REFLECTORIZED BACKGROUND WITH WHITE REFLECTORIZED DIRECT APPLIED LEGEND AND BORDER, UNLESS OTHERWISE NOTED.
  - BORDERS:** USE 2" WIDE BORDER WITH 12" CORNER RADIUS, UNLESS OTHERWISE NOTED.
  - LEGEND AND SIGN WIDTH:** UNLESS OTHERWISE NOTED, USE 12" SERIES D UPPER CASE FOR LEGEND, AND 15" SERIES D FOR DIGITS. SEE TC-8700C FOR LAYOUTS OF ARROWS AND FRACTIONS, AND FOR DETERMINING SIGN WIDTHS.
  - POSTS:** USE POSTS OF AN APPROVED BREAKAWAY DESIGN, EITHER STEEL (TC-8702A OR TC-8702B) OR WOOD (TC-8702E).
  - A4-1 SIGN:** USE ONLY WHEN SEPARATE PARKING AREAS ARE PROVIDED.
  - MINIMUM SIGN SPACING:** MAINTAIN 800' MINIMUM SPACING FOR ALL SIGNS PRIOR TO DECELERATION LANE.
  - NEXT REST AREA SUPPLEMENTAL SIGN:** THIS SIGN MAY BE ELIMINATED IF SUFFICIENT SIGN SPACING DOES NOT EXIST. WHEN THIS SIGN IS ELIMINATED, ONLY THEN INSTALL "NEXT REST AREA -- MILES" SUPPLEMENTAL PLAQUE UNDER SECOND ADVANCE SIGN.
  - VISITOR INFO SIGN (D5-6-1):** USE AS SHOWN IF THE REST AREA IS STAFFED TO PROVIDE VISITOR (TOURIST) INFORMATION IN ACCORDANCE WITH DEPARTMENT POLICY. SEE PUBLICATION 236M FOR LAYOUT. IF THE SIGN NEEDS TO BE COVERED PERIODICALLY OR IF A FOLDING SIGN IS USED, IT MAY BE MOUNTED BELOW THE MAIN SIGN, PROVIDED PROPER SIGN HEIGHT IS MAINTAINED AND THE BREAKAWAY FEATURE OF THE POSTS IS UNAFFECTED.
  - VENDING MACHINES SIGN (D5-6-2):** USE IF VENDING MACHINES ARE AVAILABLE. SEE PUBLICATION 236M FOR LAYOUT. SEE NOTE 9 CONCERNING ALTERNATE LOCATION FOR FOLDING SIGNS.
  - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

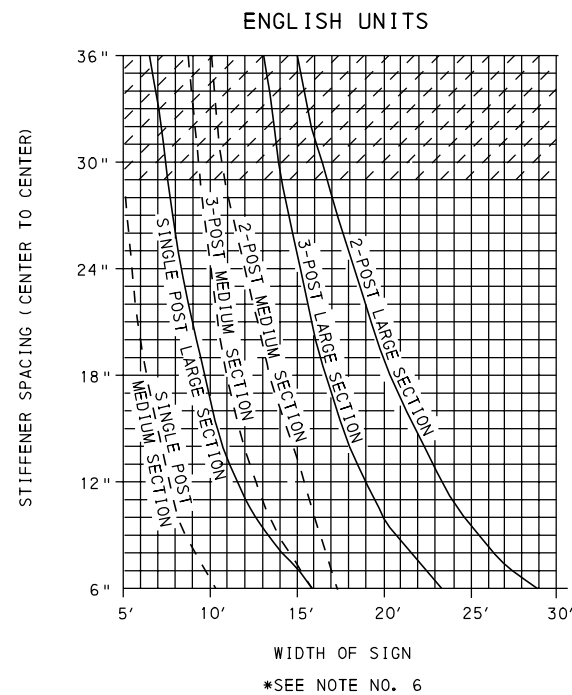
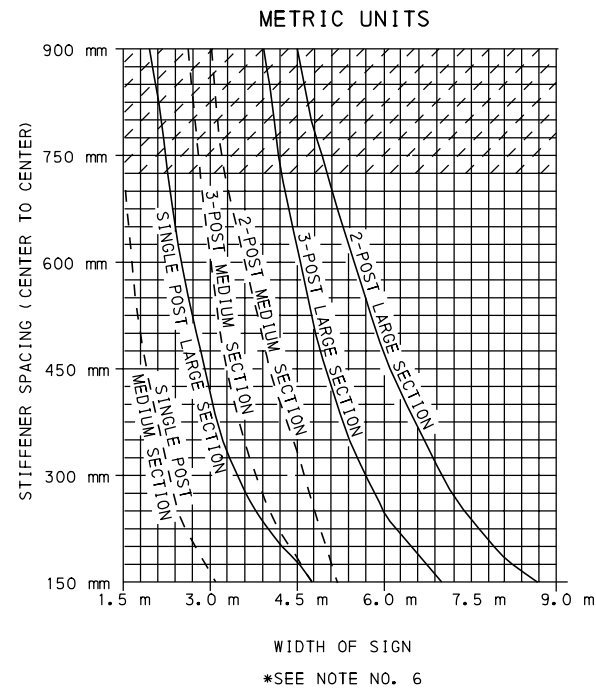
ENGLISH UNITS

**COMMONWEALTH OF PENNSYLVANIA**  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

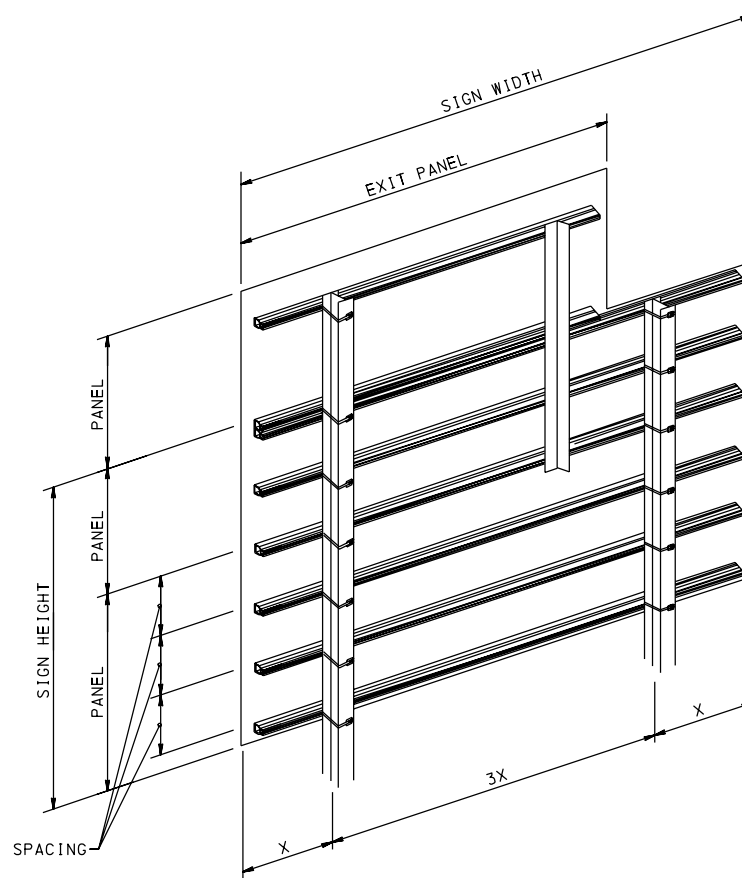
**FREEWAY AND EXPRESSWAY  
ADVANCE SIGNING**

**REST AREAS**

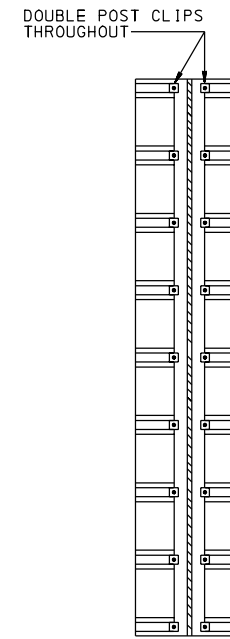
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Patel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 2 <b>TC-8701R</b>
---	--	--------------------------------



**STIFFENER SPACING CHARTS**



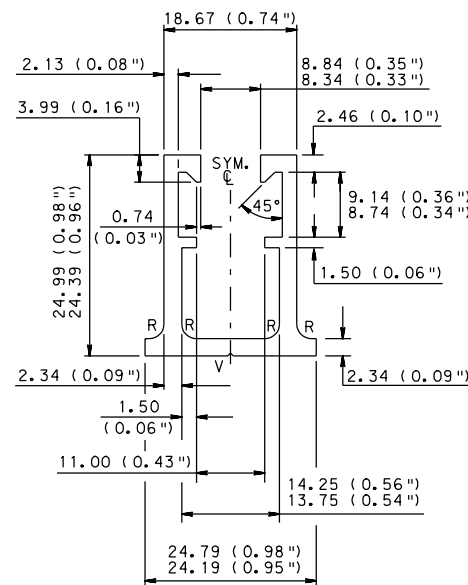
**STIFFENER LOCATION**



**REAR VIEW**  
(POST & OVERHEAD MOUNTED)

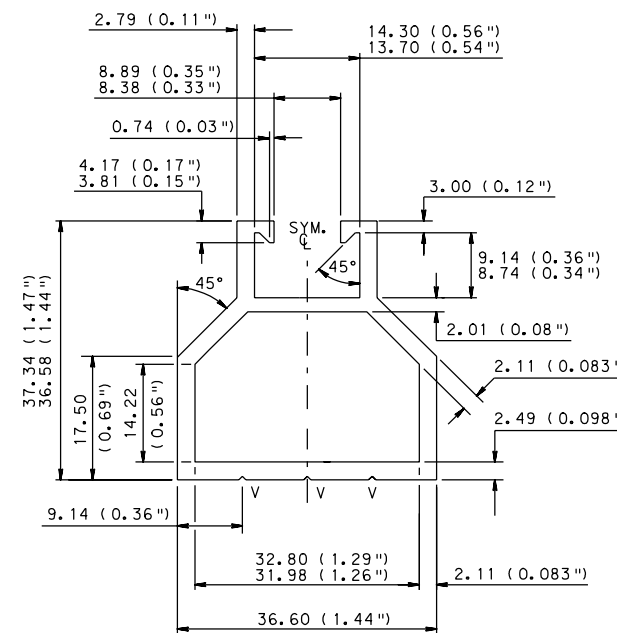
**NOTES:**

1. THIS STANDARD SHALL APPLY TO LARGE REFLECTORIZED SIGNS MANUFACTURED FROM FLAT SHEET ALUMINUM, BRACED WITH EXTRUDED ALUMINUM STIFFENERS, AND CONNECTED TO A SPECIFIED TYPE OF POST (OR VERTICAL SUPPORT OF A STRUCTURE) BY USE OF TWIST-IN TOGGLE AND BUCKLE STRAPS, OR STAINLESS STEEL POST CLIPS. WHEN POST CLIPS ARE USED, A DOUBLE POST CLIP PATTERN IS REQUIRED FOR BOTH POST MOUNTED AND OVERHEAD SIGN INSTALLATIONS.
2. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THIS STANDARD AND PUB. 408.
3. THE STIFFENER SPACING CHART ON THIS SHEET IS DESIGNED TO ACCOMMODATE "SINGLE-POST" INSTALLATIONS AND "MULTIPLE-POST" INSTALLATIONS WHERE THE SPACING BETWEEN THE POSTS (OR VERTICAL SUPPORTS) IS THREE TIMES THE SIGN OVERHANG BEYOND THE END POSTS. (THE SPACING BETWEEN THE POSTS ON A "TWO-POST" INSTALLATION IS THREE-FIFTHS OF THE SIGN WIDTH, AND SPACING BETWEEN THE POSTS ON A "THREE-POST" INSTALLATION IS ONE-THIRD OF THE SIGN WIDTH.)
4. WHEN SIGNS ARE TO BE INSTALLED AND THE SPACING OF THE POSTS IS OTHER THAN THOSE INDICATED IN NOTE NO. 3, THE FABRICATOR SHOULD CONSULT THE DISTRICT TRAFFIC ENGINEER FOR THE PROPER SPACING OF THE STIFFENERS. HOWEVER, THE SPACING BETWEEN THE STIFFENERS SHALL NOT BE GREATER THAN THE SPACING INDICATED IN THE CHART FOR THE SAME WIDTH OF SIGN.
5. TO USE THE STIFFENER SPACING CHART, START WITH THE SIGN WIDTH AND GO VERTICALLY UPWARD UNTIL INTERSECTING THE CURVED LINE INDICATING THE PROPER NUMBER OF POSTS (OR VERTICAL SUPPORTS) AND THE TYPE OF STIFFENER SECTION TO BE USED. THE MAXIMUM STIFFENER SPACING IS INDICATED HORIZONTALLY TO THE LEFT.
6. THE MAXIMUM STIFFENER SPACING IS NORMALLY 725 (29"). HOWEVER, FOR SIGNS MADE OF A CONTINUOUS SHEET OF ALUMINUM THROUGHOUT THE HEIGHT OF THE SIGN AND ON WHICH THE FLAT SHEET ALUMINUM OVERHANGS BOTH THE TOP AND BOTTOM STIFFENERS BY A DISTANCE EQUAL TO ONE-THIRD OF THE SPACING BETWEEN STIFFENERS, STIFFENER SPACINGS INDICATED IN THE SHADED PORTION OF THE CHART MAY BE USED. (EXAMPLE: A 3600 x 1500 (144" x 60") SIGN COULD BE INSTALLED ON TWO POSTS USING ONLY TWO LARGE SECTION STIFFENERS SPACED AT THE ULTIMATE 900 (36") SPACING, WITH 300 (12") OF THE SIGN ABOVE THE TOP STIFFENER AND 300 (12") OF THE SIGN BELOW THE BOTTOM STIFFENER.)
7. PANELS MAY BE SPLICED USING ANY OF THREE ARRANGEMENTS SHOWN ON SHEET 2 OF 3 OF THIS STANDARD.
8. SEE TC-8702E FOR INSTALLATION ON WOOD POSTS.
9. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS (").
10. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



V = VEE GROOVE 0.25 (0.01") DEEP x 90°  
R = 2.49 (0.10") RADIUS

**MEDIUM SECTION**



V = VEE GROOVE 0.38 (0.015") DEEP x 90°

**LARGE SECTION**

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**FLAT SHEET ALUMINUM SIGNS**  
**WITH EXTRUDED ALUMINUM STIFFENERS**

**GENERAL INFORMATION**

RECOMMENDED MAY 25, 2007

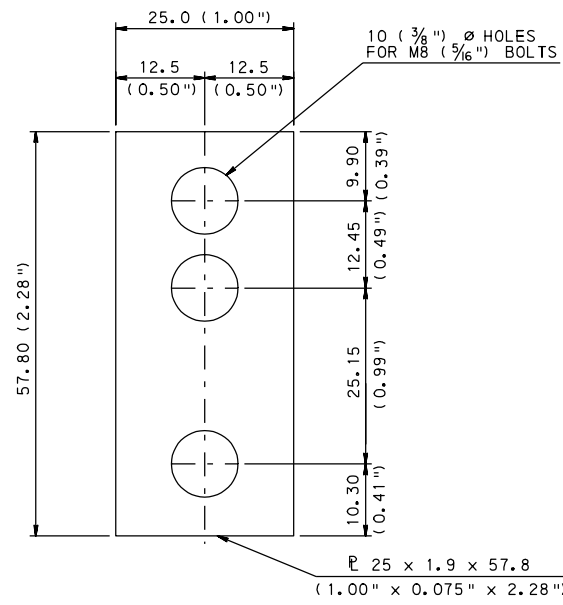
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007

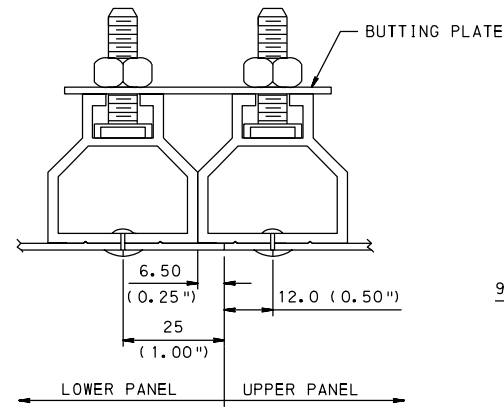
*M. G. Latel*  
CHIEF HIGHWAY ENGINEER

SHT. 1 OF 3

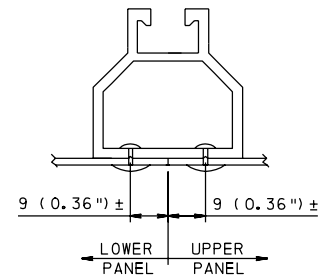
TC-8701S



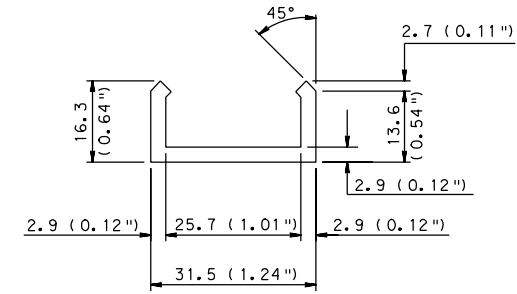
BUTTING PLATE



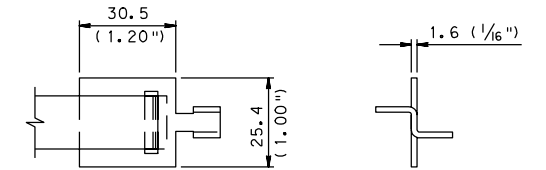
DOUBLE LARGE SECTION PANEL SPLICE



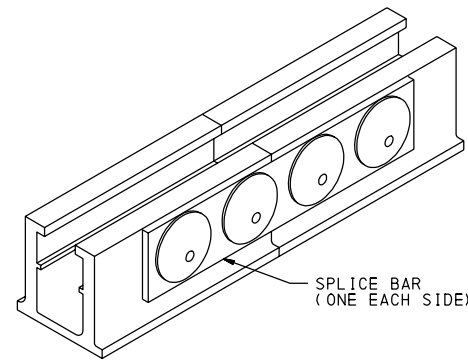
SINGLE LARGE SECTION PANEL SPLICE



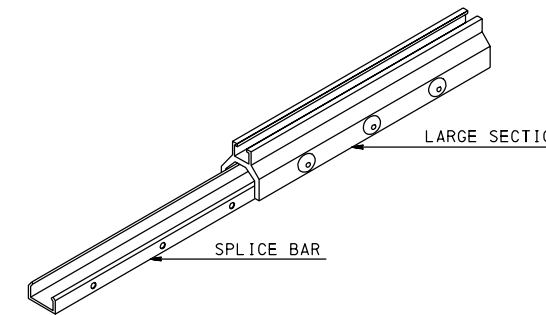
LARGE SECTION SPLICE BAR



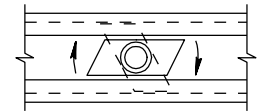
TWIST-IN TOGGLE



MEDIUM SECTION SPLICE

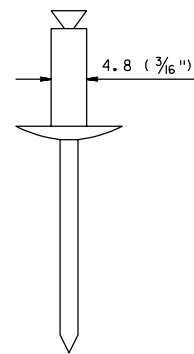


LARGE SECTION SPLICE

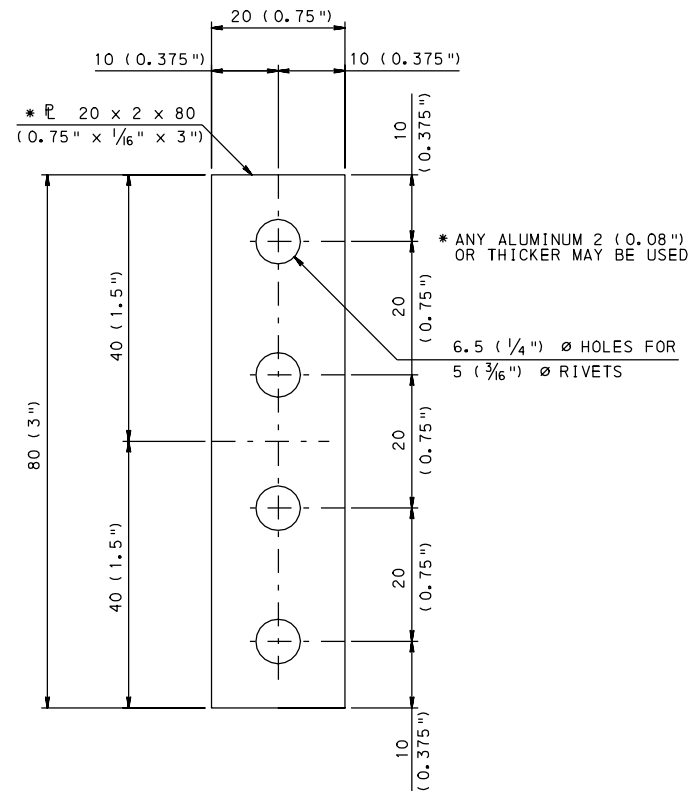


BOLT HEAD LOCKS INTO CHANNEL AS NUT IS TIGHTENED.

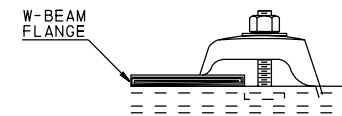
TWIST-IN BOLT



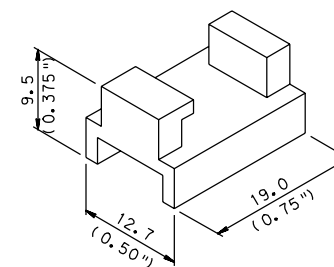
POP RIVET



MEDIUM SECTION SPLICE BAR



POST CLIP SF-VHB



PLASTIC INSERT

NOTES:

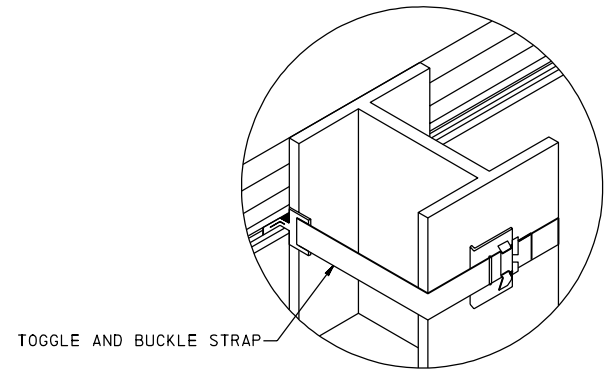
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

FLAT SHEET ALUMINUM SIGNS  
WITH EXTRUDED ALUMINUM STIFFENERS

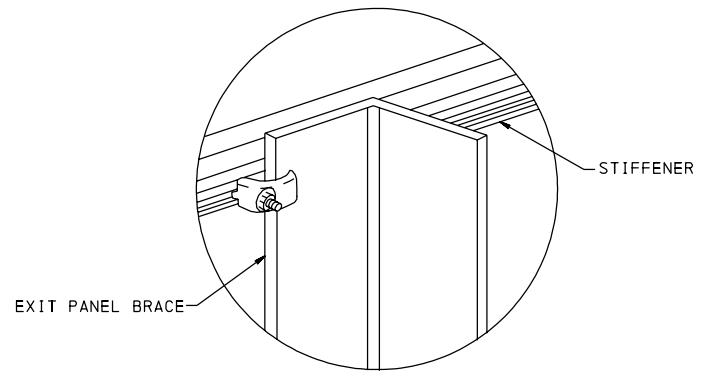
SPLICE AND CONNECTION DETAILS

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. Glatel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 3 TC-8701S
---	--	-------------------------



TOGGLE AND BUCKLE STRAP

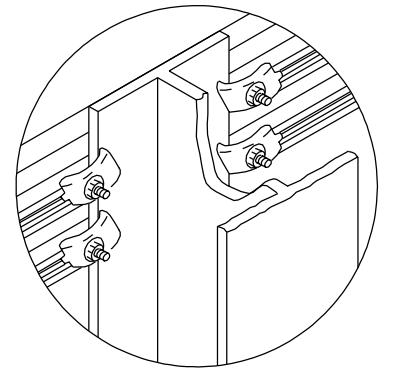
DETAIL 1



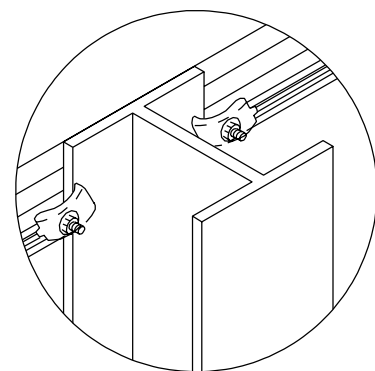
EXIT PANEL BRACE

STIFFENER

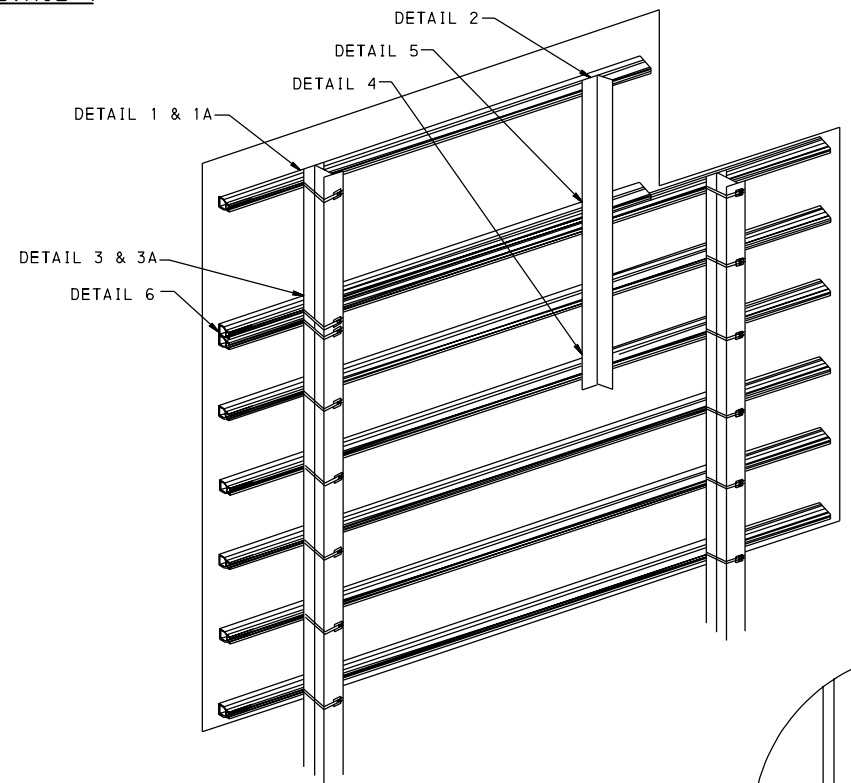
DETAIL 2



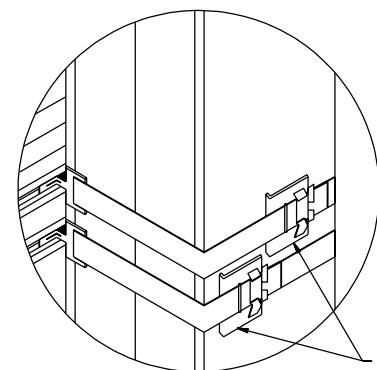
DETAIL 3A



DETAIL 1A

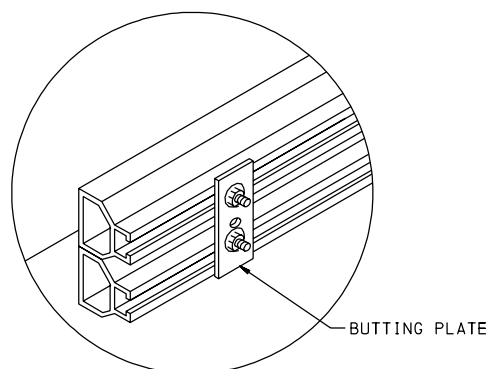


DETAIL 2  
 DETAIL 5  
 DETAIL 4  
 DETAIL 1 & 1A  
 DETAIL 3 & 3A  
 DETAIL 6



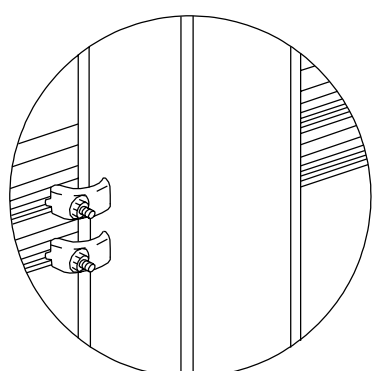
STAGGER BUCKLES ON TWO-STRAP CONNECTIONS

DETAIL 3

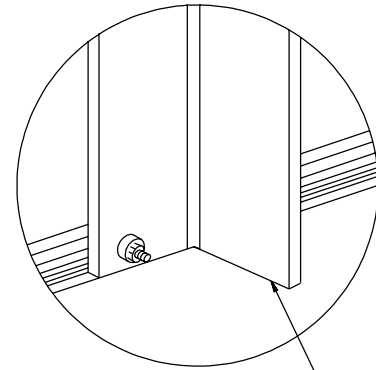


BUTTING PLATE

DETAIL 6



DETAIL 5



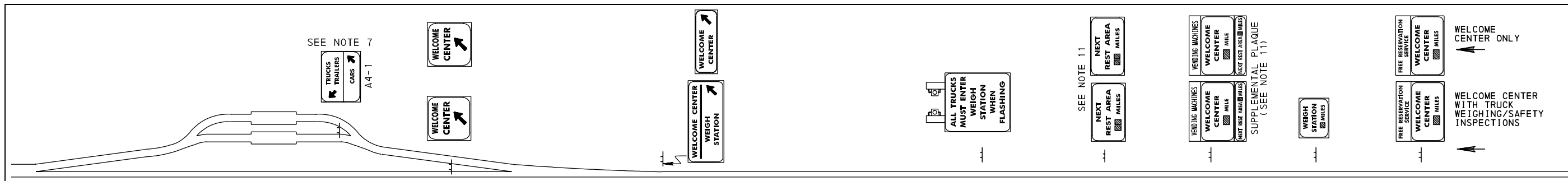
ALUMINUM  
 L76 x 76 x 4.8  
 (3" x 3" x 0.19")

DETAIL 4

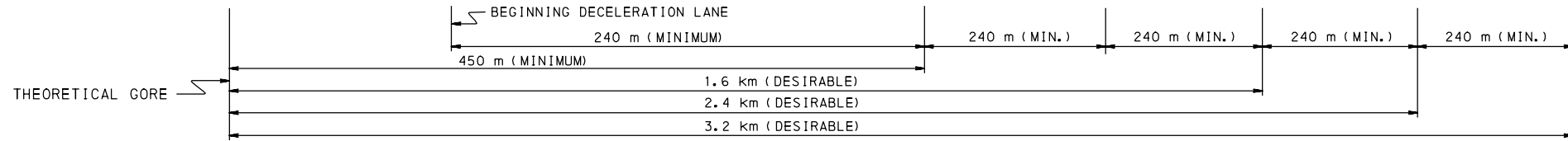
**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

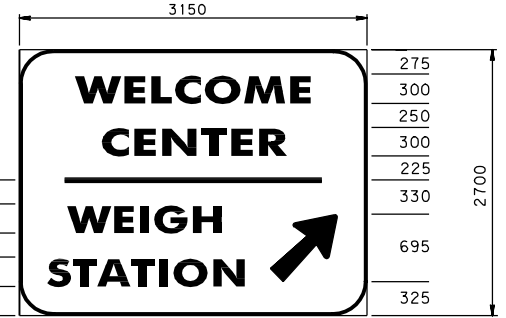
<b>COMMONWEALTH OF PENNSYLVANIA</b> <b>DEPARTMENT OF TRANSPORTATION</b> <b>BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING</b>		
<b>FLAT SHEET ALUMINUM SIGNS</b> <b>WITH EXTRUDED ALUMINUM STIFFENERS</b>		
<b>POST &amp; STIFFENER CONNECTIONS</b>		
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> <small>CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION</small>	RECOMMENDED MAY 25, 2007 <i>m. G. Patel</i> <small>CHIEF HIGHWAY ENGINEER</small>	SHT. 3 OF 3 <b>TC-8701S</b>



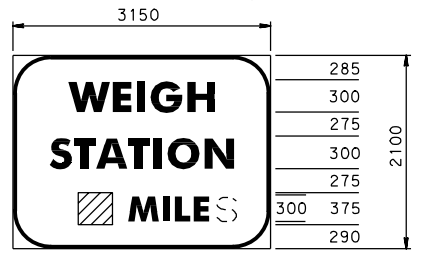
275	471	915
324--W	262--C	570--ARROW
243--EE	243--E	915
243--L	262--N	2400
262--C	243--T	
285--O	243--E	
307--M	205--R	
186--E	471	
275	2400	
2400		



296	450	1019	806
324--W	3300--(BAR LENGTH)	324--W	262--S
243--EE	450	243--E	205--T
243--L	4200	119--I	274--A
262--C		276--G	243--T
285--O		205--H	119--I
307--M		1019	285--O
186--E		695--ARROW	205--N
300		300	806
262--C		4200	695--ARROW
243--EE			300
262--N			4200
243--L			
243--T			
243--E			
205--R			
296			



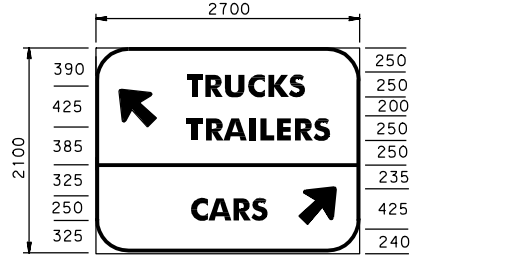
650	846	475	494	281
324--W	262--C	2200--(BAR LENGTH)	324--W	262--S
243--E	243--E	475	243--E	205--T
243--L	262--N	3150	119--I	274--A
262--C	243--T		276--G	243--T
285--O	243--E		205--H	119--I
307--M	205--R		494	285--O
186--E	846		695--ARROW	205--N
650	3150		300	281
3150			3150	695--ARROW
				300
				3150



992	779	--	--
324--W	262--S		
243--E	205--T	450	450
119--I	274--A	307--M	307--M
276--G	243--T	119--I	OR 119--I
205--H	119--I	243--L	243--L
991	285--O	186--E	243--E
3150	205--N		205--S
	778		
	3150		



650	846	450	--	450	--
324--W	262--C	307--M		307--M	
243--E	243--E	119--I	OR	119--I	
243--L	262--N	243--L		243--L	
262--C	243--T	186--E		243--E	
285--O	243--E			243--E	
307--M	205--R			205--S	
186--E	846				
650	3150				
3150					



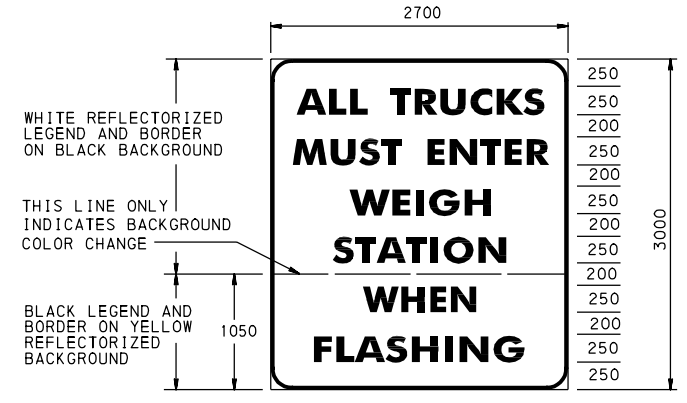
224	224	899
425--ARROW	425--ARROW	203--C
250	250	260--A
203--T	203--T	219--R
230--R	219--R	171--S
230--U	260--A	299
219--C	99--I	425--ARROW
223--K	203--L	224
171--S	203--E	2700
525	219--R	
2700	171--S	
	224	
	2700	



303	499
324--W	262--C
243--EE	243--E
243--L	262--N
262--C	243--T
285--O	243--E
307--M	205--R
186--E	498
302	695--ARROW
695--ARROW	300
300	3450
3450	

**ALTERNATE WELCOME CENTER/WEIGH STATION EXIT DIRECTION SIGN**

NOTE: THIS SIGN MAY BE USED ONLY IF INSUFFICIENT WIDTH IS AVAILABLE TO ERECT THE STANDARD WELCOME CENTER/WEIGH STATION EXIT DIRECTION SIGN.



278	296	864	686	913	553
260--A	255--M	270--W	219--S	270--W	203--F
203--L	230--U	203--E	171--T	230--H	171--L
155--L	219--S	99--I	228--A	203--E	260--A
250	155--T	230--G	203--T	171--N	230--S
203--T	250	171--H	99--I	913	230--H
230--R	203--E	863	238--O	2700	99--I
230--U	219--N	2700	171--N		230--N
219--C	203--T		685		171--G
223--K	203--E		2700		553
171--S	171--R				2700
278	296				
2700	2700				

**NOTES:**

- DEFINITION:** USE INDICATED SIGNING FOR WELCOME CENTERS THAT ARE OFFICIALLY RECOGNIZED BY THE PA DEPARTMENT OF TRANSPORTATION.
- DISTANCE:** USE DISTANCE FROM THEORETICAL GORE FOR DISTANCE INDICATED ON SIGNS.
- COLOR:** USE BLUE REFLECTORIZED BACKGROUND WITH WHITE REFLECTORIZED DIRECT APPLIED LEGEND AND BORDER, UNLESS OTHERWISE NOTED.
- BORDERS:** USE 50 mm WIDE BORDER WITH 300 mm CORNER RADIUS, UNLESS OTHERWISE NOTED.
- LEGEND AND SIGN WIDTH:** UNLESS OTHERWISE NOTED, USE 300 mm SERIES D UPPER CASE FOR LEGEND, AND 375 mm SERIES D FOR DIGITS. SEE TC-8700C FOR LAYOUTS OF ARROWS AND FRACTIONS, AND FOR DETERMINING SIGN WIDTHS.
- POSTS:** USE POSTS OF AN APPROVED BREAKAWAY DESIGN, EITHER STEEL (TC-8702A OR TC-8702B) OR WOOD (TC-8702E).
- A4-1 SIGN:** USE ONLY WHEN SEPARATE PARKING AREAS ARE PROVIDED.
- MINIMUM SIGN SPACING:** MAINTAIN 240 m MINIMUM SPACING FOR ALL SIGNS PRIOR TO DECELERATION LANE.
- VENDING MACHINES SIGN (D5-6-2):** USE IF VENDING MACHINES ARE AVAILABLE. SEE PUBLICATION 236M FOR LAYOUT. IF A FOLDING SIGN IS USED, IT MAY ALSO BE MOUNTED BELOW THE MAIN SIGN, PROVIDED PROPER SIGN HEIGHT IS MAINTAINED AND THE BREAKAWAY FEATURE OF THE POSTS IS UNAFFECTED.
- FREE RESERVATION SERVICE:** USE IF RESERVATION SERVICE IS AVAILABLE. SEE PUBLICATION 236M FOR LAYOUT. SEE NOTE 9 CONCERNING ALTERNATE LOCATION FOR FOLDING SIGNS.
- NEXT REST AREA SUPPLEMENTAL SIGN:** THIS SIGN MAY BE ELIMINATED IF SUFFICIENT SIGN SPACING DOES NOT EXIST. WHEN THIS SIGN IS ELIMINATED, ONLY THEN INSTALL "NEXT REST AREA -- MILES" SUPPLEMENTAL PLAQUE UNDER SECOND ADVANCE SIGN. SEE TC-8701R FOR SIGN FABRICATION DETAILS.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

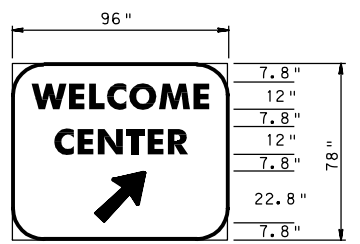
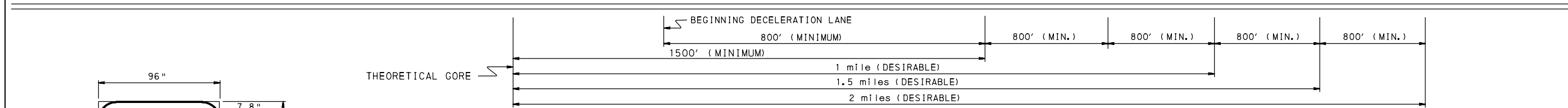
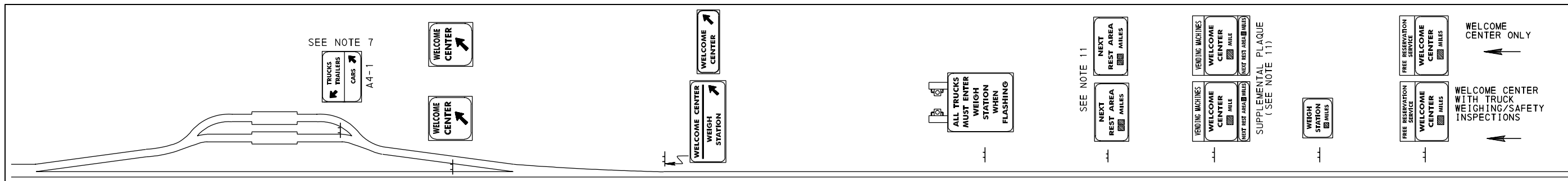
**METRIC UNITS**

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

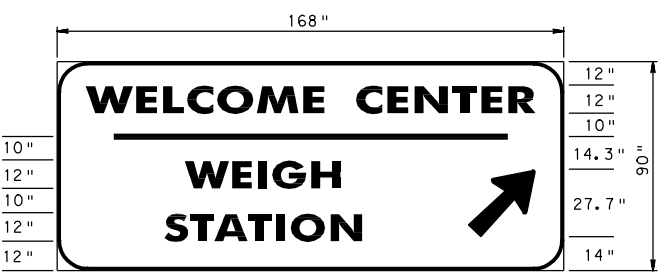
**FREEWAY AND EXPRESSWAY**  
**ADVANCE SIGNING**

**WELCOME CENTERS**

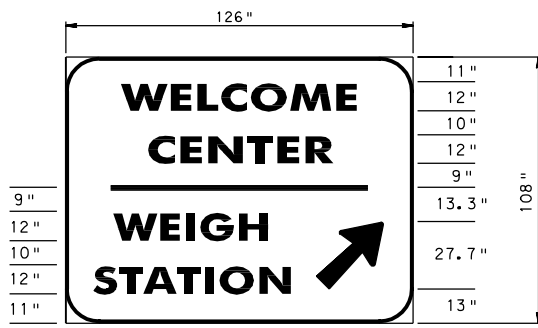
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 1 OF 2 <b>TC-8701W</b>
---	--	--------------------------------



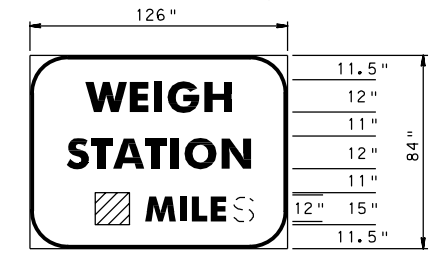
11.5	19.3	36.6
12.8--W	10.3--C	22.8--ARROW
9.6--E	9.6--E	36.6
9.6--L	10.3--N	96.0"
10.3--C	9.6--T	
11.3--O	9.6--E	
12.1--M	8.1--R	
7.3--E	19.2	
11.5	96.0"	
96.0"		



12.8	18.0	41.1	32.7
12.8--W	132.0--(BAR LENGTH)	12.8--W	10.3--S
9.6--E	18.0	9.6--E	8.1--T
9.6--L	168.0"	4.7--I	10.8--A
10.3--C		10.9--G	9.6--T
11.3--O		8.1--H	4.7--I
12.1--M		41.1	11.3--O
7.3--E		27.7--ARROW	8.1--N
12.0		12.0	32.7
10.3--L		168.0"	27.7--ARROW
9.6--N			12.0
9.6--T			168.0"
9.6--E			
8.1--R			
12.7			
168.0"			



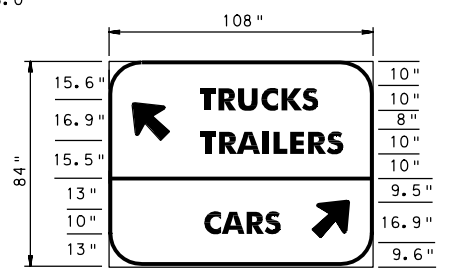
26.5	34.3	19.0	20.1	11.7
12.8--W	10.3--C	19.0	12.8--W	10.3--S
9.6--E	9.6--E	88.0--(BAR LENGTH)	9.6--E	8.1--T
9.6--L	10.3--N	19.0	4.7--I	10.8--A
10.3--C	9.6--T	126.0"	10.9--G	9.6--T
11.3--O	9.6--E		8.1--H	4.7--I
12.1--M	8.1--R		20.1	11.3--O
7.3--E	34.2		27.7--ARROW	8.1--N
26.5	126.0"		12.0	11.7
126.0"			126.0"	27.7--ARROW
				12.0
				126.0"



40.0	31.6	--	--
12.8--W	10.3--S	18.0	18.0
9.6--E	8.1--T	12.1--M	12.1--M
4.7--I	10.8--A	4.7--I	OR 4.7--I
10.9--G	9.6--T	9.6--L	9.6--L
8.1--H	4.7--I	7.3--E	9.6--E
39.9	11.3--O		9.6--E
126.0"	8.1--N		31.5
	126.0"		126.0"



26.5	34.3	--	--
12.8--W	10.3--C	18.0	18.0
9.6--E	9.6--E	12.1--M	OR 4.7--I
9.6--L	10.3--N	4.7--I	OR 4.7--I
10.3--C	9.6--T	9.6--L	9.6--L
11.3--O	9.6--E	7.3--E	9.6--E
12.1--M	8.1--R		8.1--S
7.3--E	34.2		
26.5	126.0"		
126.0"			



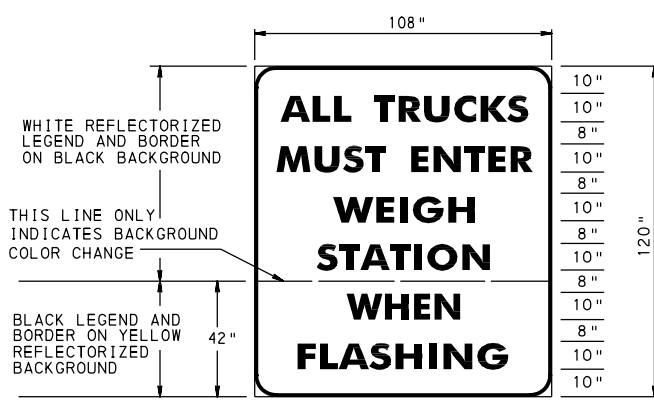
9.6	9.6	36.5
16.9--ARROW	16.9--ARROW	8.0--C
10.0	10.0	10.2--A
8.0--T	8.0--T	8.6--R
9.1--R	8.6--R	6.7--S
9.1--U	10.2--A	11.5
8.6--C	3.9--I	16.9--ARROW
8.8--K	8.0--L	9.6
6.7--S	8.0--E	108.0"
21.2	8.6--R	
108.0"	6.7--S	
	9.5	
	108.0"	



12.7	20.4
12.8--W	10.3--C
9.6--E	9.6--E
9.6--L	10.3--N
10.3--C	9.6--T
11.3--O	9.6--E
12.1--M	8.1--R
7.3--E	20.4
27.7--ARROW	27.7--ARROW
12.0	12.0
138.0"	138.0"

**ALTERNATE WELCOME CENTER/WEIGH STATION EXIT DIRECTION SIGN**

NOTE: THIS SIGN MAY BE USED ONLY IF INSUFFICIENT WIDTH IS AVAILABLE TO ERECT THE STANDARD WELCOME CENTER/WEIGH STATION EXIT DIRECTION SIGN.



11.7	12.4	34.9	27.9	36.8	22.6
10.2--A	10.1--M	10.6--W	8.6--S	10.6--W	8.0--F
8.0--L	9.1--U	8.0--E	6.7--T	9.1--H	6.7--L
6.1--L	8.6--S	3.9--I	9.0--A	8.0--E	10.2--A
10.0	6.1--T	9.1--G	8.0--T	6.7--N	9.1--S
8.0--T	10.0	6.7--H	3.9--I	36.8	9.1--H
9.1--R	8.0--E	34.8	9.4--O	108.0"	3.9--I
9.1--U	8.6--N	108.0"	6.7--N	108.0"	9.1--N
8.6--C	8.0--T		27.8		6.7--G
8.8--K	8.0--E		108.0"		22.6
6.7--S	6.7--R				108.0"
11.7	12.4				
108.0"	108.0"				

**NOTES:**

- DEFINITION:** USE INDICATED SIGNING FOR WELCOME CENTERS THAT ARE OFFICIALLY RECOGNIZED BY THE PA DEPARTMENT OF TRANSPORTATION.
- DISTANCE:** USE DISTANCE FROM THEORETICAL GORE FOR DISTANCE INDICATED ON SIGNS.
- COLOR:** USE BLUE REFLECTORIZED BACKGROUND WITH WHITE REFLECTORIZED DIRECT APPLIED LEGEND AND BORDER, UNLESS OTHERWISE NOTED.
- BORDERS:** USE 2" WIDE BORDER WITH 12" CORNER RADIUS, UNLESS OTHERWISE NOTED.
- LEGEND AND SIGN WIDTH:** UNLESS OTHERWISE NOTED, USE 12" SERIES D UPPER CASE FOR LEGEND, AND 15" SERIES D FOR DIGITS. SEE TC-8700C FOR LAYOUTS OF ARROWS AND FRACTIONS, AND FOR DETERMINING SIGN WIDTHS.
- POSTS:** USE POSTS OF AN APPROVED BREAKAWAY DESIGN, EITHER STEEL (TC-8702A OR TC-8702B) OR WOOD (TC-8702E).
- A4-1 SIGN:** USE ONLY WHEN SEPARATE PARKING AREAS ARE PROVIDED.
- MINIMUM SIGN SPACING:** MAINTAIN 800' MINIMUM SPACING FOR ALL SIGNS PRIOR TO DECELERATION LANE.
- VENDING MACHINES SIGN (D5-6-2):** USE IF VENDING MACHINES ARE AVAILABLE. SEE PUBLICATION 236M FOR LAYOUT. IF A FOLDING SIGN IS USED, IT MAY ALSO BE MOUNTED BELOW THE MAIN SIGN, PROVIDED PROPER SIGN HEIGHT IS MAINTAINED AND THE BREAKAWAY FEATURE OF THE POSTS IS UNAFFECTED.
- FREE RESERVATION SERVICE:** USE IF RESERVATION SERVICE IS AVAILABLE. SEE PUBLICATION 236M FOR LAYOUT. SEE NOTE 9 CONCERNING ALTERNATE LOCATION FOR FOLDING SIGNS.
- NEXT REST AREA SUPPLEMENTAL SIGN:** THIS SIGN MAY BE ELIMINATED IF SUFFICIENT SIGN SPACING DOES NOT EXIST. WHEN THIS SIGN IS ELIMINATED, ONLY THEN INSTALL "NEXT REST AREA -- MILES" SUPPLEMENTAL PLAQUE UNDER SECOND ADVANCE SIGN. SEE TC-8701R FOR SIGN FABRICATION DETAILS.
- ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

**ENGLISH UNITS**

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

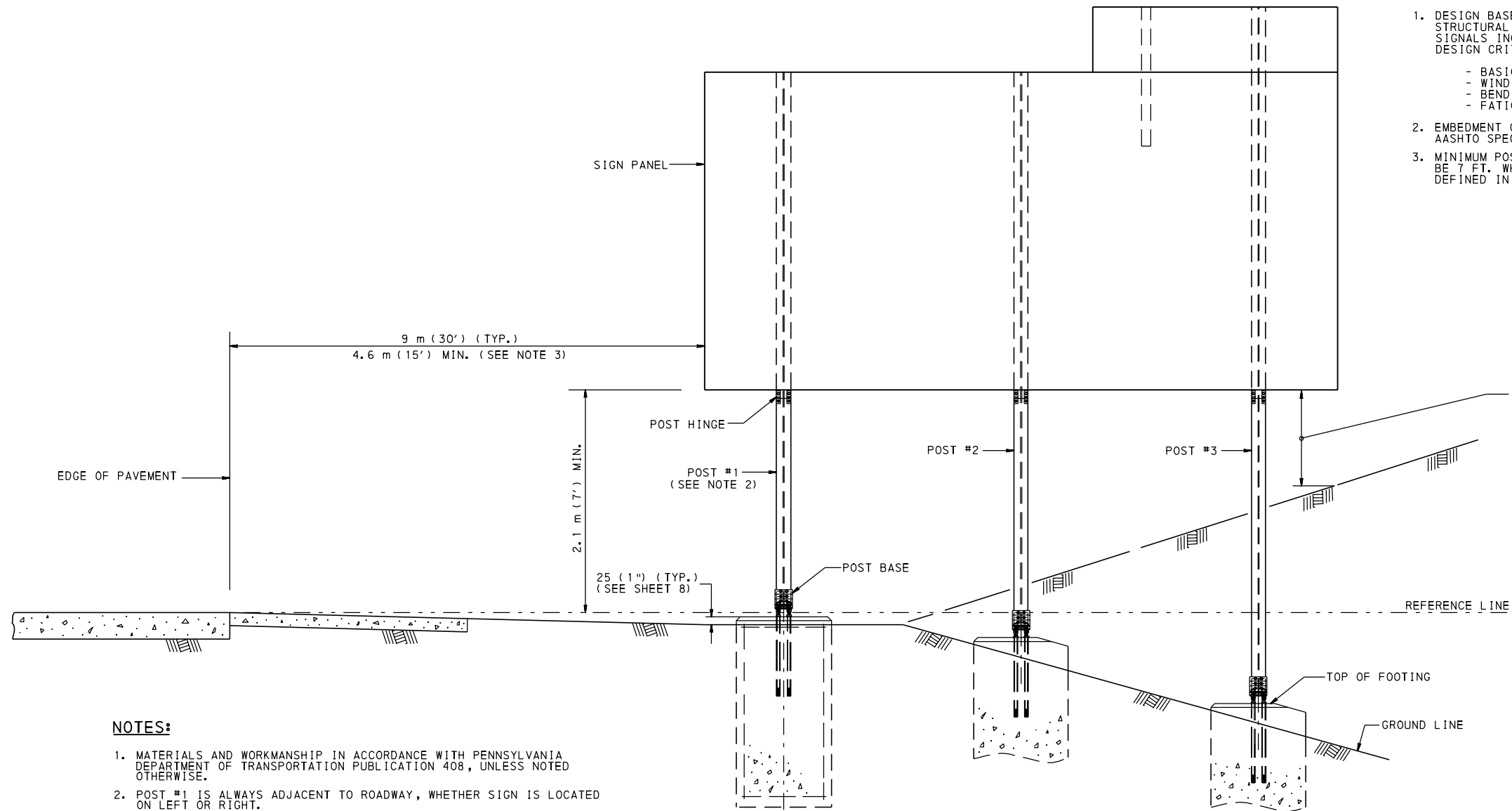
---

**FREeway AND EXPRESSWAY**  
**ADVANCE SIGNING**

---

**WELCOME CENTERS**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Patel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 2 <b>TC-8701W</b>
---	--	--------------------------------



**DESIGN CRITERIA:**

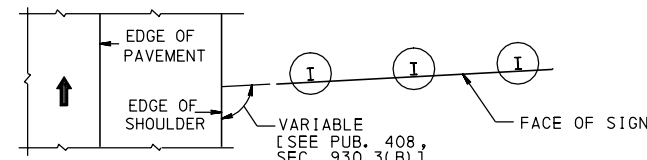
1. DESIGN BASED ON 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS INCLUDING 2002 INTERIM SPECIFICATIONS WITH THE FOLLOWING DESIGN CRITERIA:
  - BASIC WIND SPEED (V) = 40 m/sec (90 MPH) (3-SECOND GUST)
  - WIND IMPORTANCE FACTOR (I<sub>w</sub>) = 0.71 (10 YEAR DESIGN LIFE)
  - BENDING COEFFICIENT (C<sub>b</sub>) = 1.30
  - FATIGUE IS NOT CONSIDERED FOR ROADSIDE SIGNS.
2. EMBEDMENT OF FOOTINGS IS BASED ON BROMS' METHOD OUTLINED IN THE AASHTO SPECIFICATIONS. SEE SHEET 8 FOR SOIL PROPERTIES.
3. MINIMUM POST HEIGHT BETWEEN GROUND LEVEL AND BOTTOM OF SIGN WILL BE 7 FT. WHENEVER THE POST IS LOCATED IN THE CLEAR ZONE AS DEFINED IN PUBLICATION 13M.

1.5 m (5') MIN.  
(EXCEPT 0.3 m (1') MIN. AT LOCATIONS WHERE NO PART OF THE SIGN FACE WILL BE OBSCURED BY VEGETATION AND WHERE THE SIGN IS PROTECTED BY GUIDERAIL OR LOCATED WHERE IT IS VERY UNLIKELY TO BE HIT BY AN ERRANT VEHICLE, e.g., ON A VERY STEEP BANK.)

**NOTES:**

1. MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, UNLESS NOTED OTHERWISE.
2. POST #1 IS ALWAYS ADJACENT TO ROADWAY, WHETHER SIGN IS LOCATED ON LEFT OR RIGHT.
3. AT LOCATIONS WITH UNMOUNTABLE CURB, GUIDE RAIL OR BARRIER, PLACE THE NEAR EDGE OF THE SIGN AT LEAST 0.6 m (2') BEHIND THE CURB FACE, GUIDE RAIL OR BARRIER. AT LOCATIONS WITH GUIDE RAIL OR BARRIER, IT IS DESIRABLE TO PLACE POST #1 BEYOND THE DEFLECTION DISTANCE OF THE GUIDE RAIL OR BARRIER. PRIOR TO FABRICATION, DETERMINE ACTUAL LATERAL PLACEMENT IN THE FIELD WITH THE APPROVAL OF THE ENGINEER.
4. LOCATE SIGNS TO AVOID PLACING SUPPORTS IN DRAINAGE DITCHES.
5. MOUNT ALL SIGN PANELS ABOVE POST HINGES.
6. FOR SELECTION OF POSTS, REFER TO POST SELECTION TABLES ON SHEETS 2 THROUGH 4.
7. FOR POST BASE AND HINGE DETAILS, REFER TO SHEET 5.
8. FOR SELECTION OF FOOTING SIZE AND REINFORCEMENT, REFER TO FOOTING SELECTION TABLE ON SHEET 8.
9. FOR DETAIL OF SIGN PANELS AND ATTACHMENT HARDWARE, SEE TRAFFIC STANDARD TC-8701E OR TC-8701S.
10. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
11. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**SIGN ELEVATION**



**PLAN VIEW**

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

**POST-MOUNTED SIGNS,  
TYPE A**

**ERECTION DETAILS**

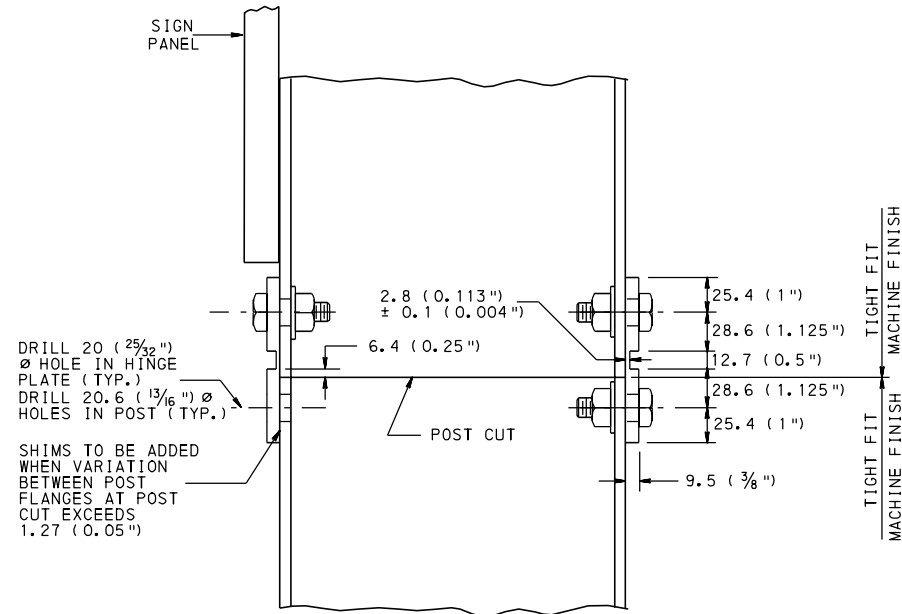
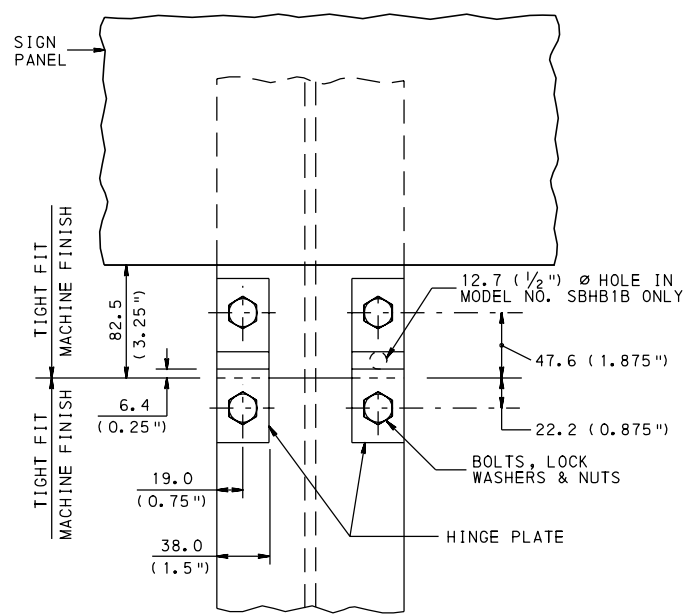
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 1 OF 8 <b>TC-8702A</b>
---	--	--------------------------------



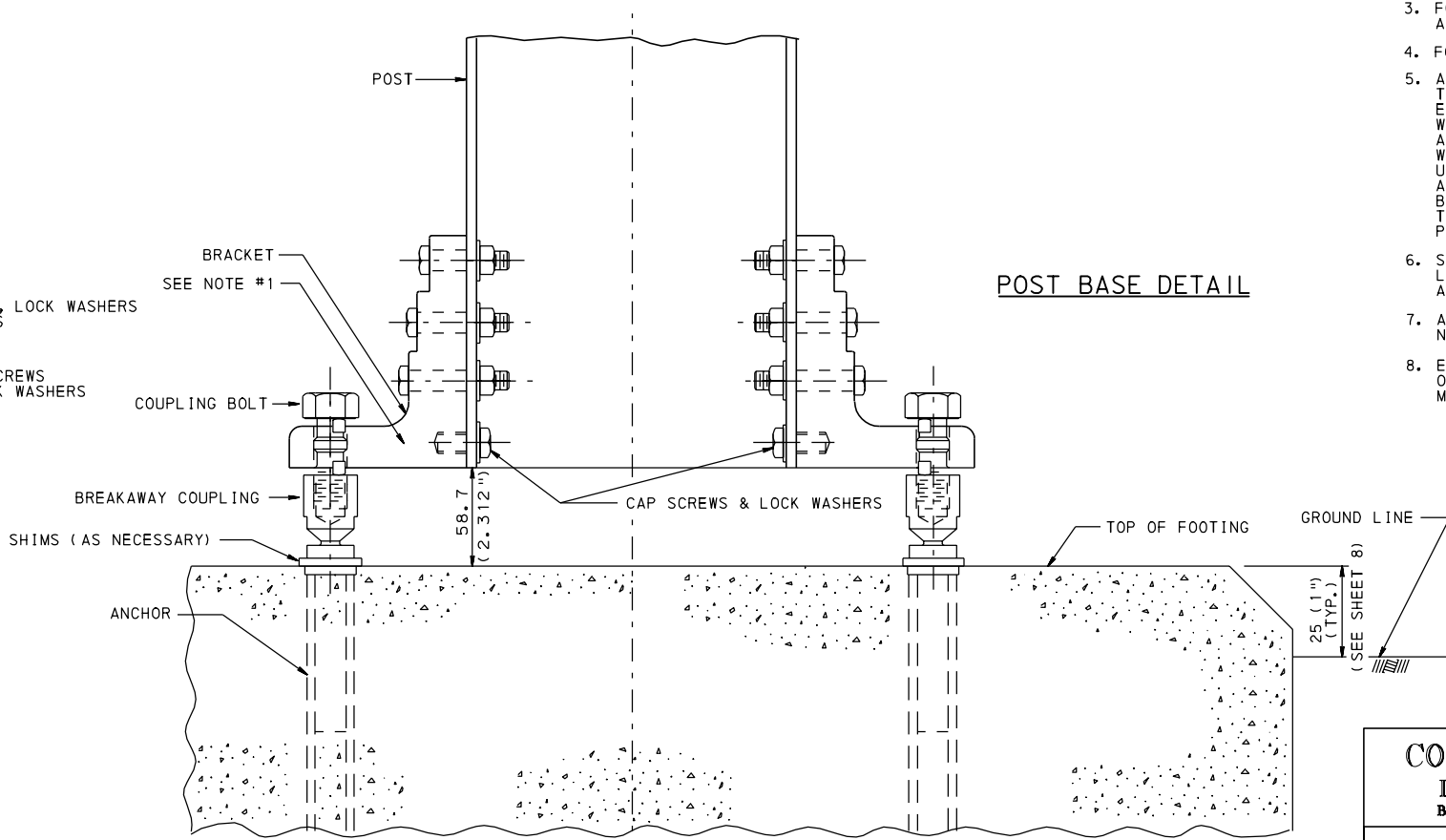
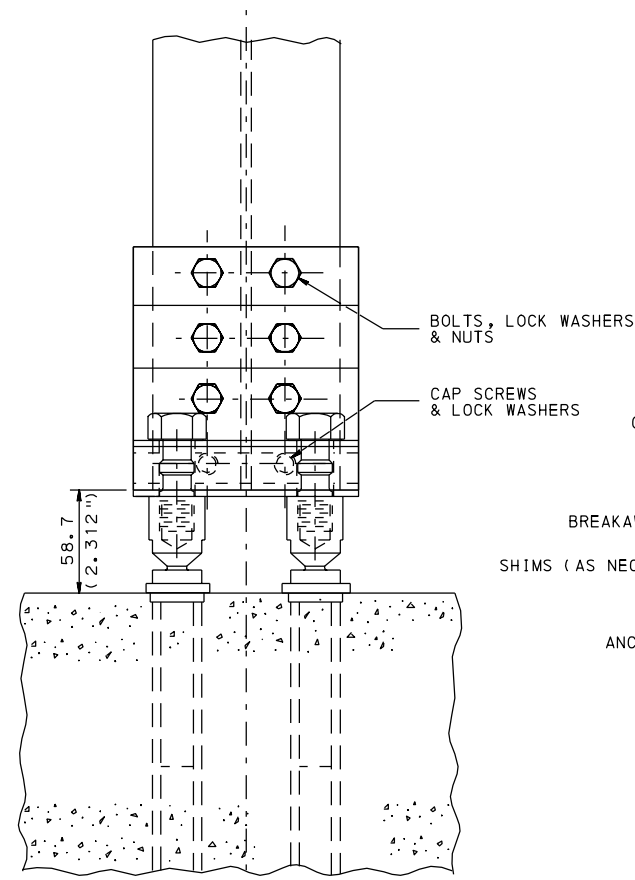








POST HINGE DETAIL



POST BASE DETAIL

FRONT VIEW

SIDE VIEW

**BREAKAWAY ASSEMBLIES**

TO BE FROM A SUPPLIER LISTED IN BULLETIN 15.

**NOTES:**

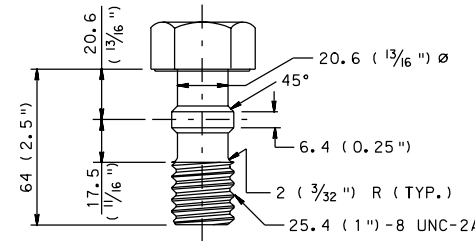
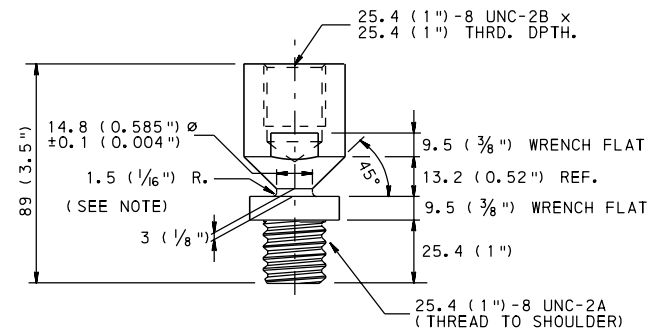
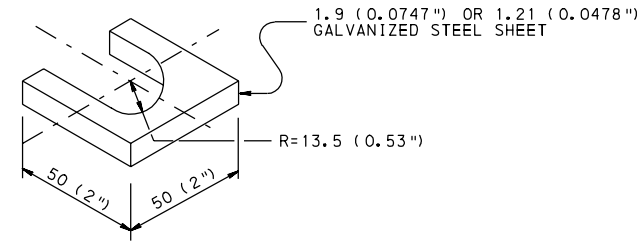
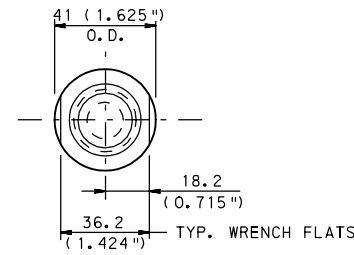
1. THE BRACKET NUMBER IS STAMPED ON THE BRACKET.
2. BOLT THE BRACKETS TO POST, THEN PLACE POST AND CONNECTED BRACKET TO BREAKAWAY COUPLING.
3. FOR BRACKET, BREAKAWAY COUPLING, COUPLING BOLT, AND SHIM DETAILS, REFER TO SHEET 6.
4. FOR FOOTING AND ANCHOR DETAILS, REFER TO SHEET 6.
5. ALL BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. FASTENERS, EXCEPT FOR SPECIAL BOLT AND COUPLING, ARE INSTALLED WITH LOCKWASHERS. FASTENERS, INCLUDING SPECIAL BOLT AND COUPLING, SHOULD BE SECURED AS TIGHT AS POSSIBLE WITH CONVENTIONAL WRENCHES. DO NOT USE A PIPE WRENCH. USE LOWER WRENCH FLATS TO TIGHTEN COUPLINGS INTO ANCHORS. TIGHTEN SPECIAL BOLTS WHILE HOLDING COUPLINGS BY THE UPPER WRENCH FLATS WITH AN ADDITIONAL WRENCH TO PREVENT AN INDUCED TORQUE STRESS ACROSS THE NECKED PORTION OF THE COUPLING.
6. SHIMS BETWEEN THE COUPLINGS AND ANCHORS SHOULD BE LIMITED TO TWO SHIMS UNDERNEATH ANY ONE COUPLING AND THREE SHIMS UNDERNEATH ANY TWO COUPLINGS.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
8. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
TYPE A

POST BASE AND  
HINGE DETAILS

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 5 OF 8 TC-8702A
---	--	-------------------------



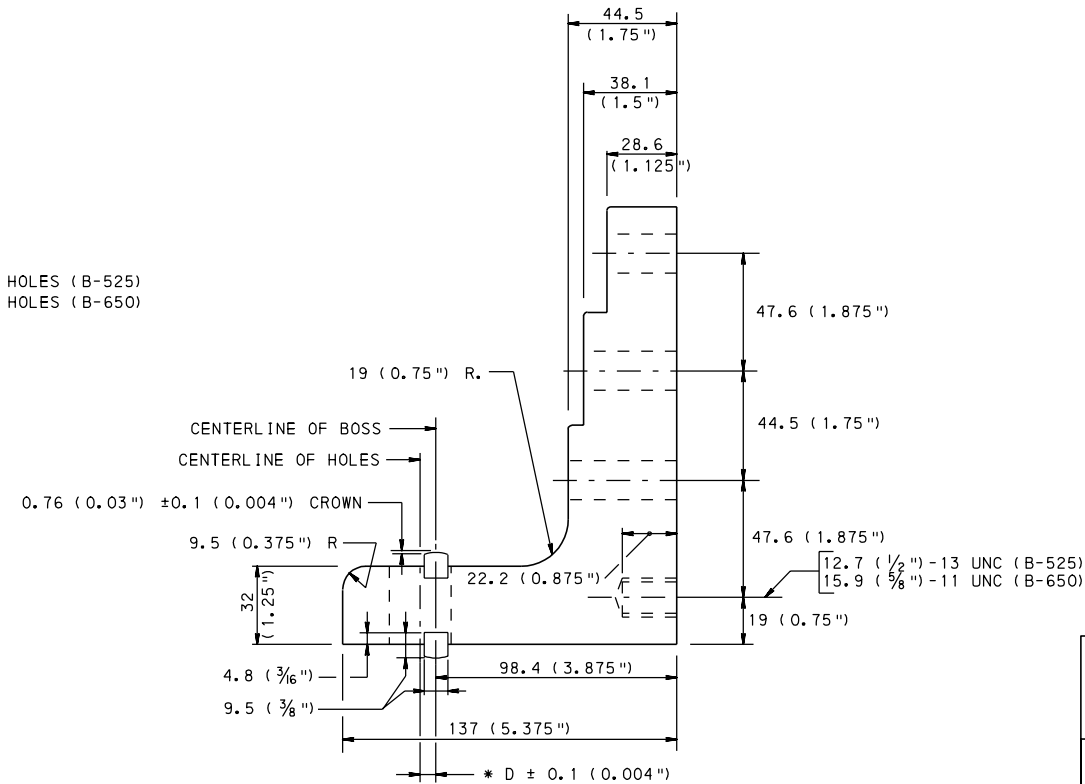
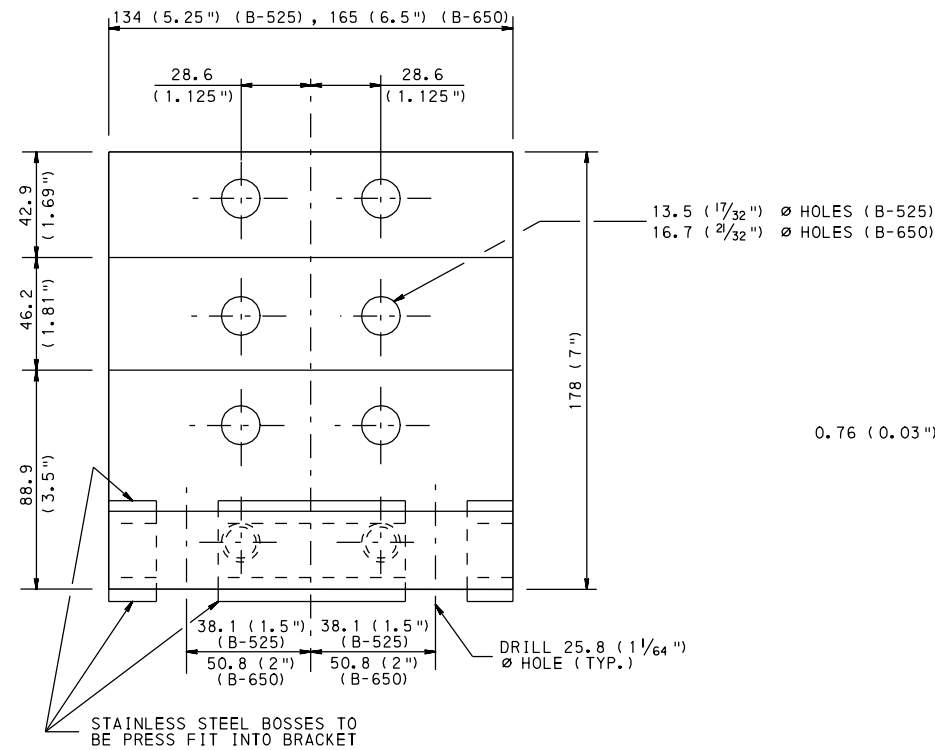
**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**BREAKAWAY COUPLING DETAIL**

NOTE: DO NOT PLACE TORQUE ACROSS NECK PORTION OF COUPLING.

**COUPLING BOLT DETAIL**



BRACKET NO.	D mm (INCHES)
1	2.5 (0.100)
2	3.8 (0.150)
3	5.1 (0.200)

TABLE A

\* SELECT BRACKET FROM THE BRACKET SELECTION TABLES ON SHEET 7, THEN SELECT THE VALUE FOR DIMENSION "D" FROM TABLE A.

**BRACKET DETAIL**

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
TYPE A

BREAKAWAY COUPLING AND  
BRACKET DETAILS

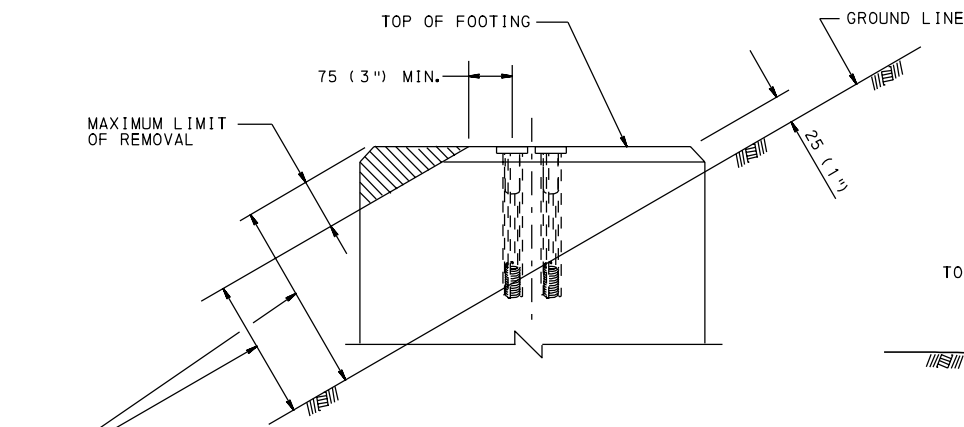
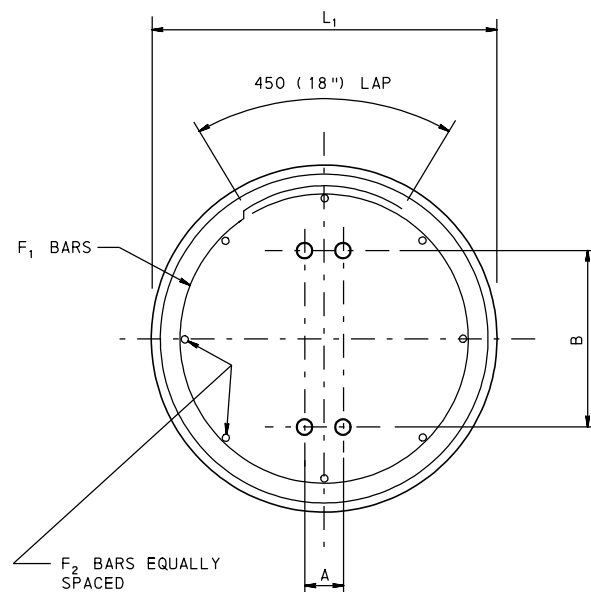
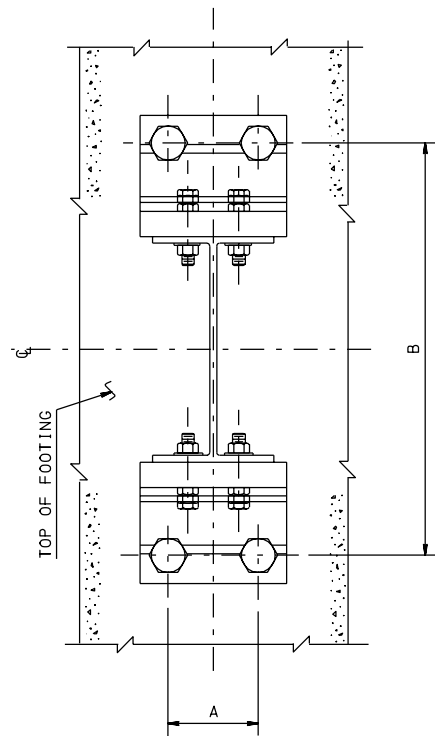
RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

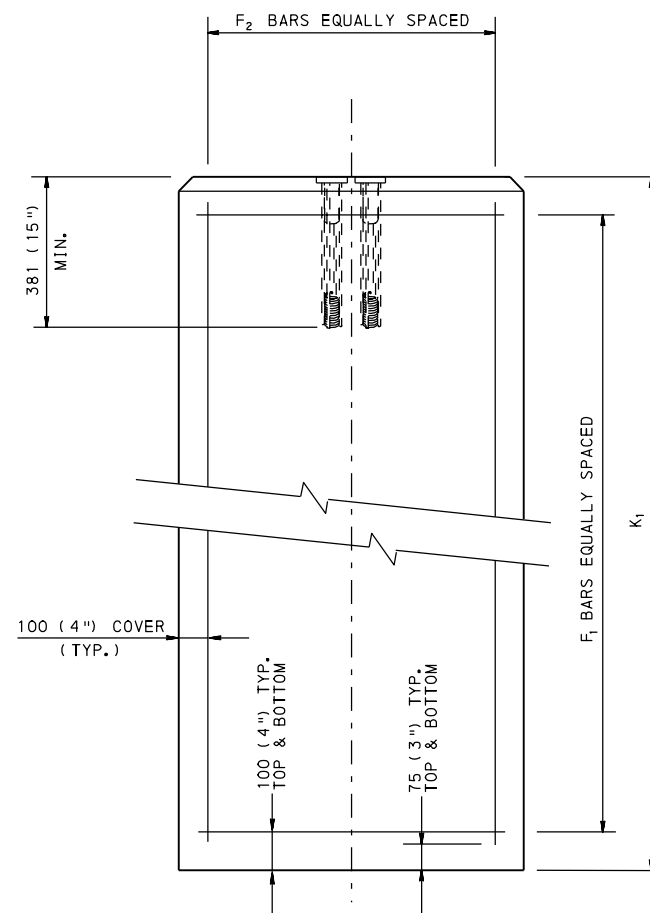
SHT. 6 OF 8

TC-8702A



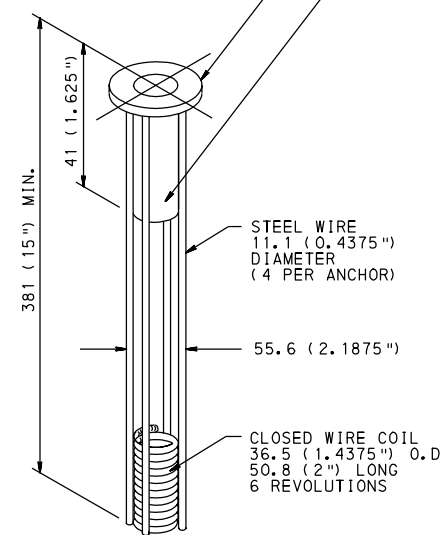


FOOTING PROJECTIONS ABOVE GROUND LINE SHALL BE MINIMIZED. THE MAXIMUM PERMISSIBLE FOOTING PROJECTION SHALL BE 100 (4") ON THE LOWER SLOPE SIDE. WHERE NECESSARY, THE SHADED AREA OF THE FOOTING SHALL BE REMOVED AND REINFORCEMENT SHALL BE BENT TO FIT.



STAINLESS STEEL THREADED FERRULE 25.4 (1") - 8 UNC THREAD DEPTH = 28.6 (1.125"), MINIMUM

STAINLESS STEEL WASHER 63.5 (2.5") O.D. 27 (1.0625") I.D. 3.2 (0.125") THICK



ANCHOR (SEE NOTE 2)

TO AVOID UNDERCARRIAGE SNAGGING ON CONVEX GROUND PROFILES, THE TOP OF THE FOOTING SHALL NOT PROJECT MORE THAN 100 (4") ABOVE ANY 1.5 m (5') CHORD ALIGNED PERPENDICULARLY TO THE EDGE OF THE ROADWAY BETWEEN A POINT ON THE GROUND SURFACE ON ONE SIDE OF THE SUPPORT TO A POINT ON THE GROUND SURFACE ON THE OTHER SIDE OF THE SUPPORT.

METRIC UNITS

POST SIZE	L <sub>1</sub> * (m)	DEPTH K <sub>1</sub> (m)	REINF. STEEL F <sub>1</sub>	REINF. STEEL F <sub>2</sub>
W150	0.75	2.30	8-#13	8-#22
W200		2.60	9-#13	8-#22
W250	0.90	2.75	10-#13	10-#22
W360		2.90	10-#13	12-#22
W460	1.05	2.90	10-#13	12-#22

ENGLISH UNITS

POST SIZE	L <sub>1</sub> * (FT)	DEPTH K <sub>1</sub> (FT)	REINF. STEEL F <sub>1</sub>	REINF. STEEL F <sub>2</sub>
W6	2.5	7.50	8-#4	8-#7
W8		8.50	9-#4	8-#7
W10	3.0	9.00	10-#4	10-#7
W14		9.50	10-#4	12-#7
W18	3.5	9.50	10-#4	12-#7

\* DIAMETER IF CIRCULAR OR MINIMUM SIDE IF SQUARE OR RECTANGULAR

FOOTING SELECTION TABLE

SOIL PROPERTIES:

FOUNDATION DESIGN IS BASED ON BROMS' METHOD USING THE FOLLOWING SOIL PROPERTIES:

TYPE OF SOIL = LOOSE-MEDIUM SAND  
 UNIT WEIGHT OF SOIL (γ) = 18.85 kN/m (120 PCF)  
 ANGLE OF INTERNAL FRICTION (φ) = 25°.

NOTES:

- ENTER FOOTING SELECTION TABLE WITH REQUIRED POST SIZE AND FIND REQUIRED FOOTING VALUES AS SHOWN IN DETAILS.
- THE ANCHOR SHALL BE 304 STAINLESS STEEL WITH 1045 STEEL ROD AND 1008 COIL.
- FORM THE TOP 0.3 m (1') OF THE FOOTING.
- USE CLASS "A" CEMENT CONCRETE IN ALL FOOTINGS.
- ACTUAL DIMENSIONS "A" & "B" SHOULD BE OBTAINED FROM THE MANUFACTURER OR MEASURED FROM THE ASSEMBLED BRACKETS PRIOR TO PLACEMENT OF ANCHORS. APPROXIMATE DIMENSIONS ARE AS FOLLOWS:
  - A (LATERAL SPACING OF ANCHORS)  
 76.2 (3") FOR B-525 USED ON W150 (W6) & W200 (W8) POSTS.  
 101.6 (4") FOR B-650 USED ON W250 (W10), W360 (W14) & W460 (W18) POSTS.
  - B (LONGITUDINAL SPACING OF ANCHORS)  
 BRACKET #1 - DEPTH OF POST SECTION PLUS 201.6 (7<sup>15</sup>/<sub>16</sub>").  
 BRACKET #2 - DEPTH OF POST SECTION PLUS 204.8 (8<sup>1</sup>/<sub>16</sub>").  
 BRACKET #3 - DEPTH OF POST SECTION PLUS 206.4 (8<sup>1</sup>/<sub>8</sub>").
- TO INSURE PROPER SPACING AND ALIGNMENT OF ANCHORS, IT IS RECOMMENDED THAT ALL ANCHORS BE HELD IN PLACE BY A RIGID MACHINED TEMPLATE WHILE THE CONCRETE IS PLACED AND CURED.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
 TYPE A

FOOTING DETAILS

RECOMMENDED MAY 25, 2007

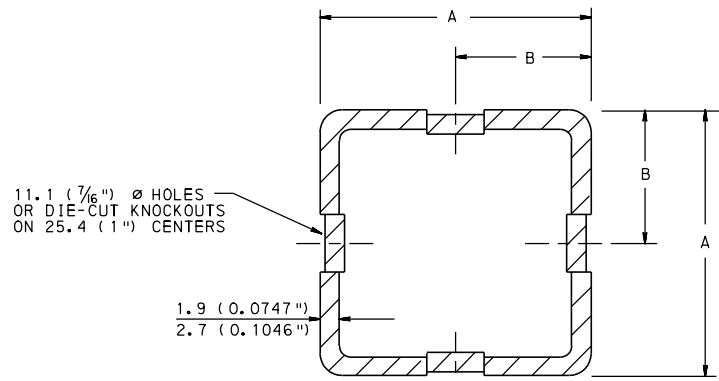
*Alan C. Rowe*  
 CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007

*m. G. Latel*  
 CHIEF HIGHWAY ENGINEER

SHT. 8 OF 8

TC-8702A



METRIC UNITS (mm)

SIGN POST				ANCHOR POST				ANCHOR SLEEVE *				SPLICE SLEEVE			
SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.
	A	B			A	B			A	B			A	B	
44.5	44.5	22.2	1.9	50.8	50.8	25.4	2.7	57.2	57.2	28.6	2.7	38.1	38.1	19.0	1.9
50.8	50.8	25.4	1.9	57.2	57.2	28.6	2.7	63.5	63.5	31.8	2.7	44.5	44.5	22.2	1.9
57.2	57.2	28.6	1.9	63.5	63.5	31.8	2.7	76.2	76.2	38.1	4.8	50.8	50.8	25.4	1.9

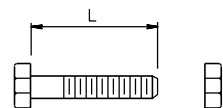
ENGLISH UNITS (INCHES)

SIGN POST				ANCHOR POST				ANCHOR SLEEVE *				SPLICE SLEEVE			
SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.
	A	B			A	B			A	B			A	B	
1.75"	1.75"	0.875"	0.0747"	2.00"	2.00"	1.000"	0.1046"	2.25"	2.25"	1.125"	0.1046"	1.50"	1.50"	0.750"	0.0747"
2.00"	2.00"	1.000"	0.0747"	2.25"	2.25"	1.125"	0.1046"	2.50"	2.50"	1.250"	0.1046"	1.75"	1.75"	0.875"	0.0747"
2.25"	2.25"	1.125"	0.0747"	2.50"	2.50"	1.250"	0.1046"	3.00"	3.00"	1.500"	0.1875"	2.00"	2.00"	1.000"	0.0747"

\* ONLY REQUIRED FOR INSTALLATIONS IN CONCRETE.

**SQUARE STEEL POSTS SYSTEM A**

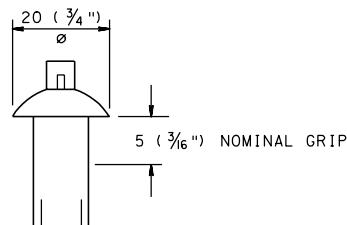
2.7 mm (0.1046") AND 1.9 mm (0.0747") - 415 MPa (60 KSI)



METRIC UNITS		ENGLISH UNITS	
SIGN POST SIZE (mm)	DIMENSION L (mm)	SIGN POST SIZE (INCHES)	DIMENSION L (INCHES)
44.5	75	1.75	3.0
50.8	75	2.00	3.0
57.2	90	2.25	3.5

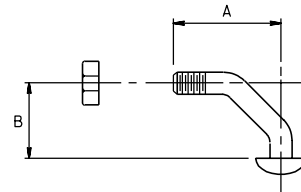
**M10 x 1.5 (3/8" - 16 UNC) ANCHOR BOLTS & NUTS**

CADMIUM PLATED STEEL, ZINC PLATED STEEL OR ALUMINUM



**10 (3/8") DRIVE RIVET**

CADMIUM PLATED STEEL, ZINC PLATED STEEL OR ALUMINUM



METRIC UNITS		ENGLISH UNITS	
SIGN POST SIZE (mm)	DIMENSION (mm)	SIGN POST SIZE (INCHES)	DIMENSION (INCHES)
44.5	34.13	24.61	
50.8	34.13	24.61	
57.2	39.69	30.16	
		1.75	1.343
		2.00	0.969
		2.25	1.562
		1.75	1.188

**M8 x 1.25 (5/16"- 18 UNC) CORNER BOLTS & NUTS**

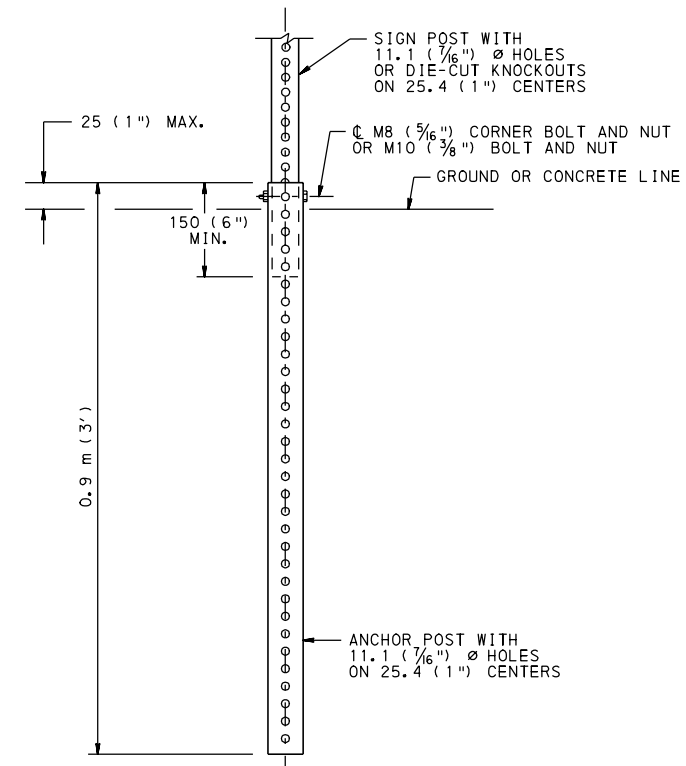
CADMIUM PLATED STEEL, ZINC PLATED STEEL OR ALUMINUM

**INSTALLATION INSTRUCTIONS:**

1. DETERMINE THE PROPER SIZE AND NUMBER OF SIGN POSTS FROM THE APPROPRIATE GRAPH ON SHEET 2 OF 9.
2. PUNCH OUT APPROPRIATE KNOCKOUTS AND ATTACH THE SIGN.
3. DETERMINE THE PROPER SIZE ANCHOR POST FROM THE SQUARE STEEL POSTS TABLE ON THIS SHEET.
4. DRIVE THE ANCHOR POST INTO THE GROUND, USING THE APPROPRIATE SIZE DRIVE CAP, UNTIL ONLY ONE HOLE REMAINS ABOVE THE GROUND OR FINISHED ELEVATION OF THE CONCRETE.
5. PUNCH OUT THE SIXTH KNOCKOUTS FROM THE BOTTOM OF THE SIGN POST.
6. SLIDE A MINIMUM OF 150 mm (6") OF THE SIGN POST INTO THE ANCHOR POST.
7. ATTACH THE SIGN POST TO THE ANCHOR POST WITH ONE M8 (5/16") CORNER BOLT AND NUT (OR ALTERNATELY ONE M10 (3/8") BOLT AND NUT) THROUGH THE TOP HOLE OF THE ANCHOR POST.
8. TIGHTEN THE BOLT AND NUT BY THE TURN-OF-NUT METHOD. BRING NUT TO A SNUG CONDITION TO ENSURE THAT ALL PARTS ARE BROUGHT TOGETHER INTO FULL CONTACT WITH EACH OTHER, THEN TIGHTEN AN ADDITIONAL 1/2 TURN.

**INSTALLATION IN CONCRETE:**

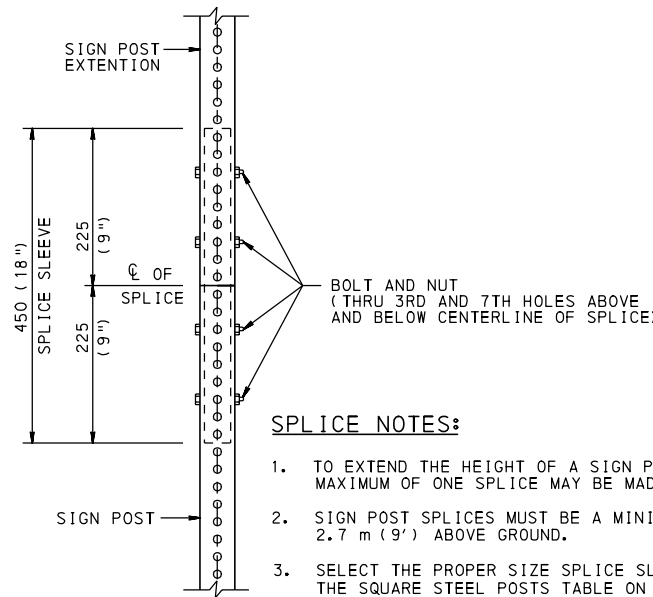
INSTALL AS NOTED ABOVE, BUT PLACE A 450 (18") LONG ANCHOR SLEEVE OUTSIDE THE ANCHOR POST SO THAT THE TOPS OF THE ANCHOR POST AND ANCHOR SLEEVE ARE EVEN. SELECT THE PROPER SIZE ANCHOR SLEEVE FROM THE SQUARE STEEL POSTS TABLE ON THIS SHEET.



**INSTALLATION DETAIL**

**NOTES:**

1. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH PUB. 408.
2. SIGN POSTS AND SPLICE SLEEVES SHALL HAVE 11.1 mm (7/16") DIAMETER HOLES OR DIE-CUT KNOCKOUTS ON 25.4 mm (1") CENTERS ON ALL FOUR SIDES. ANCHOR POSTS AND ANCHOR SLEEVES SHALL HAVE 11.1 mm (7/16") DIAMETER HOLES ON 25.4 mm (1") CENTERS ON ALL FOUR SIDES.
3. BOLTS AND NUTS SHALL BE ASTM A 307, GRADE B.
4. DRIVE RIVETS MAY BE USED TO FASTEN SIGN BLANKS TO THE SIGN POST.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
6. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



**SPLICE NOTES:**

1. TO EXTEND THE HEIGHT OF A SIGN POST, A MAXIMUM OF ONE SPLICE MAY BE MADE.
2. SIGN POST SPLICES MUST BE A MINIMUM OF 2.7 m (9') ABOVE GROUND.
3. SELECT THE PROPER SIZE SPLICE SLEEVE FROM THE SQUARE STEEL POSTS TABLE ON THIS SHEET.

**SPLICE DETAIL**

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
TYPE B

STEEL SQUARE POSTS (SYSTEM A)  
ERECTION DETAILS

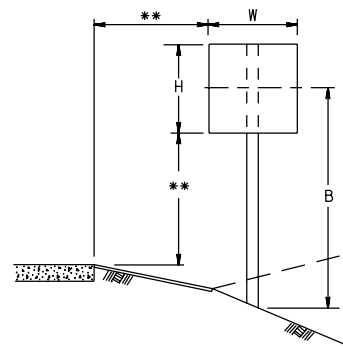
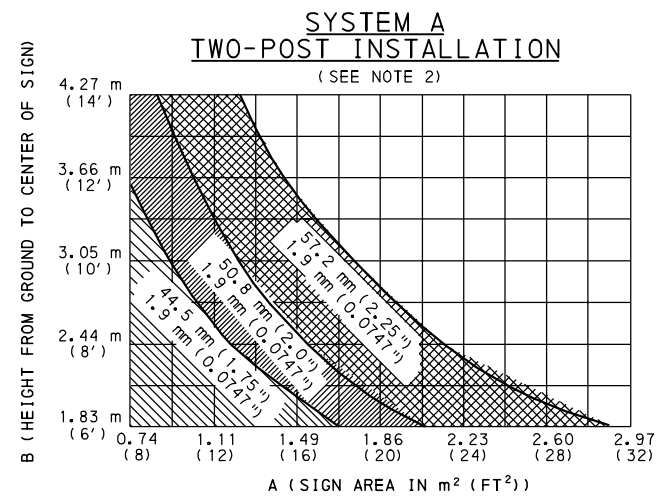
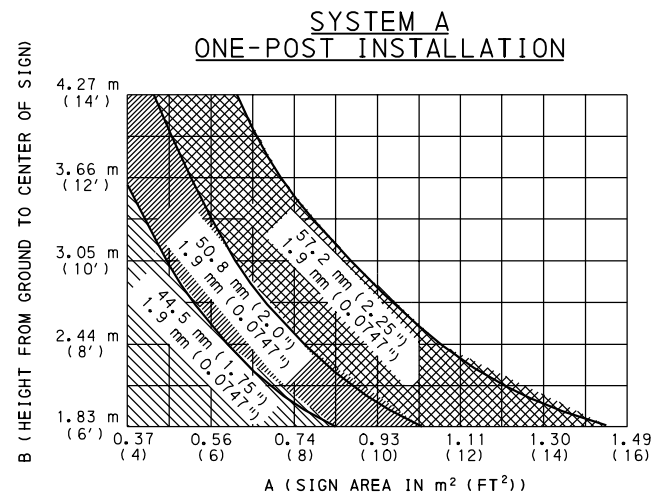
RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*M. G. Patel*  
CHIEF HIGHWAY ENGINEER

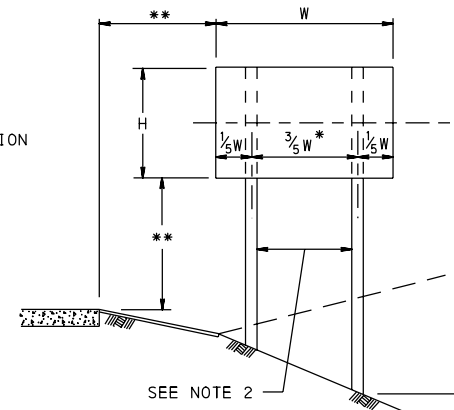
SHT. 1 OF 9

TC-8702B





\* WHEN ERECTING STANDARD WARNING OR REGULATORY SIGNS THAT ARE PREPUNCHED, THIS DISTANCE IS THE DISTANCE BETWEEN THE HORIZONTAL HOLES.  
 \*\* SEE SHEET 9 OF 9 FOR SIGN LOCATION/INSTALLATION DETAILS.



A = SIGN AREA (SEE TABLE).  
 A = W x H FOR SQUARE OR RECTANGULAR SIGNS,  
 WHERE: W = WIDTH OF SIGN  
 H = HEIGHT OF SIGN

**METRIC UNITS**

SIGN AREA TABLE							
SQUARE OR RECTANGULAR SIGNS				IRREGULAR SHAPED SIGNS			
SIZE (mm x mm)	AREA (m <sup>2</sup> )	SIZE (mm x mm)	AREA (m <sup>2</sup> )	SIZE (mm x mm)	AREA (m <sup>2</sup> )	SIGN (mm x mm)	AREA (m <sup>2</sup> )
200x1200	0.24	750x375	0.28	1800x300	0.54	YIELD (R1-2) 900 x 900	0.35
300x450	0.14	750x600	0.45	1800x600	1.08	YIELD (R1-2) 1200 x 1200	0.62
300x600	0.18	750x750	0.56	1800x900	1.62	YIELD (R1-2) 1500 x 1500	0.97
300x750	0.22	750x900	0.68	1800x1200	2.16	NO PASSING PENNANT (W14-3) 1200 x 900	0.50
300x900	0.27	750x1200	0.90	1800x1500	2.70	RAILROAD WARNING (W10-1) 900 DIA.	0.64
300x1200	0.36	750x1500	1.12	2400x600	1.44	SCHOOL (S1-1) 750 x 750	0.42
450x375	0.17	900x900	0.81	2400x1200	2.88	SCHOOL (S1-1) 900 x 900	0.61
450x450	0.20	900x1200	1.08	3000x300	0.90	STOP (R1-1) 600 x 600	0.30
450x600	0.27	900x1350	1.22	3000x375	1.12	STOP (R1-1) 750 x 750	0.47
450x900	0.40	1200x1200	1.44	3000x600	1.80	STOP (R1-1) 900 x 900	0.67
450x1200	0.54	1200x1500	1.80	3000x750	2.25	STOP (R1-1) 1200 x 1200	1.19
525x375	0.20	1500x300	0.45	3600x300	1.08	INTERSTATE ROUTE MARKER (M1-1) 600 x 600	0.29
600x600	0.36	1500x600	0.90	3600x450	1.62	INTERSTATE ROUTE MARKER (M1-1) 750 x 600	0.36
600x900	0.54	1500x1050	1.58	3600x600	2.16	INTERSTATE ROUTE MARKER (M1-1) 900 x 900	0.69
600x1200	0.72	1500x1500	2.25	3600x750	2.70	INTERSTATE ROUTE MARKER (M1-1) 1125 x 900	0.80

**ENGLISH UNITS**

SIGN AREA TABLE							
SQUARE OR RECTANGULAR SIGNS				IRREGULAR SHAPED SIGNS			
SIZE (in. x in.)	AREA (FT <sup>2</sup> )	SIZE (in. x in.)	AREA (FT <sup>2</sup> )	SIZE (in. x in.)	AREA (FT <sup>2</sup> )	SIGN (in. x in.)	AREA (FT <sup>2</sup> )
8"x48"	2.7	30"x15"	3.1	72"x12"	6.0	YIELD (R1-2) 36"x36"	3.9
12"x18"	1.5	30"x24"	5.0	72"x24"	12.0	YIELD (R1-2) 48"x48"	6.9
12"x24"	2.0	30"x30"	6.3	72"x36"	18.0	YIELD (R1-2) 60"x60"	10.8
12"x30"	2.5	30"x36"	7.5	72"x48"	24.0	NO PASSING PENNANT (W14-3) 48"x36"	5.6
12"x36"	3.0	30"x48"	10.0	72"x60"	30.0	RAILROAD WARNING (W10-1) 36" DIA.	7.1
12"x48"	4.0	30"x60"	12.5	96"x24"	16.0	SCHOOL (S1-1) 30"x30"	4.7
18"x15"	1.9	36"x36"	9.0	96"x48"	32.0	SCHOOL (S1-1) 36"x36"	6.8
18"x18"	2.3	36"x48"	12.0	120"x12"	10.0	STOP (R1-1) 24"x24"	3.3
18"x24"	3.0	36"x54"	13.5	120"x15"	12.5	STOP (R1-1) 30"x30"	5.2
18"x36"	4.5	48"x48"	16.0	120"x24"	20.0	STOP (R1-1) 36"x36"	7.4
18"x48"	6.0	48"x60"	20.0	120"x30"	25.0	STOP (R1-1) 48"x48"	13.2
21"x15"	2.2	60"x12"	5.0	144"x12"	12.0	INTERSTATE ROUTE MARKER (M1-1) 24"x24"	3.2
24"x24"	4.0	60"x24"	10.0	144"x18"	18.0	INTERSTATE ROUTE MARKER (M1-1) 30"x24"	4.0
24"x36"	6.0	60"x42"	17.5	144"x24"	24.0	INTERSTATE ROUTE MARKER (M1-1) 36"x36"	7.2
24"x48"	8.0	60"x60"	25.0	144"x30"	30.0	INTERSTATE ROUTE MARKER (M1-1) 45"x36"	9.0

**NOTES:**

- TO DETERMINE THE POST SIZE, ENTER THE GRAPH WITH THE VALUES OF A AND B. THE SHADED AREA INDICATES THE APPROPRIATE POST SIZE REQUIRED.
- 57.2 mm (2.25") POSTS SHALL HAVE 2.1 m (7') CLEARANCE BETWEEN EACH OTHER, MEASURED FROM INSIDE POST EDGE TO INSIDE POST EDGE, WHEN USED IN TWO-POST INSTALLATIONS. 50.8 mm (2") AND 44.5 mm (1.75") POSTS MAY HAVE LESS THAN 2.1 m (7') CLEARANCE BETWEEN EACH OTHER WHEN USED IN TWO-POST INSTALLATIONS.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**POST-MOUNTED SIGNS,  
TYPE B**

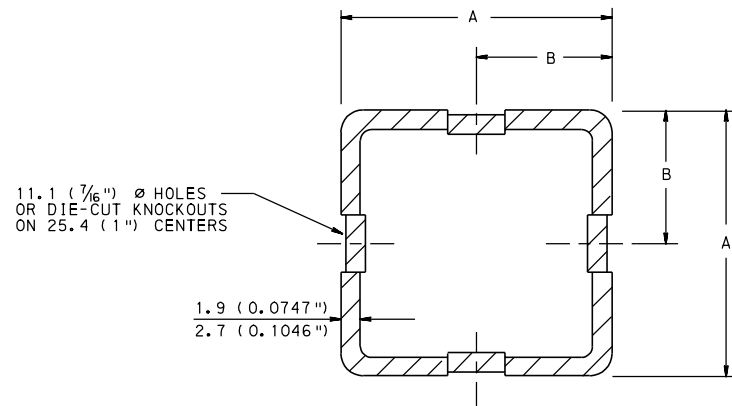
**STEEL SQUARE POSTS (SYSTEM A)  
SELECTION TABLES**

RECOMMENDED MAY 25, 2007  
  
 CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
  
 CHIEF HIGHWAY ENGINEER

SHT. 2 OF 9

TC-8702B



**METRIC UNITS (mm)**

SIGN POST				ANCHOR POST			ANCHOR SLEEVE *				SPLICE SLEEVE				
SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.
	A	B			A	B			A	B			A	B	
44.5	44.5	22.2	1.9	50.8	50.8	25.4	2.7	57.2	57.2	28.6	2.7	38.1	38.1	19.0	1.9
50.8	50.8	25.4	1.9	57.2	57.2	28.6	2.7	63.5	63.5	31.8	2.7	44.5	44.5	22.2	1.9

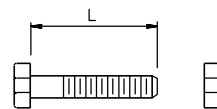
**ENGLISH UNITS (INCHES)**

SIGN POST				ANCHOR POST			ANCHOR SLEEVE *				SPLICE SLEEVE				
SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.	SIZE	DIMENSION		THICK.
	A	B			A	B			A	B			A	B	
1.75"	1.75"	0.875"	0.0747"	2.00"	2.00"	1.000"	0.1046"	2.25"	2.25"	1.125"	0.1046"	1.50"	1.50"	0.750"	0.0747"
2.00"	2.00"	1.000"	0.0747"	2.25"	2.25"	1.125"	0.1046"	2.50"	2.50"	1.250"	0.1046"	1.75"	1.75"	0.875"	0.0747"

\* REQUIRED FOR ALL POST INSTALLATIONS

**SQUARE STEEL POSTS SYSTEM C**

1.9 mm (0.0747") - 415 MPa (60 KSI)  
2.7 mm (0.1046") - 230 MPa (33 KSI)



**METRIC UNITS**

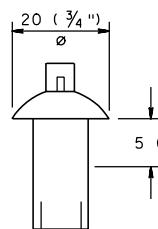
SIGN POST SIZE (mm)	DIMENSION L (mm)
44.5	75
50.8	
57.2	90
63.5	

**ENGLISH UNITS**

SIGN POST SIZE (INCHES)	DIMENSION L (INCHES)
1.75	3.0
2.00	
2.25	3.5
2.50	

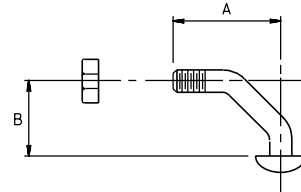
**M10 x 1.5 (3/8" - 16 UNC) ANCHOR BOLTS & NUTS**

CADMIUM PLATED STEEL, ZINC PLATED STEEL OR ALUMINUM



**10 (3/8") DRIVE RIVET**

CADMIUM PLATED STEEL, ZINC PLATED STEEL OR ALUMINUM



**METRIC UNITS**

SIGN POST SIZE (mm)	DIMENSION (mm)	
	A	B
44.5	34.13	24.61
50.8		
57.2	39.69	30.16
63.5		

**ENGLISH UNITS**

SIGN POST SIZE (INCHES)	DIMENSION (INCHES)	
	A	B
1.75	1.343	0.969
2.00		
2.25	1.562	1.188
2.50		

**M8 x 1.25 (5/16" - 18 UNC) CORNER BOLTS & NUTS**

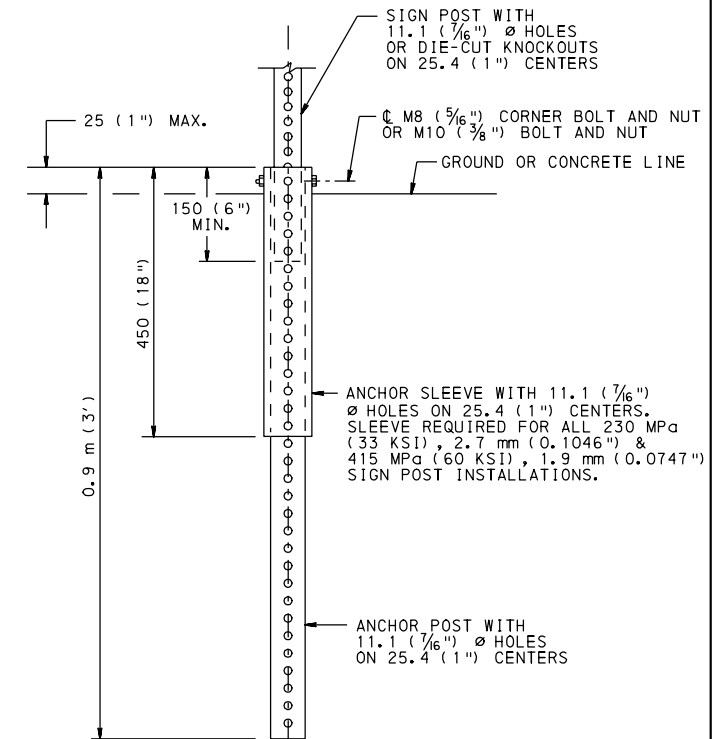
CADMIUM PLATED STEEL, ZINC PLATED STEEL OR ALUMINUM

**INSTALLATION INSTRUCTIONS:**

1. DETERMINE THE PROPER SIZE AND NUMBER OF SIGN POSTS FROM THE APPROPRIATE GRAPH ON SHEET 4 OF 9.
2. DETERMINE THE PROPER SIZE ANCHOR POST AND ANCHOR SLEEVE FROM THE SQUARE STEEL POSTS TABLE ON THIS SHEET.
3. DRIVE THE ANCHOR POST AND ANCHOR SLEEVE INTO THE GROUND SIMULTANEOUSLY, USING THE APPROPRIATE SIZE DRIVE CAP, UNTIL ONLY ONE HOLE REMAINS ABOVE THE GROUND OR FINISHED ELEVATION OF THE CONCRETE.
4. SLIDE A MINIMUM OF 150 mm (6") OF THE SIGN POST INTO THE ANCHOR POST.
5. ATTACH THE SIGN POST TO THE ANCHOR POST AND SLEEVE WITH ONE M8 (5/16") CORNER BOLT AND NUT (OR ALTERNATELY ONE M10 (3/8") BOLT AND NUT) THROUGH THE TOP HOLE OF THE ANCHOR POST AND SLEEVE.
6. TIGHTEN THE BOLT AND NUT BY THE TURN-OF-NUT METHOD. BRING NUT TO A SNUG CONDITION TO ENSURE THAT ALL PARTS ARE BROUGHT TOGETHER INTO FULL CONTACT WITH EACH OTHER, THEN TIGHTEN AN ADDITIONAL 1/2 TURN.

**INSTALLATION IN CONCRETE:**

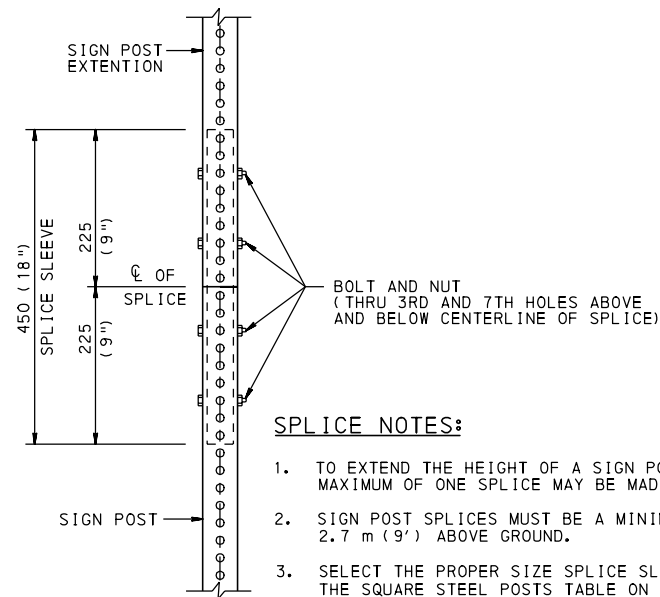
INSTALL AS NOTED ABOVE.



**INSTALLATION DETAIL**

**NOTES:**

1. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH PUB. 408.
2. SIGN POSTS AND SPLICE SLEEVES SHALL HAVE 11.1 mm (7/16") DIAMETER HOLES OR DIE-CUT KNOCKOUTS ON 25.4 mm (1") CENTERS ON ALL FOUR SIDES. ANCHOR POSTS AND ANCHOR SLEEVES SHALL HAVE 11.1 mm (7/16") DIAMETER HOLES ON 25.4 mm (1") CENTERS ON ALL FOUR SIDES.
3. BOLTS AND NUTS SHALL BE ASTM A 307, GRADE B.
4. DRIVE RIVETS MAY BE USED TO FASTEN SIGN BLANKS TO THE SIGN POST.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
6. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



**SPLICE NOTES:**

1. TO EXTEND THE HEIGHT OF A SIGN POST, A MAXIMUM OF ONE SPLICE MAY BE MADE.
2. SIGN POST SPLICES MUST BE A MINIMUM OF 2.7 m (9') ABOVE GROUND.
3. SELECT THE PROPER SIZE SPLICE SLEEVE FROM THE SQUARE STEEL POSTS TABLE ON THIS SHEET.

**SPLICE DETAIL**

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

**POST-MOUNTED SIGNS,  
TYPE B**

**STEEL SQUARE POSTS (SYSTEM C)  
ERECTION DETAILS**

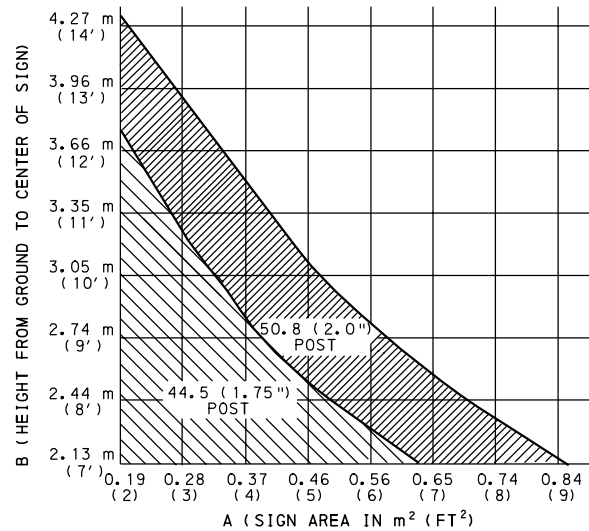
RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*M. G. Patel*  
CHIEF HIGHWAY ENGINEER

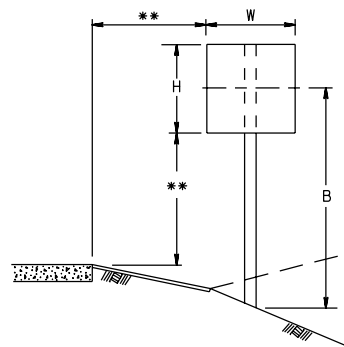
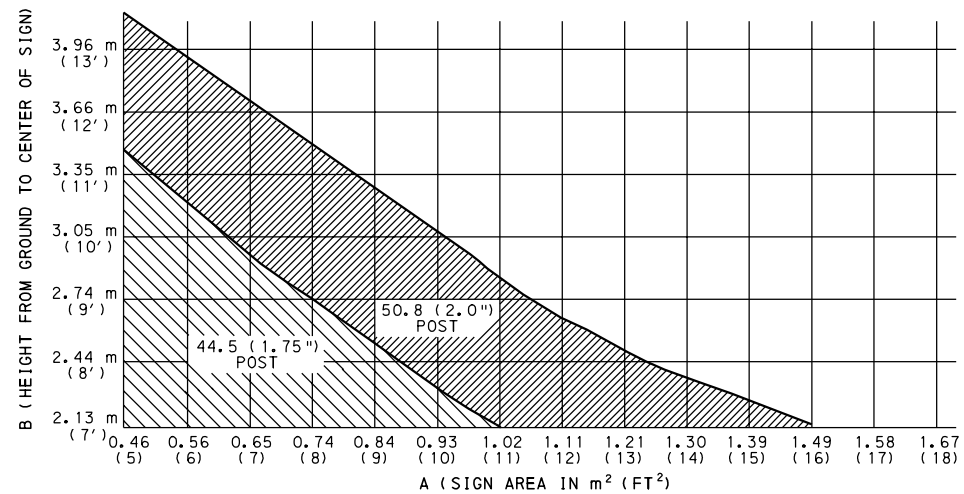
SHT. 3 OF 9

TC-8702B

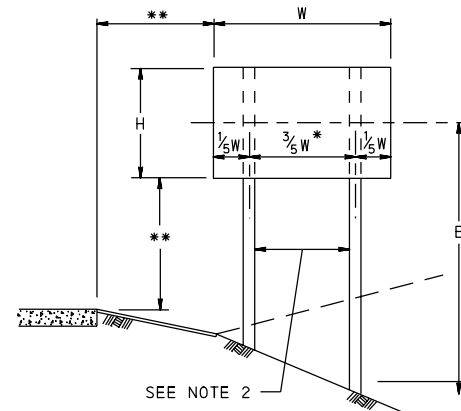
SYSTEM C  
ONE-POST INSTALLATION



SYSTEM C  
TWO-POST INSTALLATION



\* WHEN ERECTING STANDARD WARNING OR REGULATORY SIGNS THAT ARE PREPUNCHED, THIS DISTANCE IS THE DISTANCE BETWEEN THE HORIZONTAL HOLES.  
\*\* SEE SHEET 9 OF 9 FOR SIGN LOCATION/INSTALLATION DETAILS.



A = SIGN AREA (SEE TABLE).  
A = W x H FOR SQUARE OR RECTANGULAR SIGNS,  
WHERE: W = WIDTH OF SIGN  
H = HEIGHT OF SIGN

METRIC UNITS

SIGN AREA TABLE

SQUARE OR RECTANGULAR SIGNS				IRREGULAR SHAPED SIGNS			
SIZE (mm x mm)	AREA (m²)	SIZE (mm x mm)	AREA (m²)	SIZE (mm x mm)	AREA (m²)	SIGN (mm x mm)	AREA (m²)
200x1200	0.24	750x375	0.28	1800x300	0.54	YIELD (R1-2) 900 x 900	0.35
300x450	0.14	750x600	0.45	1800x600	1.08	YIELD (R1-2) 1200 x 1200	0.62
300x600	0.18	750x750	0.56	1800x900	1.62	YIELD (R1-2) 1500 x 1500	0.97
300x750	0.22	750x900	0.68	1800x1200	2.16	NO PASSING PENNANT (W14-3) 1200 x 900	0.50
300x900	0.27	750x1200	0.90	1800x1500	2.70	RAILROAD WARNING (W10-1) 900 DIA.	0.64
300x1200	0.36	750x1500	1.12	2400x600	1.44	SCHOOL (S1-1) 750 x 750	0.42
450x375	0.17	900x900	0.81	2400x1200	2.88	SCHOOL (S1-1) 900 x 900	0.61
450x450	0.20	900x1200	1.08	3000x300	0.90	STOP (R1-1) 600 x 600	0.30
450x600	0.27	900x1350	1.22	3000x375	1.12	STOP (R1-1) 750 x 750	0.47
450x900	0.40	1200x1200	1.44	3000x600	1.80	STOP (R1-1) 900 x 900	0.67
450x1200	0.54	1200x1500	1.80	3000x750	2.25	STOP (R1-1) 1200 x 1200	1.19
525x375	0.20	1500x300	0.45	3600x300	1.08	INTERSTATE ROUTE MARKER (M1-1) 600 x 600	0.29
600x600	0.36	1500x600	0.90	3600x450	1.62	INTERSTATE ROUTE MARKER (M1-1) 750 x 600	0.36
600x900	0.54	1500x1050	1.58	3600x600	2.16	INTERSTATE ROUTE MARKER (M1-1) 900 x 900	0.69
600x1200	0.72	1500x1500	2.25	3600x750	2.70	INTERSTATE ROUTE MARKER (M1-1) 1125 x 900	0.80

ENGLISH UNITS

SIGN AREA TABLE

SQUARE OR RECTANGULAR SIGNS				IRREGULAR SHAPED SIGNS			
SIZE (in. x in.)	AREA (FT²)	SIZE (in. x in.)	AREA (FT²)	SIZE (in. x in.)	AREA (FT²)	SIGN (in. x in.)	AREA (FT²)
8"x48"	2.7	30"x15"	3.1	72"x12"	6.0	YIELD (R1-2) 36"x36"	3.9
12"x18"	1.5	30"x24"	5.0	72"x24"	12.0	YIELD (R1-2) 48"x48"	6.9
12"x24"	2.0	30"x30"	6.3	72"x36"	18.0	YIELD (R1-2) 60"x60"	10.8
12"x30"	2.5	30"x36"	7.5	72"x48"	24.0	NO PASSING PENNANT (W14-3) 48"x36"	5.6
12"x36"	3.0	30"x48"	10.0	72"x60"	30.0	RAILROAD WARNING (W10-1) 36" DIA.	7.1
12"x48"	4.0	30"x60"	12.5	96"x24"	16.0	SCHOOL (S1-1) 30"x30"	4.7
18"x15"	1.9	36"x36"	9.0	96"x48"	32.0	SCHOOL (S1-1) 36"x36"	6.8
18"x18"	2.3	36"x48"	12.0	120"x12"	10.0	STOP (R1-1) 24"x24"	3.3
18"x24"	3.0	36"x54"	13.5	120"x15"	12.5	STOP (R1-1) 30"x30"	5.2
18"x36"	4.5	48"x48"	16.0	120"x24"	20.0	STOP (R1-1) 36"x36"	7.4
18"x48"	6.0	48"x60"	20.0	120"x30"	25.0	STOP (R1-1) 48"x48"	13.2
21"x15"	2.2	60"x12"	5.0	144"x12"	12.0	INTERSTATE ROUTE MARKER (M1-1) 24"x24"	3.2
24"x24"	4.0	60"x24"	10.0	144"x18"	18.0	INTERSTATE ROUTE MARKER (M1-1) 30"x24"	4.0
24"x36"	6.0	60"x42"	17.5	144"x24"	24.0	INTERSTATE ROUTE MARKER (M1-1) 36"x36"	7.2
24"x48"	8.0	60"x60"	25.0	144"x30"	30.0	INTERSTATE ROUTE MARKER (M1-1) 45"x36"	9.0

NOTES:

- TO DETERMINE THE POST SIZE, ENTER THE GRAPH WITH THE VALUES OF A AND B. THE SHADED AREA INDICATES THE APPROPRIATE POST SIZE REQUIRED.
- 50.8 mm (2") AND 44.5 mm (1.75") POSTS MAY HAVE LESS THAN 2.1 m (7') CLEARANCE BETWEEN EACH OTHER WHEN USED IN TWO-POST INSTALLATIONS.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESES ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
TYPE B

STEEL SQUARE POSTS (SYSTEM C)  
SELECTION TABLES

RECOMMENDED MAY 25, 2007

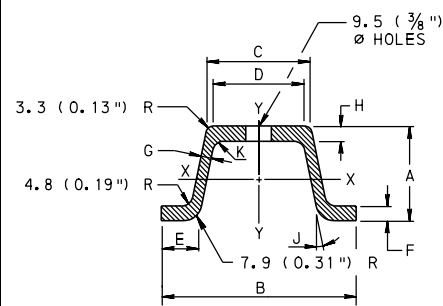
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007

*m. Glatel*  
CHIEF HIGHWAY ENGINEER

SHT. 4 OF 9

TC-8702B



**METRIC UNITS**

**STEEL POST DIMENSIONS**

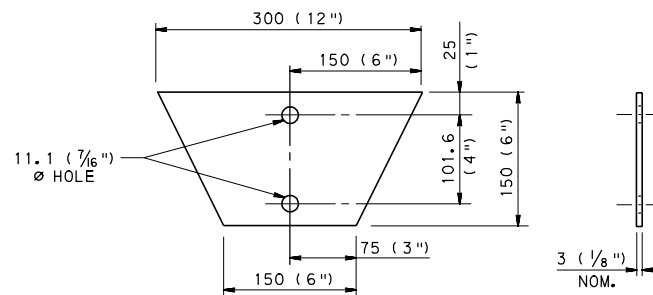
* WEIGHT kg/m	DIMENSIONS (MILLIMETERS)									
	A	B	C	D	E	F	G	H	J	K
3.71	39.6	79.5	31.8	26.9	16.0	4.1	3.3	3.8	12.5°	3.3 R
5.94	44.4	88.9	42.4	35.8	18.3	6.4	4.6	5.8	11.5°	4.8 R

**ENGLISH UNITS**

**STEEL POST DIMENSIONS**

* WEIGHT LBS/FT.	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
2.5	1.56	3.13	1.25	1.06	0.63	0.16	0.13	0.15	12.5°	0.13 R
4.0	1.75	3.50	1.67	1.41	0.72	0.25	0.18	0.23	11.5°	0.19 R

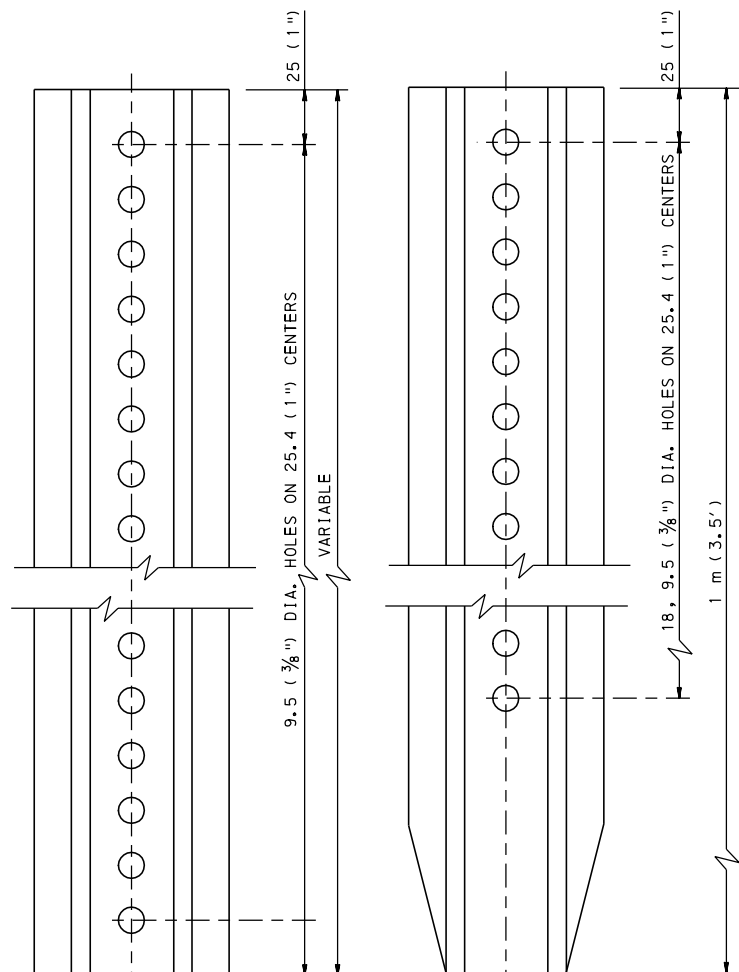
\* ±3.5%



**ANCHOR PLATE**

**NOTES:**

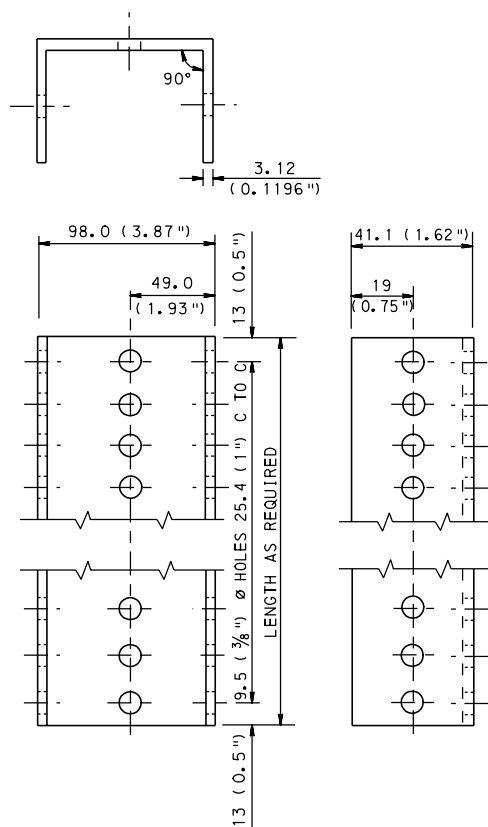
1. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH PUB. 408.
2. FORMED-CHANNEL SIGN MOUNTS SHALL BE MILD STEEL.
3. ANCHOR BOLTS SHALL BE 7.94 mm (5/16") - 18 UNC x 38 (1.5") FULLY THREADED, GRADE 9 HEX HEAD. A FLANGED ANCHOR BOLT MAY BE SUBSTITUTED FOR THE STANDARD ANCHOR BOLT AND FLAT WASHER.
4. WASHERS SHALL BE 7.94 mm (5/16") GRADE 9 PLATED.
5. LOCKNUTS SHALL BE 7.94 mm (5/16") - 18 UNC THREADS, HEX HEADED.
6. ANY OTHER DEPARTMENT APPROVED BREAKAWAY CONNECTION APPROVED FOR THIS KIND OF POST MAY BE SUBSTITUTED FOR THE UNIVERSAL SPACER.
7. SEE SHEET 6 OF 9 FOR SPACER AND ANCHOR BOLT DETAILS.
8. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
9. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



**SIGN POST**

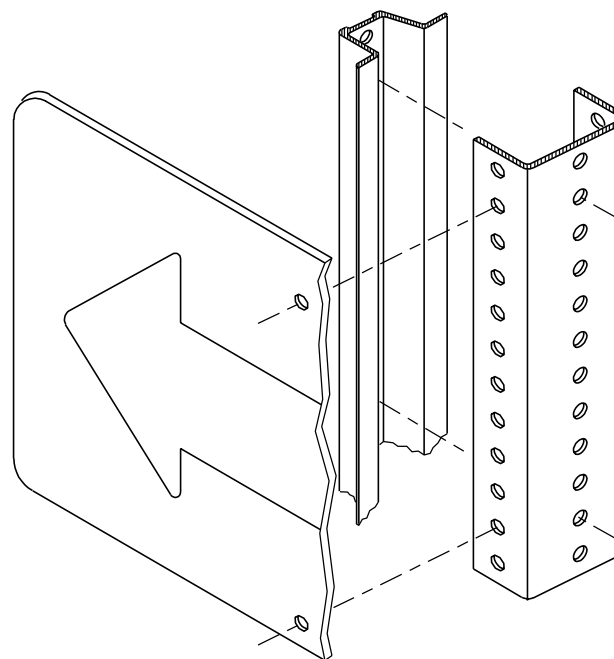
FIRST AND FIFTH HOLES TO BE ELONGATED SLOTS 9.5 x 13 (3/8" x 0.5")

**ANCHOR POST**



**FORMED-CHANNEL SIGN MOUNT**

USE WHEN IT IS NECESSARY TO MOUNT SIGNS ON THE SIDE OF A CHANNEL BAR POST IN ADDITION TO THE NORMAL SIGN MOUNTING LOCATION ON THE FLANGED FACE.



**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**POST-MOUNTED SIGNS,**  
**TYPE B**

**CHANNEL BAR POSTS**  
**(ROLLED STEEL RAILS)**  
**MATERIAL DETAILS**

RECOMMENDED MAY 25, 2007

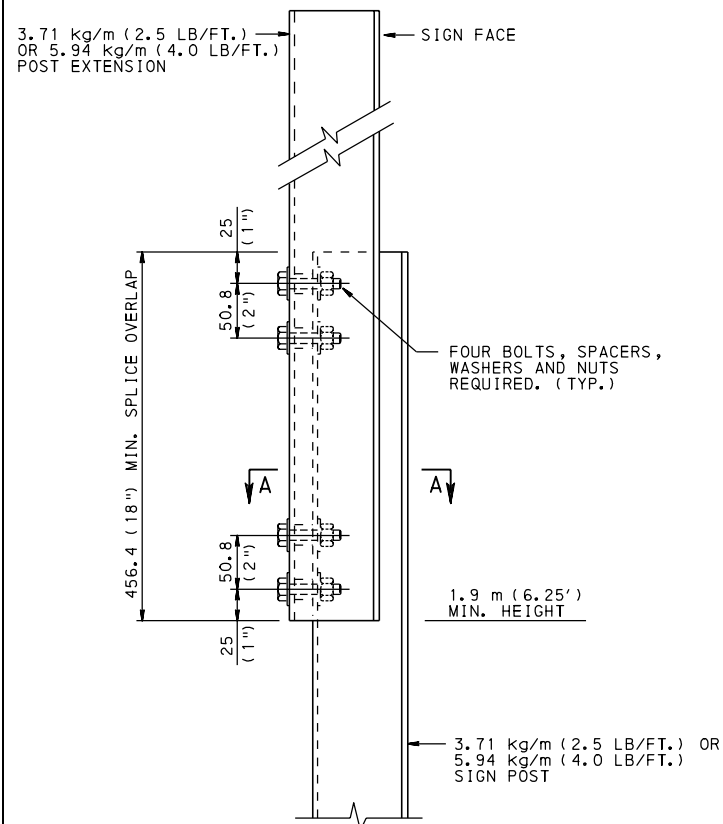
*Alan C. Rowe*  
 CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007

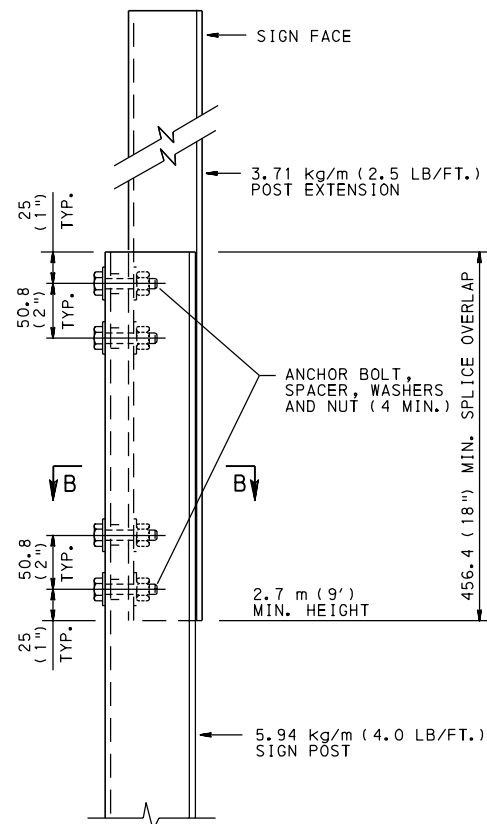
*m. G. Latel*  
 CHIEF HIGHWAY ENGINEER

SHT. 5 OF 9

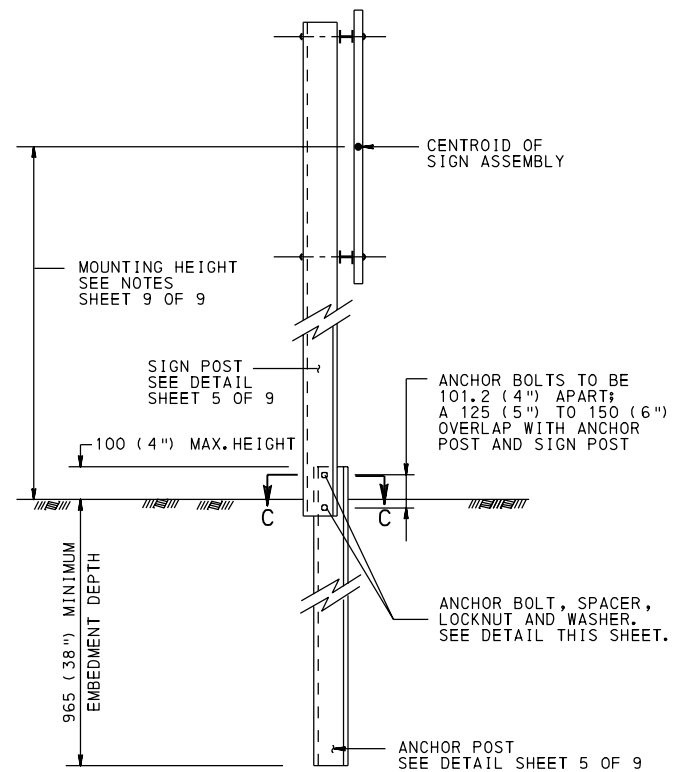
TC-8702B



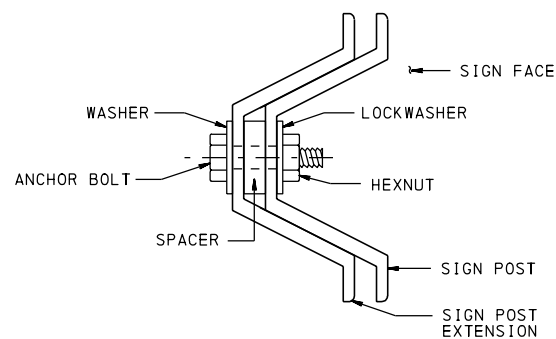
**POST EXTENSION  
SPLICE DETAIL A**  
FOR USE IN EXTENDING SIGN POSTS



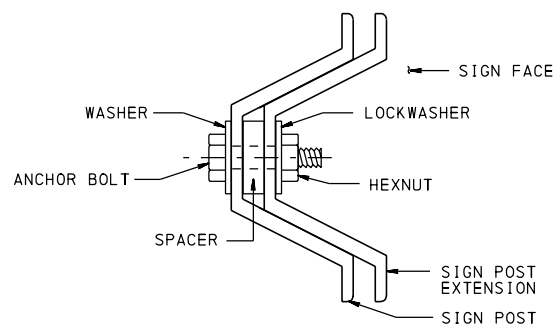
**ALTERNATE POST EXTENSION  
SPLICE DETAIL B**  
FOR USE IN EXTENDING SIGN POSTS



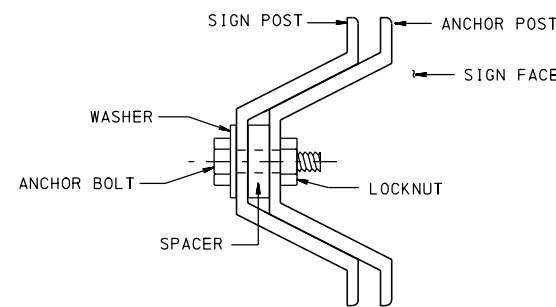
**INSTALLATION DETAIL**



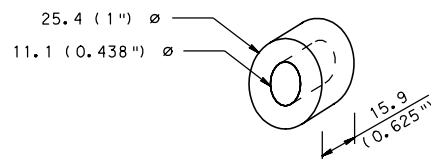
**SECTION A-A**



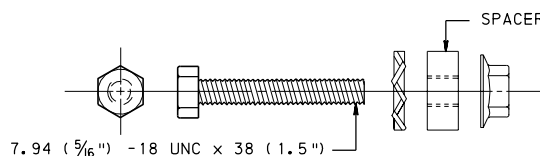
**SECTION B-B**



**SECTION C-C**



**SPACER DETAIL**  
ZINC PLATED



**ANCHOR BOLT,  
WASHER, SPACER AND LOCKNUT**  
ANCHOR BOLTS TO BE 38 (1.5"), GRADE 9, HEX HEAD.

**ANCHOR SPLICE INSTALLATION INSTRUCTIONS:**

1. DETERMINE THE PROPER SIZE SIGN POST AND ANCHOR POST FROM THE APPROPRIATE GRAPH ON SHEET 7 OF 9. USE 3.71 kg/m (2.5 LB/FT.) ANCHOR POSTS WITH 3.71 kg/m (2.5 LB/FT.) SIGN POSTS AND 5.94 kg/m (4.0 LB/FT.) ANCHOR POSTS WITH 5.94 kg/m (4.0 LB/FT.) SIGN POSTS.
2. REMOVE A SHOVEL OF SOIL AT THE POST LOCATION TO ALLOW FOR FINAL ATTACHMENT OF THE SIGN POST TO THE ANCHOR POST.
3. DRIVE ANCHOR POST WITH A DRIVE CAP TO WITHIN APPROXIMATELY 300 mm (12") ABOVE GROUND LEVEL. PLACE ONE BOLT AND WASHER IN FIFTH HOLE FROM THE END OF THE EXPOSED ANCHOR POST. SECURELY TIGHTEN SPACER ONTO BOLT.
4. DRIVE ANCHOR POST TO 100 mm (4") ABOVE GROUND LEVEL. PLACE REMAINING BOLT AND WASHER IN FIRST HOLE FROM THE END OF POST AND SECURELY TIGHTEN SPACER ONTO BOLT. (BOLTS 101.6 mm (4") APART).
5. NEST TOP SIGN POST OVER PROTRUDING ANCHOR POST BOLTS THROUGH FIRST AND FIFTH HOLES OF TOP SIGN POST. THIS WILL RESULT IN A 125 mm (5") TO 150 mm (6") OVERLAP.
6. PLACE A LOCKNUT ON EACH BOLT (A STANDARD LOCKWASHER AND NUT MAY BE USED IN LIEU OF THE LOCKNUT). TIGHTEN BOLTS AND NUTS BY TURN-OF-NUT METHOD. BRING NUT TO A SNUG TIGHT CONDITION TO ENSURE THAT ALL PARTS ARE BROUGHT TOGETHER INTO FULL CONTACT WITH EACH OTHER, THEN TIGHTEN AN ADDITIONAL 1/2 TURN.
7. RESTORE SOIL AROUND THE ANCHOR POST.

**INSTALLATION IN SOFT SOIL:**

1. USE THE ANCHOR PLATE IN AREAS WITH SOFT SOIL. BOLT THE TOP ANCHOR BOLT 25.4 mm (1") BELOW THE BOTTOM ANCHOR POST BOLT, (6 TO 7 HOLES FROM THE END OF THE ANCHOR POST).

**POST EXTENSION SPLICE NOTES:**

1. TO EXTEND THE HEIGHT OF A SIGN POST, A MAXIMUM OF ONE SPLICE MAY BE MADE.
2. FOUR ANCHOR BOLTS WITH SPACERS, WASHERS, LOCKWASHERS AND NUTS ARE REQUIRED (LOCKNUTS MAY BE USED IN LIEU OF STANDARD LOCKWASHERS AND NUTS). SEE THIS SHEET FOR ANCHOR BOLT SYSTEM.
3. POST EXTENSION SPLICE DETAIL A IS PREFERRED OVER POST EXTENSION SPLICE DETAIL B. WHEN DETAIL A IS USED, 3.71 kg/m (2.5 LB/FT.) POSTS SHALL USE A 3.71 kg/m (2.5 LB/FT.) POST EXTENSION POST FOR SPLICE EXTENSIONS; 5.94 kg/m (4.0 LB/FT.) POSTS SHALL USE A 5.94 kg/m (4.0 LB/FT.) POST EXTENSION POST FOR SPLICE EXTENSIONS. WHEN DETAIL B IS USED, POST EXTENSION SPLICES SHALL BE MOUNTED ON THE BACK (NON-IMPACT) SIDE OF THE SIGN POST. SPLICES SHALL BE MADE AT A MINIMUM HEIGHT OF 1.9 m (6.25'), MEASURED TO THE BOTTOM OF THE SPLICE.
4. POST EXTENSION SPLICE DETAIL B IS PERMITTED FOR USE TO PROVIDE A FLUSH SIGN MOUNT SURFACE FOR 5.94 kg/m (4.0 LB/FT.) POSTS. WHEN DETAIL B IS USED, 3.71 kg/m (2.5 LB/FT.) POST EXTENSION SPLICES MAY BE NESTED ON THE FRONT OF A 5.94 kg/m (4.0 LB/FT.) POST. SPLICES SHALL BE MADE AT A MINIMUM HEIGHT OF 2.7 m (9'), MEASURED TO THE BOTTOM OF THE SPLICE.

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
TYPE B

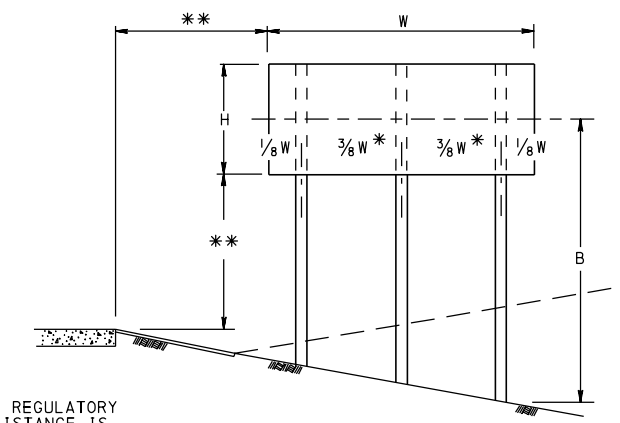
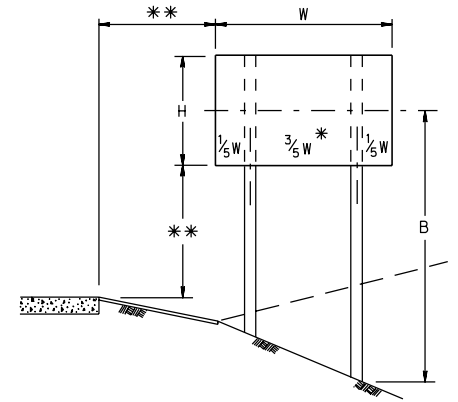
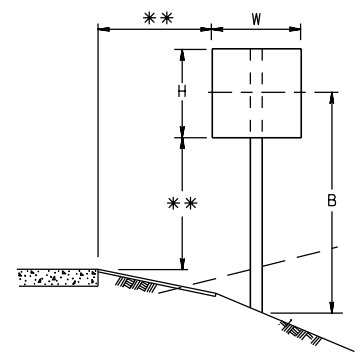
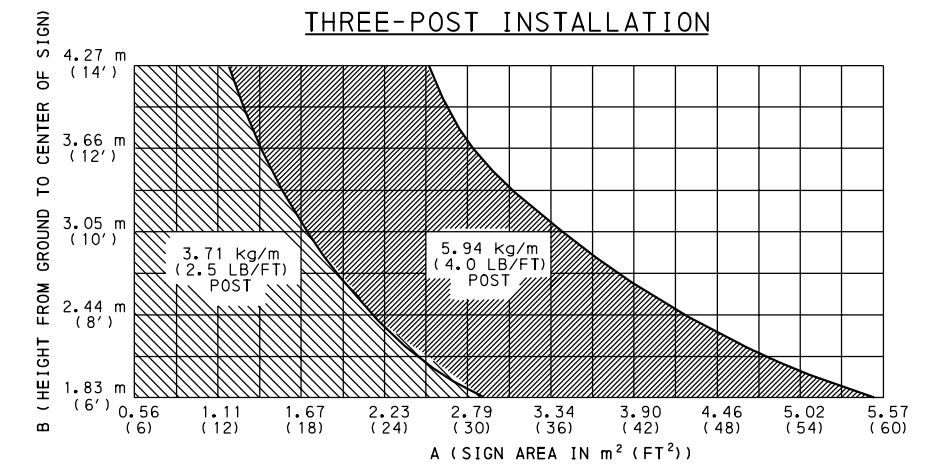
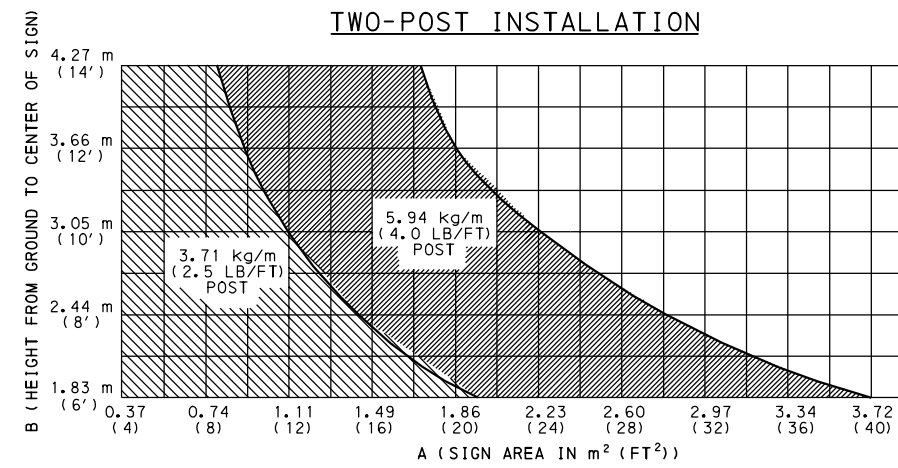
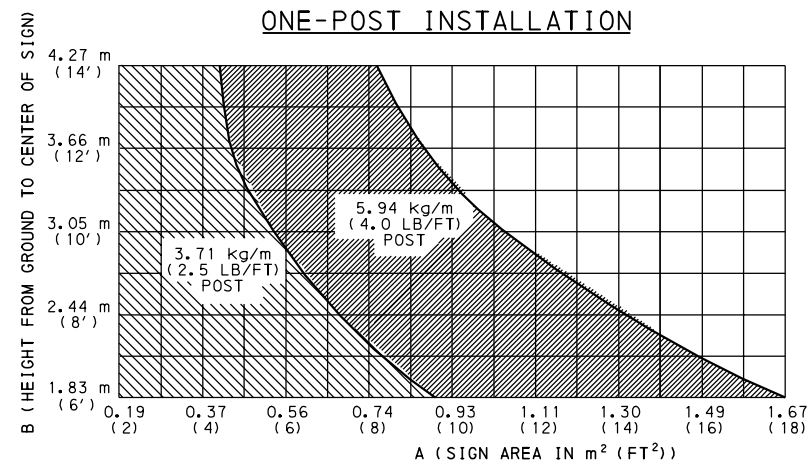
CHANNEL BAR POSTS  
ERECTION DETAILS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*M. G. Latel*  
CHIEF HIGHWAY ENGINEER

SHT. 6 OF 9

TC-8702B



A = SIGN AREA (SEE TABLE).  
 A = W x H FOR SQUARE OR RECTANGULAR SIGNS,  
 WHERE: W = WIDTH OF SIGN  
 H = HEIGHT OF SIGN

\* WHEN ERECTING STANDARD WARNING OR REGULATORY SIGNS THAT ARE PREPUNCHED, THIS DISTANCE IS THE DISTANCE BETWEEN THE HORIZONTAL HOLES.  
 \*\* SEE SHEET 9 OF 9 FOR SIGN LOCATION/INSTALLATION DETAILS.

#### METRIC UNITS

SIGN AREA TABLE							
SQUARE OR RECTANGULAR SIGNS				IRREGULAR SHAPED SIGNS			
SIZE (mm x mm)	AREA (m <sup>2</sup> )	SIZE (mm x mm)	AREA (m <sup>2</sup> )	SIZE (mm x mm)	AREA (m <sup>2</sup> )	SIGN (mm x mm)	AREA (m <sup>2</sup> )
200x1200	0.24	750x375	0.28	1800x300	0.54	YIELD (R1-2) 900 x 900	0.35
300x450	0.14	750x600	0.45	1800x600	1.08	YIELD (R1-2) 1200 x 1200	0.62
300x600	0.18	750x750	0.56	1800x900	1.62	YIELD (R1-2) 1500 x 1500	0.97
300x750	0.22	750x900	0.68	1800x1200	2.16	NO PASSING PENNANT (W14-3) 1200 x 900	0.50
300x900	0.27	750x1200	0.90	1800x1500	2.70	RAILROAD WARNING (W10-1) 900 DIA.	0.64
300x1200	0.36	750x1500	1.12	2400x600	1.44	SCHOOL (S1-1) 750 x 750	0.42
450x375	0.17	900x900	0.81	2400x1200	2.88	SCHOOL (S1-1) 900 x 900	0.61
450x450	0.20	900x1200	1.08	3000x300	0.90	STOP (R1-1) 600 x 600	0.30
450x600	0.27	900x1350	1.22	3000x375	1.12	STOP (R1-1) 750 x 750	0.47
450x900	0.40	1200x1200	1.44	3000x600	1.80	STOP (R1-1) 900 x 900	0.67
450x1200	0.54	1200x1500	1.80	3000x750	2.25	STOP (R1-1) 1200 x 1200	1.19
525x375	0.20	1500x300	0.45	3600x300	1.08	INTERSTATE ROUTE MARKER (M1-1) 600 x 600	0.29
600x600	0.36	1500x600	0.90	3600x450	1.62	INTERSTATE ROUTE MARKER (M1-1) 750 x 600	0.36
600x900	0.54	1500x1050	1.58	3600x600	2.16	INTERSTATE ROUTE MARKER (M1-1) 900 x 900	0.69
600x1200	0.72	1500x1500	2.25	3600x750	2.70	INTERSTATE ROUTE MARKER (M1-1) 1125 x 900	0.80

#### ENGLISH UNITS

SIGN AREA TABLE							
SQUARE OR RECTANGULAR SIGNS				IRREGULAR SHAPED SIGNS			
SIZE (in. x in.)	AREA (FT <sup>2</sup> )	SIZE (in. x in.)	AREA (FT <sup>2</sup> )	SIZE (in. x in.)	AREA (FT <sup>2</sup> )	SIGN (in. x in.)	AREA (FT <sup>2</sup> )
8"x48"	2.7	30"x15"	3.1	72"x12"	6.0	YIELD (R1-2) 36"x36"	3.9
12"x18"	1.5	30"x24"	5.0	72"x24"	12.0	YIELD (R1-2) 48"x48"	6.9
12"x24"	2.0	30"x30"	6.3	72"x36"	18.0	YIELD (R1-2) 60"x60"	10.8
12"x30"	2.5	30"x36"	7.5	72"x48"	24.0	NO PASSING PENNANT (W14-3) 48"x36"	5.6
12"x36"	3.0	30"x48"	10.0	72"x60"	30.0	RAILROAD WARNING (W10-1) 36" DIA.	7.1
12"x48"	4.0	30"x60"	12.5	96"x24"	16.0	SCHOOL (S1-1) 30"x30"	4.7
18"x15"	1.9	36"x36"	9.0	96"x48"	32.0	SCHOOL (S1-1) 36"x36"	6.8
18"x18"	2.3	36"x48"	12.0	120"x12"	10.0	STOP (R1-1) 24"x24"	3.3
18"x24"	3.0	36"x54"	13.5	120"x15"	12.5	STOP (R1-1) 30"x30"	5.2
18"x36"	4.5	48"x48"	16.0	120"x24"	20.0	STOP (R1-1) 36"x36"	7.4
18"x48"	6.0	48"x60"	20.0	120"x30"	25.0	STOP (R1-1) 48"x48"	13.2
21"x15"	2.2	60"x12"	5.0	144"x12"	12.0	INTERSTATE ROUTE MARKER (M1-1) 24"x24"	3.2
24"x24"	4.0	60"x24"	10.0	144"x18"	18.0	INTERSTATE ROUTE MARKER (M1-1) 30"x24"	4.0
24"x36"	6.0	60"x42"	17.5	144"x24"	24.0	INTERSTATE ROUTE MARKER (M1-1) 36"x36"	7.2
24"x48"	8.0	60"x60"	25.0	144"x30"	30.0	INTERSTATE ROUTE MARKER (M1-1) 45"x36"	9.0

#### NOTES:

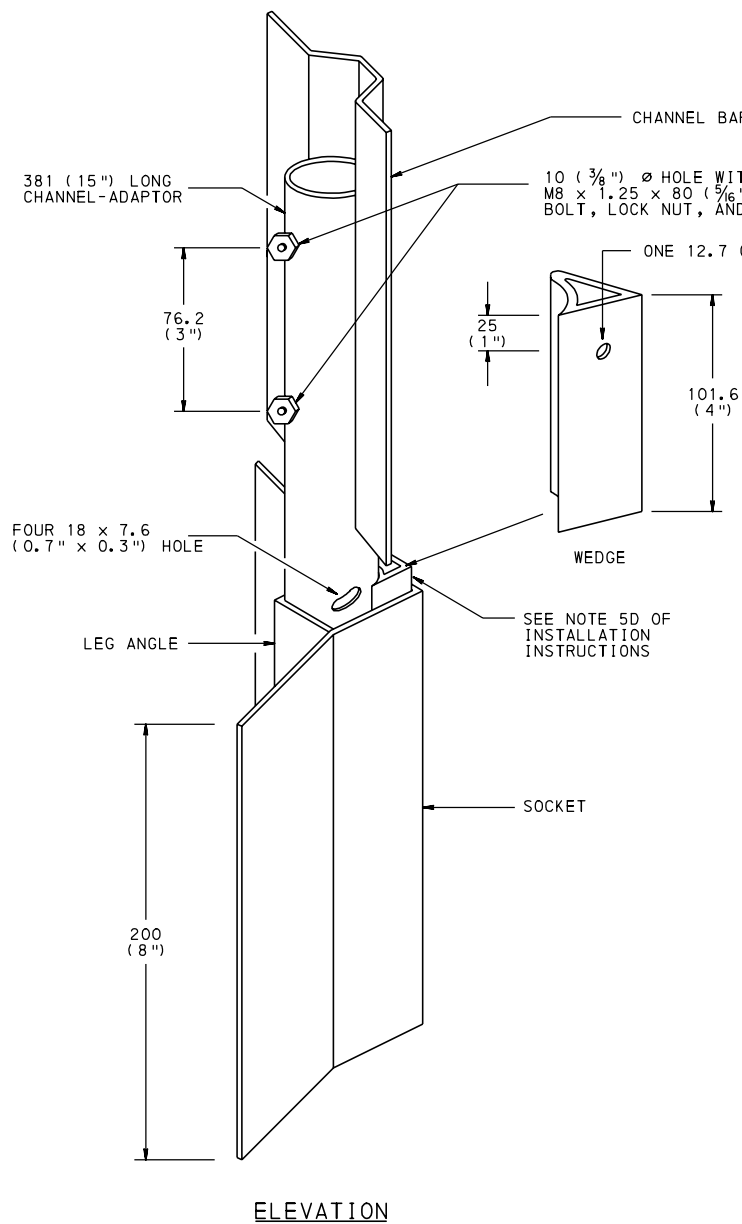
- TO DETERMINE THE POST SIZE, ENTER THE GRAPH WITH THE VALUES OF A AND B. THE SHADED AREA INDICATES THE APPROPRIATE POST SIZE REQUIRED.
- 3.71 kg/m (2.5 LB/FT.) AND 5.94 kg/m (4.0 LB/FT.) POSTS MAY HAVE LESS THAN 2.1 m (7') CLEARANCE BETWEEN EACH OTHER WHEN USED IN TWO-POST AND THREE-POST INSTALLATIONS.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

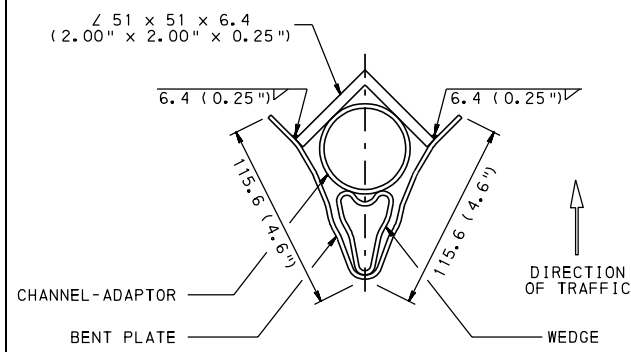
**POST-MOUNTED SIGNS,  
TYPE B**

**CHANNEL BAR POSTS  
SELECTION TABLES**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 7 OF 9 <b>TC-8702B</b>
---	--	--------------------------------

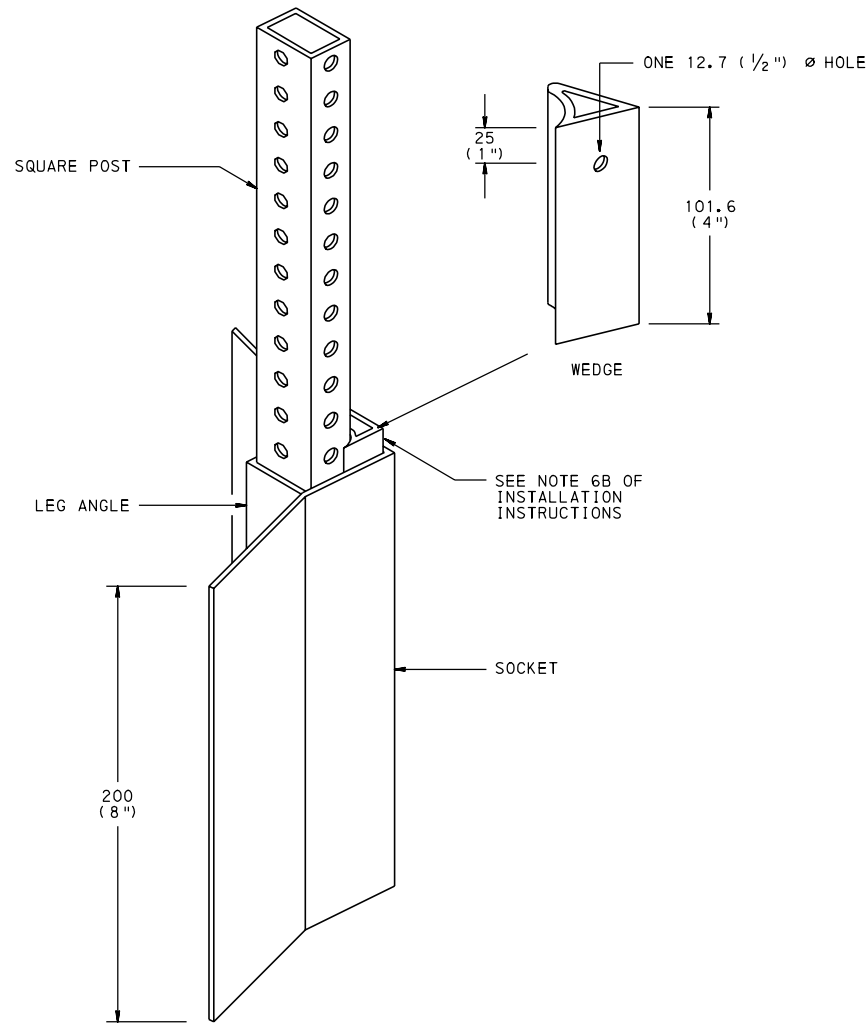


ELEVATION

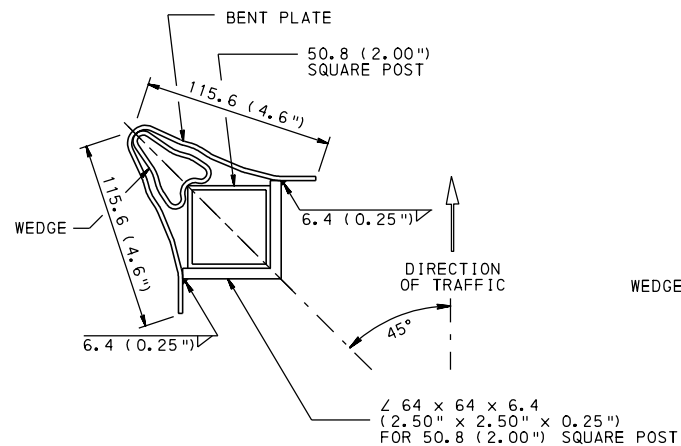


PLAN

CHANNEL BAR POST - SOCKET SYSTEM

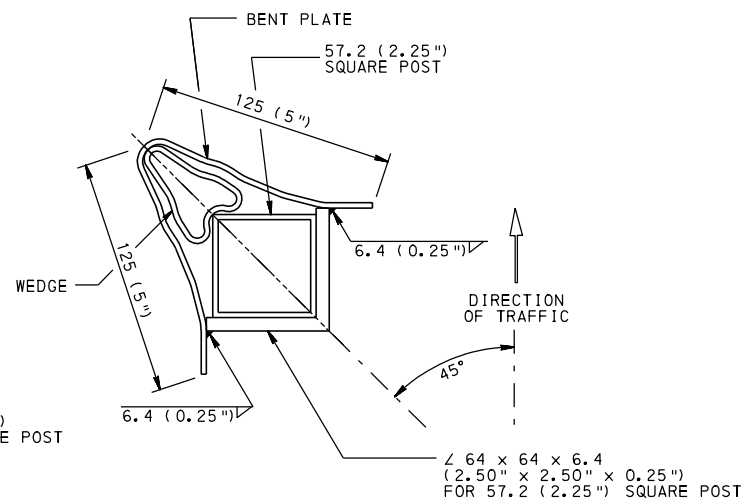


ELEVATION



PLAN

SQUARE POST - SOCKET SYSTEM



PLAN

**NOTES:**

1. SOCKET SHALL CONSIST OF A BENT PLATE ATTACHED TO A LEG ANGLE BY A MINIMUM OF SIX, 6.4 mm x 38.1 mm (0.25" x 1.5") FILLET WELDS. THE TOP OF THE BENT PLATE SHALL BE FLUSH WITH THE TOP OF THE LEG ANGLE.
2. SOCKET TO BE DIP-COATED WITH A RUST INHIBITING PRIMER MEETING FED. SPEC. TTP636.
3. BENT PLATE SHALL BE 2.7 mm (0.1046") HOT ROLLED CARBON SHEET STEEL, COMMERCIAL QUALITY, ASTM A 569/A 569M.
4. LEG ANGLE SHALL BE ASTM A 36/A 36M.
5. WEDGE SHALL BE STEEL TUBING MADE TO ASTM A 500, GRADE B SPECIFICATIONS.
6. CHANNEL-ADAPTOR SHALL BE GALVANIZED STEEL MADE FROM 48 mm (1.9") OD TUBE WITH 3.0 mm (0.1196") WALL THICKNESS, ASTM A 500, GRADE B.
7. BOLTS TO BE M8 x 1.25 x 80 (5/16" x 3") HEX HEAD, GRADE 5, ZINK PLATED WITH WASHERS.
8. NUTS SHALL BE M8 x 1.25 (5/16" - 18 UNC) THREADS, NYLON INSERT LOCK NUTS.
9. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS NOTED OTHERWISE. ENGLISH UNITS IN PARENTHESIS ( ).
10. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**INSTALLATION INSTRUCTIONS:**

1. SOCKET SYSTEMS ARE APPROVED FOR CONCRETE INSTALLATIONS.
2. SOCKET SYSTEMS ARE APPROVED FOR USE WITH 3.71 kg/m (2.5 LB/FT.) CHANNEL BAR POSTS AND 50.8 mm (2.00") AND 57.2 mm (2.25") STEEL SQUARE POSTS.
3. PLACE SOCKET IN A HOLE WITH THE TOP OF THE SOCKET FLUSH WITH THE TOPS OF THE ORIGINAL CONCRETE.
4. PLACE CONCRETE AROUND THE SOCKET. DO NOT PLACE CONCRETE INSIDE THE SOCKET WHERE THE WEDGE AND CHANNEL-ADAPTOR OR POST ARE TO BE PLACED.
5. FOR CHANNEL BAR POST INSTALLATIONS - AFTER THE CONCRETE HAS CURED:
  - A. ATTACH THE CHANNEL BAR POST TO THE CHANNEL-ADAPTOR USING TWO BOLTS, LOCK NUTS, AND WASHERS.
  - B. INSERT THE LOWER PORTION OF THE CHANNEL-ADAPTOR INTO THE SOCKET UNTIL THE FOUR PIERCED HOLES ARE AT THE SAME HEIGHT AS THE TOP OF THE SOCKET.
  - C. ROTATE THE TWO UPPER HOLES IN THE CHANNEL-ADAPTOR TOWARD ONCOMING TRAFFIC.
  - D. POSITION THE WEDGE IN THE SOCKET WITH ITS HOLE AT THE TOP, AND DRIVE THE WEDGE INTO THE SOCKET UNTIL THE TOP OF THE WEDGE IS FLUSH WITH THE TOP OF THE SOCKET.
6. FOR STEEL SQUARE POST INSTALLATIONS - AFTER THE CONCRETE HAS CURED:
  - A. INSERT THE SQUARE POST FULLY INTO THE SOCKET.
  - B. POSITION THE WEDGE IN THE SOCKET WITH ITS HOLE AT THE TOP, AND DRIVE THE WEDGE INTO THE SOCKET UNTIL THE TOP OF THE WEDGE IS FLUSH WITH THE TOP OF THE SOCKET.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
TYPE B

SOCKET SYSTEM FOR  
CONCRETE INSTALLATIONS

RECOMMENDED MAY 25, 2007

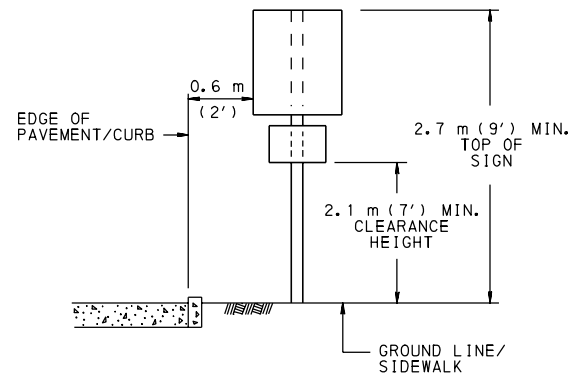
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007

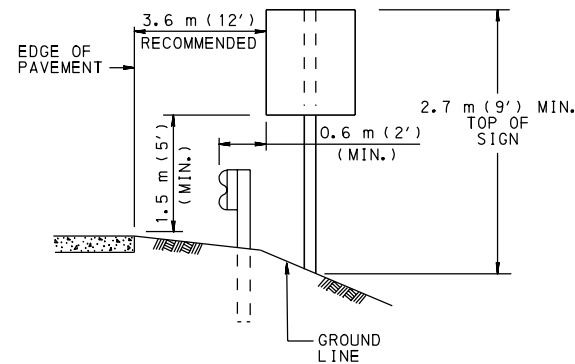
*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

SHT. 8 OF 9

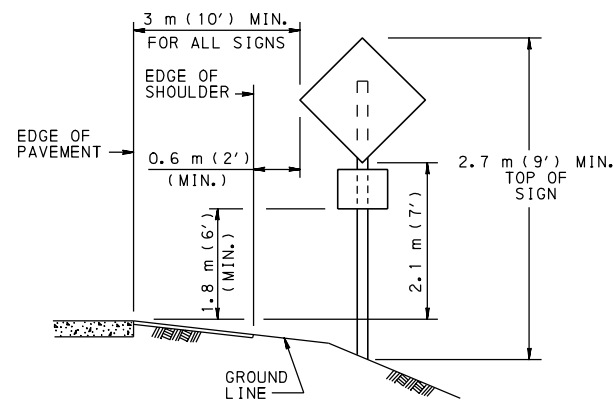
TC-8702B



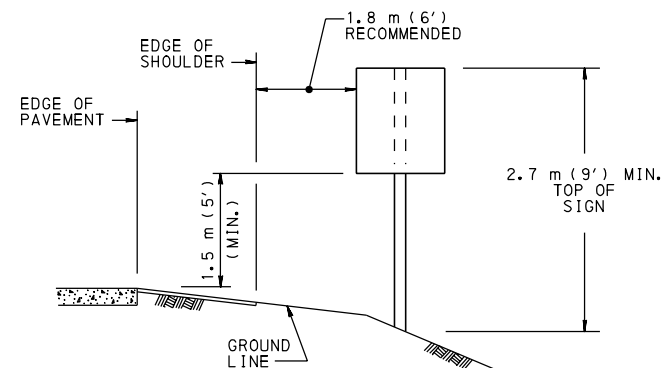
BUSINESS OR RESIDENTIAL AREA



RURAL AREA  
CONVENTIONAL HIGHWAY (NO SHOULDER)



FREEWAY / EXPRESSWAYS



RURAL AREA  
CONVENTIONAL HIGHWAY (WITH SHOULDER)

NOTES:

SIGN CLEARANCE HEIGHT

- CLEARANCE HEIGHT SHALL BE MEASURED FROM THE BOTTOM OF THE SIGN TO A LEVEL LINE PROJECTED FROM THE NEAR EDGE OF ROADWAY. THIS MAY RESULT IN A SIGN HEIGHT GREATER THAN THE MINIMUM HEIGHT REQUIRED WHEN MEASURED FROM THE GROUND LEVEL TO THE BOTTOM OF THE SIGN. IN BUSINESS AND URBAN AREAS THE CLEARANCE HEIGHT SHALL ALSO BE MEASURED FROM THE BOTTOM OF THE SIGN TO THE GROUND LEVEL OR SIDEWALK AREA TO REDUCE THE POSSIBILITY OF PEDESTRIANS COLLIDING WITH THE SIGN.

LATERAL SIGN CLEARANCE

- SIGNS SHOULD BE PLACED AS FAR AS PRACTICAL FROM THE EDGE OF THE ROADWAY TO REDUCE THE POSSIBILITY OF VEHICLES HITTING THE SIGNS. WHEN GUIDE RAIL IS PRESENT, SIGNS WILL BE PLACED BEHIND THE GUIDERAIL.
- ROUTE MARKER SIGNS WITH AUXILIARY SIGNS (NORTH, SOUTH, ETC.) SHALL BE CONSIDERED A SINGLE SIGN ASSEMBLY. THE CLEARANCE HEIGHT IS MEASURED FROM THE BOTTOM OF THE LOWEST AUXILIARY SIGN TO A LEVEL LINE PROJECTED FROM THE NEAR EDGE OF ROADWAY.
- BUSINESS OR URBAN AREAS
  - IN BUSINESS, COMMERCIAL OR RESIDENTIAL DISTRICTS, OR WHERE PARKING AND/OR PEDESTRIAN MOVEMENTS ARE LIKELY, OR WHERE THE SIGN MAY BLOCK VISIBILITY, THE BOTTOM OF ALL SIGNS (INCLUDING AUXILIARY SIGNS) SHALL BE A MINIMUM OF 2.1 m (7') ABOVE GROUND AND THE NEAR PAVEMENT EDGE.
  - LATERAL CLEARANCE RECOMMENDED IS 0.6 m (2') BEHIND CURB. IF SIDEWALK WIDTH IS LIMITED, OR WHEN EXISTING UTILITY POLES ARE CLOSE TO THE CURB A 0.3 m (1') CLEARANCE IS PERMISSIBLE.
- RURAL AREAS
  - CONVENTIONAL HIGHWAYS. ALTHOUGH 2.1 m (7') MINIMUM SIGN HEIGHT CLEARANCE IS RECOMMENDED, IN RURAL DISTRICTS WHERE THE CONDITIONS LISTED IN NOTE 4A ARE NOT LIKELY, SIGNS MAY BE MOUNTED AT A MINIMUM CLEARANCE HEIGHT OF 1.5 m (5'). IF A SUPPLEMENTAL SIGN IS INSTALLED BELOW THE MAIN SIGN, THE CLEARANCE HEIGHT OF THE SUPPLEMENTAL SIGN MAY BE 1.2 m (4').  
  
WHEN GUIDERAIL OR CONCRETE BARRIERS ARE PRESENT A 0.6 m (2') LATERAL CLEARANCE IS RECOMMENDED.  
  
WHEN SHOULDERS ARE NOT PRESENT IT IS RECOMMENDED THAT SIGNS BE PLACED 3.6 m (12') FROM THE EDGE OF ROADWAY. WHERE SHOULDERS ARE PRESENT A 1.8 m (6') LATERAL CLEARANCE IS RECOMMENDED.
  - FREEWAY AND EXPRESSWAYS. DIRECTIONAL SIGNS SHALL BE HAVE A MINIMUM CLEARANCE HEIGHT OF 2.1 m (7'). HOWEVER, IF A SUPPLEMENTAL SIGN IS INSTALLED BELOW THE MAIN SIGN, THE SUPPLEMENTAL SIGN MAY HAVE A CLEARANCE HEIGHT OF 1.8 m (6'), PROVIDED THAT A 2.4 m (8') CLEARANCE HEIGHT IS MAINTAINED FOR THE MAIN SIGN.  
  
ALL ROUTE MARKER, REGULATORY, AND WARNING SIGN ASSEMBLIES SHALL MAINTAIN A 1.8 m CLEARANCE HEIGHT TO THE BOTTOM OF THE SIGN ASSEMBLY (INCLUDING AUXILIARY SIGNS).  
  
A 0.6 m (2') MINIMUM LATERAL CLEARANCE IS REQUIRED BEHIND UNMOUNTABLE CURB OR ROADWAY SHOULDER.  
  
A 3.0 m (10') MINIMUM LATERAL CLEARANCE FROM THE EDGE OF THE NEAREST TRAVEL LANE IS RECOMMENDED.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
TYPE B

SIGN LOCATION/INSTALLATION  
DETAILS

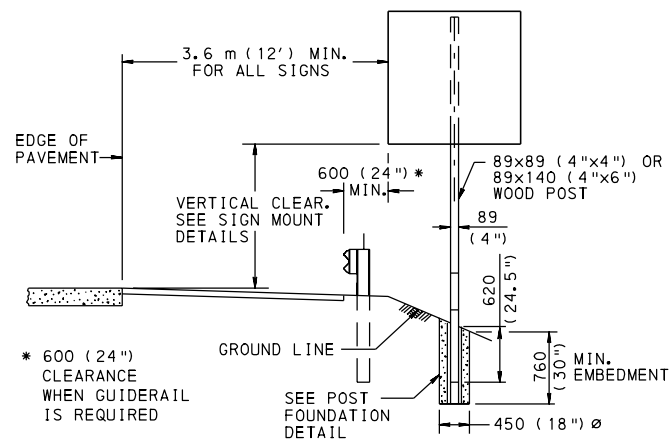
RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. Latel*  
CHIEF HIGHWAY ENGINEER

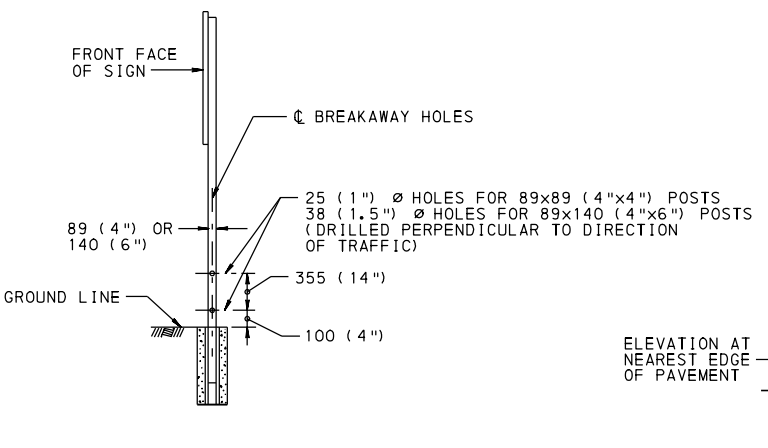
SHT. 9 OF 9

TC-8702B

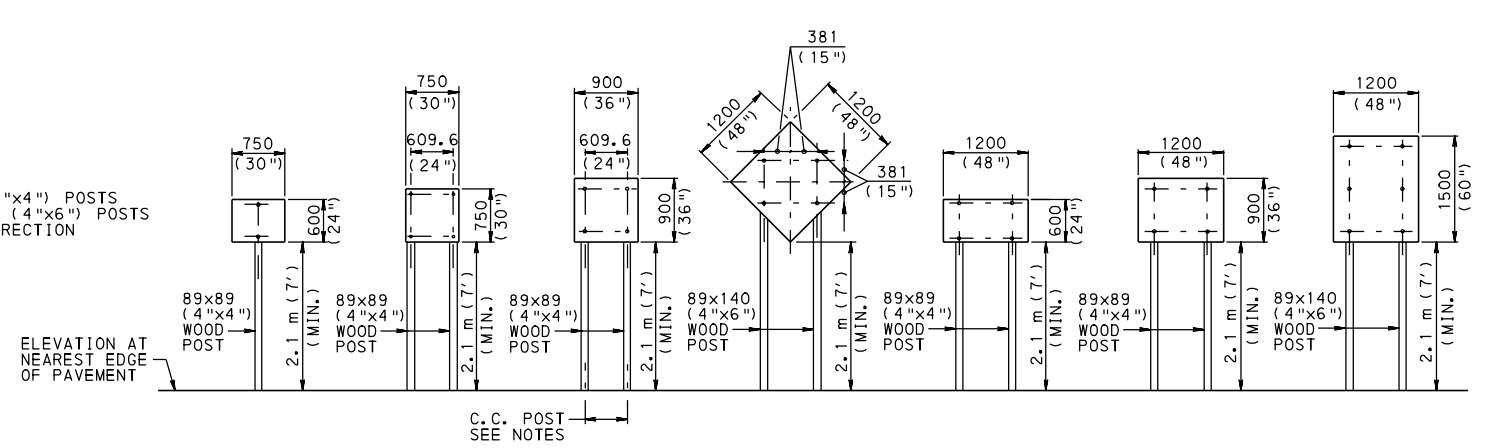




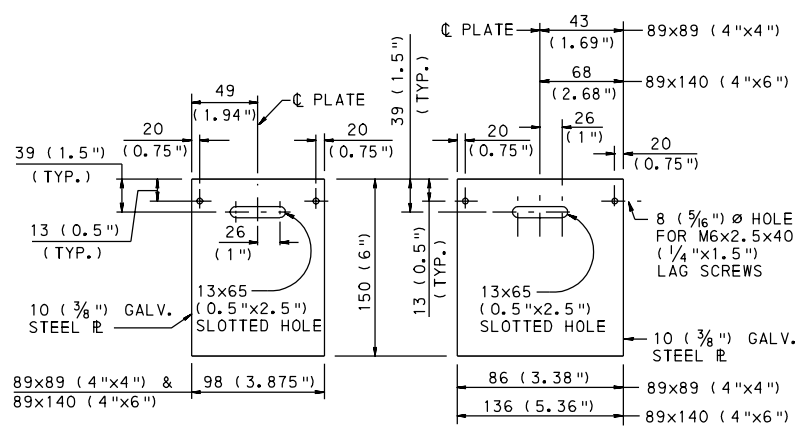
ELEVATION VIEW



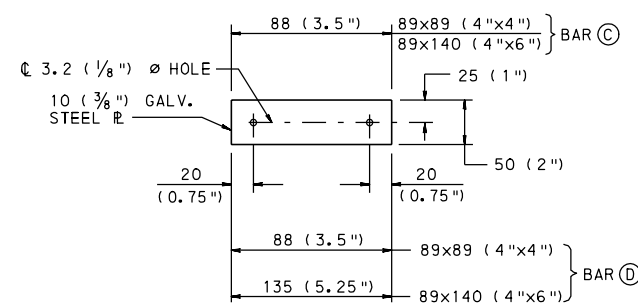
END VIEW



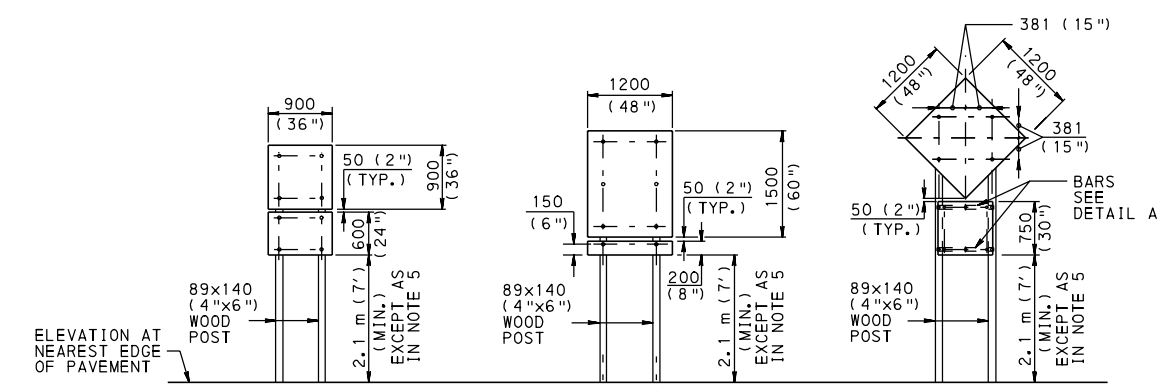
SINGLE MOUNTS



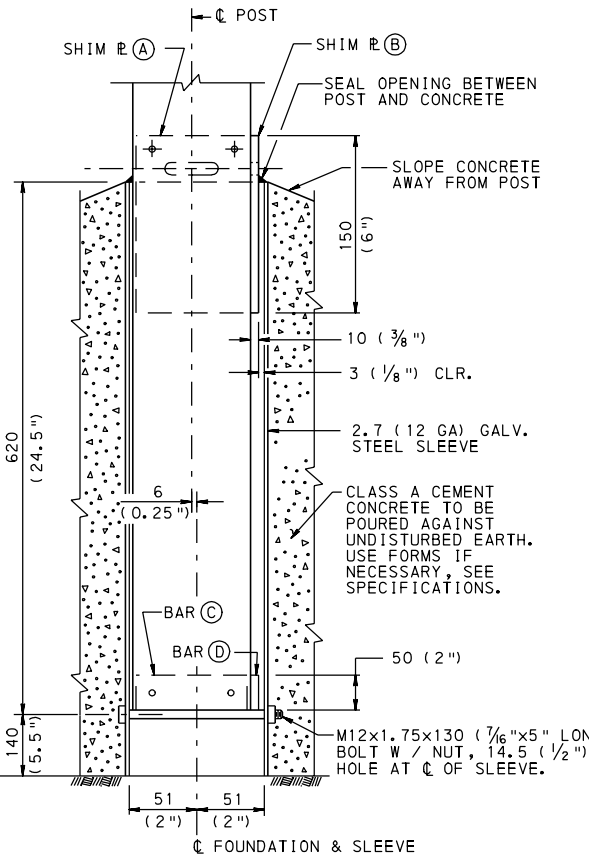
SHIM PLATE A SHIM PLATE B



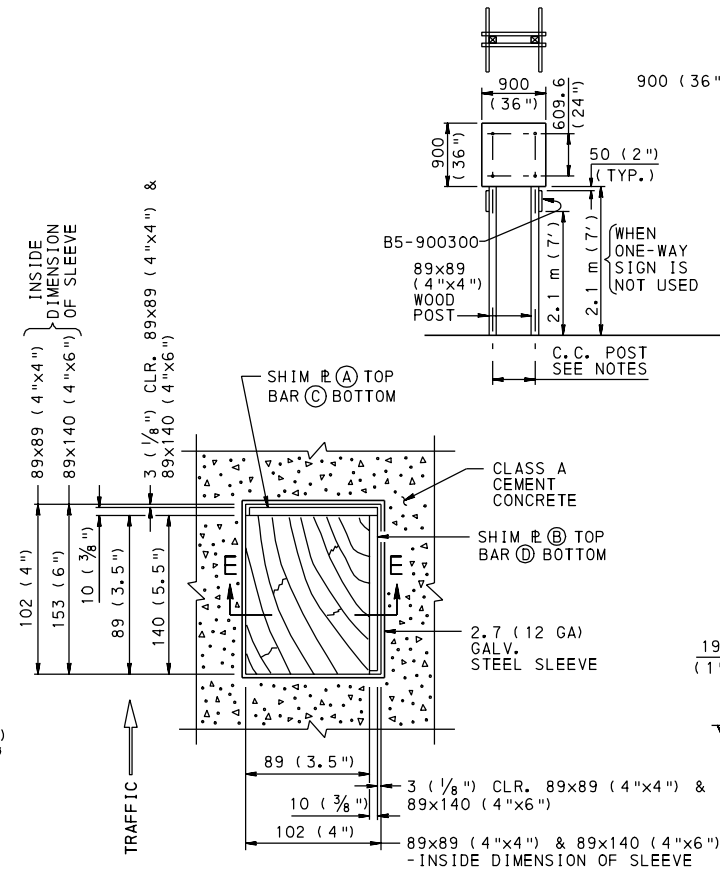
NOTE: NAIL SHIM BARS TO POST TO HOLD BARS IN PLACE WHILE POST IS BEING PLACED.  
SHIM PLATE C  
SHIM PLATE D



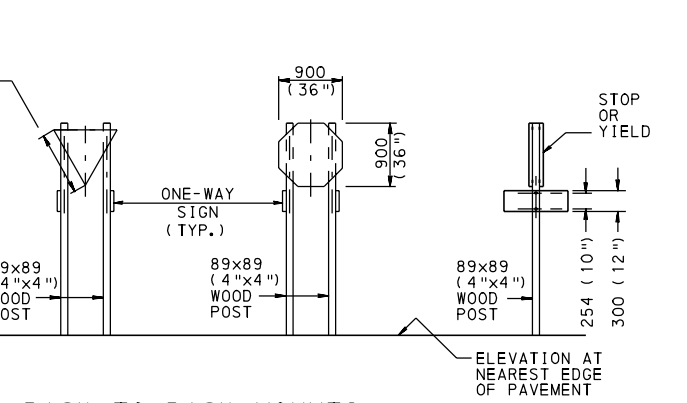
MULTIPLE MOUNTS



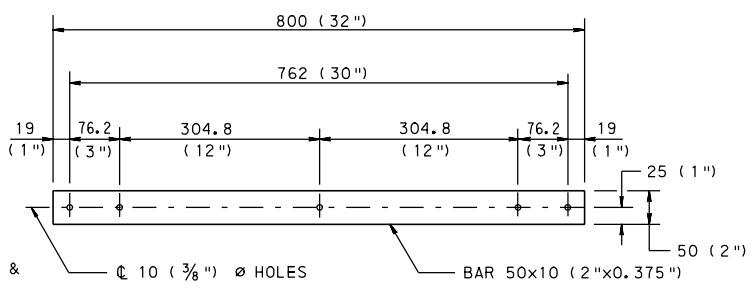
SECTION E-E (SHOWN)



FOUNDATION DETAIL



BACK-TO-BACK MOUNTS



BAR DETAIL A

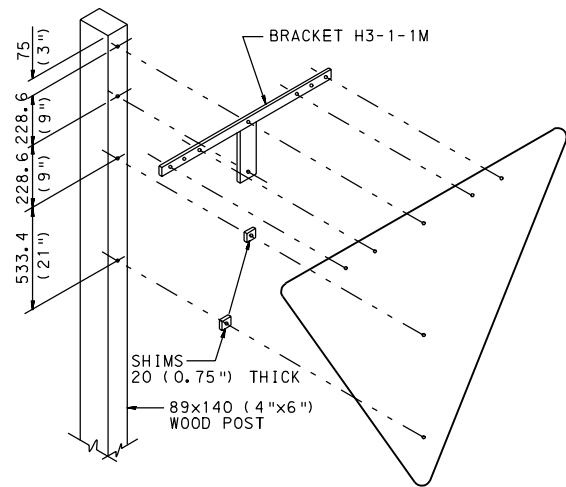
- NOTES:**
1. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, UNLESS OTHERWISE NOTED.
  2. DETERMINE THE CENTER TO CENTER POST DIMENSIONS ON TWO-POST INSTALLATIONS BY THE BOLT HOLE SPACING ON THE SIGN BLANKS.
  3. FOR DETAILS OF BOLTS AND SIZE REQUIRED, SEE SHEET 2 OF 2.
  4. GALVANIZE ALL STEEL SLEEVES IN ACCORDANCE WITH ASTM A 123 / A 123M.
  5. STEEL USED FOR SLEEVES AND SHIMS SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI.
  6. IF A SUPPLEMENTAL SIGN IS INSTALLED BELOW THE MAIN SIGN, THE BOTTOM OF THE SIGN ASSEMBLY MAY BE 1.8 m (6') ABOVE THE NEAR EDGE OF THE PAVEMENT. HOWEVER, IN BUSINESS, COMMERCIAL & RESIDENTIAL DISTRICTS, OR WHERE PARKING AND/OR PEDESTRIAN MOVEMENTS ARE LIKELY, OR WHERE THE SIGN MAY BLOCK VISIBILITY, THE BOTTOM OF ALL SIGNS (INCLUDING AUXILIARY SIGNS) SHALL BE A MINIMUM OF 2.1 m (7') ABOVE GROUND.
  7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
  8. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**COMMONWEALTH OF PENNSYLVANIA**  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

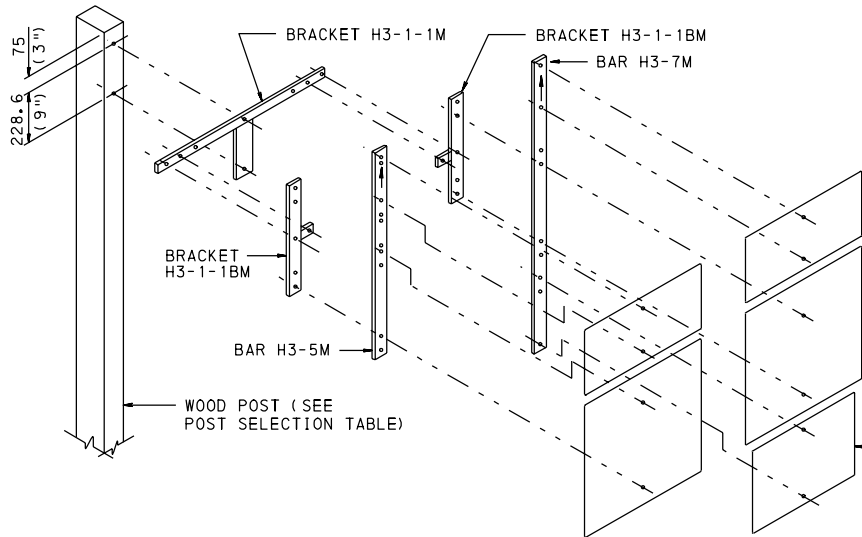
**POST-MOUNTED SIGNS,  
TYPE C**

**ERECTION DETAILS**

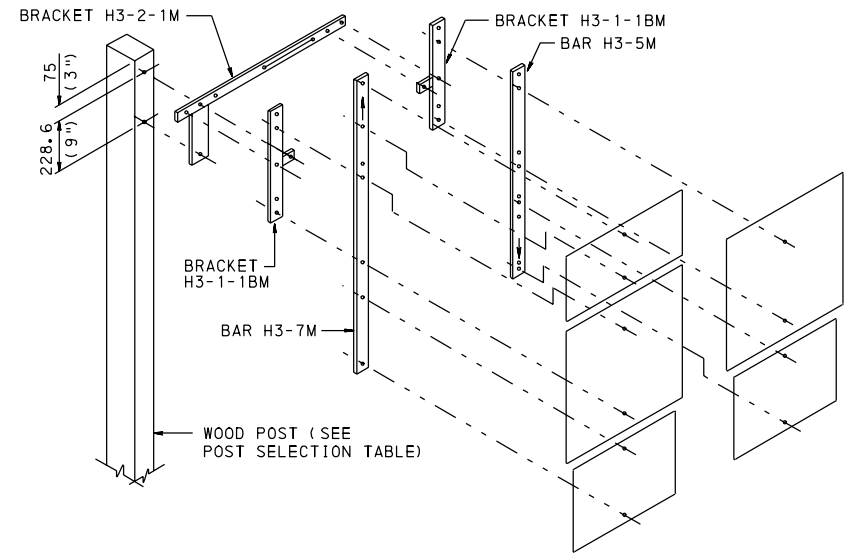
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 1 OF 2 <b>TC-8702C</b>
---	--	--------------------------------



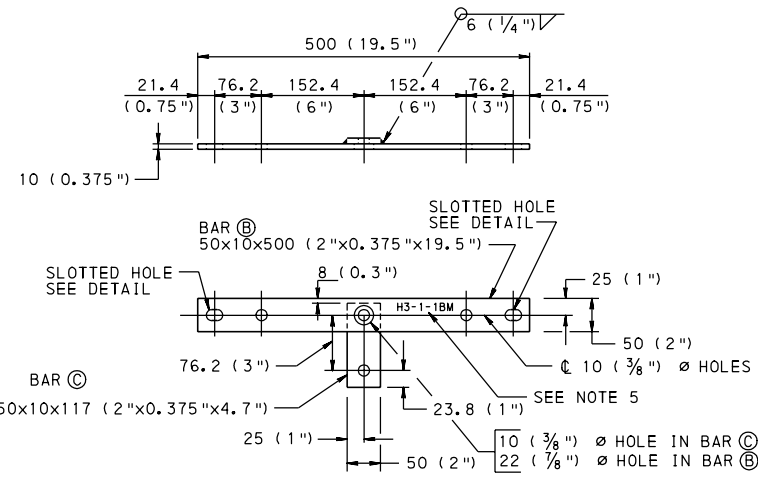
TYPICAL YIELD SIGN ASSEMBLY



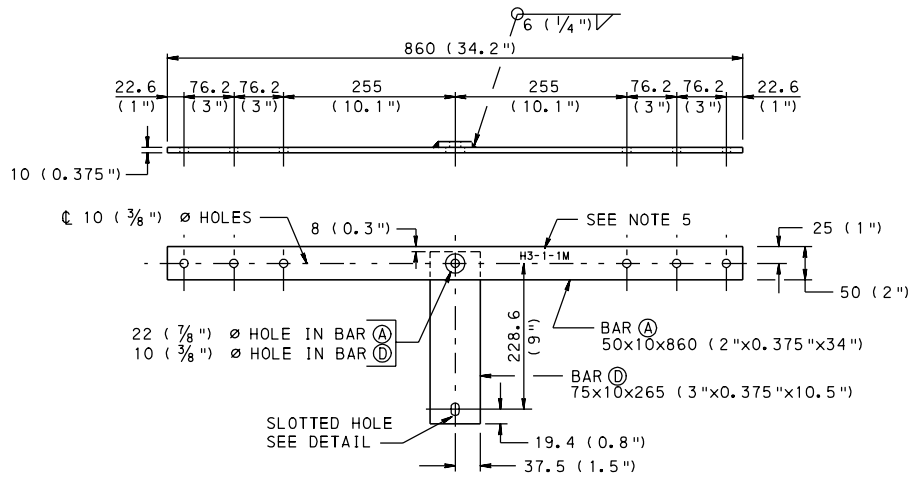
ROUTE MARKER BRACKET ASSEMBLY - TYPE I



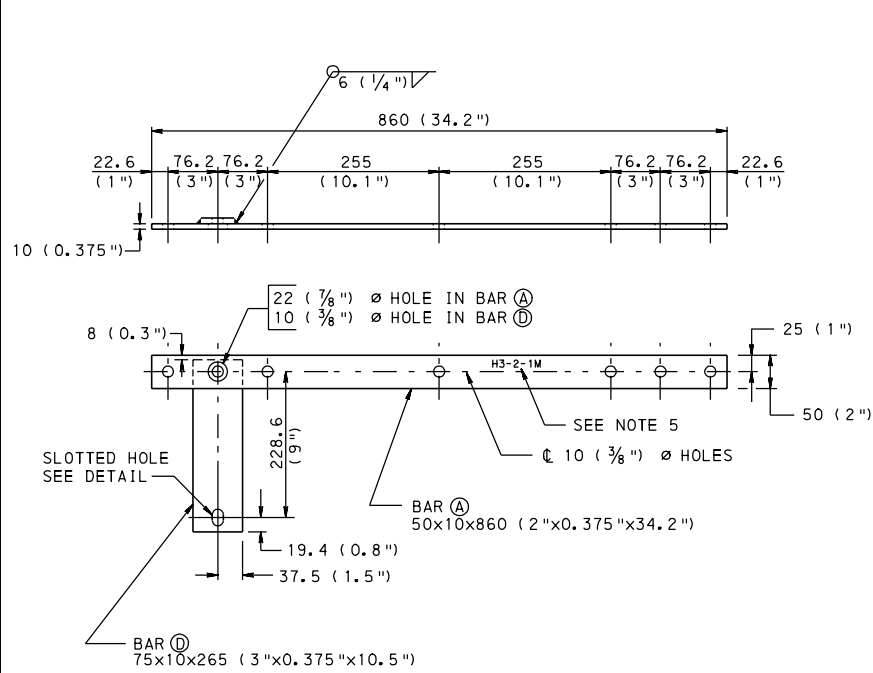
ROUTE MARKER BRACKET ASSEMBLY - TYPE II



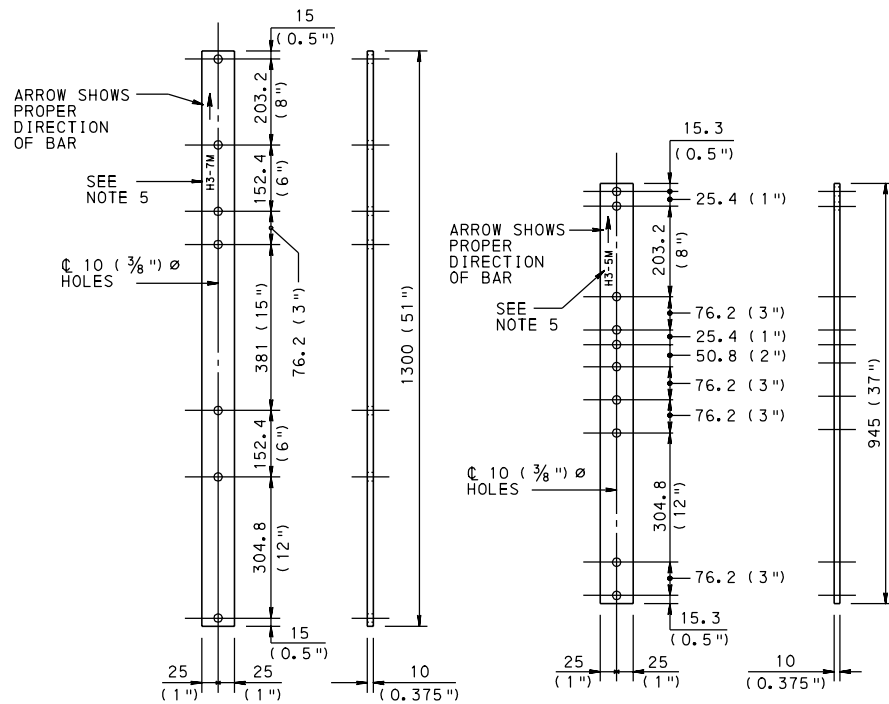
BRACKET H3-1-1BM



BRACKET H3-1-1M

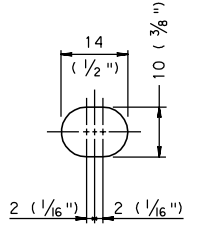


BRACKET H3-2-1M



BAR H3-7M

BAR H3-5M



SLOTTED HOLE

POST SIZE	MAXIMUM SIGN SURFACE AREA
89x140 (4"x6")	1.300 m <sup>2</sup> (14.375 FT <sup>2</sup> )
140x140 (6"x6") *	1.500 m <sup>2</sup> (16.375 FT <sup>2</sup> )
140x184 (6"x8") *	3.000 m <sup>2</sup> (33.125 FT <sup>2</sup> )

\* SEE TC-8702E FOR FOUNDATION DETAIL.

LENGTH	DESCRIPTION
25 (1")	SIGN + BRACKET
40 (1.5")	SIGN + BRACKET + BRACKET
40 (1.5")	BRACKET + BRACKET
200 (7.5")	SIGN + BRACKET(S) + 89x140 (4"x6") POST
200 (7.5")	BRACKET(S) + 89x140 (4"x6") POST
170 (6.5")	SIGN + 89x140 (4"x6") POST
120 (4.5")	SIGN + 89x89 (4"x4") POST

BOLTS ARE STAINLESS STEEL OR ALUMINUM, M8x1.0 (5/16") WITH FLAT WASHERS, LOCK WASHERS AND NUT. LENGTH AS SHOWN IN THE BOLT TABLE.

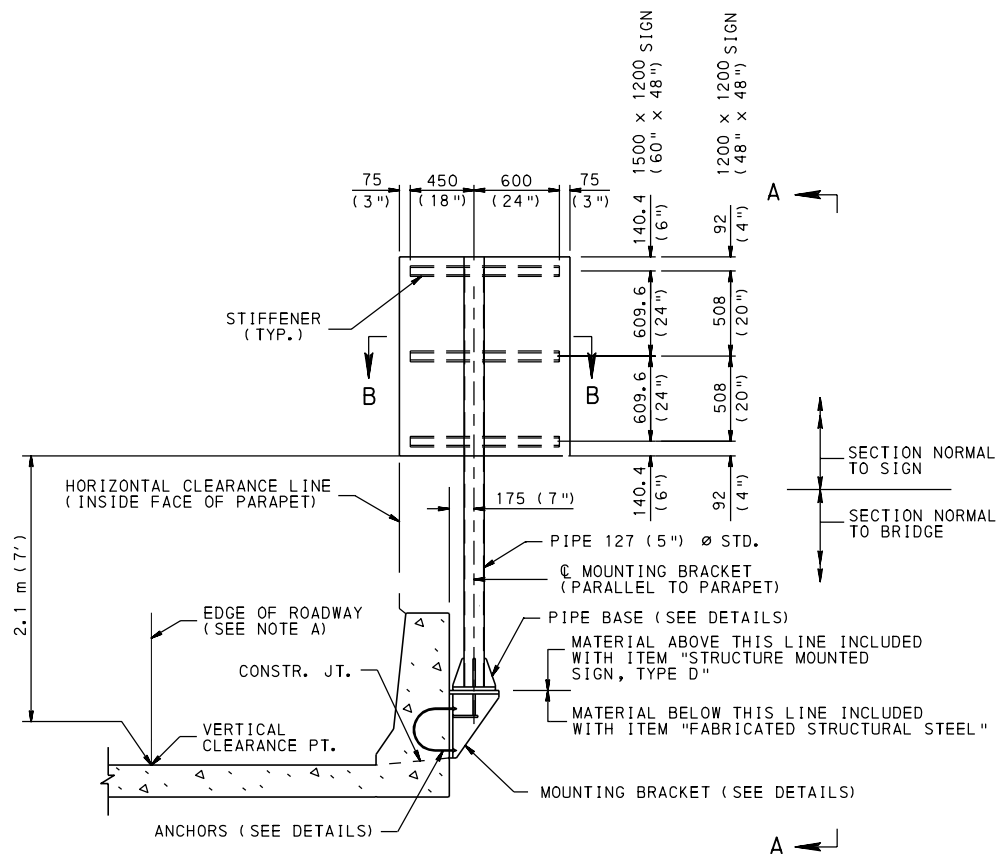
- NOTES:**
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, UNLESS OTHERWISE NOTED.
  - A M8x75 (5/16"x3") LAG SCREW MAY BE USED IN LIEU OF A BOLT THROUGH THE POST AS ILLUSTRATED.
  - USE A FLAT ALUMINUM OR NYLON WASHER ON THE FACE OF ALL SIGNS.
  - DRILL BREAKAWAY HOLES IN POSTS AND ERECT AS SHOWN ON SHEET 1 OF 2.
  - STAMP BRACKET/BAR NUMBER IN 10 mm (0.375") HIGH LETTERS AND NUMBERS IN POSITIONS AS SHOWN.
  - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
  - EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**POST-MOUNTED SIGNS,  
 TYPE C**

**ERECTION DETAILS**

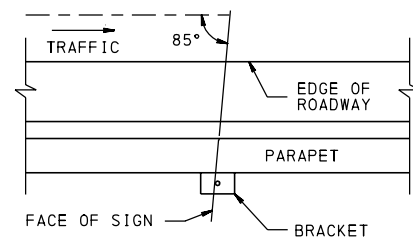
RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. Glatel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 2 <b>TC-8702C</b>
---	--	--------------------------------



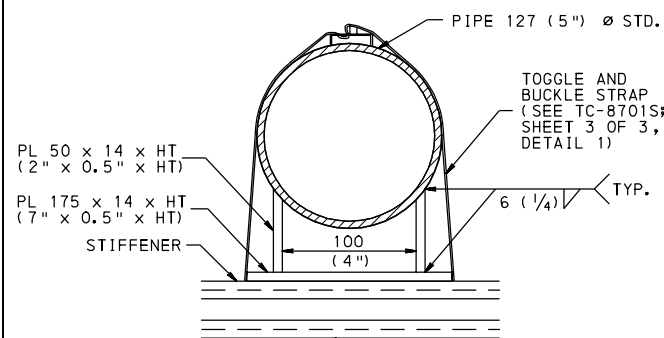
**SECTION THRU BRIDGE  
SINGLE RECTANGULAR SIGN**

**NOTE A:**

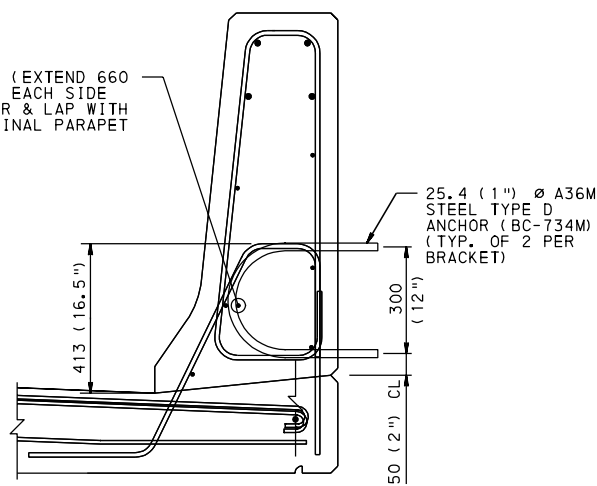
EDGE OF ROADWAY ON BRIDGE IS THE PROJECTION OF THE EDGE OF ROADWAY ON ADJACENT FILL SECTION OR AS INDICATED BY THE EDGE MARKINGS.



**PLAN VIEW**



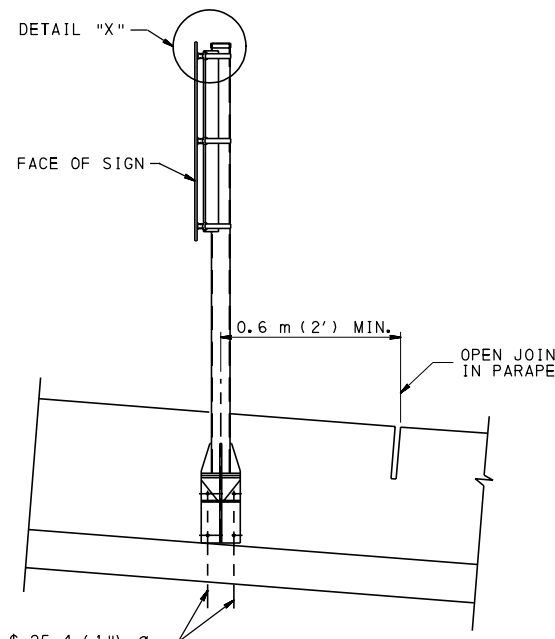
**SECTION B-B**



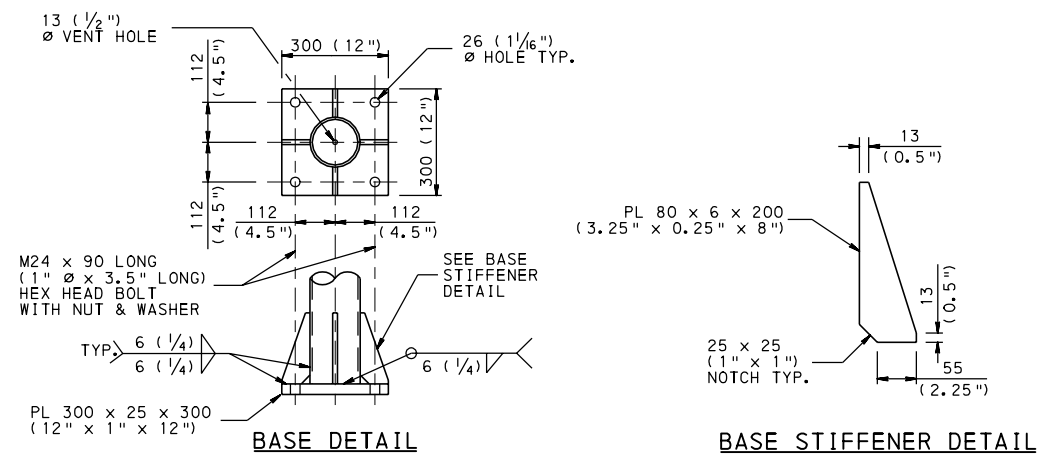
**ANCHOR DETAIL  
(FOR INSTALLATION ON ALL NEW STRUCTURES)**

**NOTE:**

ANCHOR TO BE INSTALLED A MINIMUM OF 5 FT. FROM DECK JOINT. SEE STRUCTURE PLANS FOR PARAPET REINFORCEMENT DETAILS.



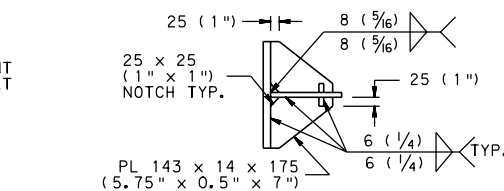
**VIEW A-A**



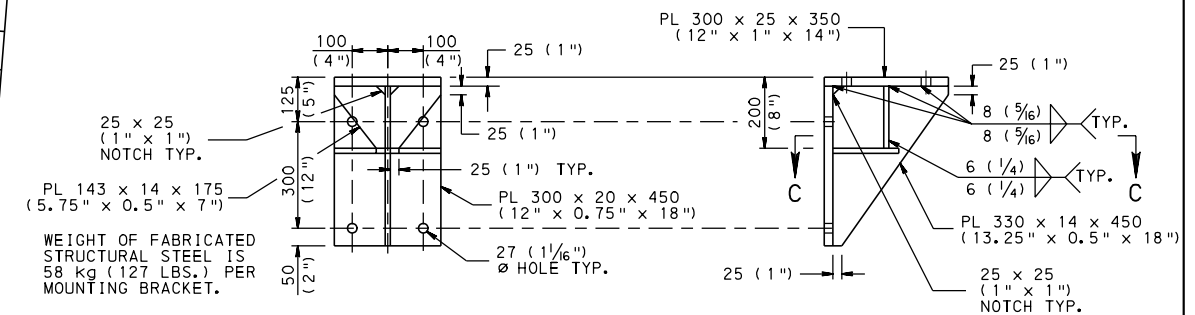
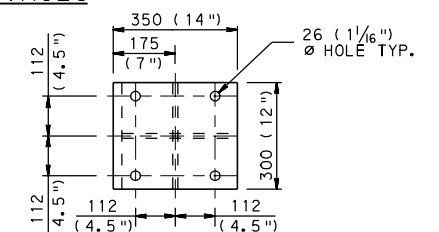
**BASE DETAIL**

**PIPE BASE DETAILS**

**BASE STIFFENER DETAIL**



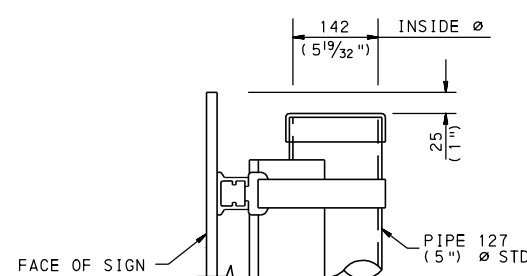
**SECTION C-C**



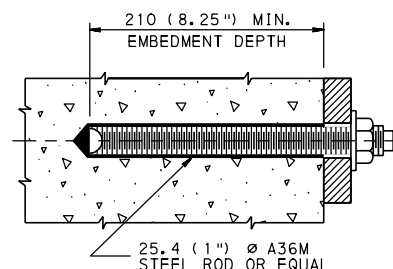
**MOUNTING BRACKET DETAILS**

**NOTES:**

- MATERIALS AND WORKSMANSHIP SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, UNLESS OTHERWISE NOTED.
- ALL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH PUBLICATION 408.
- THE STIFFENERS AND STIFFENER HARDWARE SHALL CONFORM TO SECTION 1103.03(d) AND TO STANDARD DRAWING TC-8701S. THE RIVETS USED TO FASTEN THE FLAT SHEET ALUMINUM TO THE STIFFENER SHALL CONFORM TO SECTION 1103.11(g) AND SHALL BE SPACED AS INDICATED IN SECTION 1103.03(e).
- STEEL PIPE SUPPORTS TO BE ASTM A 53/A 53M, UNLESS OTHERWISE NOTED. ALL OTHER STRUCTURAL STEEL TO BE AASHTO M 270/M 270M (ASTM A 709/A 709M) GRADE 250 (GRADE 36), UNLESS OTHERWISE NOTED. ALL BOLTS TO BE AASHTO M 164 (ASTM A 325), TYPE 1, UNLESS OTHERWISE NOTED.
- FOR DESIGN OF SIGN PANELS AND ATTACHMENT HARDWARE, SEE TRAFFIC STANDARD.
- ALL WELDS TO CONFORM TO LATEST ANSI/AASHTO/AWS SPECIFICATIONS.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



**DETAIL "X"**



**ANCHOR ROD ASSEMBLY WITH NUT AND WASHER  
ALTERNATE ADHESIVE ANCHOR DETAIL  
(FOR INSTALLATION ON EXISTING STRUCTURE ONLY)  
(HILTI HVA ADHESIVE ANCHOR OR EQUAL)**

**NOTE:**

ANCHOR TO BE INSTALLED A MINIMUM OF 5 FT. FROM DECK JOINT.

**COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**POST-MOUNTED SIGNS,  
TYPE D**

**ERECTION DETAILS  
(STRUCTURE CONNECTIONS)**

RECOMMENDED MAY 25, 2007

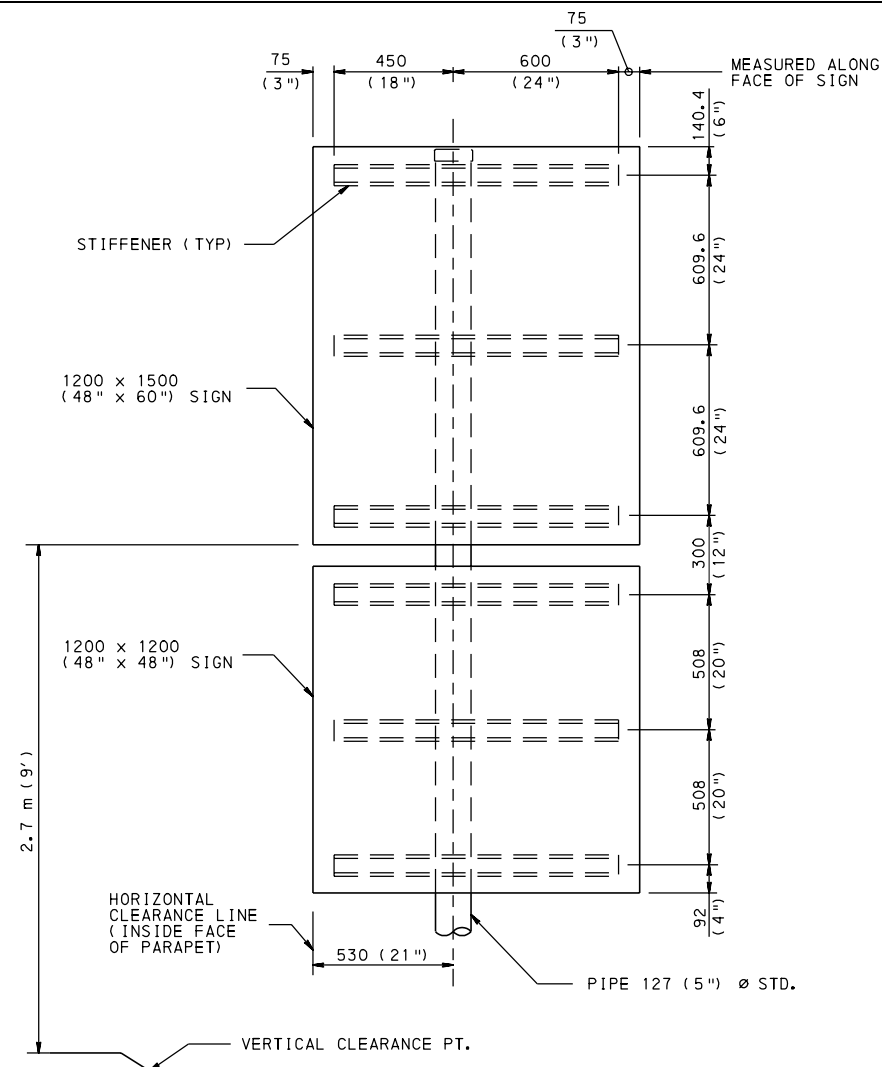
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007

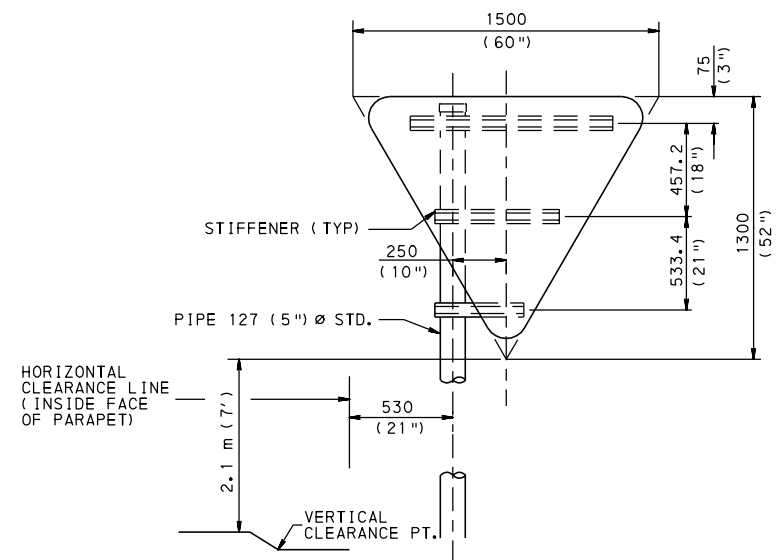
*m. Latel*  
CHIEF HIGHWAY ENGINEER

SHT. 1 OF 2

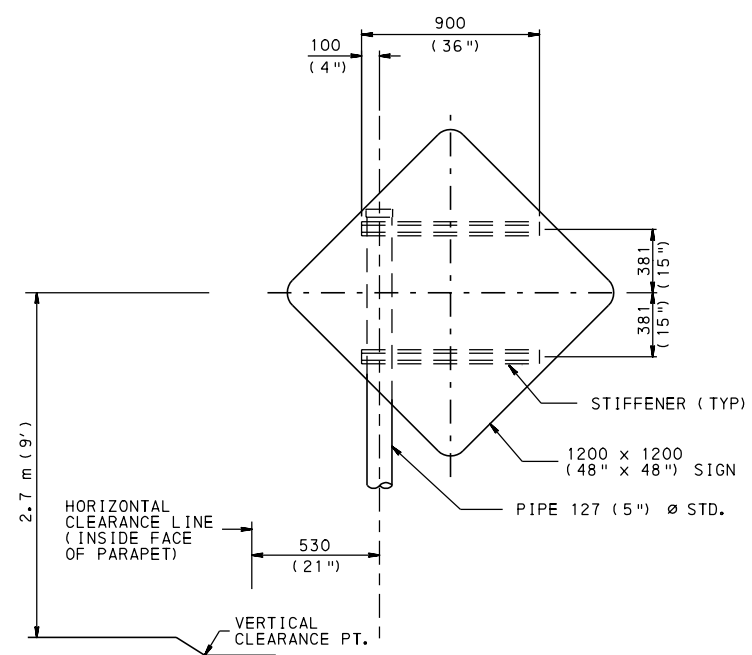
TC-8702D



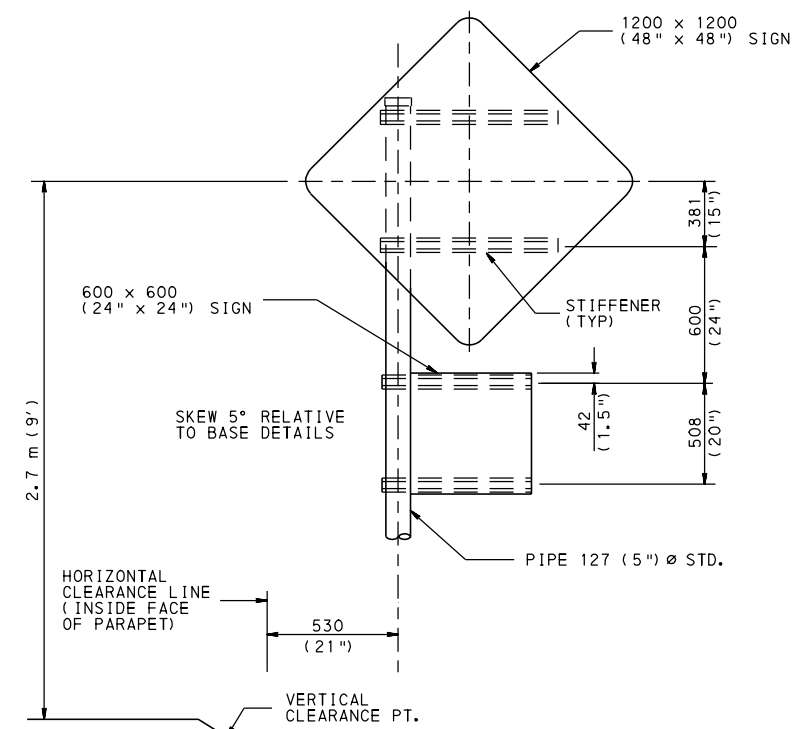
**DOUBLE RECTANGULAR SIGN**  
(PARTS NOT SHOWN ARE SIMILAR TO SINGLE RECTANGULAR SIGN)



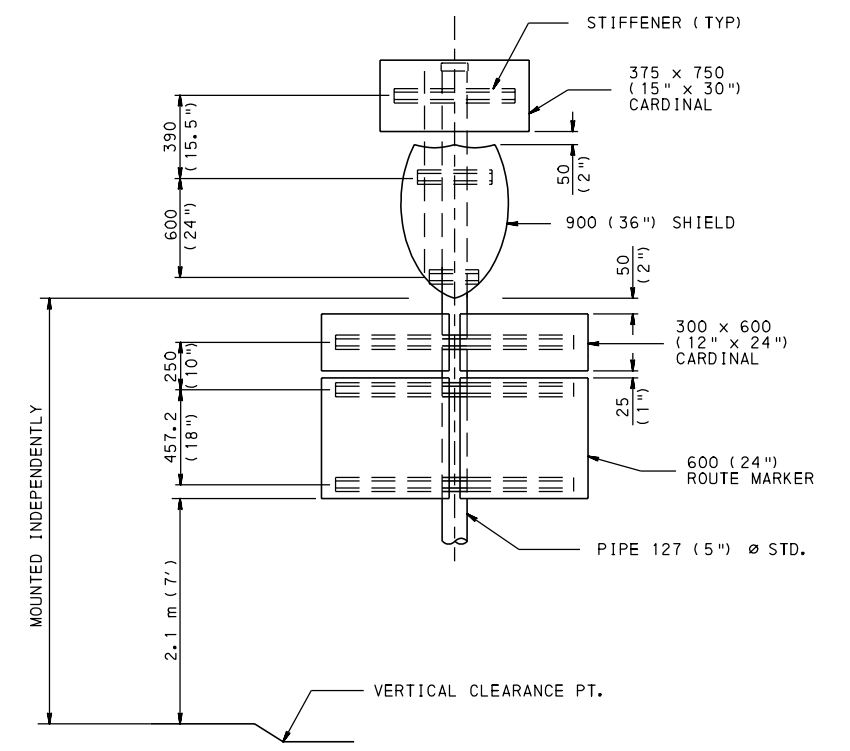
**TRIANGULAR SIGN**  
(PARTS NOT SHOWN ARE SIMILAR TO SINGLE RECTANGULAR SIGN)



**DIAMOND SIGN**  
(PARTS NOT SHOWN ARE SAME AS SINGLE RECTANGULAR SIGN)



**DIAMOND SIGN WITH RECTANGULAR SIGN**  
(PARTS NOT SHOWN ARE SIMILAR TO DIAMOND SIGN AND RECTANGULAR SIGN)



**DOUBLE ROUTE MARKER WITH 900 (36\"/> (PARTS NOT SHOWN ARE SIMILAR TO SINGLE RECTANGULAR SIGN)**

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
TYPE D

ERECTION DETAILS  
(STRUCTURE CONNECTIONS)

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>m. G. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 2 OF 2 TC-8702D
---	--	-------------------------

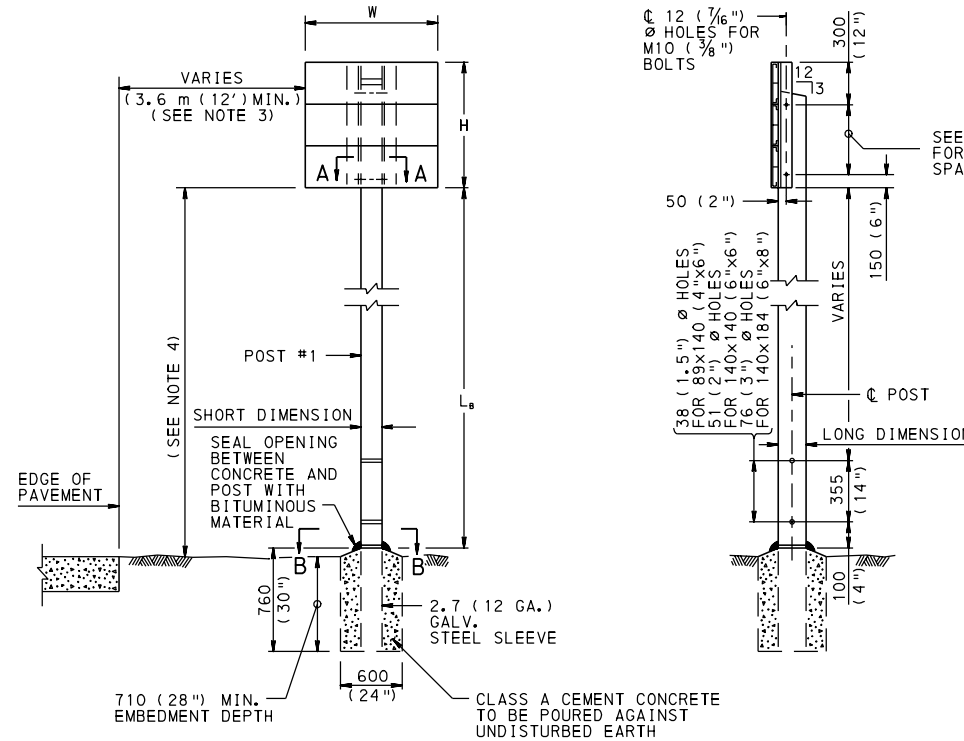
**DESIGN CRITERIA:**

- DESIGN BASED ON 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS INCLUDING 2002 INTERIM SPECIFICATIONS WITH THE FOLLOWING DESIGN CRITERIA:
  - BASIC WIND SPEED (V) = 40 m/sec (90 MPH) (3-SECOND GUST)
  - WIND IMPORTANCE FACTOR (I<sub>w</sub>) = 0.71 (10 YEAR DESIGN LIFE)
  - FATIGUE IS NOT CONSIDERED FOR ROADSIDE SIGNS.
- EMBEDMENT OF FOOTINGS IS BASED ON FIGURES 13-3 AND 13-4 AS OUTLINED IN THE AASHTO SPECIFICATIONS.



PLAN VIEW

POST SELECTION TABLE - ONE POST								
W m (FT)	L <sub>B</sub> m (FT)	HEIGHT "H" IN m (FT)						
		0.610 (2)	0.915 (3)	1.220 (4)	1.525 (5)	1.830 (6)	2.135 (7)	2.440 (8)
0.6 (2)	1.8 (6)	P1	P1	P1	P1	P1	P2	P2
	2.1 (7)	P1	P1	P1	P1	P1	P2	P3
	2.4 (8)	P1	P1	P1	P1	P2	P2	P3
	2.7 (9)	P1	P1	P1	P1	P2	P3	P3
	3.0 (10)	P1	P1	P1	P2	P3	P3	P3
0.9 (3)	1.8 (6)	P1	P1	P1	P1	P2	P3	P3
	2.1 (7)	P1	P1	P1	P2	P3	P3	P3
	2.4 (8)	P1	P1	P1	P2	P3	P3	P3
	2.7 (9)	P1	P1	P2	P3	P3	P3	P3
	3.0 (10)	P1	P1	P2	P3	P3	P3	-
1.2 (4)	1.8 (6)	P1	P1	P1	P2	P3	P3	P3
	2.1 (7)	P1	P1	P2	P3	P3	P3	-
	2.4 (8)	P1	P1	P2	P3	P3	P3	-
	2.7 (9)	P1	P2	P3	P3	P3	-	-
	3.0 (10)	P1	P2	P3	P3	P3	-	-
1.5 (5)	1.8 (6)	P1	P1	P2	P3	P3	P3	-
	2.1 (7)	P1	P1	P2	P3	P3	-	-
	2.4 (8)	P1	P2	P3	P3	P3	-	-
	2.7 (9)	P1	P2	P3	P3	-	-	-
	3.0 (10)	P1	P3	P3	P3	-	-	-
1.8 (6)	1.8 (6)	*	P2	P3	P3	-	-	-
	2.1 (7)	*	P2	P3	P3	-	-	-
	2.4 (8)	*	P2	P3	P3	-	-	-
	2.7 (9)	*	P3	P3	-	-	-	-
	3.0 (10)	*	P3	P3	-	-	-	-
2.1 (7)	1.8 (6)	*	P3	-	-	-	-	-
	2.1 (7)	*	P3	-	-	-	-	-
	2.4 (8)	*	P3	-	-	-	-	-
	2.7 (9)	*	P3	-	-	-	-	-
	3.0 (10)	*	P3	-	-	-	-	-
2.4 (8)	1.8 (6)	*	P2	P3	P3	-	-	-
	2.1 (7)	*	P3	P3	-	-	-	-
	2.4 (8)	*	P3	P3	-	-	-	-
	2.7 (9)	*	P3	-	-	-	-	-
	3.0 (10)	*	P3	-	-	-	-	-



SIGN ELEVATION

END VIEW

**SIGN POST SELECTION NOTES:**

- DETERMINE VALUES OF "W", "H", AND "L<sub>B</sub>" AS INDICATED IN THE SIGN ELEVATION.
  - W = MAXIMUM WIDTH OF SIGN.
  - H = MAXIMUM HEIGHT OF SIGN.
  - L<sub>B</sub> = MAXIMUM DISTANCE BETWEEN TOP OF A FOOTING AND BOTTOM OF SIGN.
- FOR SELECTION OF POSTS, ENTER TABLES WITH VALUES OF "W", "H" AND "L<sub>B</sub>".
- FOR A SIGN SIZE BETWEEN THOSE VALUES OF "W", "H" AND "L<sub>B</sub>" IN THE TABLE, USE NEXT HIGHEST m (FT) VALUE.
- USE THE LONGEST POST TO SELECT ALL POST SIZES.

**NOTES:**

- MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, UNLESS NOTED OTHERWISE.
- POST #1 IS ALWAYS ADJACENT TO ROADWAY, WHETHER SIGN IS LOCATED ON LEFT OR RIGHT.
- AT LOCATIONS WITH UNMOUNTABLE CURB, GUIDE RAIL OR BARRIER, PLACE THE NEAR EDGE OF THE SIGN AT LEAST 0.6 m (2') BEHIND THE CURB FACE, GUIDE RAIL OR BARRIER. AT LOCATIONS WITH GUIDE RAIL OR BARRIER, IT IS DESIRABLE TO PLACE POST #1 BEYOND THE DEFLECTION DISTANCE OF THE GUIDE RAIL OR BARRIER. PRIOR TO FABRICATION, DETERMINE ACTUAL LATERAL PLACEMENT IN THE FIELD WITH THE APPROVAL OF THE ENGINEER.
- BUSINESS OR URBAN AREAS
  - A. IN BUSINESS, COMMERCIAL OR RESIDENTIAL DISTRICTS, OR WHERE PARKING AND/OR PEDESTRIAN MOVEMENTS ARE LIKELY, OR WHERE THE SIGN MAY BLOCK VISIBILITY, THE BOTTOM OF ALL SIGNS (INCLUDING AUXILIARY SIGNS) SHALL BE A MINIMUM OF 2.1 m (7') ABOVE GROUND AND THE NEAR PAVEMENT EDGE.
  - RURAL AREAS
    - B. CONVENTIONAL HIGHWAYS. ALTHOUGH 2.1 m (7') MINIMUM SIGN HEIGHT CLEARANCE IS RECOMMENDED, IN RURAL DISTRICTS WHERE THE CONDITIONS LISTED IN NOTE 4A ARE NOT LIKELY, SIGNS MAY BE MOUNTED AT A MINIMUM CLEARANCE HEIGHT OF 1.5 m (5'). IF A SUPPLEMENTAL SIGN IS INSTALLED BELOW THE MAIN SIGN, THE CLEARANCE HEIGHT OF THE SUPPLEMENTAL SIGN MAY BE 1.2 m (4').
    - C. FREEWAY AND EXPRESSWAYS. SIGNS SHALL HAVE A MINIMUM CLEARANCE HEIGHT OF 2.1 m (7'). HOWEVER, IF A SUPPLEMENTAL SIGN IS INSTALLED BELOW THE MAIN SIGN, THE SUPPLEMENTAL SIGN MAY HAVE A CLEARANCE HEIGHT OF 1.8 m (6'), PROVIDED THAT A 2.1 m (7') CLEARANCE HEIGHT IS MAINTAINED FOR THE MAIN SIGN.
- LOCATE SIGNS TO AVOID PLACING SUPPORTS IN DRAINAGE DITCHES.
- SEE SHEET 2 FOR TWO-POST INSTALLATION.
- SEE SHEET 3 FOR THREE-POST INSTALLATION.
- SEE SHEET 4 FOR SECTIONS AND ERECTION DETAILS.
- SEE SHEET 5 FOR TEMPORARY DIRECT BURIAL TWO-POST INSTALLATION.
- FOR DETAIL OF SIGN PANELS AND ATTACHMENT HARDWARE, SEE TRAFFIC STANDARD TC-8701E OR TC-8701S.
- TWIST-IN TOGGLE STRAPS MAY BE USED ON FLAT SHEET ALUMINUM SIGNS WITH STIFFENERS IN ACCORDANCE WITH TC-8701S AND PUB. 408.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

**LEGEND:**

P1 = 89x140 (4"x6")  
 P2 = 140x140 (6"x6")  
 P3 = 140x184 (6"x8")  
 \* USE TWO POSTS (SEE SHEET 2)

**POST SELECTION EXAMPLE**

FOR A SIGN WHERE  
 W = 0.6 m (2')  
 H = 0.610 m (2')  
 L<sub>B</sub> = 3.3 m (11')  
 ONE P1 = 89x140 (4"x6") WOOD POST IS REQUIRED.

METRIC UNITS		ENGLISH UNITS	
H (m)	SPACES	H (FT)	SPACES
0.610	1 AT 160.0 mm	2	1 AT 6"
0.915	2 AT 232.5 mm	3	2 AT 9"
1.220	2 AT 385.0 mm	4	2 AT 15"
1.525	3 AT 358.3 mm	5	3 AT 14"
1.830	3 AT 460.0 mm	6	3 AT 18"
2.135	4 AT 421.3 mm	7	4 AT 16.5"
2.440	6 AT 331.6 mm	8	6 AT 13"

TABLE FOR HOLE SPACING

**COMMONWEALTH OF PENNSYLVANIA**  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

**POST-MOUNTED SIGNS, TYPE E**

**WOOD POSTS**  
 SELECTION TABLES  
 ERECTION DETAILS

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 1 OF 5 <b>TC-8702E</b>
---	---	--------------------------------

POST SELECTION TABLE - TWO POSTS						
W m (FT)	L <sub>B</sub> m (FT)	HEIGHT "H" IN m (FT)				
		0.610 (2)	0.915 (3)	1.220 (4)	1.525 (5)	1.830 (6)
1.8 (6)	1.8 (6)	P1	P1	P1	P1	-
	2.1 (7)	P1	P1	P1	-	-
	2.4 (8)	P1	P1	P1	-	-
	2.7 (9)	P1	P1	-	-	-
	3.0 (10)	P1	P1	-	-	-
	3.3 (11)	P1	-	-	-	-
	3.6 (12)	P1	-	-	-	-
	3.9 (13)	P1	-	-	-	-
2.1 (7)	1.8 (6)	P1	P1	P1	-	-
	2.1 (7)	P1	P1	P1	-	-
	2.4 (8)	P1	P1	-	-	-
	2.7 (9)	P1	P1	-	-	-
	3.0 (10)	P1	-	-	-	-
	3.3 (11)	P1	-	-	-	-
	3.6 (12)	P1	-	-	-	-
	3.9 (13)	P1	-	-	-	-
2.4 (8)	1.8 (6)	P1	P1	P1	-	-
	2.1 (7)	P1	P1	-	-	-
	2.4 (8)	P1	P1	-	-	-
	2.7 (9)	P1	-	-	-	-
	3.0 (10)	P1	-	-	-	-
	3.3 (11)	P1	-	-	-	-
	3.6 (12)	-	-	-	-	-
	3.9 (13)	-	-	-	-	-
2.7 (9)	1.8 (6)	P1	P1	P2 *	P3 *	P3 *
	2.1 (7)	P1	P1	P2 *	P3 *	P3 *
	2.4 (8)	P1	P2 *	P3 *	P3 *	P3 *
	2.7 (9)	P1	P2 *	P3 *	P3 *	P3 *
	3.0 (10)	P1	P2 *	P3 *	P3 *	-
	3.3 (11)	P1	P3 *	P3 *	P3 *	-
	3.6 (12)	P2 *	P3 *	P3 *	-	-
	3.9 (13)	P2 *	P3 *	P3 *	-	-
3.0 (10)	1.8 (6)	P1	P1	P2 *	P3 *	P3 *
	2.1 (7)	P1	P1	P3 *	P3 *	P3 *
	2.4 (8)	P1	P2 *	P3 *	P3 *	P3 *
	2.7 (9)	P1	P2 *	P3 *	P3 *	-
	3.0 (10)	P1	P3 *	P3 *	P3 *	-
	3.3 (11)	P2 *	P3 *	P3 *	-	-
	3.6 (12)	P2 *	P3 *	P3 *	-	-
	3.9 (13)	P3 *	P3 *	-	-	-

POST SELECTION TABLE - TWO POSTS						
W m (FT)	L <sub>B</sub> m (FT)	HEIGHT "H" IN m (FT)				
		0.610 (2)	0.915 (3)	1.220 (4)	1.525 (5)	1.830 (6)
3.3 (11)	1.8 (6)	P1	P1	P2 *	P3 *	P3 *
	2.1 (7)	P1	P2 *	P3 *	P3 *	P3 *
	2.4 (8)	P1	P2 *	P3 *	P3 *	-
	2.7 (9)	P1	P3 *	P3 *	P3 *	-
	3.0 (10)	P2 *	P3 *	P3 *	-	-
	3.3 (11)	P2 *	P3 *	P3 *	-	-
	3.6 (12)	P3 *	P3 *	-	-	-
	3.9 (13)	P3 *	P3 *	-	-	-
3.6 (12)	1.8 (6)	P1	P2 *	P3 *	P3 *	P3 *
	2.1 (7)	P1	P2 *	P3 *	P3 *	-
	2.4 (8)	P1	P2 *	P3 *	P3 *	-
	2.7 (9)	P2 *	P3 *	P3 *	-	-
	3.0 (10)	P2 *	P3 *	P3 *	-	-
	3.3 (11)	P2 *	P3 *	-	-	-
	3.6 (12)	P3 *	P3 *	-	-	-
	3.9 (13)	P3 *	P3 *	-	-	-
3.9 (13)	1.8 (6)	P1	P2	P3	P3	-
	2.1 (7)	P1	P2	P3	P3	-
	2.4 (8)	P1	P3	P3	-	-
	2.7 (9)	P2	P3	P3	-	-
	3.0 (10)	P2	P3	P3	-	-
	3.3 (11)	P3	P3	-	-	-
	3.6 (12)	P3	P3	-	-	-
	3.9 (13)	P3	P3	-	-	-
4.2 (14)	1.8 (6)	P1	P2	P3	P3	-
	2.1 (7)	P1	P2	P3	P3	-
	2.4 (8)	P2	P3	P3	-	-
	2.7 (9)	P2	P3	P3	-	-
	3.0 (10)	P2	P3	-	-	-
	3.3 (11)	P3	P3	-	-	-
	3.6 (12)	P3	P3	-	-	-
	3.9 (13)	P3	-	-	-	-
4.5 (15)	1.8 (6)	P1	P2	P3	P3	-
	2.1 (7)	P1	P3	P3	-	-
	2.4 (8)	P2	P3	P3	-	-
	2.7 (9)	P2	P3	-	-	-
	3.0 (10)	P3	P3	-	-	-
	3.3 (11)	P3	-	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-

POST SELECTION TABLE - TWO POSTS						
W m (FT)	L <sub>B</sub> m (FT)	HEIGHT "H" IN m (FT)				
		0.610 (2)	0.915 (3)	1.220 (4)	1.525 (5)	1.830 (6)
4.8 (16)	1.8 (6)	P1	P2	P3	P3	-
	2.1 (7)	P2	P3	P3	-	-
	2.4 (8)	P2	P3	P3	-	-
	2.7 (9)	P2	P3	-	-	-
	3.0 (10)	P3	P3	-	-	-
	3.3 (11)	P3	P3	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
5.1 (17)	1.8 (6)	P1	P3	P3	-	-
	2.1 (7)	P2	P3	P3	-	-
	2.4 (8)	P2	P3	-	-	-
	2.7 (9)	P3	P3	-	-	-
	3.0 (10)	P3	P3	-	-	-
	3.3 (11)	P3	-	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
5.4 (18)	1.8 (6)	P1	P3	P3	-	-
	2.1 (7)	P2	P3	P3	-	-
	2.4 (8)	P2	P3	-	-	-
	2.7 (9)	P3	P3	-	-	-
	3.0 (10)	P3	P3	-	-	-
	3.3 (11)	P3	-	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
5.7 (19)	1.8 (6)	P2	P3	P3	-	-
	2.1 (7)	P2	P3	P3	-	-
	2.4 (8)	P2	P3	-	-	-
	2.7 (9)	P3	P3	-	-	-
	3.0 (10)	P3	-	-	-	-
	3.3 (11)	P3	-	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
6.0 (20)	1.8 (6)	P2	P3	P3	-	-
	2.1 (7)	P2	P3	-	-	-
	2.4 (8)	P3	P3	-	-	-
	2.7 (9)	P3	P3	-	-	-
	3.0 (10)	P3	-	-	-	-
	3.3 (11)	P3	-	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-

\* SEE NOTE 1.

**LEGEND:**

P1 = 89x140 (4"x6")  
P2 = 140x140 (6"x6")  
P3 = 140x184 (6"x8")

**POST SELECTION EXAMPLE**

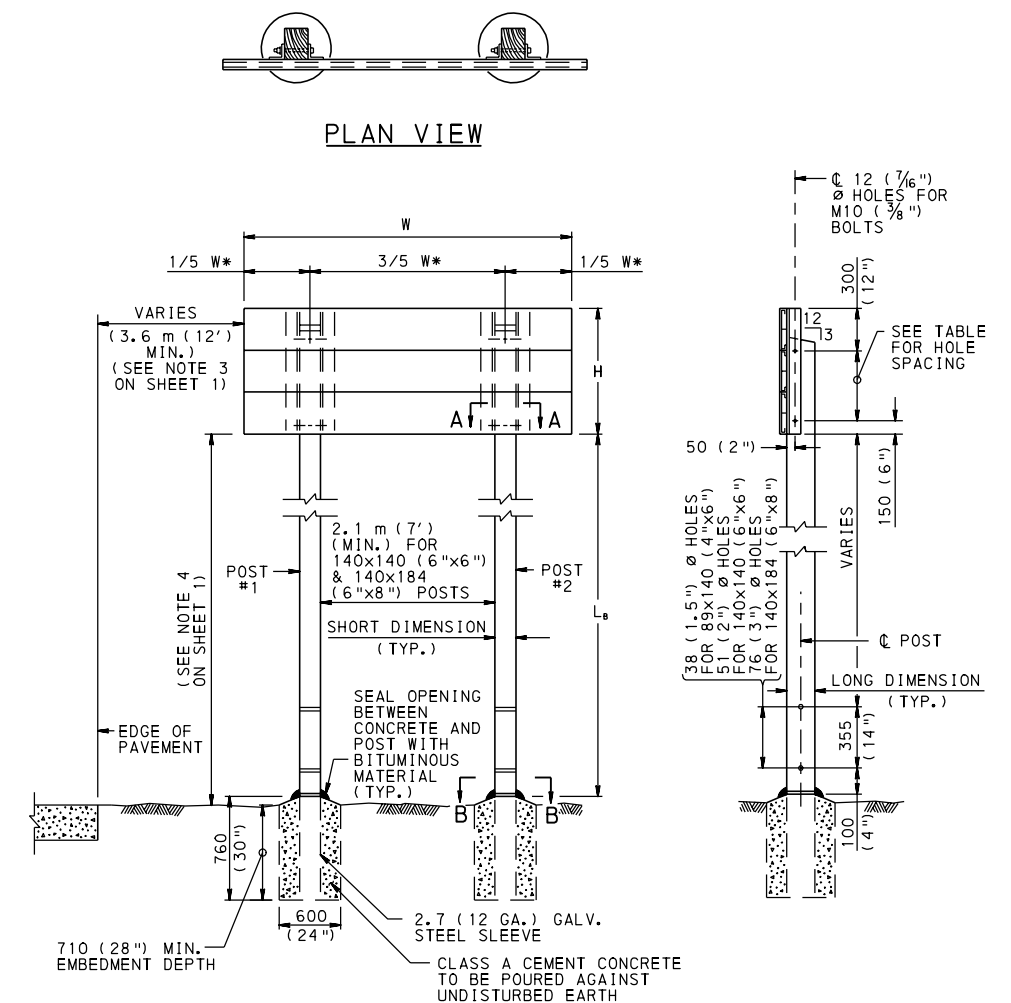
FOR A SIGN WHERE

W = 1.8 m (6')  
H = 0.610 m (2')  
L<sub>B</sub> = 3.9 m (13')

TWO P1 = 89x140 (4"x6") WOOD POSTS ARE REQUIRED.

**NOTES:**

1. POSTS IN THE SELECTION TABLE WITH AN "\*" MUST HAVE A MINIMUM CLEAR SPACING OF 2.1 m (7') BETWEEN POSTS BY INCREASING THE 3/5 W SPACING. THE REMAINING SIGN WIDTH "W" SHOULD BE EQUALLY DISTRIBUTED TO THE OVERHANGS.
2. SEE SHEET 1 FOR ADDITIONAL NOTES.
3. SEE SHEET 4 FOR SECTIONS AND ERECTION DETAILS.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
5. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.



METRIC UNITS		ENGLISH UNITS	
ANGLE CONNECTION BOLT SPACING		ANGLE CONNECTION BOLT SPACING	
H (m)	SPACES	H (FT)	SPACES
0.610	1 AT 160.0 mm	2	1 AT 6"
0.915	2 AT 232.5 mm	3	2 AT 9"
1.220	2 AT 385.0 mm	4	2 AT 15"
1.525	3 AT 358.3 mm	5	3 AT 14"
1.830	3 AT 460.0 mm	6	3 AT 18"

TABLE FOR HOLE SPACING

**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING**

**POST-MOUNTED SIGNS, TYPE E**

**WOOD POSTS**  
**SELECTION TABLES**  
**ERECTION DETAILS**

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. G. Latel</i> CHIEF HIGHWAY ENGINEER
SHT. 2 OF 5	
TC-8702E	

POST SELECTION TABLE - THREE POSTS					
W m (FT)	L <sub>B</sub> m (FT)	HEIGHT "H" IN m (FT)			
		0.610 (2)	0.915 (3)	1.220 (4)	1.525 (5)
6.6 (22)	1.8 (6)	P1	P2*	P3*	P3*
	2.1 (7)	P1	P3*	P3*	-
	2.4 (8)	P2*	P3*	P3*	-
	2.7 (9)	P2*	P3*	-	-
	3.0 (10)	P3*	P3*	-	-
	3.3 (11)	P3*	-	-	-
	3.6 (12)	P3*	-	-	-
	3.9 (13)	P3*	-	-	-
	4.2 (14)	P3*	-	-	-
	4.5 (15)	P3*	-	-	-
6.9 (23)	1.8 (6)	P1	P2	P3	P3
	2.1 (7)	P2	P3	P3	-
	2.4 (8)	P2	P3	P3	-
	2.7 (9)	P2	P3	-	-
	3.0 (10)	P3	P3	-	-
	3.3 (11)	P3	-	-	-
	3.6 (12)	P3	-	-	-
	3.9 (13)	P3	-	-	-
	4.2 (14)	P3	-	-	-
	4.5 (15)	-	-	-	-
7.2 (24)	1.8 (6)	P1	P2	P3	P3
	2.1 (7)	P2	P3	P3	-
	2.4 (8)	P2	P3	P3	-
	2.7 (9)	P3	P3	-	-
	3.0 (10)	P3	P3	-	-
	3.3 (11)	P3	-	-	-
	3.6 (12)	P3	-	-	-
	3.9 (13)	P3	-	-	-
	4.2 (14)	P3	-	-	-
	4.5 (15)	-	-	-	-
7.5 (25)	1.8 (6)	P1	P3	P3	-
	2.1 (7)	P2	P3	P3	-
	2.4 (8)	P2	P3	-	-
	2.7 (9)	P3	P3	-	-
	3.0 (10)	P3	P3	-	-
	3.3 (11)	P3	-	-	-
	3.6 (12)	P3	-	-	-
	3.9 (13)	P3	-	-	-
	4.2 (14)	P3	-	-	-
	4.5 (15)	-	-	-	-
7.8 (26)	1.8 (6)	P1	P3	P3	-
	2.1 (7)	P2	P3	P3	-
	2.4 (8)	P2	P3	-	-
	2.7 (9)	P3	P3	-	-
	3.0 (10)	P3	P3	-	-
	3.3 (11)	P3	-	-	-
	3.6 (12)	P3	-	-	-
	3.9 (13)	P3	-	-	-
	4.2 (14)	-	-	-	-
	4.5 (15)	-	-	-	-

\* SEE NOTE 1.

**LEGEND:**

P1 = 89x140 (4"x6")  
P2 = 140x140 (6"x6")  
P3 = 140x184 (6"x8")

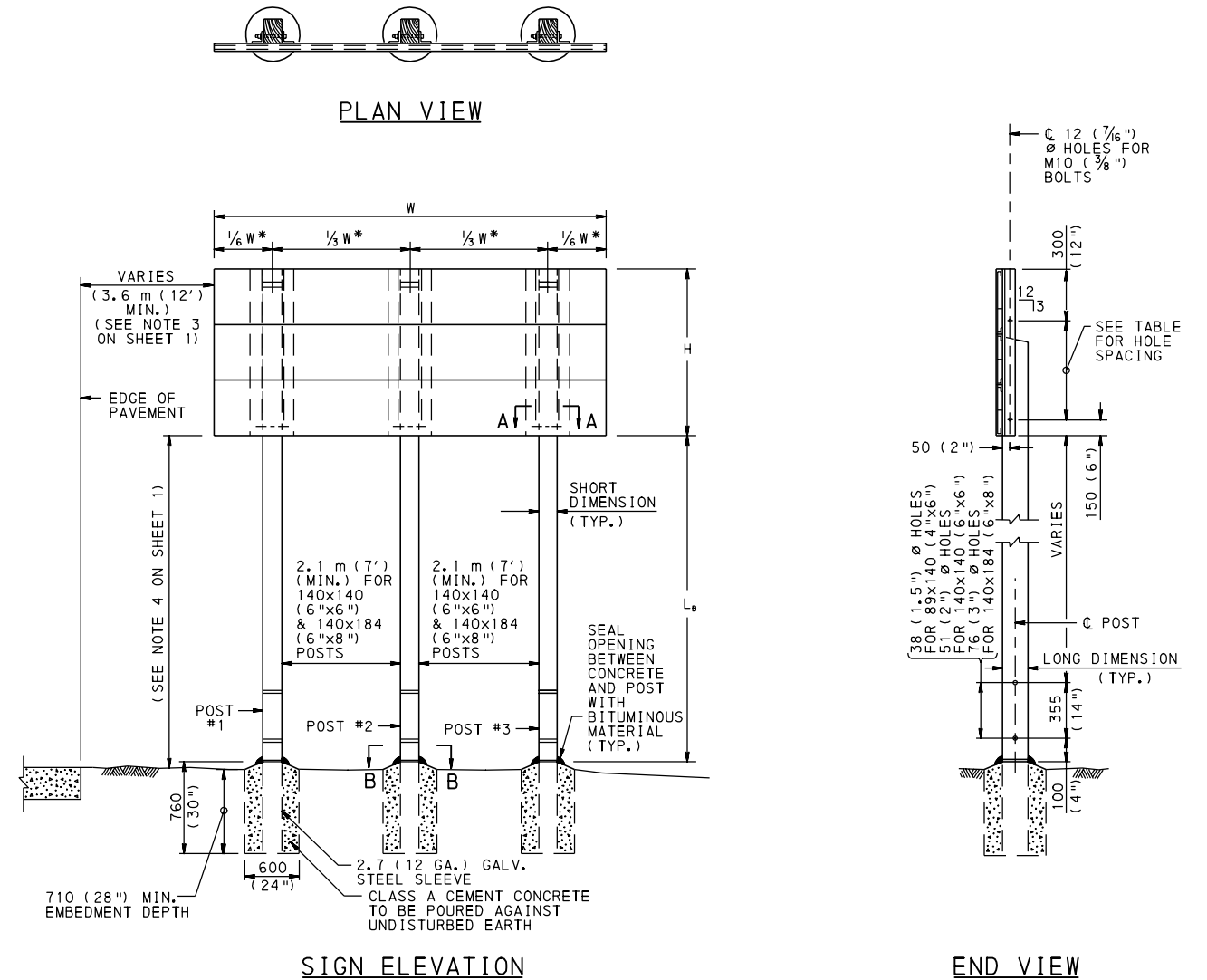
POST SELECTION TABLE - THREE POSTS					
W m (FT)	L <sub>B</sub> m (FT)	HEIGHT "H" IN m (FT)			
		0.610 (2)	0.915 (3)	1.220 (4)	1.525 (5)
8.1 (27)	1.8 (6)	P2	P3	P3	-
	2.1 (7)	P2	P3	P3	-
	2.4 (8)	P2	P3	-	-
	2.7 (9)	P3	P3	-	-
	3.0 (10)	P3	-	-	-
	3.3 (11)	P3	-	-	-
	3.6 (12)	P3	-	-	-
	3.9 (13)	P3	-	-	-
	4.2 (14)	-	-	-	-
	4.5 (15)	-	-	-	-
8.4 (28)	1.8 (6)	P2	P3	P3	-
	2.1 (7)	P2	P3	P3	-
	2.4 (8)	P3	P3	-	-
	2.7 (9)	P3	P3	-	-
	3.0 (10)	P3	-	-	-
	3.3 (11)	P3	-	-	-
	3.6 (12)	P3	-	-	-
	3.9 (13)	P3	-	-	-
	4.2 (14)	-	-	-	-
	4.5 (15)	-	-	-	-
8.7 (29)	1.8 (6)	P2	P3	P3	-
	2.1 (7)	P2	P3	-	-
	2.4 (8)	P3	P3	-	-
	2.7 (9)	P3	P3	-	-
	3.0 (10)	P3	-	-	-
	3.3 (11)	P3	-	-	-
	3.6 (12)	P3	-	-	-
	3.9 (13)	-	-	-	-
	4.2 (14)	-	-	-	-
	4.5 (15)	-	-	-	-
9.0 (30)	1.8 (6)	P2	P3	P3	-
	2.1 (7)	P2	P3	-	-
	2.4 (8)	P3	P3	-	-
	2.7 (9)	P3	P3	-	-
	3.0 (10)	P3	-	-	-
	3.3 (11)	P3	-	-	-
	3.6 (12)	P3	-	-	-
	3.9 (13)	-	-	-	-
	4.2 (14)	-	-	-	-
	4.5 (15)	-	-	-	-

**POST SELECTION EXAMPLE**

FOR A SIGN WHERE

W = 6.6 m (22')  
H = 0.610 m (2')  
L<sub>B</sub> = 4.5 m (15')

THREE P3 = 140x184 (6"x8") WOOD POSTS ARE REQUIRED.



METRIC UNITS		ENGLISH UNITS	
H (m)	ANGLE CONNECTION BOLT SPACING	H (FT)	ANGLE CONNECTION BOLT SPACING
0.610	1 AT 160.0 mm	2	1 AT 6"
0.915	2 AT 232.5 mm	3	2 AT 9"
1.220	2 AT 385.0 mm	4	2 AT 15"
1.525	3 AT 358.3 mm	5	3 AT 14"

TABLE FOR HOLE SPACING

**NOTES:**

- POSTS IN THE SELECTION TABLE WITH AN "\*" MUST HAVE A MINIMUM CLEAR SPACING OF 2.1 m (7') BETWEEN POSTS BY INCREASING THE 3/5 W SPACING. THE REMAINING SIGN WIDTH "W" SHOULD BE EQUALLY DISTRIBUTED TO THE OVERHANGS.
- SEE SHEET 1 FOR ADDITIONAL NOTES.
- SEE SHEET 4 FOR SECTIONS AND ERECTION DETAILS.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

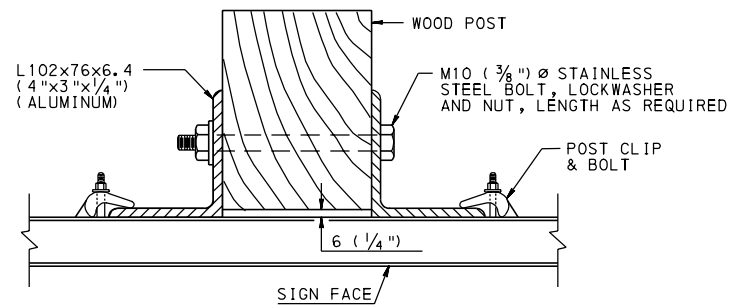
POST-MOUNTED SIGNS, TYPE E

WOOD POSTS  
SELECTION TABLES  
ERECTION DETAILS

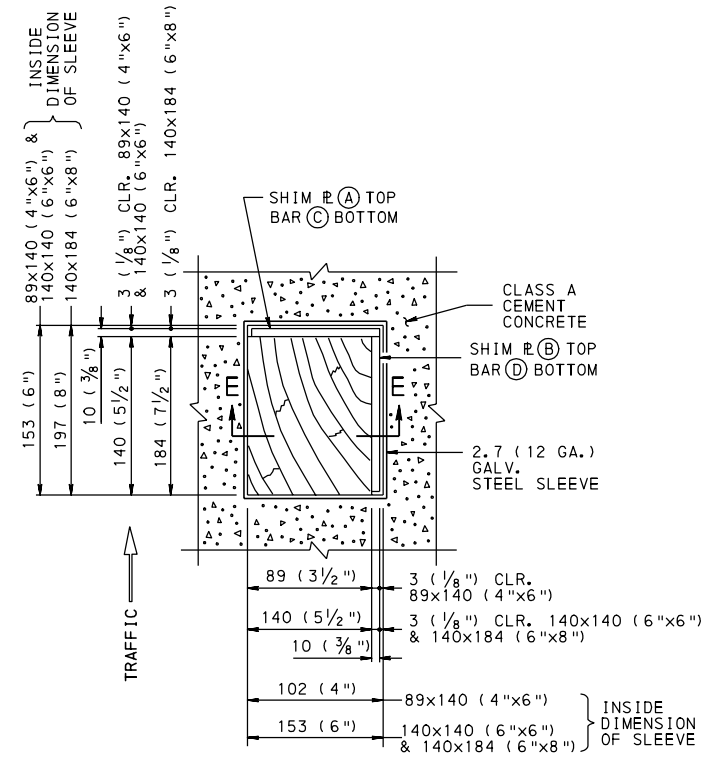
RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

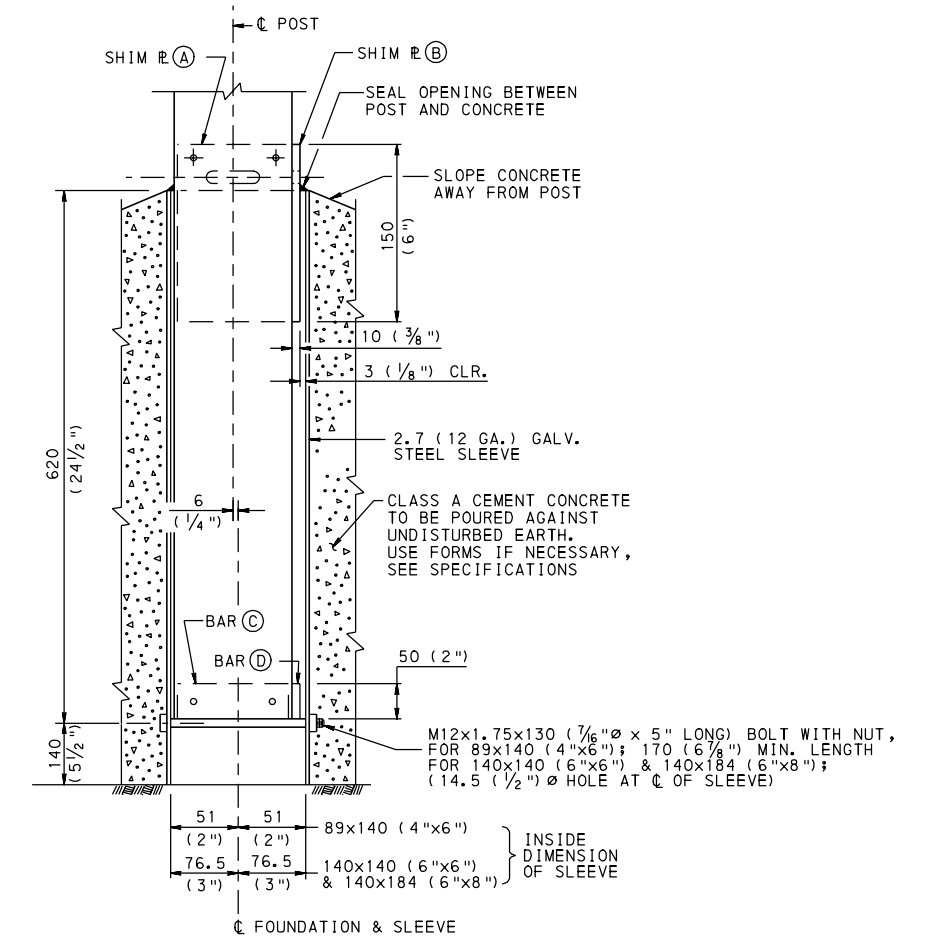
SHT. 3 OF 5  
TC-8702E



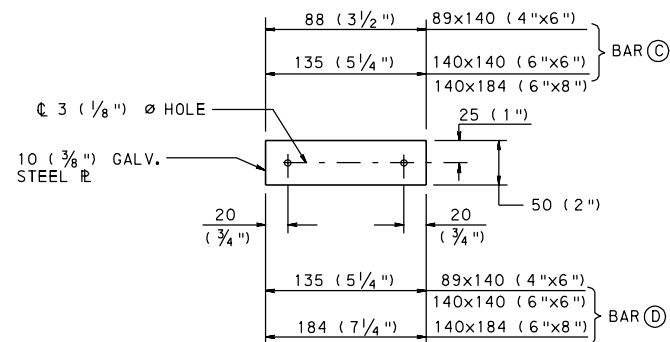
SECTION A-A



SECTION B-B

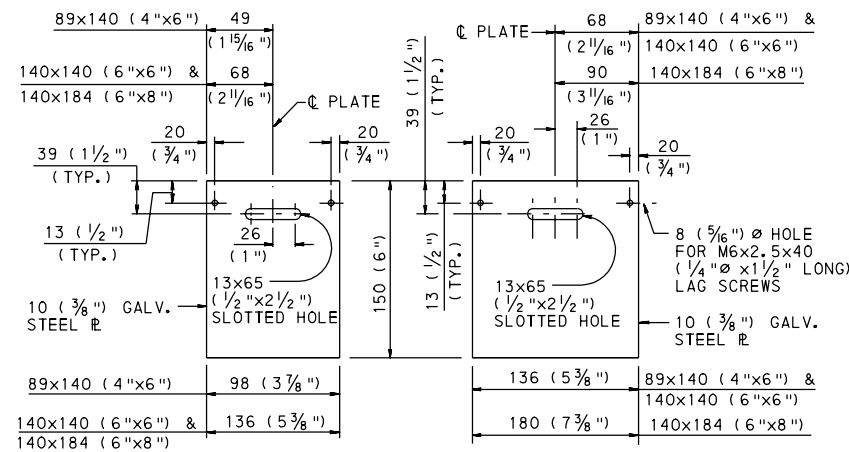


SECTION E-E



NOTE:  
NAIL SHIM BARS TO POST TO HOLD BARS IN PLACE WHILE POST IS BEING PLACED.

SHIM BAR C  
SHIM BAR D



SHIM PLATE A SHIM PLATE B

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
2. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.
3. STEEL USED FOR SLEEVES AND SHIMS SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI.
4. STAINLESS STEEL BOLT, LOCKWASHER AND NUT SHALL BE AISI TYPE 304 STEEL AND MEET ASTM A320.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

POST-MOUNTED SIGNS,  
TYPE E

WOOD POSTS  
ERECTION DETAILS

RECOMMENDED MAY 25, 2007

*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007

*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

SHT. 4 OF 5

TC-8702E



POST SELECTION TABLE - TWO POSTS						
W m (FT)	L <sub>B</sub> m (FT)	HEIGHT "H" IN m (FT)				
		0.610 (2)	0.915 (3)	1.220 (4)	1.525 (5)	1.830 (6)
1.8 (6)	1.8 (6)	P1	P1	P1	P1	-
	2.1 (7)	P1	P1	P1	-	-
	2.4 (8)	P1	P1	P1	-	-
	2.7 (9)	P1	P1	-	-	-
	3.0 (10)	P1	P1	-	-	-
	3.3 (11)	P1	-	-	-	-
	3.6 (12)	P1	-	-	-	-
	3.9 (13)	P1	-	-	-	-
2.1 (7)	1.8 (6)	P1	P1	P1	-	-
	2.1 (7)	P1	P1	P1	-	-
	2.4 (8)	P1	P1	-	-	-
	2.7 (9)	P1	P1	-	-	-
	3.0 (10)	P1	-	-	-	-
	3.3 (11)	P1	-	-	-	-
	3.6 (12)	P1	-	-	-	-
	3.9 (13)	-	-	-	-	-
2.4 (8)	1.8 (6)	P1	P1	P1	-	-
	2.1 (7)	P1	P1	-	-	-
	2.4 (8)	P1	P1	-	-	-
	2.7 (9)	P1	-	-	-	-
	3.0 (10)	P1	-	-	-	-
	3.3 (11)	P1	-	-	-	-
	3.6 (12)	-	-	-	-	-
	3.9 (13)	-	-	-	-	-
2.7 (9)	1.8 (6)	P1	P1	P2 *	P3 *	P3 *
	2.1 (7)	P1	P1	P2 *	P3 *	P3 *
	2.4 (8)	P1	P2 *	P3 *	P3 *	P3 *
	2.7 (9)	P1	P2 *	P3 *	P3 *	P3 *
	3.0 (10)	P1	P2 *	P3 *	P3 *	-
	3.3 (11)	P1	P3 *	P3 *	P3 *	-
	3.6 (12)	P2 *	P3 *	P3 *	-	-
	3.9 (13)	P2 *	P3 *	P3 *	-	-
3.0 (10)	1.8 (6)	P1	P1	P2 *	P3 *	P3 *
	2.1 (7)	P1	P1	P2 *	P3 *	P3 *
	2.4 (8)	P1	P2 *	P3 *	P3 *	P3 *
	2.7 (9)	P1	P2 *	P3 *	P3 *	-
	3.0 (10)	P1	P3 *	P3 *	P3 *	-
	3.3 (11)	P2 *	P3 *	P3 *	-	-
	3.6 (12)	P2 *	P3 *	P3 *	-	-
	3.9 (13)	P3 *	P3 *	-	-	-
3.3 (11)	1.8 (6)	P1	P1	P2 *	P3 *	P3 *
	2.1 (7)	P1	P2 *	P3 *	P3 *	P3 *
	2.4 (8)	P1	P2 *	P3 *	P3 *	-
	2.7 (9)	P1	P3 *	P3 *	P3 *	-
	3.0 (10)	P2 *	P3 *	P3 *	-	-
	3.3 (11)	P2 *	P3 *	P3 *	-	-
	3.6 (12)	P3 *	P3 *	-	-	-
	3.9 (13)	P3 *	P3 *	-	-	-
3.6 (12)	1.8 (6)	P1	P2 *	P3 *	P3 *	P3 *
	2.1 (7)	P1	P2 *	P3 *	P3 *	-
	2.4 (8)	P1	P2 *	P3 *	P3 *	-
	2.7 (9)	P2 *	P3 *	P3 *	-	-
	3.0 (10)	P2 *	P3 *	P3 *	-	-
	3.3 (11)	P2 *	P3 *	-	-	-
	3.6 (12)	P3 *	P3 *	-	-	-
	3.9 (13)	P3 *	P3 *	-	-	-
3.9 (13)	1.8 (6)	P1	P2	P3	P3	-
	2.1 (7)	P1	P2	P3	P3	-
	2.4 (8)	P1	P3	P3	-	-
	2.7 (9)	P2	P3	P3	-	-
	3.0 (10)	P2	P3	P3	-	-
	3.3 (11)	P3	P3	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-

POST SELECTION TABLE - TWO POSTS						
W m (FT)	L <sub>B</sub> m (FT)	HEIGHT "H" IN m (FT)				
		0.610 (2)	0.915 (3)	1.220 (4)	1.525 (5)	1.830 (6)
4.2 (14)	1.8 (6)	P1	P2	P3	P3	-
	2.1 (7)	P1	P2	P3	P3	-
	2.4 (8)	P2	P3	P3	-	-
	2.7 (9)	P2	P3	P3	-	-
	3.0 (10)	P2	P3	-	-	-
	3.3 (11)	P3	P3	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
4.5 (15)	1.8 (6)	P1	P2	P3	P3	-
	2.1 (7)	P1	P2	P3	P3	-
	2.4 (8)	P2	P3	P3	-	-
	2.7 (9)	P2	P3	P3	-	-
	3.0 (10)	P2	P3	-	-	-
	3.3 (11)	P3	P3	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
4.8 (16)	1.8 (6)	P1	P2	P3	P3	-
	2.1 (7)	P1	P2	P3	P3	-
	2.4 (8)	P2	P3	P3	-	-
	2.7 (9)	P2	P3	-	-	-
	3.0 (10)	P2	P3	-	-	-
	3.3 (11)	P3	P3	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
5.1 (17)	1.8 (6)	P1	P3	P3	-	-
	2.1 (7)	P1	P3	P3	-	-
	2.4 (8)	P2	P3	-	-	-
	2.7 (9)	P3	P3	-	-	-
	3.0 (10)	P3	P3	-	-	-
	3.3 (11)	P3	-	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
5.4 (18)	1.8 (6)	P1	P3	P3	-	-
	2.1 (7)	P1	P3	P3	-	-
	2.4 (8)	P2	P3	-	-	-
	2.7 (9)	P3	P3	-	-	-
	3.0 (10)	P3	P3	-	-	-
	3.3 (11)	P3	-	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
5.7 (19)	1.8 (6)	P2	P3	P3	-	-
	2.1 (7)	P2	P3	P3	-	-
	2.4 (8)	P2	P3	-	-	-
	2.7 (9)	P3	P3	-	-	-
	3.0 (10)	P3	-	-	-	-
	3.3 (11)	P3	-	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-
6.0 (20)	1.8 (6)	P2	P3	P3	-	-
	2.1 (7)	P2	P3	-	-	-
	2.4 (8)	P3	P3	-	-	-
	2.7 (9)	P3	-	-	-	-
	3.0 (10)	P3	-	-	-	-
	3.3 (11)	P3	-	-	-	-
	3.6 (12)	P3	-	-	-	-
	3.9 (13)	P3	-	-	-	-

\* SEE NOTE 1.

**POST SELECTION EXAMPLE**

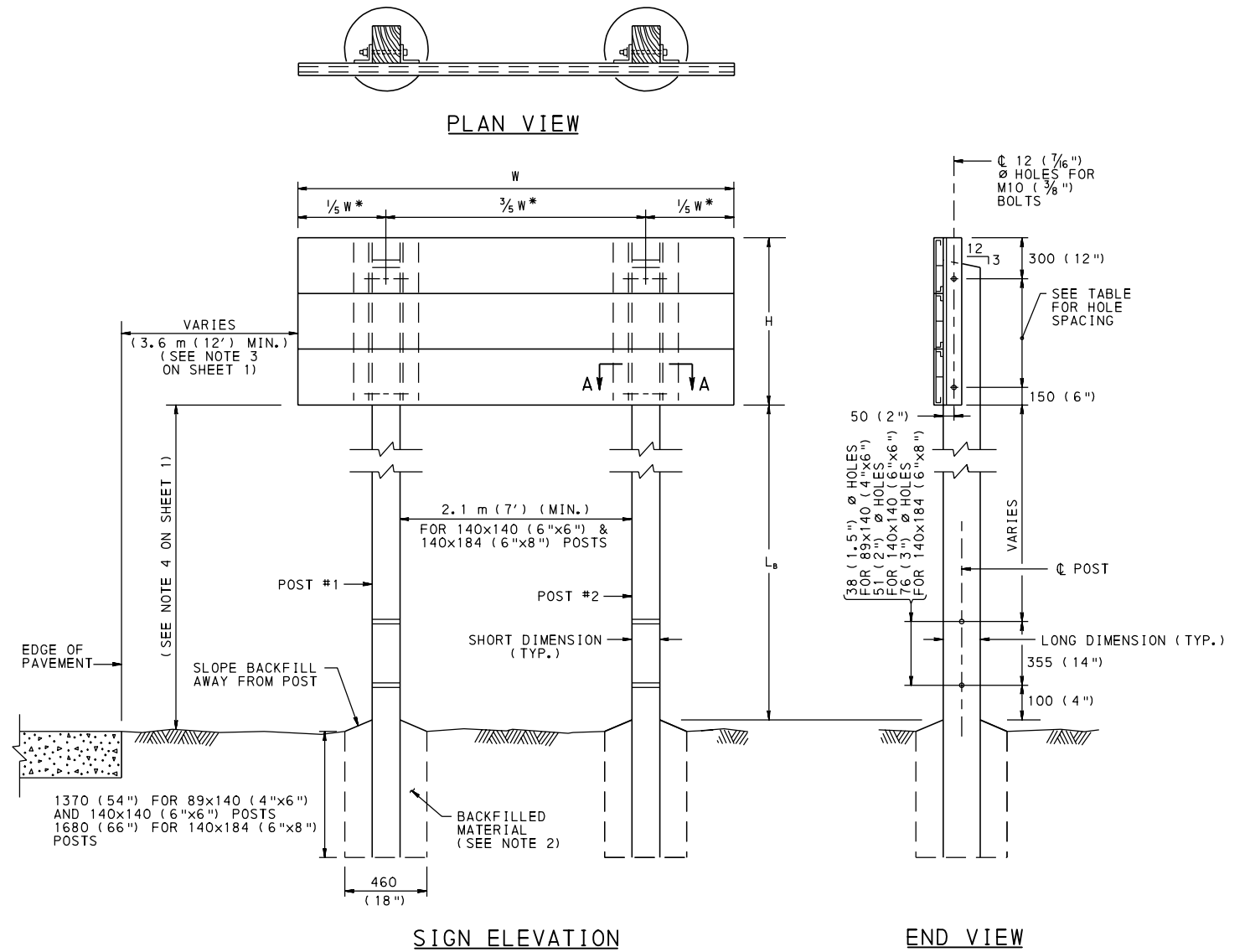
FOR A SIGN WHERE

W = 1.8 m (6')  
H = 0.610 m (2')  
L<sub>B</sub> = 3.9 m (13')

**LEGEND:**

P1 = 89x140 (4"x6")  
P2 = 140x140 (6"x6")  
P3 = 140x184 (6"x8")

TWO P1 = 89x140 (4"x6") WOOD POSTS ARE REQUIRED.



METRIC UNITS		ENGLISH UNITS	
ANGLE CONNECTION BOLT SPACING		ANGLE CONNECTION BOLT SPACING	
H (m)	SPACES	H (FT)	SPACES
0.610	1 AT 160.0 mm	2	1 AT 6"
0.915	2 AT 232.5 mm	3	2 AT 9"
1.220	2 AT 385.0 mm	4	2 AT 15"
1.525	3 AT 358.3 mm	5	3 AT 14"
1.830	3 AT 460.0 mm	6	3 AT 18"

TABLE FOR HOLE SPACING

**NOTES:**

- POSTS IN THE SELECTION TABLE WITH AN "\*" MUST HAVE A MINIMUM CLEAR SPACING OF 2.1 m (7') BETWEEN POSTS BY INCREASING THE 3/5 W SPACING. THE REMAINING SIGN WIDTH "W" SHOULD BE EQUALLY DISTRIBUTED TO THE OVERHANGS.
- DRILL OR EXCAVATE A HOLE OF SUITABLE DIMENSIONS AND DEPTH TO PLACE THE POST AT GRADE. SET THE POST AND BACKFILL TO THE GROUND LINE USING ACCEPTABLE EMBANKMENT MATERIAL, THOROUGHLY COMPACTED IN 150 mm (6") LAYERS.
- SEE SHEET 1 FOR ADDITIONAL NOTES.
- SEE SHEET 4 FOR SECTIONS AND ERECTION DETAILS.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

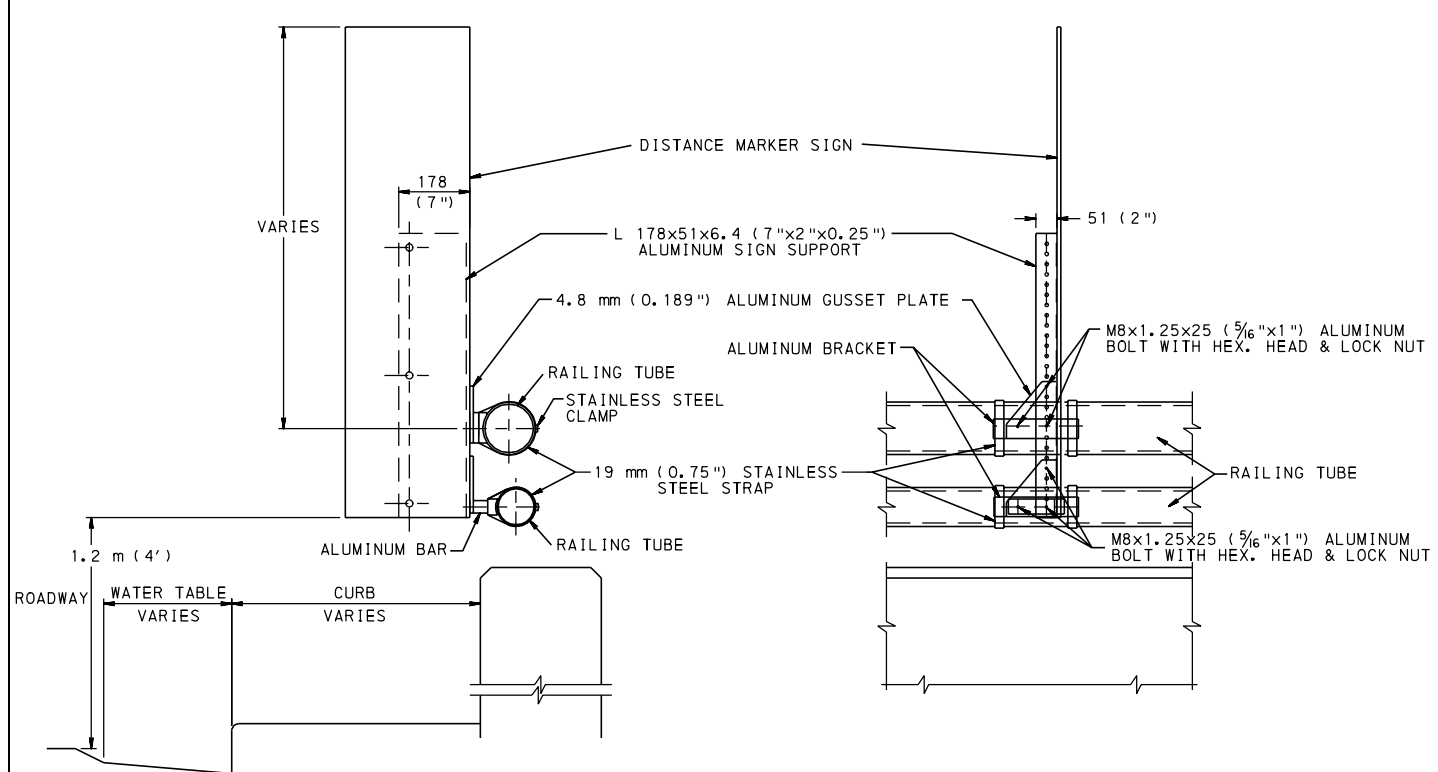
POST-MOUNTED SIGNS, TYPE E  
WOOD POSTS - DIRECT BURIAL  
ERECTION DETAILS  
TEMPORARY USE ONLY

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

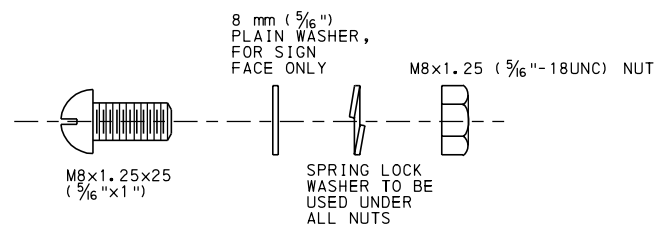
RECOMMENDED MAY 25, 2007  
*m. G. Latel*  
CHIEF HIGHWAY ENGINEER

SHT. 5 OF 5

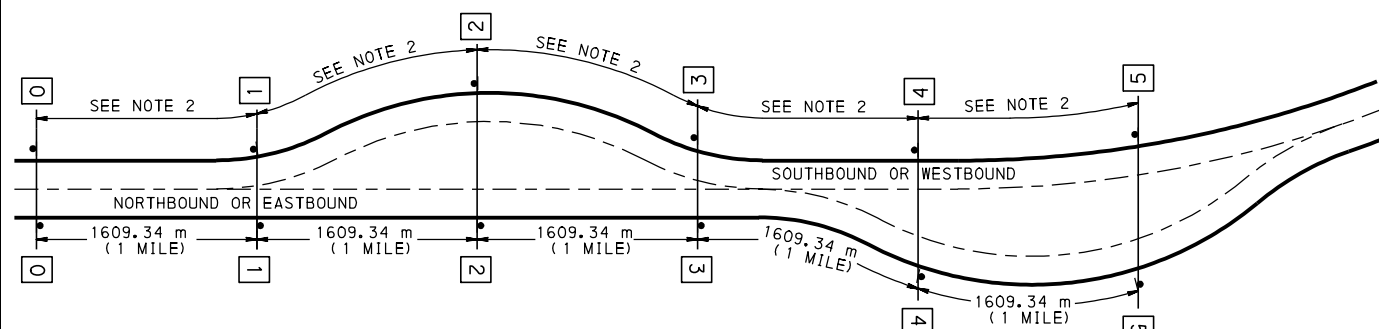
TC-8702E



ATTACHMENT OF DISTANCE MARKER ASSEMBLY TO DOUBLE TUBE RAILING



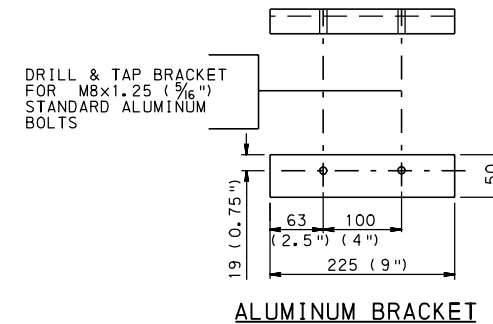
BUTTON HEAD BOLT FOR CONNECTING SIGN TO ANGLE



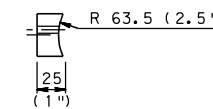
NOTES:

- IT SHALL BE THE RESPONSIBILITY OF THE ENGINEER TO ACCURATELY ESTABLISH THE LOCATION OF EACH DISTANCE MARKER.
- MEASUREMENTS TO ACCURATELY ESTABLISH THE LOCATION OF DISTANCE MARKERS IN INCREMENTS OF 1609.34 m (1 MILE) WILL BE TAKEN ALONG THE OUTSIDE EDGE OF THE PAVEMENT OF NORTHBOUND OR EASTBOUND ROADWAYS ONLY. DISTANCE MARKERS ON SOUTHBOUND OR WESTBOUND ROADWAYS SHALL BE ERECTED OPPOSITE TO THE DISTANCE MARKER LOCATIONS ESTABLISHED ON THE NORTHBOUND OR EASTBOUND ROADWAYS.

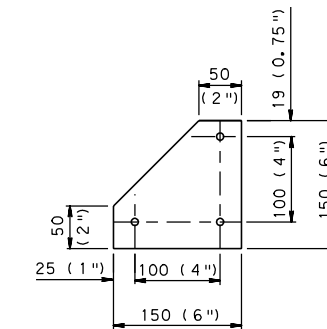
TYPICAL LOCATION OF DISTANCE MARKERS



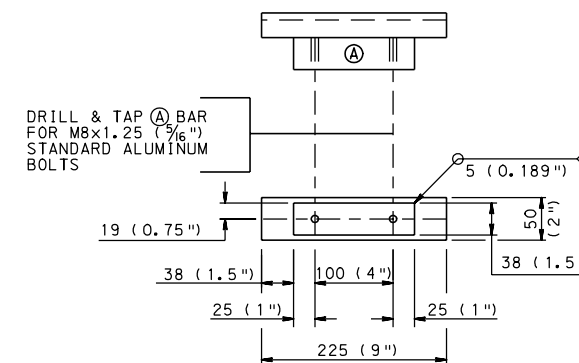
ALUMINUM BRACKET



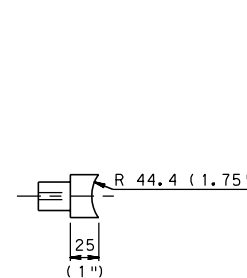
DETAILS FOR TOP RAIL



ALUMINUM GUSSET PLATE

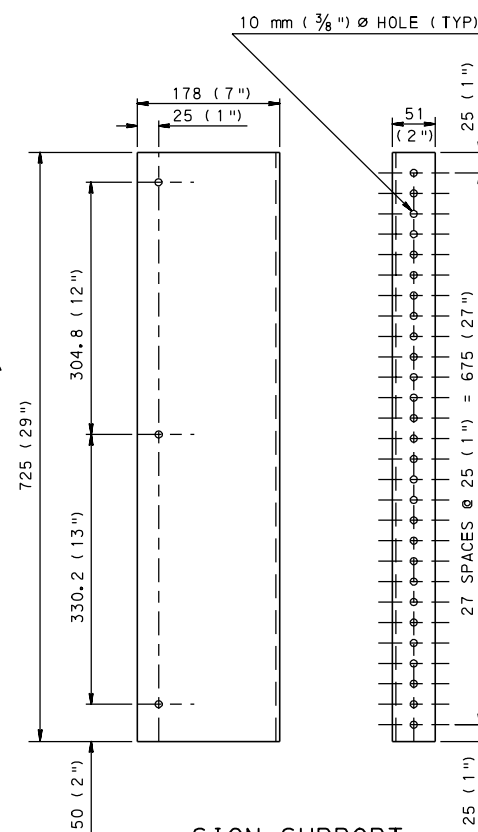


ALUMINUM BRACKET & BAR



DETAILS FOR BOTTOM RAIL

ALUMINUM GUSSET PLATE



SIGN SUPPORT

NOTES:

- ALL MATERIAL SHALL BE ALUMINUM ALLOY, UNLESS OTHERWISE NOTED, AND SHALL CONFORM TO THE APPROPRIATE ASTM DESIGNATION AND TEMPER AS SPECIFIED IN PUBLICATION 408.
- ALL STAINLESS STEEL STRAPS AND CLAMPS SHALL CONFORM TO ASTM A167.
- ALL MATERIALS AND WORKSMANSHIP SHALL BE IN ACCORDANCE WITH PUBLICATION 408.
- DISTANCE MARKERS WHICH ARE NOT ON BRIDGES SHALL BE INSTALLED ON TYPE B SIGN POSTS AT A 1.2 m (4') HEIGHT.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS SHOWN IN PARENTHESIS ( ).
- EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

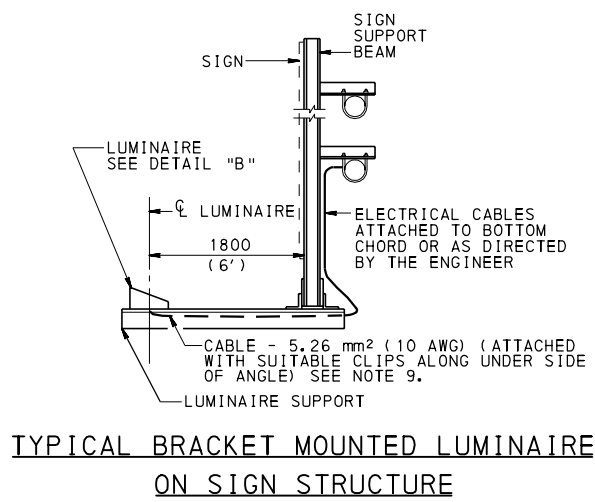
DISTANCE MARKERS

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

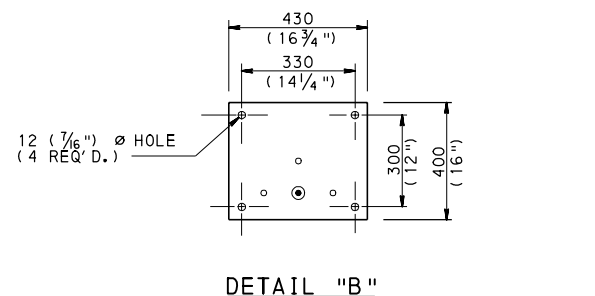
RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
CHIEF HIGHWAY ENGINEER

SHT. 1 OF 1

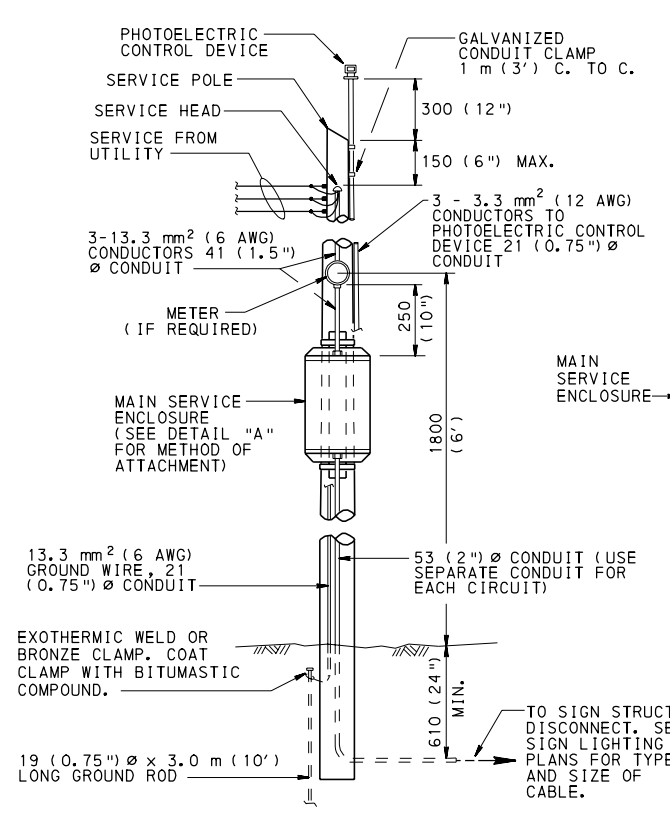
TC-8710



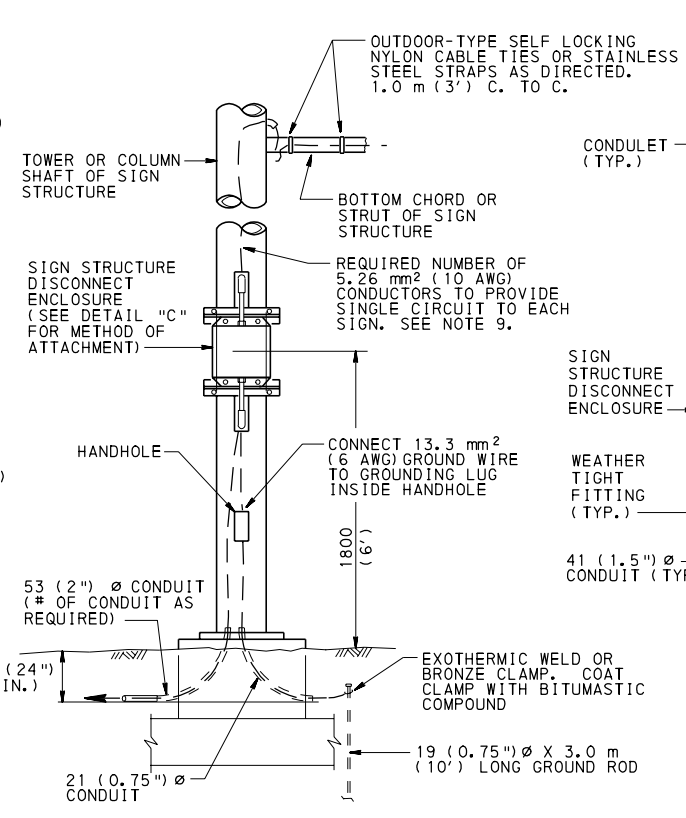
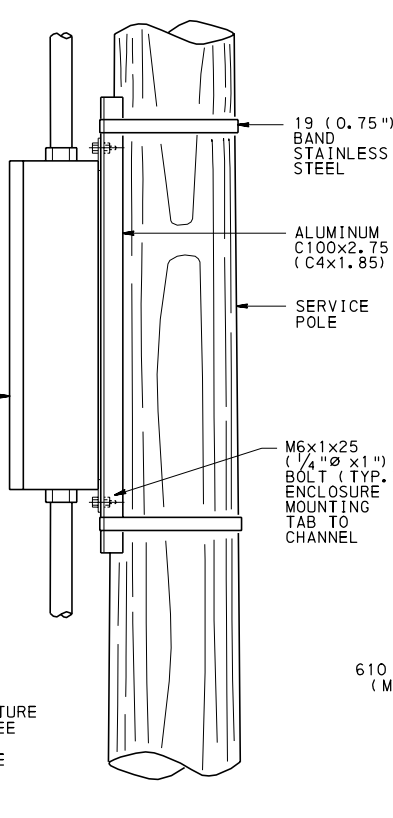
TYPICAL BRACKET MOUNTED LUMINAIRE ON SIGN STRUCTURE



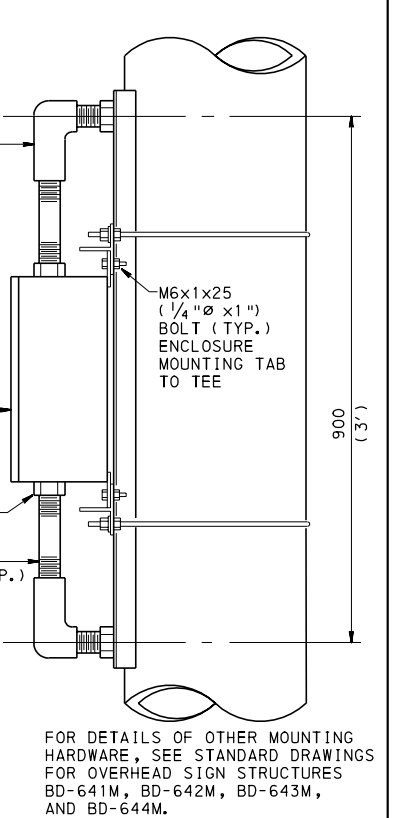
LUMINAIRE MOUNTING BRACKET



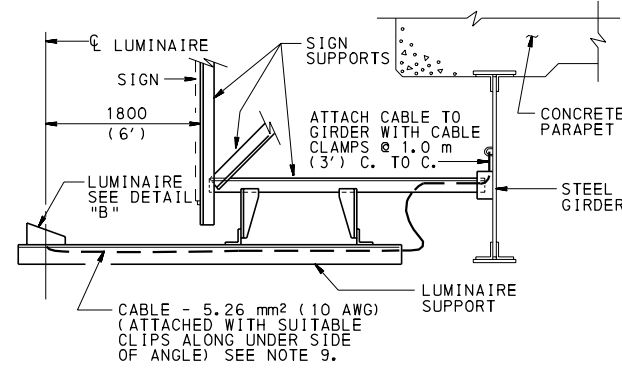
MAIN SERVICE ON SERVICE POLE



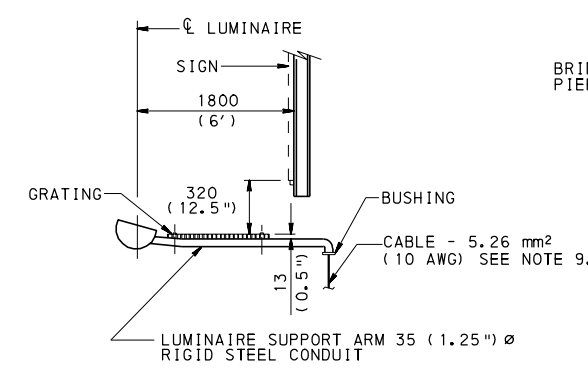
SIGN STRUCTURE DISCONNECT



FOR DETAILS OF OTHER MOUNTING HARDWARE, SEE STANDARD DRAWINGS FOR OVERHEAD SIGN STRUCTURES BD-641M, BD-642M, BD-643M, AND BD-644M.

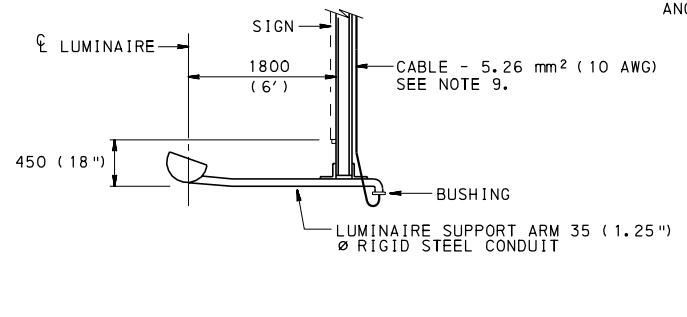
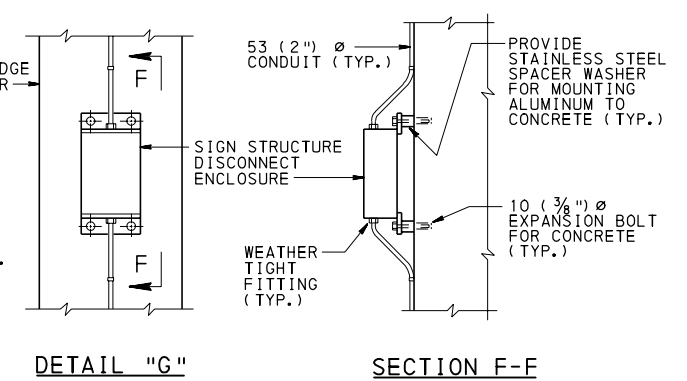


TYPICAL BRACKET MOUNTED LUMINAIRE ON OVERPASS BRIDGE, BRIDGE - MOUNTED SIGN

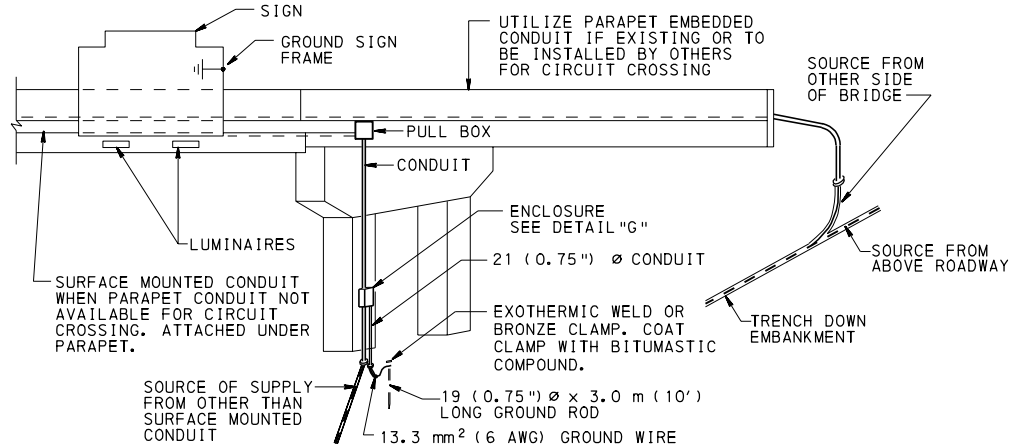


TYPICAL CONDUIT MOUNTED LUMINAIRE ON SIGN STRUCTURE WITH CATWALK\*

\* NOTE:  
LUMINAIRE MOUNTED ON CONDUIT NOT PERMITTED IF LUMINAIRE WEIGHT IS GREATER THAN 9 kg (20 lb). OTHERWISE MOUNT LUMINAIRE ON ANGLE SUPPORTS



TYPICAL CONDUIT MOUNTED LUMINAIRE ON SIGN STRUCTURE\*



TYPICAL SERVICE FOR LUMINAIRE ON OVERPASS BRIDGE - MOUNTED SIGN

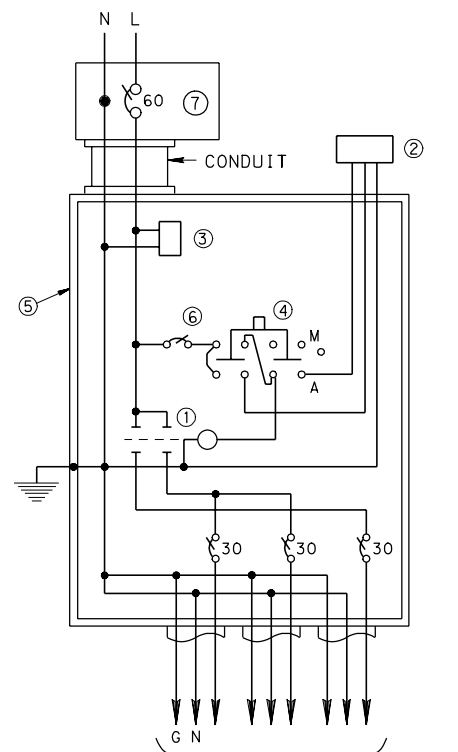
NOTES:

1. PROVIDE COPPER ELECTRIC CONDUCTORS. INCLUDE EQUIPMENT GROUNDING CONDUCTOR WITH ALL CIRCUITS. PROVIDE WITH SAME INSULATION AND SIZE AS CIRCUIT CONDUCTORS.
2. ELECTRIC COMPANY SERVICE DROPS ARE MADE TO THE SERVICE POLE, UNLESS OTHERWISE SPECIFIED, MEETING THE ELECTRIC COMPANY REQUIREMENTS. WHEN SERVICE DROP IS TO SIGN STRUCTURE, THE SIGN STRUCTURE ENCLOSURE WILL CONTAIN ALL NECESSARY SERVICE AND BRANCH CIRCUIT EQUIPMENT.
3. BOND THE EQUIPMENT GROUNDING CONDUCTOR TO THE GROUNDING LUG PROVIDED IN THE HANDHOLE OF THE SIGN STRUCTURE. DO NOT CONNECT N TO G EXCEPT AT SERVICE LOCATION.
4. GROUND THE SIGN FRAME OF OVERPASS BRIDGE-MOUNTED SIGNS.
5. SIGN STRUCTURE DISCONNECT MAY BE OMITTED WHEN THE MAIN SERVICE IS WITHIN 15 m (50') OF THE SIGN STRUCTURE. PROVIDE BRANCH CIRCUIT PROTECTION WITHIN THE MAIN SERVICE ENCLOSURE.
6. MOUNT EACH REMOTE BALLAST ON THE SIGN SUPPORT STRUCTURE AND IDENTIFY THE SIGN AND LUMINAIRE SERVED. MOUNT OVER SHOULDER WHEN FEASIBLE.
7. PROVIDE ALUMINUM, STAINLESS STEEL OR GALVANIZED STEEL HARDWARE, CONDUITS, BOLTS, ETC. ASSOCIATED WITH MOUNTING ENCLOSURE FOR MAIN SERVICE AND SIGN STRUCTURE DISCONNECT.
8. FOR DETAILS OF LUMINAIRE SUPPORTS, SEE STANDARD DRAWINGS BD-641M, BD-642M, BD-643M AND BD-644M.
9. PROVIDE 5.26 mm<sup>2</sup> (10 AWG), 2 CONDUCTOR, TYPE TC CABLE FROM THE SIGN ENCLOSURE TO THE LUMINAIRE.
10. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
11. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

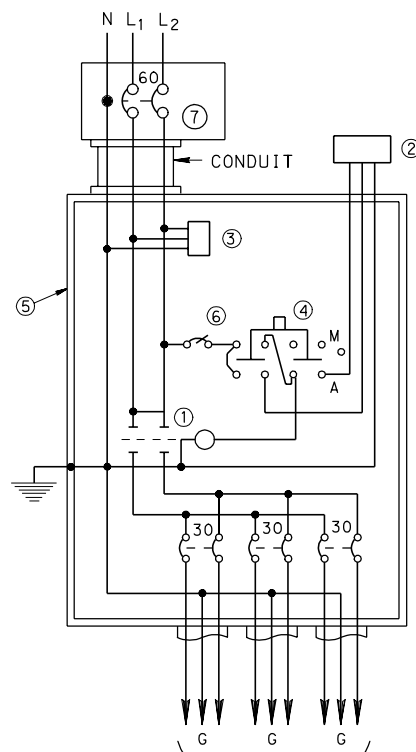
SIGN LIGHTING

120 V - 2 WIRE SUPPLY  
120 V LUMINAIRE



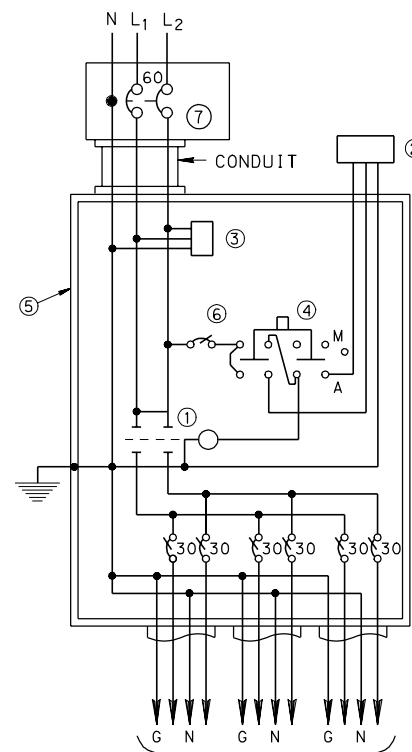
TO SIGN STRUCTURE DISCONNECT SIMILAR TO (A), NOT MORE THAN 8 LUMINAIRES ON EACH 30 A CIRCUIT.

120/240 V - 3 WIRE SUPPLY  
240 V LUMINAIRE



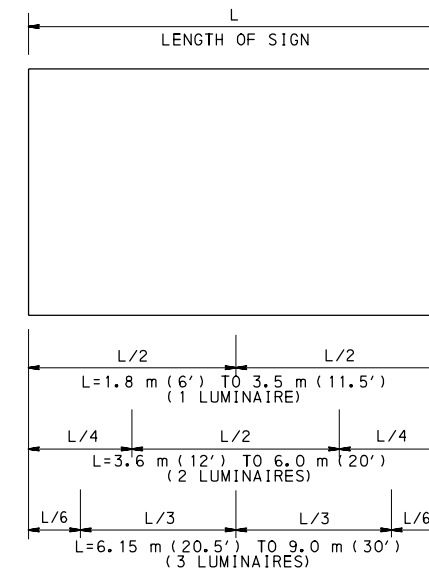
TO SIGN STRUCTURE DISCONNECT SIMILAR TO (B), NOT MORE THAN 17 LUMINAIRES ON EACH 30 A CIRCUIT.

240/480 V - 3 WIRE SUPPLY  
240 V LUMINAIRE



TO SIGN STRUCTURE DISCONNECT SIMILAR TO (C), NOT MORE THAN 17 LUMINAIRES PER PHASE LEG ON EACH 30 A CIRCUIT.

- ① TWO POLE, 60 A, LIGHTING CONTACTOR
- ② PHOTOELECTRIC CONTROL DEVICE
- ③ LIGHTNING ARRESTOR
- ④ SELECTOR SWITCH (MANUAL-OFF-AUTO.)
- ⑤ ENCLOSURE
- ⑥ 15 A, SINGLE POLE CIRCUIT BREAKER
- ⑦ SERVICE DISCONNECT



QUANTITY AND LOCATION OF LUMINAIRES

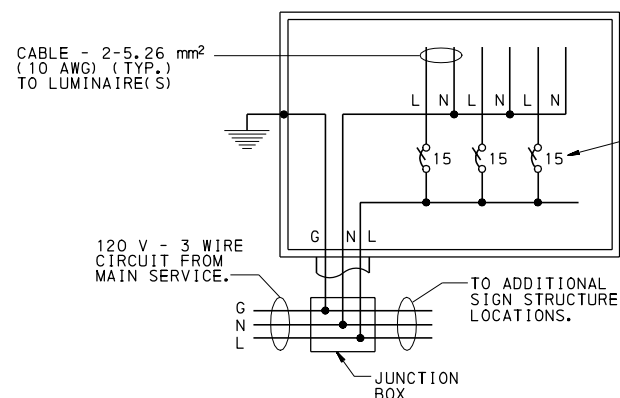
MAIN SERVICE (TYPICAL)

NOTE: MAIN SERVICE NOT REQUIRED WHEN POWER SUPPLY IS FROM HIGHWAY LIGHTING CIRCUIT.

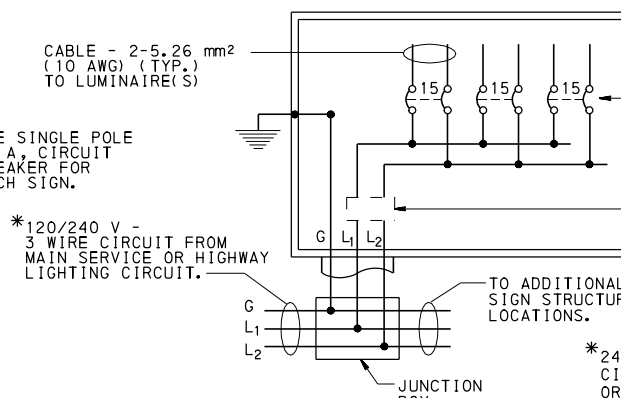
NOTES:

1. PROVIDE A CIRCUIT BREAKER FOR THE MAIN DISCONNECT UNLESS THE POWER COMPANY REQUIRES FUSES.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS IN PARENTHESIS ( ).
3. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.
4. PROVIDE A MAIN DISCONNECT IN A SEPARATE NEMA 3R OR 4 ENCLOSURE THAT IS LABELED AS "SUITABLE FOR USE AS SERVICE EQUIPMENT". PROVIDE WITH A LOCKABLE COVER AND NO EXTERNAL HANDLE. THE DISCONNECT MAY BE PROVIDED INTEGRAL TO THE CONTROL CABINET IF THE CABINET IS DEAD FRONT AND LABELED AS "SUITABLE FOR USE AS SERVICE EQUIPMENT".

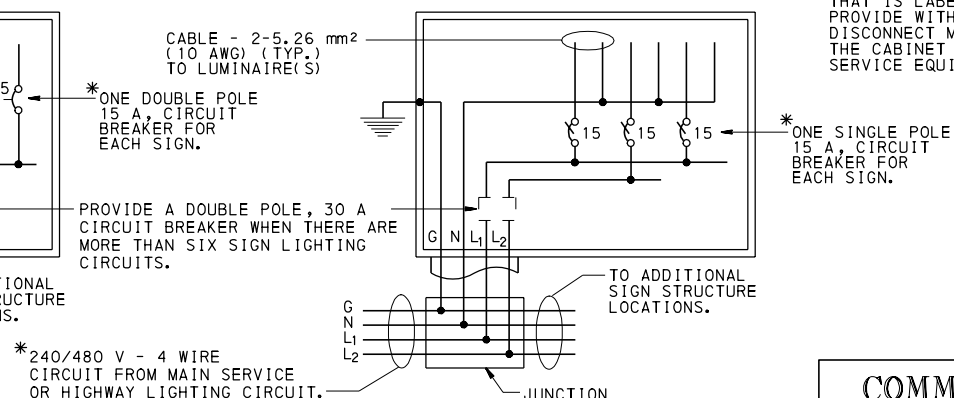
(A)  
120 V LUMINAIRE



(B)  
240 V LUMINAIRE



(C)  
240 V LUMINAIRE



\*FOR PROPER PHASE LEG CONNECTION, SEE SIGN LIGHTING PLAN OR HIGHWAY LIGHTING CIRCUIT SCHEMATIC, AS APPLICABLE.

SIGN STRUCTURE DISCONNECT (TYPICAL)

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

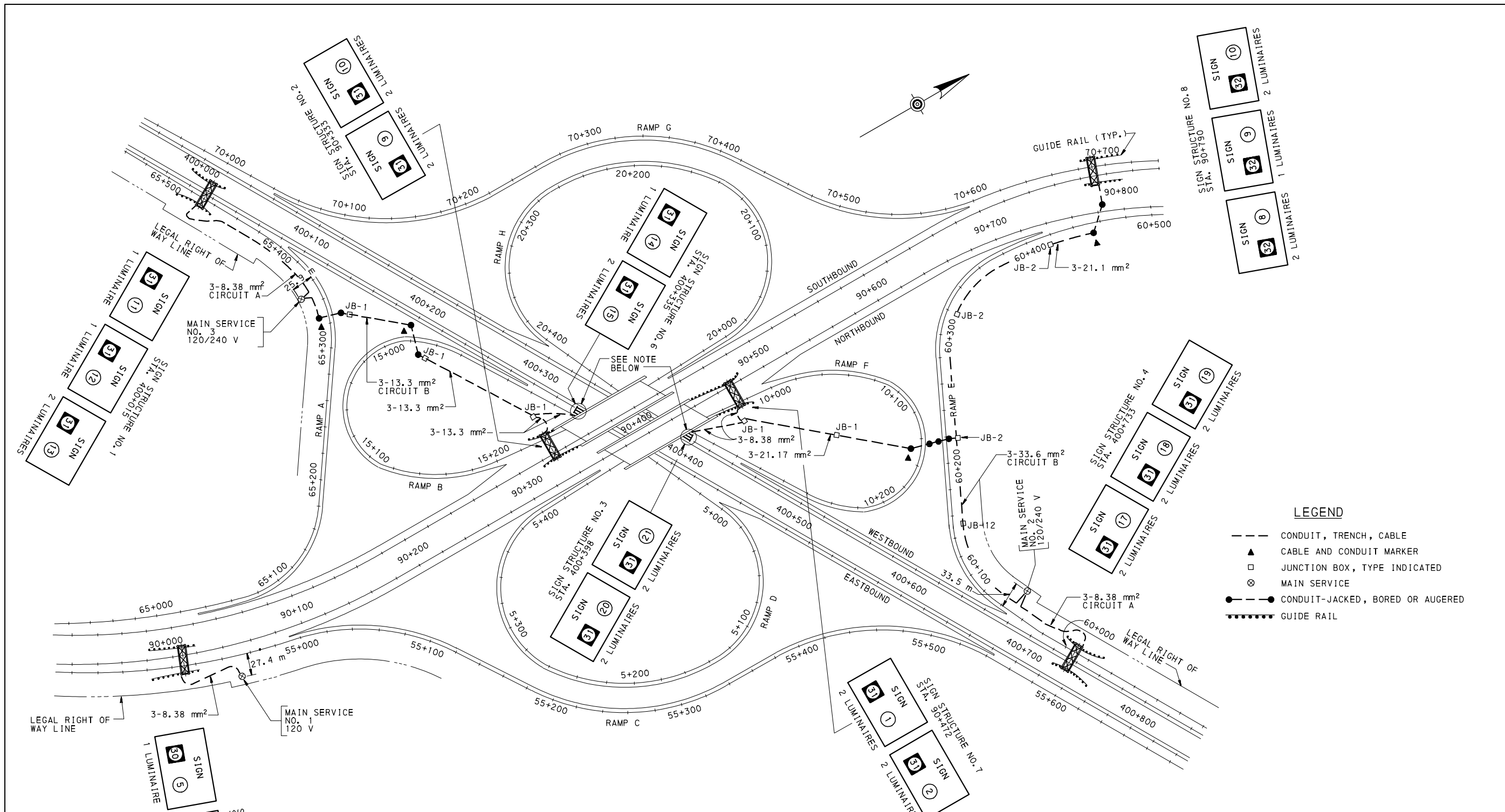
SIGN LIGHTING

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. Glatel*  
CHIEF HIGHWAY ENGINEER

SHT. 2 OF 5

TC-8715



- LEGEND**
- CONDUIT, TRENCH, CABLE
  - ▲ CABLE AND CONDUIT MARKER
  - JUNCTION BOX, TYPE INDICATED
  - ⊗ MAIN SERVICE
  - CONDUIT-JACKED, BORED OR AUGERED
  - GUIDE RAIL

METRIC UNITS

**NOTE - BRIDGE MOUNTED SIGNS:**

TRENCH FROM JUNCTION BOX DOWN EMBANKMENT TO PIER MOUNTED ENCLOSURE SEE SHEET 2 OF 5, TC-8715.

**GENERAL NOTES:**

1. QUANTITIES SHOWN ARE FOR ESTIMATING PURPOSE ONLY.
2. COMPLY WITH STANDARD SPECIFICATIONS PUBLICATION 408, SECTIONS 920 & 1102 APPLICABLE TO MATERIAL AND WORK ON THIS PROJECT, AND THE FOLLOWING STANDARD DRAWINGS:

RC-81M HIGHWAY LIGHTING-JUNCTION BOXES-LIGHT DUTY  
 RC-82M HIGHWAY LIGHTING-JUNCTION BOXES-HEAVY DUTY  
 RC-84M HIGHWAY LIGHTING-LIGHTING AND ELECTRIC DETAILS  
 TC-8715 SIGN LIGHTING

**INFORMATION TO DESIGNER:**

1. SHOW AS INFORMATION ONLY THE CONDUIT CROSSINGS ON THE ROADWAY PLANS.
2. MAIN SERVICE LOCATIONS MUST HAVE CONFIRMATION FROM LOCAL ELECTRIC UTILITY.
3. SUBMIT CONDUCTOR SIZE CALCULATIONS WITH PLANS FOR APPROVAL.
4. LOCATE MAIN SERVICE OUTSIDE CLEAR ZONE AS FAR FROM ROADWAY AS PRACTICAL.
5. SIGN LIGHTING MAY NOT BE REQUIRED ON ALL OVERHEAD SIGNS. SEE STANDARD DRAWING TC-8701A FOR EXCEPTIONS.
6. WHEN NOT INCLUDED IN OTHER CONTRACTS, PROVIDE FOR SEEDING AND MULCHING OF BACKFILLED TRENCH AND OTHER DISTURBED AREAS.

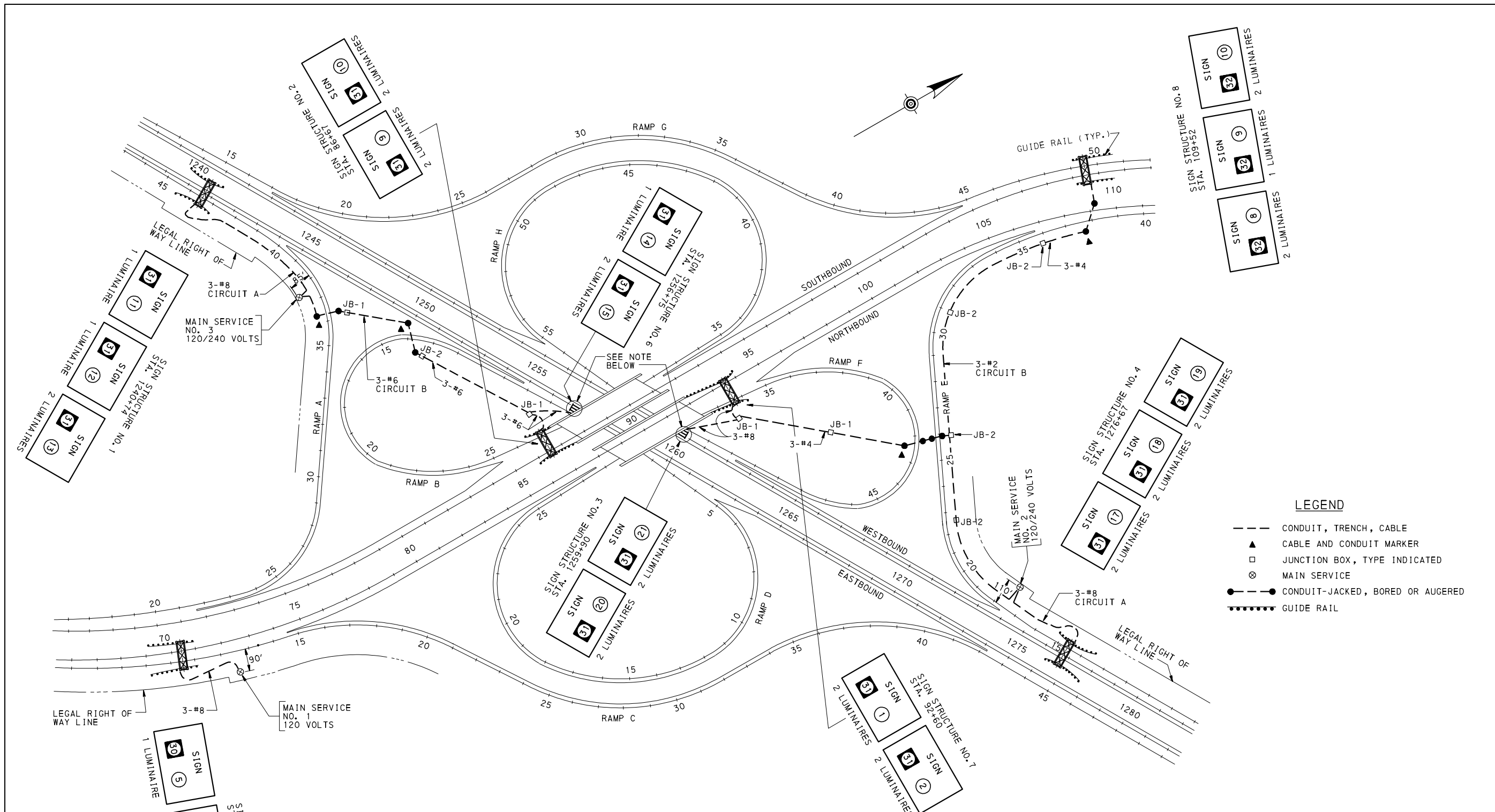
COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

SIGN LIGHTING PLAN  
 (SAMPLE DRAWING)

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
 CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Patel*  
 CHIEF HIGHWAY ENGINEER

SHT. 3 OF 5  
 TC-8715



- LEGEND**
- CONDUIT, TRENCH, CABLE
  - ▲ CABLE AND CONDUIT MARKER
  - JUNCTION BOX, TYPE INDICATED
  - ⊗ MAIN SERVICE
  - CONDUIT-JACKED, BORED OR AUGERED
  - ..... GUIDE RAIL

**NOTE - BRIDGE MOUNTED SIGNS:**

TRENCH FROM JUNCTION BOX DOWN EMBANKMENT TO PIER MOUNTED ENCLOSURE SEE SHEET 2 OF 5, TC-8715.

**GENERAL NOTES:**

1. QUANTITIES SHOWN ARE FOR ESTIMATING PURPOSE ONLY.
2. COMPLY WITH STANDARD SPECIFICATIONS PUBLICATION 408, SECTIONS 920 & 1102 APPLICABLE TO MATERIAL AND WORK ON THIS PROJECT, AND THE FOLLOWING STANDARD DRAWINGS:

RC-81M HIGHWAY LIGHTING-JUNCTION BOXES-LIGHT DUTY  
 RC-82M HIGHWAY LIGHTING-JUNCTION BOXES-HEAVY DUTY  
 RC-84M HIGHWAY LIGHTING-LIGHTING AND ELECTRIC DETAILS  
 TC-8715 SIGN LIGHTING

**INFORMATION TO DESIGNER:**

1. SHOW AS INFORMATION ONLY THE CONDUIT CROSSINGS ON THE ROADWAY PLANS.
2. MAIN SERVICE LOCATIONS MUST HAVE CONFIRMATION FROM LOCAL ELECTRIC UTILITY.
3. SUBMIT CONDUCTOR SIZE CALCULATIONS WITH PLANS FOR APPROVAL.
4. LOCATE MAIN SERVICE OUTSIDE CLEAR ZONE AS FAR FROM ROADWAY AS PRACTICAL.
5. SIGN LIGHTING MAY NOT BE REQUIRED ON ALL OVERHEAD SIGNS. SEE STANDARD DRAWING TC-8701A FOR EXCEPTIONS.
6. WHEN NOT INCLUDED IN OTHER CONTRACTS, PROVIDE FOR SEEDING AND MULCHING OF BACKFILLED TRENCH AND OTHER DISTURBED AREAS.

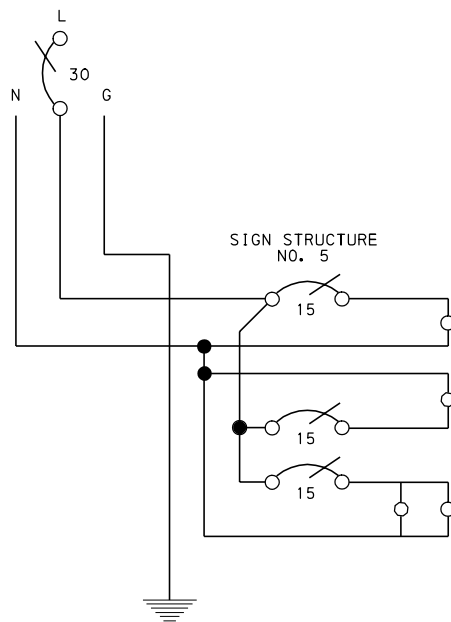
ENGLISH UNITS

COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF TRANSPORTATION  
 BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

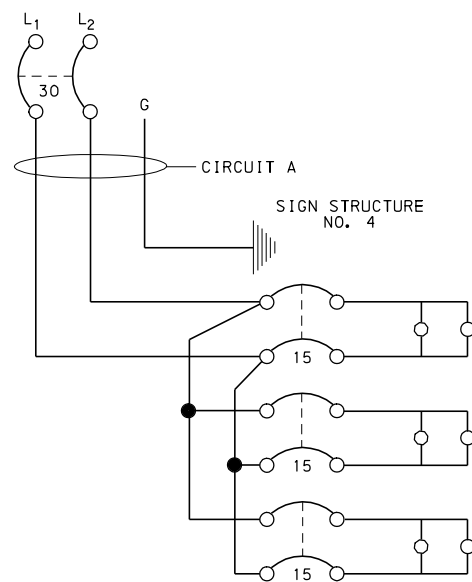
SIGN LIGHTING PLAN  
 (SAMPLE DRAWING)

RECOMMENDED MAY 25, 2007 <i>Alan C. Rowe</i> CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION	RECOMMENDED MAY 25, 2007 <i>M. Latel</i> CHIEF HIGHWAY ENGINEER	SHT. 4 OF 5 TC-8715
---	---	------------------------

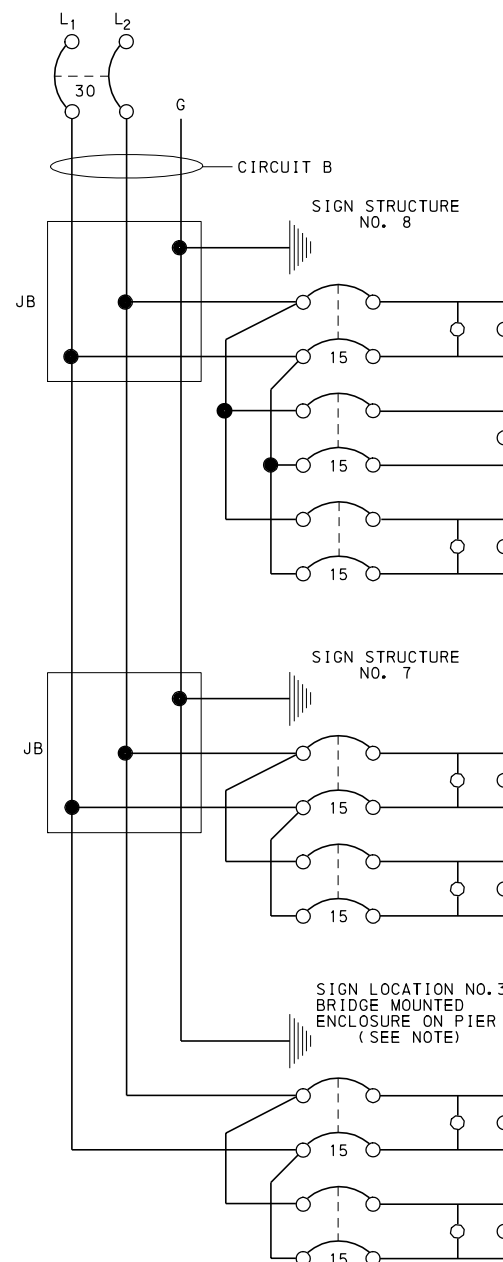
MAIN SERVICE NO. 1  
120 V - 2 WIRE SUPPLY



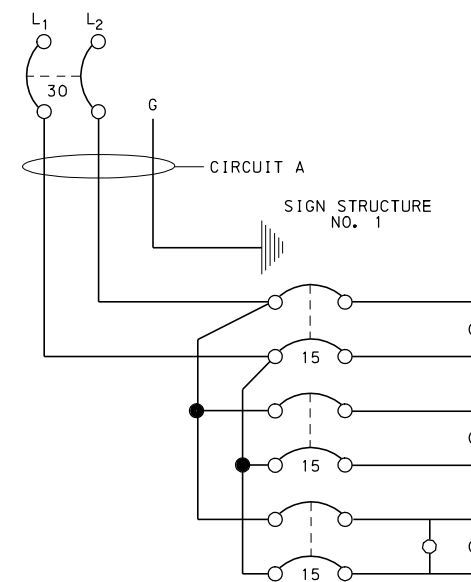
MAIN SERVICE NO. 2  
120/240 V - 3 WIRE SUPPLY



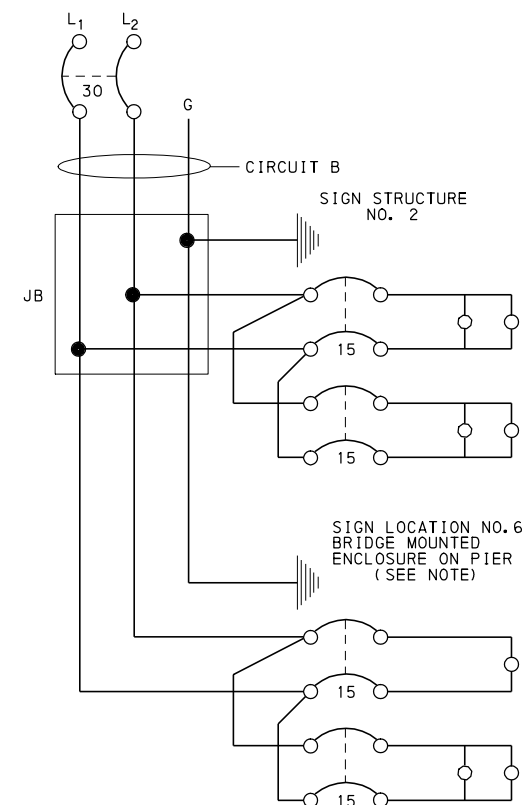
MAIN SERVICE NO. 2  
120/240 V - 3 WIRE SUPPLY



MAIN SERVICE NO. 3  
120/240 V - 3 WIRE SUPPLY



MAIN SERVICE NO. 3  
120/240 V - 3 WIRE SUPPLY



ESTIMATE OF REQUIRED QUANTITIES

MAIN SERVICE REQUIRED QUANTITIES	M.	S.	M.	S.	TOTAL
	#1	#2	#3	#3	
SERVICE POLE	1	1	1	1	3
METER BASE (IF REQUIRED)	1	1	1	1	3
SERVICE DISCONNECT	1	1	1	1	3
ENCLOSURE	1	1	1	1	3
WEATHERHEAD & SERVICE CLOSURE	1	1	1	1	3
LIGHTNING ARRESTER	1	1	1	1	3
PHOTOELECTRIC CELL	1	1	1	1	3
GROUND ROD	1	1	1	1	3
SELECTOR SWITCH	1	1	1	1	3
LIGHTING CONTACTOR, 2 POLES, 60 A	1	1	1	1	3
CIRCUIT BREAKER, 1 POLE, 60 A	1				1
CIRCUIT BREAKER, 2 POLES, 60 A		1	1	1	2
CIRCUIT BREAKER, 1 POLE, 15 A	1	1	1	1	3
CIRCUIT BREAKER, 1 POLE, 30 A	1				1
CIRCUIT BREAKER, 2 POLES, 30 A		2	2	2	4
CONDUIT, FITTINGS, MISC. HARDWARE	1	1	1	1	3

SIGN STRUCTURE REQUIRED QUANTITIES					
SIGN STRUCTURE	ENCLOSURE	GROUND ROD	15 A 1P, C.B.	15 A 2P, C.B.	175 W LUM.
1	1	1			3
2	1	1			2
3	1*	1			2
4	1	1			3
5	1	1	3		4
6	1*	1			2
7	1	1			2
8	1	1			3
TOTAL	8	8	3	17	34

\* BRIDGE MOUNTED SIGNS - ENCLOSURE MOUNTED ON BRIDGE MOUNTED ENCLOSURE ON PIER (SEE SHEET 1 OF 5, TC-8715.)

METRIC UNITS \*

CIRCUIT REQUIRED QUANTITIES - ENTIRE		
ITEM	QUANTITY	REMARKS
33.6 mm <sup>2</sup> , UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	510 m	
21.1 mm <sup>2</sup> , UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	1320 m	
13.3 mm <sup>2</sup> , UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	900 m	
8.38 mm <sup>2</sup> , UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	905 m	
5.26 mm <sup>2</sup> , TYPE TC CABLE, COPPER, 2 CONDUCTOR	460 m	FROM S.S. ENCLOSURE TO LUMINAIRE
CABLE & CONDUIT MARKER	4 EACH	
53 mm Ø DIRECT BURIAL CONDUIT	1150 m	
TRENCH	1150 m	
JUNCTION BOX JB-1	3 EACH	
JUNCTION BOX JB-12	6 EACH	

ENGLISH UNITS \*

CIRCUIT REQUIRED QUANTITIES - ENTIRE		
ITEM	QUANTITY	REMARKS
AWG 2, UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	2190 FT.	
AWG 4, UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	6588 FT.	
AWG 6, UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	4350 FT.	
AWG 8, UNDERGROUND CABLE, COPPER, 1 CONDUCTOR	5090 FT.	
AWG 10, TYPE TC CABLE, COPPER, 2 CONDUCTOR	1500 FT.	FROM S.S. ENCLOSURE TO LUMINAIRE
CABLE & CONDUIT MARKER	4 EACH	
2" Ø DIRECT BURIAL CONDUIT	5730 FT.	
TRENCH	5730 FT.	
JUNCTION BOX JB-1	3 EACH	
JUNCTION BOX JB-12	6 EACH	

\* EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

NOTE:

IT MAY BE MORE DESIRABLE TO USE ONE COMMON ENCLOSURE ON NEARBY SIGN STRUCTURE COLUMN FOR BOTH THE STRUCTURE SIGN AND THE BRIDGE-MOUNTED SIGN IN LIEU OF A SEPARATE ENCLOSURE MOUNTED ON THE BRIDGE PIER AS SHOWN ON SHEET 1 OF 5, TC-8715. IF THIS OPTION IS DESIRED, IT MUST BE CLEARLY SPECIFIED ON THIS SHEET. IN THE SAMPLE, ENCLOSURES FOR SIGN LOCATIONS 3 AND 6 WOULD NOT BE SPECIFIED AND A NOTE EXPLAINING THE OMISSION WOULD BE NECESSARY.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

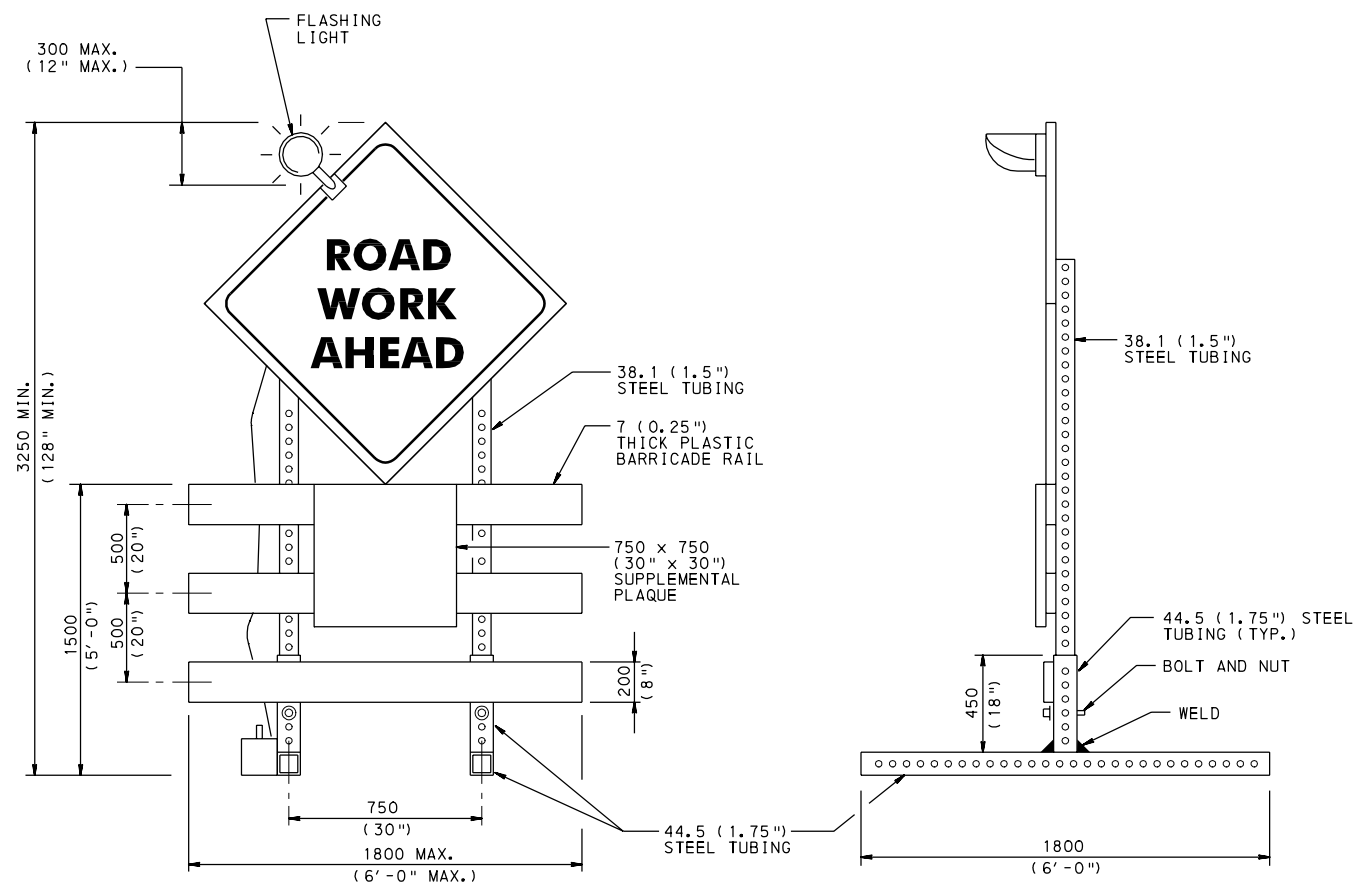
SIGN LIGHTING  
(SAMPLE DRAWING)

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Latel*  
CHIEF HIGHWAY ENGINEER

SHT. 5 OF 5

TC-8715



SKID-MOUNTED METAL SIGN SUPPORT

**NOTES:**

1. DIAMOND, RECTANGULAR, OCTAGON AND TRIANGULAR SIGNS ARE PERMITTED. WHILE HAVING NO MAXIMUM AREA, THE MAXIMUM WEIGHT OF THE SIGN MAY NOT EXCEED 11.3 kg (25 lb).
2. MINIMUM MOUNTING HEIGHT TO TOP OF ALL SIGNS IS 3250 mm (128").
3. SUPPLEMENTAL PLAQUE IS TO BE MOUNTED AS SHOWN.
4. BATTERY CASE MUST BE PLACED AT GROUND LEVEL AND FASTENED TO THE UPRIGHT POST OR BASE LEG.
5. SIGN SUBSTRATE MAY BE PLYWOOD, ALUMINUM, FLEXIBLE (ROLL-UP) ABS, ALUMINUM / PLASTIC LAMINATE, CORRUGATED POLYPROPYLENE OR POLYETHYLENE.
6. SANDBAG BALLAST MAY BE PLACED ON THE BASE.
7. SIGNS AND RAILS ARE TO BE ATTACHED WITH BOLTS AND NUTS.
8. SIGNS THAT ARE INAPPROPRIATE OR NOT APPLICABLE SHOULD BE REMOVED, TURNED 90° OR COVERED. COVER MATERIAL MAY BE CLOTH, TARP, FLEXIBLE PLASTIC, OR SIMILAR MATERIAL, WHICH IS COMPLETELY OPAQUE SO THE SIGN CANNOT BE READ. PLYWOOD, BOARDS OR OTHER RIGID COVERS HUNG OR ATTACHED TO THE SIGN ARE NOT PERMITTED. IF TURNED 90°, RETROREFLECTIVE SHEETING MUST BE PLACED ON THE SIDES SO THAT THE BARRICADE IS CLEARLY VISIBLY TO APPROACHING DRIVERS.
9. MAXIMUM ONE WARNING LIGHT EXCEPT FOR ROAD CLOSED SIGN WHERE TWO ARE ALLOWED.
10. NOVEMBER 1 TO APRIL 1, BATTERY CASE MAY BE ATTACHED TO VERTICAL LEG ABOVE PAVEMENT SURFACE PREFERABLY BEHIND LOWER MOST RAIL, BUT IN NO CASE MOUNTED ABOVE TYPICAL PASSENGER CAR BUMPER HEIGHT.
11. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. ENGLISH UNITS SHOWN IN PARENTHESIS ( ).
12. EITHER ALL METRIC OR ALL ENGLISH UNITS MUST BE USED ON PLANS. METRIC AND ENGLISH UNITS SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY SAFETY AND TRAFFIC ENGINEERING

TRAFFIC CONTROL SIGNING  
TYPE III BARRICADE

RECOMMENDED MAY 25, 2007  
*Alan C. Rowe*  
CHIEF, TRAFFIC ENGINEERING AND  
OPERATIONS DIVISION

RECOMMENDED MAY 25, 2007  
*m. G. Latel*  
CHIEF HIGHWAY ENGINEER

SHT. 1 OF 1

TC-8716