Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

June 29, 2012

ROADWAY DESIGN BULLETIN 12-11
DESIGN STANDARDS REVISION R1302
DCE MEMORANDUM 21-12
STRUCTURES DESIGN BULLETIN 12-09
ESTIMATES BULLETIN 12-07
(FHWA Approved: 6/29/2012)

TO: **DISTRICT DESIGN ENGINEERS**
DISTRICT CONSTRUCTION ENGINEERS
PLANS PREPARATION MANUAL HOLDERS

FROM: David C. O'Hagan, P.E., State Roadway Design Engineer
David A. Sadler, P.E., Director, Office of Construction
Robert V. Robertson, P.E., State Structures Design Engineer
Phillip Greg Davis, P.E., State Estimates Engineer

CC: Brian Blanchard, Tom Byron, Duane Brautigam, Tim Lattner, Rudy Powell, Bob Burleson, Chris Richter, Chad Thompson, Heather Dean, Rafiq Darji

SUBJECT: **BARRIER AND TRAFFIC RAILING MOUNTED SIGNS**
DESIGN STANDARDS REVISION (R1302), DATED JULY 1, 2012

BACKGROUND:

As a follow-up to Roadway Design Bulletin 12-05 and Structures Design Bulletin 12-03, titled "Median Traffic Railing Mounted Signs", the Department has developed a design standard for single post median barrier mounted sign supports. Design Standard Index No. 11871 is the new design standard that addresses installing permanent and temporary sign supports on both permanent and temporary barriers and traffic railings.

DESIGN REQUIREMENTS:

For permanent signs, Index 11871 can only be used for the following signs which are considered critical to safety: No U-Turns (R3-1) w/ Official Use Only (FTP 65-06), Left Lane Ends (W9-1), Lane Ends Merge Right (W9-2) and Merge Symbol (W4-2).

For all temporary/work zone signs, when Index 600 cannot be achieved for post mounted signs and barrier or traffic railing exists, Index 11871 shall be used.

Existing barrier mounted signs that are encountered and have not been installed using criteria provided in Roadway Design Bulletin 12-05 or Index 11870 shall be removed and shall meet the requirements of the bulletin and the new standard.

Index 11871 can only be used to mount permanent signs to shoulder traffic railings if there is insufficient space for Index 11870, and the sign is critical to safety. Otherwise, Design Standard Index 11870 shall be used.

DESIGN IMPLEMENTATION:

These requirements may be implemented immediately on all projects LET prior to January 2013 at the discretion of the District. These changes are required for all projects with LET dates after January 1, 2013.

New Index Drawings and Design Standards Revisions can be accessed at the following web site: http://www.dot.state.fl.us/rddesign/DesignStandards/Standards.shtm

CONSTRUCTION IMPLEMENTATION:

Use Design Standard, Index 600, Sheets 6 and 7 to install post mounted temporary/work zone signs. If Index 600 cannot be achieved and temporary or permanent barrier or traffic railings exist, use Index 11871.

Post mounting by straddling the barrier will no longer be allowed. Existing sign supports straddling the barrier can remain. If the temporary sign support attachments to barriers or traffic railings have not been installed using criteria provided in Roadway Design Bulletin 12-05 or Index 11870, require the Contractor to remove and replace them using Index 11871. If there are existing, permanent sign support attachments to barriers or traffic railings other than those using Index 11870 or Roadway Design Bulletin 12-05, coordinate with the District Traffic Operations Engineer to determine if the sign should be removed or remain.

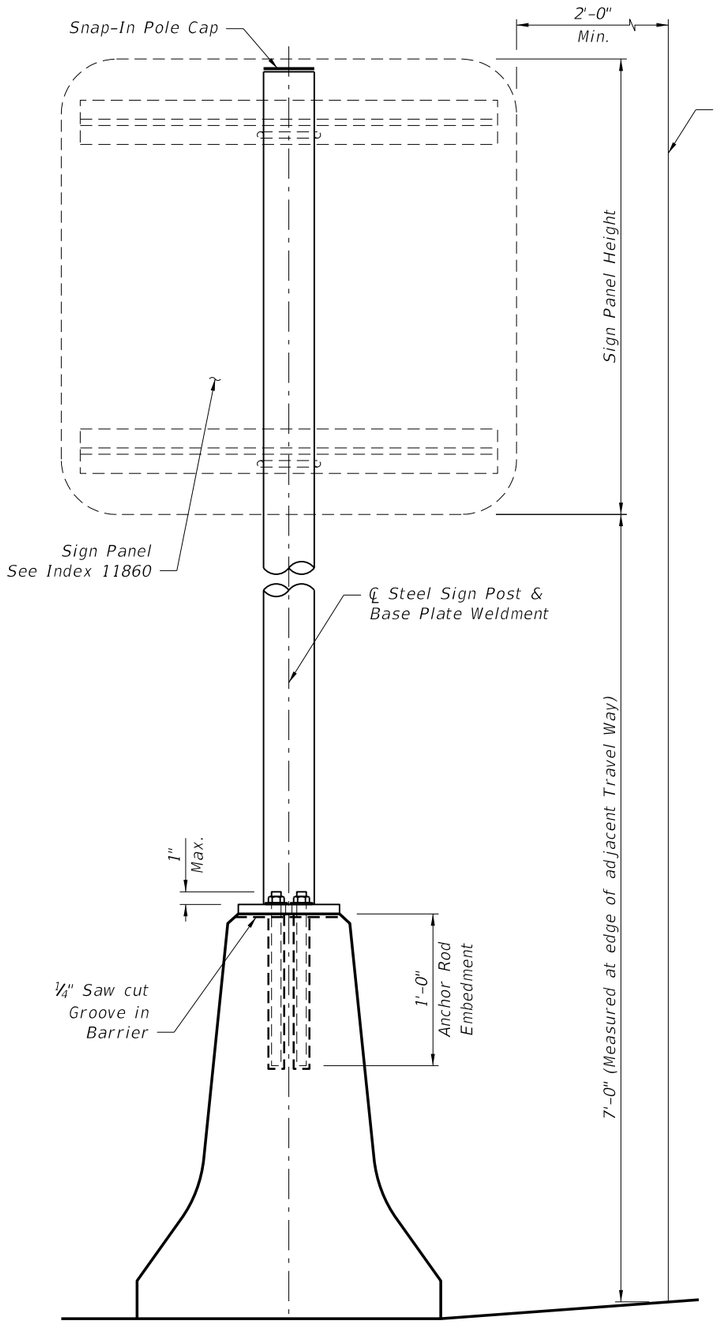
PAYMENT:

Payment for temporary/work zone signs will be made under the existing pay item 102-60- Work Zone Sign, per each. Payment for permanent signs will be made under pay item 700- 20-AB, where A= 2 (Furnish and Install Barrier Mount).

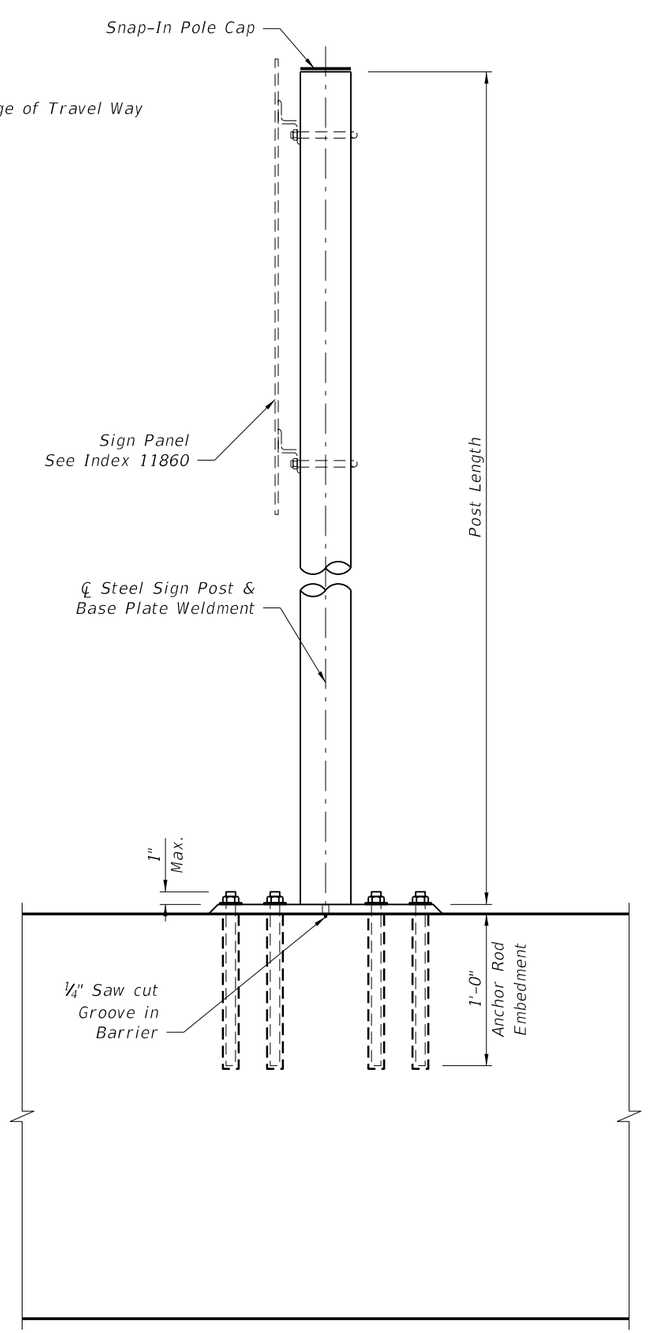
CONTACTS:

For design related issues, contact: Chester Henson at 850-414-4117 or Chester.Henson@dot.state.fl.us

For construction related issues, contact: Stefanie Maxwell at 850-414-4314 Stefanie.Maxwell@dot.state.fl.us



LOOKING PARALLEL TO DIRECTION OF TRAFFIC



LOOKING PERPENDICULAR TO DIRECTION OF TRAFFIC

ELEVATION

(Index 410 Standard "Full Wall" Median Barrier shown; others similar)

NOTES:

DESIGN SPECIFICATIONS:
AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals as modified by the FDOT Structures Manual.

WIND SPEEDS:
See Index 11860, "Wind speeds by County" note.

GEOMETRY:
Maximum Sign Panel Height is 6'-0".
Edges of Sign Panels must be a minimum of 2'-0" clear from edge of adjacent Travel Way.

APPLICABILITY:
Work this Index in conjunction with Index No 11860.

SHOP DRAWINGS:
Shop drawings are not required.

PAYMENT:
Include payment for sign support in the cost of the single post sign assembly.

MATERIALS:
Sign Post: ASTM A53 Grade B, NPS Schedule 40 Steel Pipe, sized per Table 1. Maximum post length is 10'-0".

Snap-In Pole Cap: Provide UV and weather-resistant glass-filled polyester cap.

Steel Plates: ASTM A572 Grade 50 or A709 Grade 50.

Welding: Weld in accordance with American Welding Society Structural Welding Code (Steel), ANSI/DWS D1.1 (current edition). Required weld material is E70XX. Nondestructive testing is not required.

Coatings: Hot dip galvanize all steel, including fasteners, in accordance with Section 962. Galvanize Weldment after fabrication.

INSTALLATION:
Placement: For installations on permanent Median Barriers, locate Sign Support a minimum of 5'-0" away from open joints or transitions. For installations on Temporary Barriers, locate Sign Support at the midpoint along the length of a single segment. In all cases, shift locations as needed to avoid conflicts with reinforcement.

Bearing Surface: Surface of the railing must be structurally sound and free of cracks and spalls. Base plate must be flush with the concrete surface; grind any high spots to obtain a flat, smooth surface.

Saw Cut: For permanent installations only, saw cut a ¼" deep groove transversely across the top of railing at the centerline of base plate vent hole location.

Anchor Rods: Use ASTM F1554 Grade 36, fully threaded rods with A563 or A194 single self-locking hex nuts and F436 washers. Size anchor rods per Table 2.

Adhesive Bonding Material: Install anchor rods using Type HSHV Adhesive Bonding Material System in accordance with Sections 416 & 937.

Removal of Signs: Cut anchor rods flush with top of railing and coat surface with Type F-1 epoxy. Minimum thickness of epoxy is 1/16" extending 2" beyond the location of steel.

TABLE 1 - SIGN PANEL AND POST SIZING

Wind Speed (MPH)	Max. Sign Area (SF)	Post Ø (NPS)
70 - All Temporary Signs	< 20	3.0"
110 & 130	< 13.5	3.0"
	13.5 < Sign < 20	3.5"
150	< 13.5	3.5"
	13.5 < Sign < 20	4.0"

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/12		R1302-- New Index	FDOT DESIGN STANDARDS FY 2012/2013	SINGLE POST MEDIAN BARRIER MOUNTED SIGN SUPPORT	11871	1

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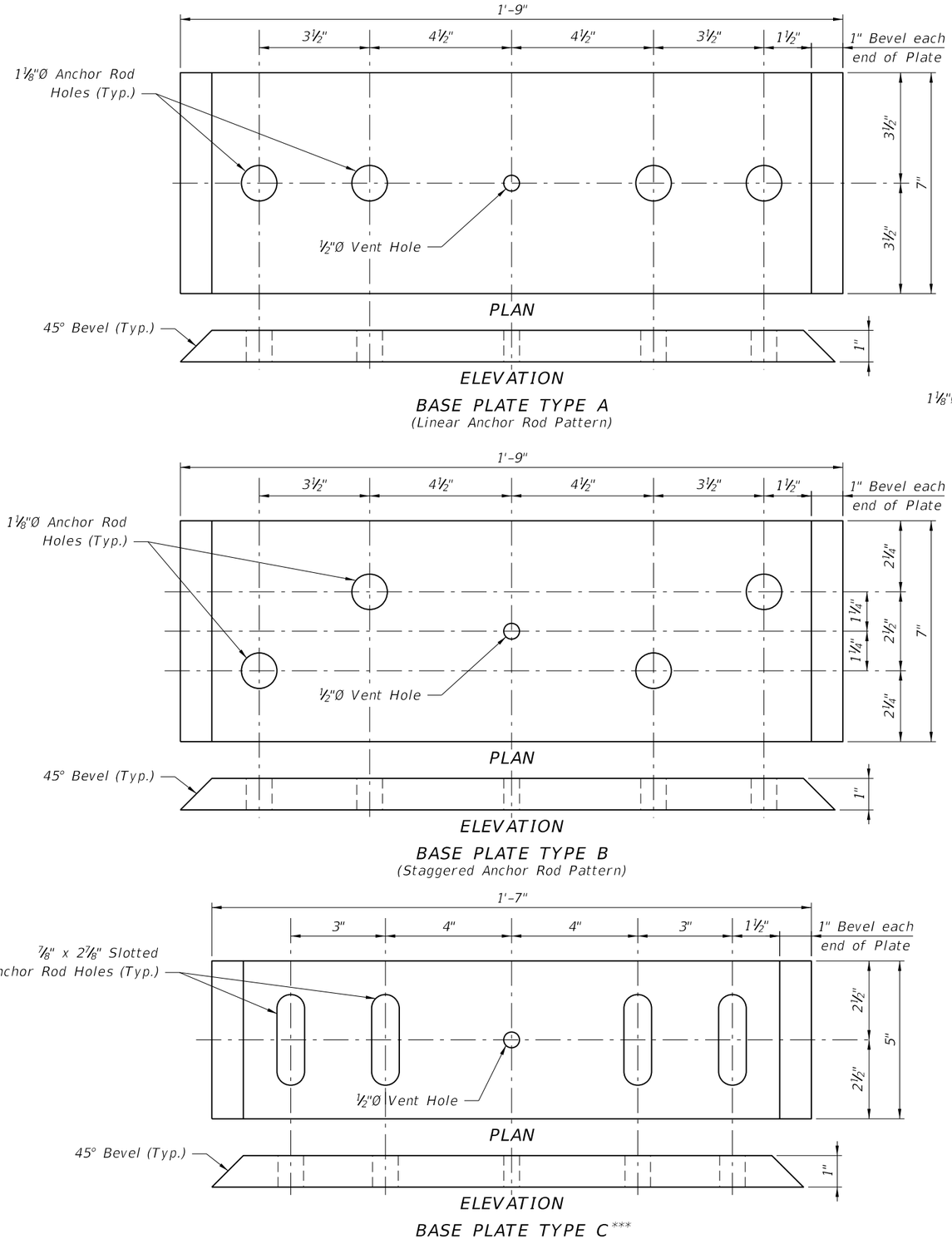

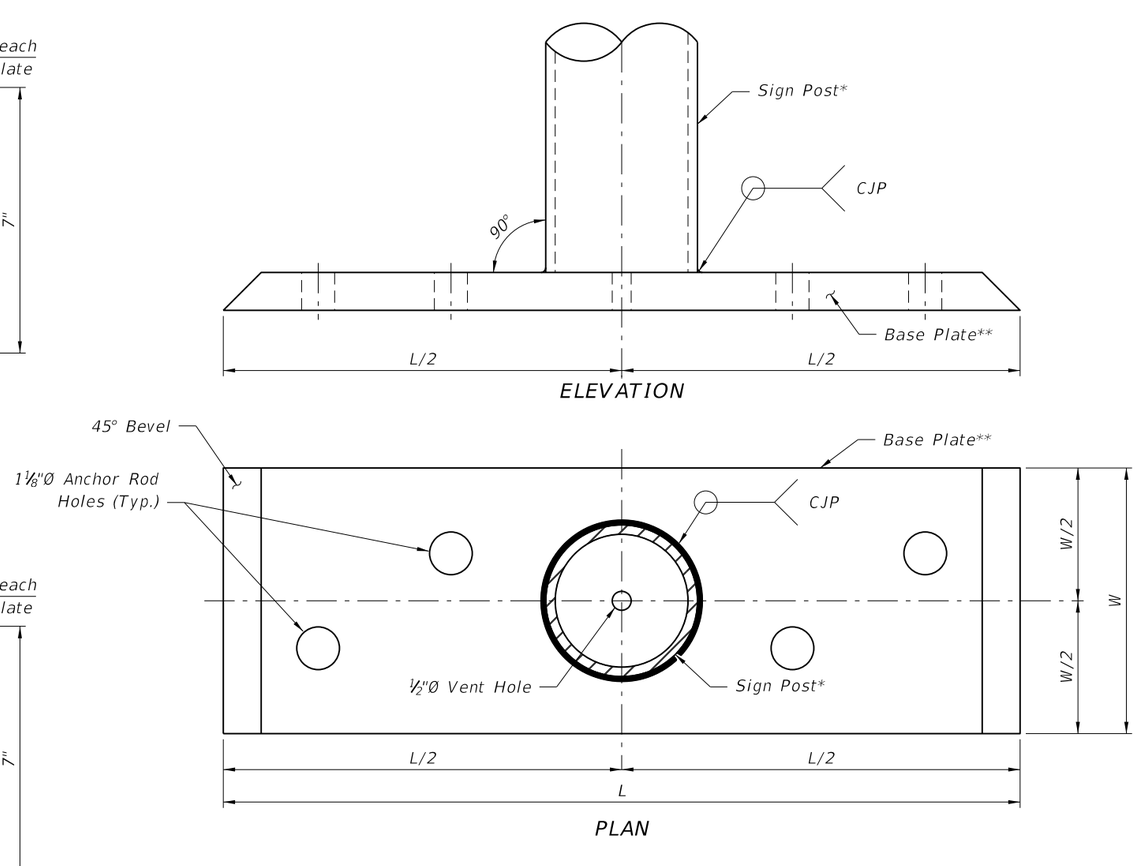

SIGN SUPPORT WELDMENT DETAIL
(Staggered Anchor Rod Pattern shown; Linear Anchor Rod Pattern similar)

* See Table 1, Sheet 1.
** See Table 2, this Sheet.

TABLE 2 - BASE PLATE TYPE AND ANCHOR ROD SIZING

Index No.	Type/Application	Base Plate Type	Anchor Rod Ø
410	Full Wall	B	1"
410	Cantilever or L-Wall	A	
420 & 425	When Clear Space between Dual Bridge Traffic Railing is ≤ 4'-0"	A	
421	All Applications	A	
All listed above Plus 414 & 415	Temporary Signs	C ***	¾" ***

*** Place anchor rods in a staggered or linear pattern as necessary to avoid reinforcing. Use a staggered pattern for all temporary barriers.

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