ORIGINATION FORM

Proposed Revisions to a Standard Plans Index

(Please provide all information — Incomplete forms will be returned)

Contact Information:

Date: May 12, 2022

Originator: Rick Jenkins

Phone: (850) 414-4355

Email: Rick.Jenkins@dot.state.fl.us

Standard Plans:

Index Number: 700-040

Sheet Number (s): 1, 2, and 5 of 5

Index Title: Cantilever Sign Structure

Summary of the changes:

Sheet 1: Updated Notes to General Notes; Added New General Note 1 - "Meet the requirements of Specification 700."; Deleted Notes 4 through 7; Moved Note 5.B to Sheet 5 Notes; Renumbered Notes.

Sheet 2: Deleted Note 7 ; Added Plate Washers to the Anchor Bolts and new callout "5 Nuts Per Anchor Bolt (Typ.)"; in the FOUNDATION details; Updated the Plate Washer callout and the weld references in the BASE PLATE CONNECTION details; Added new note detailing the weld pattern of the 'BD' plates indicating that they should be welded in a star pattern.

Sheet 5: Added General Note 5.B as New Note 3 - "Chord Splices: "SD" Panel from upright is the closest panel in which chord splice may be used. See Plans for CANTILEVER SIGN STRUCTURE DATA TABLE. Minimum splice spacing is two truss panel lengths apart."

Commentary / Background:

The 700 Index Series is being edited to remove material information and other information that is located in the Standard Specifications. Revisions are being made to Specification Sections 700, 962 and 965 in conjunction with these changes.

Sheet 2: New Note - This process is to help prevent residual stress buildup in base plate connection to prevent cracking.

Other Affected Offices / Documents: **(Provide name of person contacted)**

Yes	No	
☑	☐	Other Standard Plans –
☐	☑	FDOT Design Manual – Dewayne Carver
☑	☐	Basis of Estimates Manual – Ryan Gray
☑	☐	Standard Specifications – Daniel Strickland
☐	☑	Approved Product List – Missy Hollis
☐	☑	Construction – Jason Russell
☐	☑	Maintenance – Deanna Hutchison

Origination Package Includes: (Submit package to Rick Jenkins)

Yes	N/A	
☑	☐	Redline Mark-ups
☐	☐	Revised or Proposed Standard Plan Instruction (SPI)
☐	☐	Other Support Documents

Implementation:

- ☐ Design Bulletin (Interim)
- ☐ DCE Memo
- ☐ Program Mgmt. Bulletin
- ☑ FY-Standard Plans (Next Release)

Contact the Roadway Design Office for assistance in completing this form

Email to: Rick Jenkins rick.jenkins@dot.state.fl.us and Darren Martin darren.martin@dot.state.fl.us

UPDATED: GENERAL NOTES:

ADDED NEW NOTE 1: Meet the requirements of Specification 700.

NOTES:

2. 1 Work this Index in conjunction with CANTILEVER SIGN STRUCTURE DATA TABLES in the Plans and Index 700-030.

3. 2 Handholes are required at pole base for DMS Structures. Refer to Index 700-090 for Handhole Details.

4. 3 Shop Drawings are required.

Obtain Shop Drawing approval prior to fabrication. Include the following:
A. Upright Pipe height ('A') and Foundation elevations: Verify dimension in the field prior to submittal to ensure minimum vertical clearances of the sign panel over the roadway.
B. Height of the foundation above adjacent ground.
C. Anchor bolt orientation with respect to centerline of truss and the direction of traffic.
D. Chord Splices
E. Handholes at pole base (when required).

~~4. Materials:~~

A. Sign Structure:
a. Upright and Chords (Steel Pipe): API 5L X42 PSL2, 42 ksi yield or ASTM A500, Grade B (Min.)
b. Steel Angles and Structural Plates and Bars: ASTM A709 Grade 36
c. Weld Material: E70XX
B. Bolts, Nuts and Washers:
a. High Strength Bolts: ASTM F3125, Grade A325 Type 1
b. Nuts: ASTM A563 Grade DH Heavy-Hex
c. Washers: ASTM F436 Type 1, one under turned element
C. Anchor Bolts, Nuts and Washers
a. Anchor Bolts: ASTM F1554 Grade 55
b. Nuts: ASTM A563 Grade A Heavy-Hex (5 per bolt)
c. Plate Washers: ASTM A36 (2 per bolt)
D. Concrete:
a. Spread Footing Concrete: Class IV
b. Drilled Shaft concrete: Class IV (Drilled Shaft)
E. Reinforcing Steel: Specification 415

DELETED

~~5. Fabrication:~~

~~A. Welding: Specification 460-6.4~~
B. Chord Splices: "SD" Panel from upright is the closest panel in which a chord splice may be used. See Plans for CANTILEVER SIGN STRUCTURE DATA TABLE. Minimum splice spacing is two truss panel lengths apart.
C. Upright splices: Not allowed
D. Structural bolt hole diameters: Bolt diameter plus $\frac{1}{16}$"
E. Anchor bolt hole diameters: Bolt diameter plus $\frac{1}{2}$"
F. Hot Dip Galvanize after fabrication.
G. Shop assemble the entire structure after galvanizing to validate/document alignment and clearance for bolted connections as well as contact between connecting plates. Take remedial action, if necessary, prior to shipment.
H. Disassemble, as necessary, and secure components for shipment.

MOVED TO: Sheet 5 Note

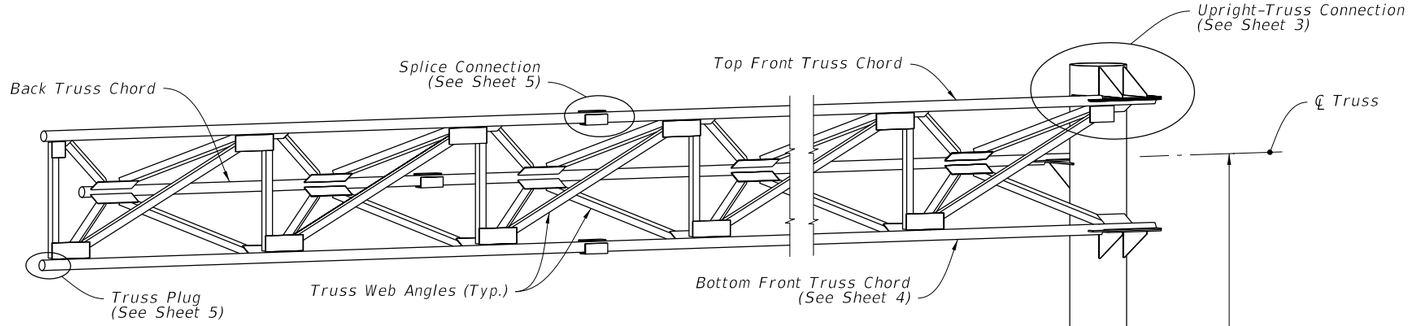
6. Coatings:

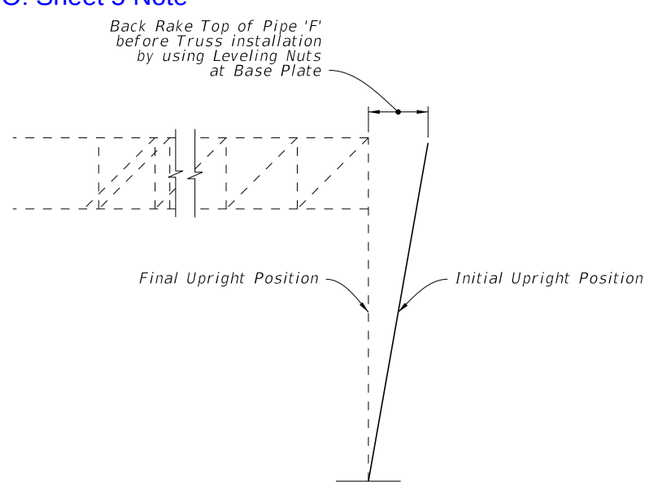
A. Bolts, Nuts and Washers: ASTM F2329
B. All other steel, including Plate Washers, hot dip galvanize: ASTM A123

DELETED

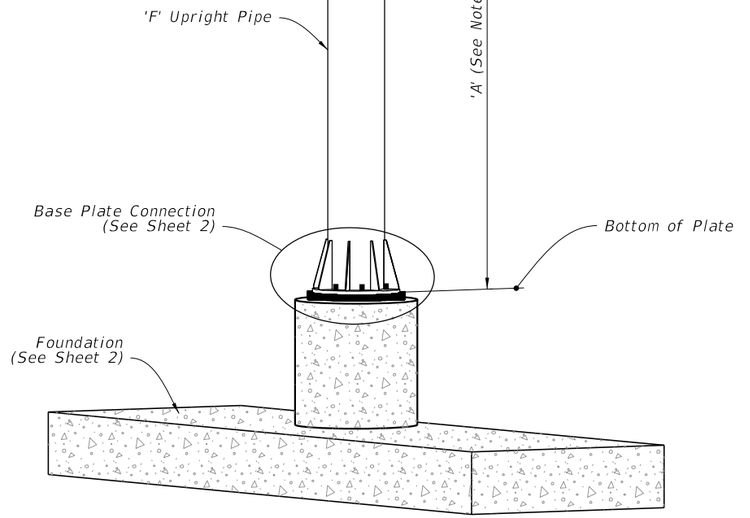
7. Construction:

A. Construct foundation in accordance with Specification 455, except payment is included in the cost of the structure.
B. Prior to erection, record the as-built anchor locations and submit to the Engineer.
C. Place backfill above spread footings prior to installation of the sign panels. Do not remove or reduce backfill without prior approval of the Engineer.
D. Tighten nuts and bolts in accordance with Specification 700. Split-Lock Washers are not permitted.
E. Install Aluminum Sign Panels as shown in the Plans.
F. Place structural grout pad with drain between top of foundation and bottom of baseplate in accordance with Specification 649-7.





CAMBER DIAGRAM



ISOMETRIC VIEW

CANTILEVER SIGN ASSEMBLY

GENERAL COMMENT: Some material, construction, and fabrication information was deleted. Information is either already covered in Standard Specifications OR will be added to Section 700, 962 or 965 in conjunction with these revisions.

9:45:59 AM

9/28/2021

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2022-23 STANDARD PLANS	CANTILEVER SIGN STRUCTURE	INDEX	SHEET
~~11/01/17~~		11/01/22				700-040	1 of 5

ADDED NEW NOTE: Weld plates 'BD' in a star pattern. A star pattern is one in which the plates on opposite and near opposite sides of the pole circle are successively welded in a pattern resembling a star. For an 8 plate circle with plates sequentially numbered 1 to 8, weld the plates in the following order: (1, 5, 7, 3, 8, 4, 6, 2).

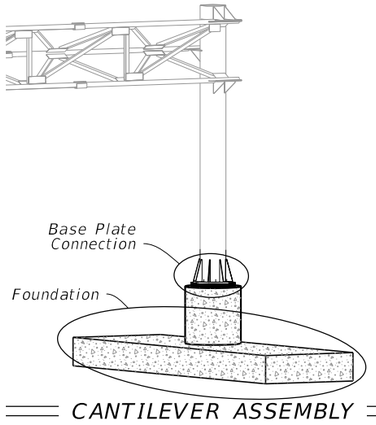
ADDED: Washers

ADDED: 5 Nuts Per Anchor Bolt (Typ.)

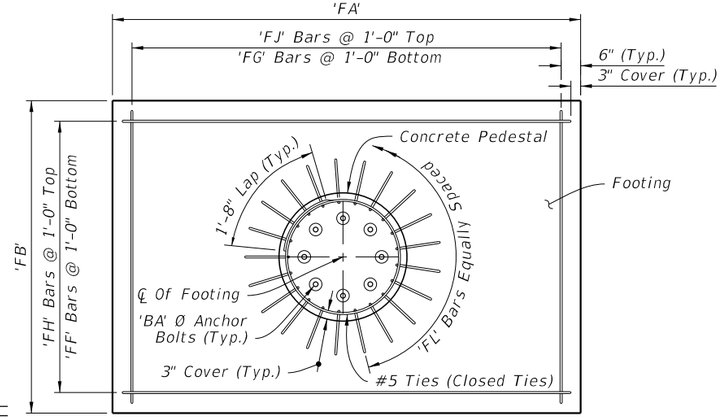
UPDATED: Two Per Anchor Bolt

UPDATED: Reference

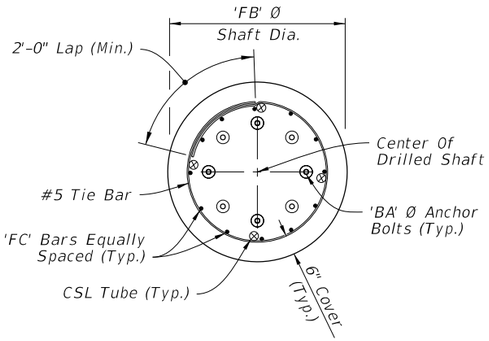
DELETED



CANTILEVER ASSEMBLY



PLAN



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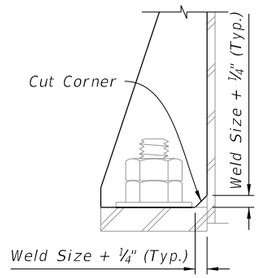

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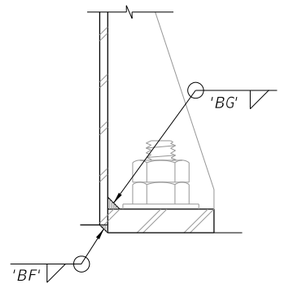

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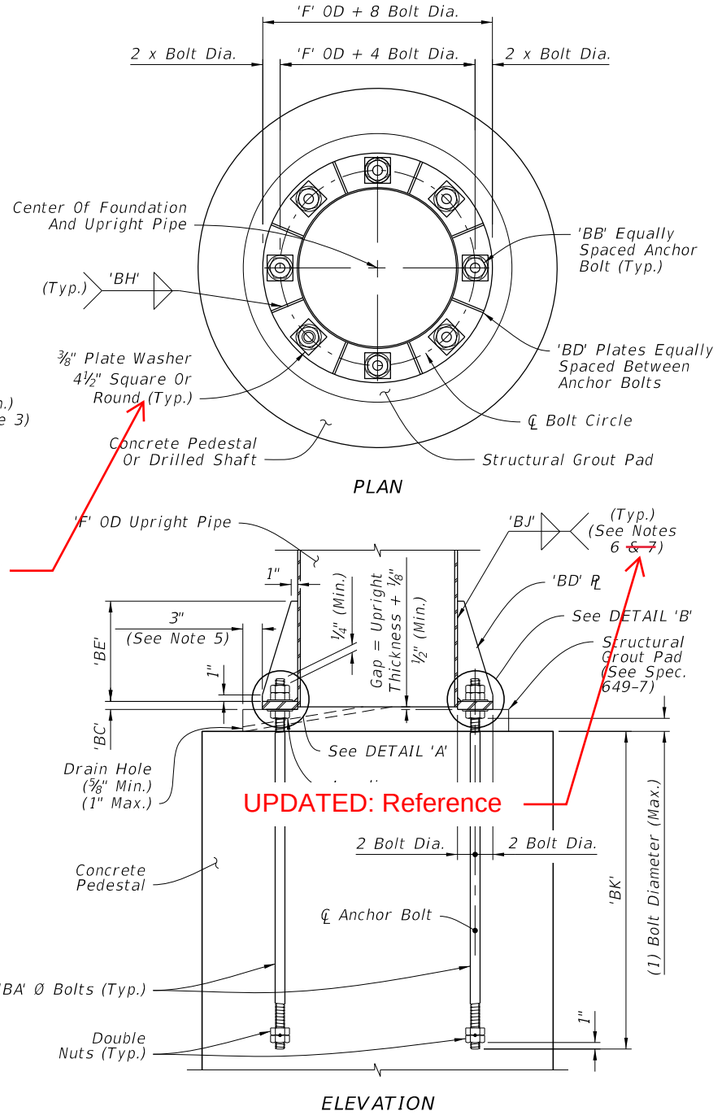
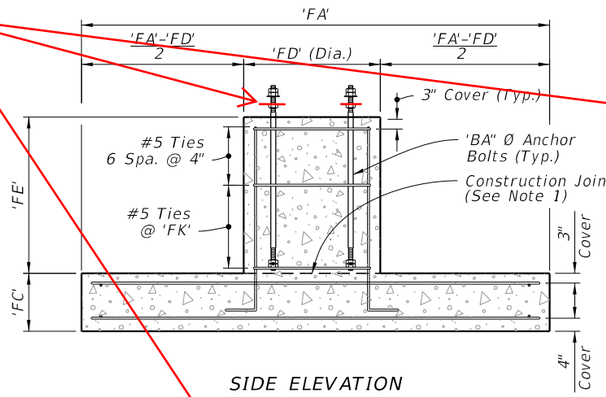


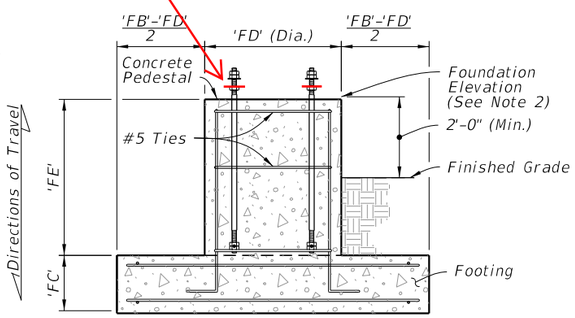
PLAN

ELEVATION

BASE PLATE CONNECTION

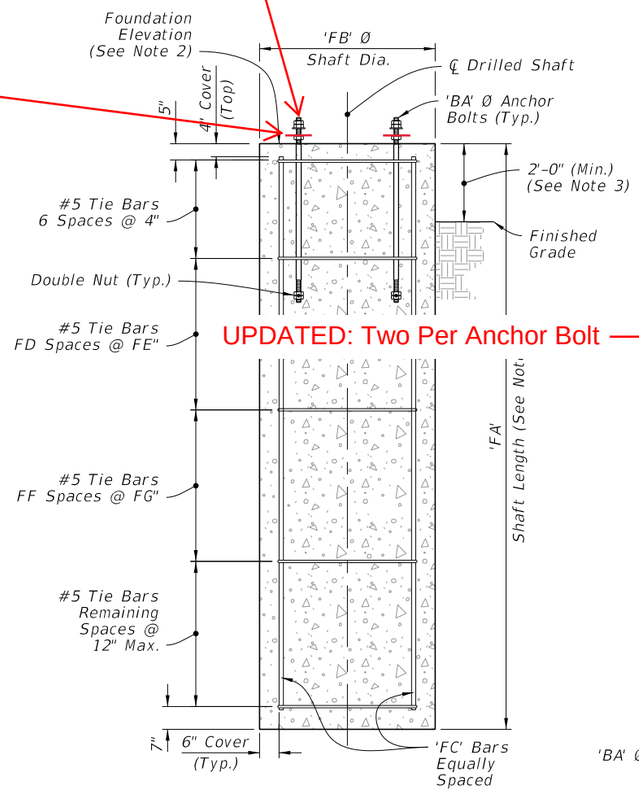


SIDE ELEVATION



FRONT ELEVATION

FOOTING AND PEDESTAL



ELEVATION

DRILLED SHAFT
(Alternate Foundation)

FOUNDATION

NOTES:

1. Construction joint allowed, roughen surface to ¼" minimum amplitude prior to pour.
2. See Traffic Plans for elevation at top of Foundation.
3. Install Drilled Shaft with a 2'-0" minimum from top elevation of the drilled shaft to the finished grade, unless specified otherwise in the plans.
4. The shaft length is based on 2'-0" height above finished grade.
5. Structural Grout Pad dimension may be modified to be less than 3" where the footprint of the Structural Grout Pad does not provide adequate clearance for accessibility considerations.
6. Wrap fillet weld around the stiffener termination on the tube wall.
7. ~~After galvanizing, provide magnetic particle testing on 100% of upright fillet welds.~~

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9/28/2021

LAST REVISION	REVISION	DESCRIPTION:
~~11/01/21~~		11/01/22

FDOT

FY 2022-23 STANDARD PLANS

CANTILEVER SIGN STRUCTURE

INDEX 700-040

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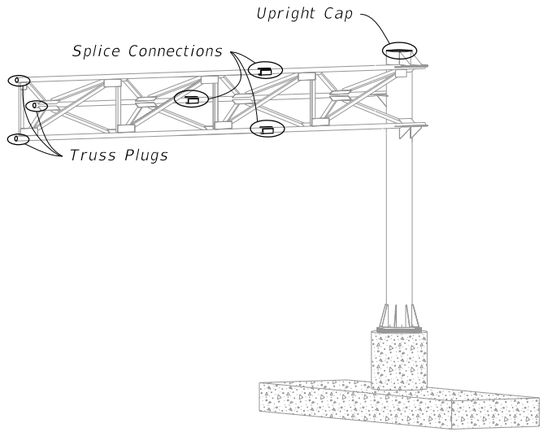
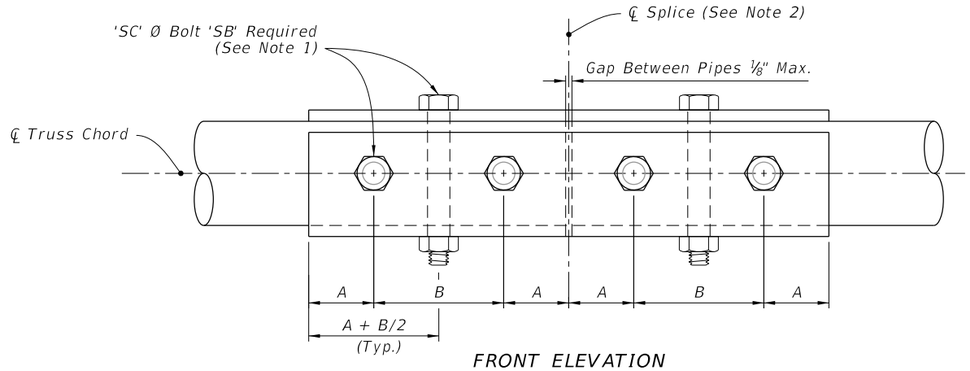
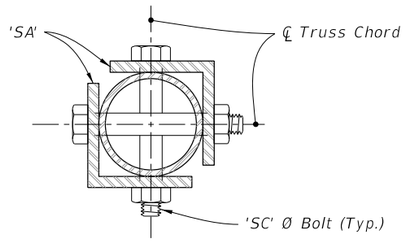


CANTILEVER ASSEMBLY

Bolt Size	Distance	
	A	B
1" Ø	1¾"	3½"
⅞" Ø	1½"	3"
¾" Ø	1¼"	2½"



FRONT ELEVATION



SIDE ELEVATION

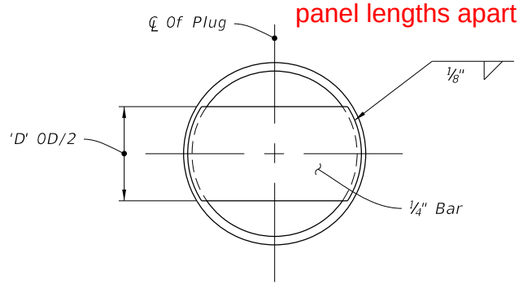
SPLICE CONNECTION DETAIL

SPLICE CONNECTION NOTES:

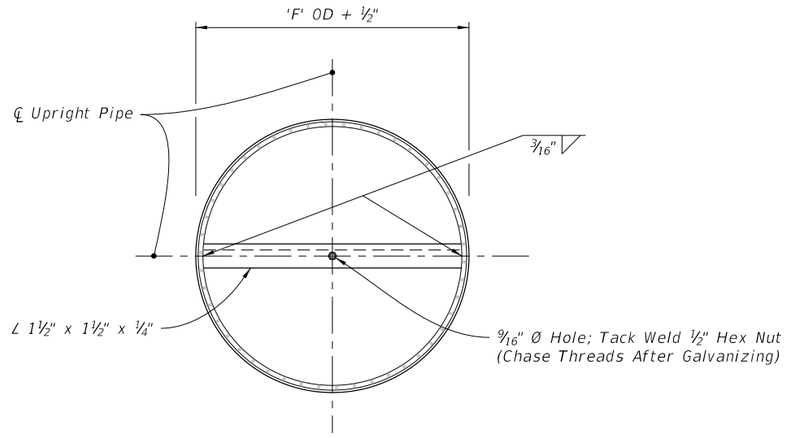
1. Only 6 bolts are shown in detail for clarity. (One Half Each Side Of Splice)

2. Splices are not permitted for trusses less than or equal to 40', Splice optional for trusses greater than 40'.

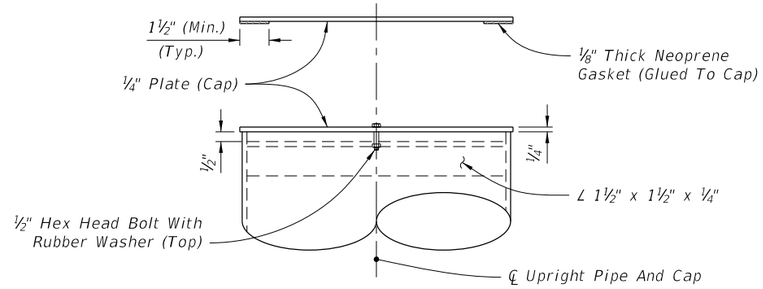
3. ADDED NOTE 3:
Chord Splices: "SD" Panel from upright is the closest panel in which chord splice may be used. See Plans for CANTILEVER SIGN STRUCTURE DATA TABLE. Minimum splice spacing is two truss panel lengths apart



TRUSS PLUG DETAIL



PLAN



ELEVATION

UPRIGHT CAP DETAIL

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9/28/2021

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2022-23 STANDARD PLANS	CANTILEVER SIGN STRUCTURE	INDEX	SHEET
~~11/01/17~~		11/01/22				700-040	5 of 5

GENERAL NOTES:

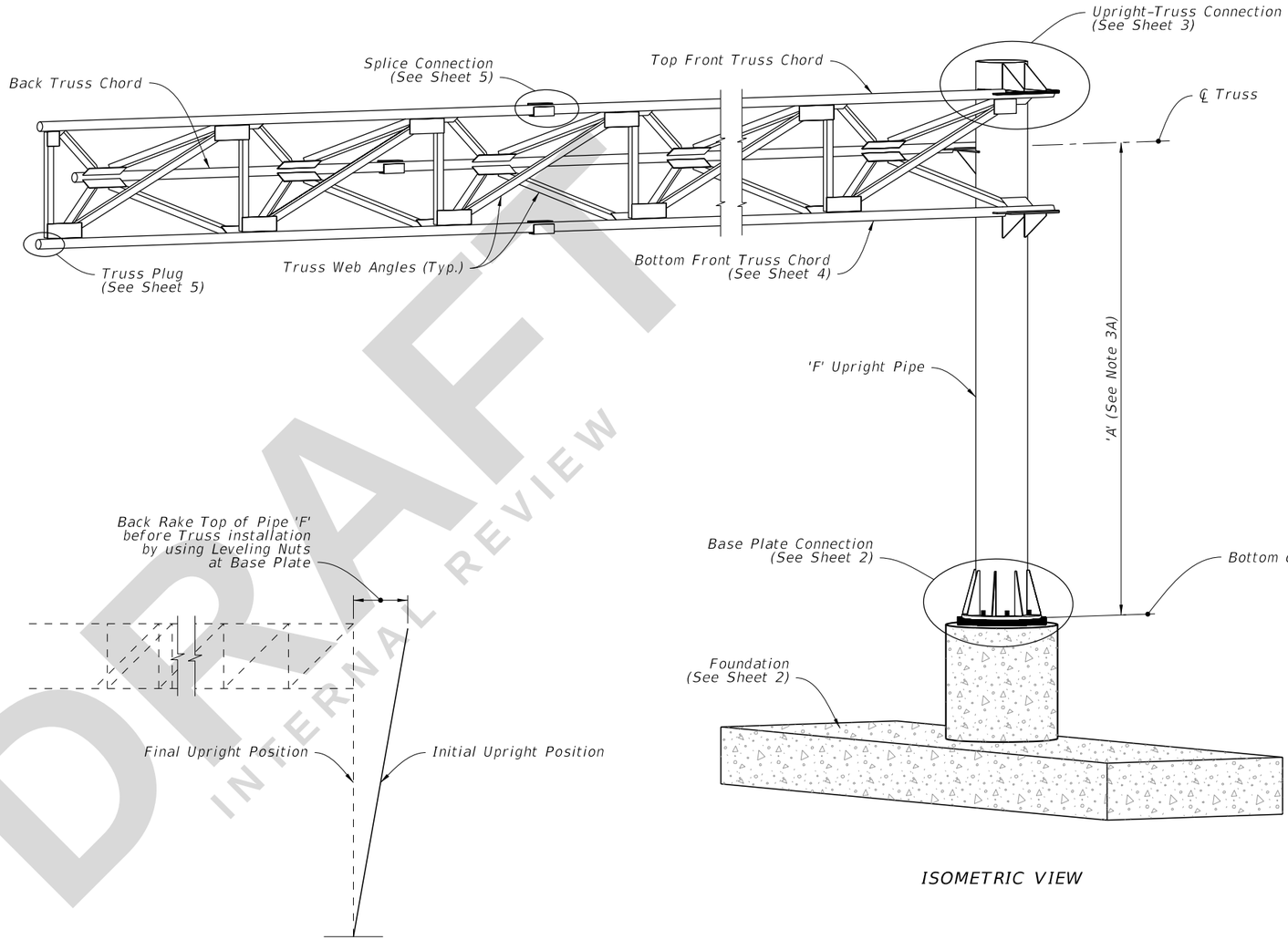
1. Meet the requirements of Specification 700.

2. Work this Index in conjunction with CANTILEVER SIGN STRUCTURE DATA TABLES in the Plans and Index 700-030.

3. Handholes are required at pole base for DMS Structures. Refer to Index 700-090 for Handhole Details.

4. Shop Drawings are required.

   Obtain Shop Drawing approval prior to fabrication. Include the following:
   A. Upright Pipe height ('A') and Foundation elevations: Verify dimension in the field prior to submittal to ensure minimum vertical clearances of the sign panel over the roadway.
   B. Height of the foundation above adjacent ground.
   C. Anchor bolt orientation with respect to centerline of truss and the direction of traffic.
   D. Chord Splices
   E. Handholes at pole base (when required).



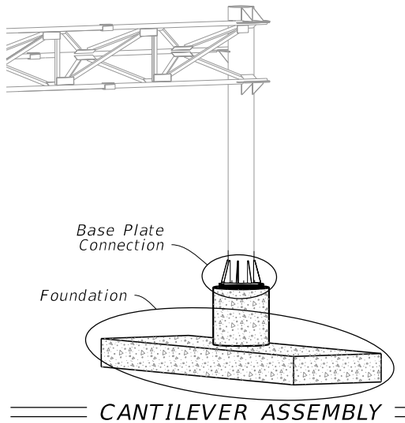
CAMBER DIAGRAM

ISOMETRIC VIEW

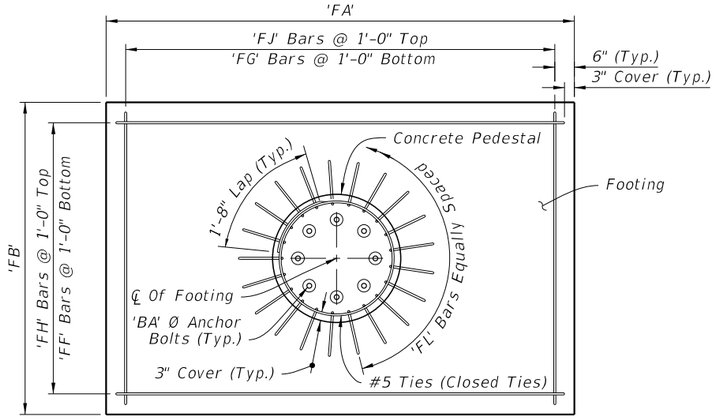
CANTILEVER SIGN ASSEMBLY

6/13/2022 11:36:00 AM

LAST REVISION	REVISION	DESCRIPTION:	FY 2023-24 STANDARD PLANS	CANTILEVER SIGN STRUCTURE	INDEX	SHEET
11/01/22					700-040	1 of 5



CANTILEVER ASSEMBLY



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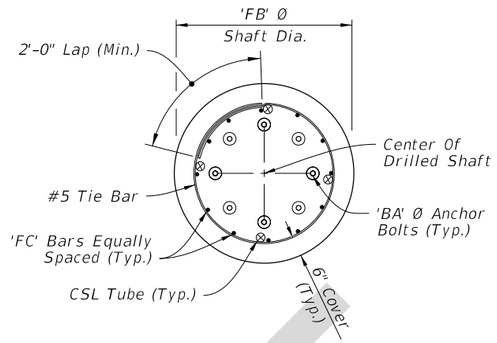

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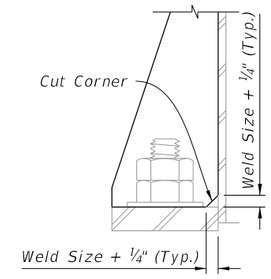

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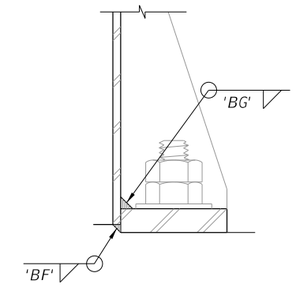

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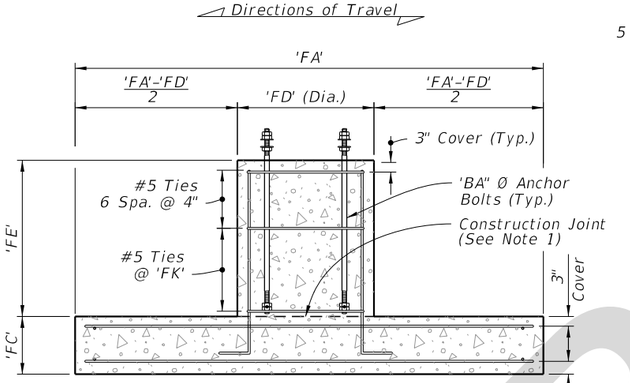
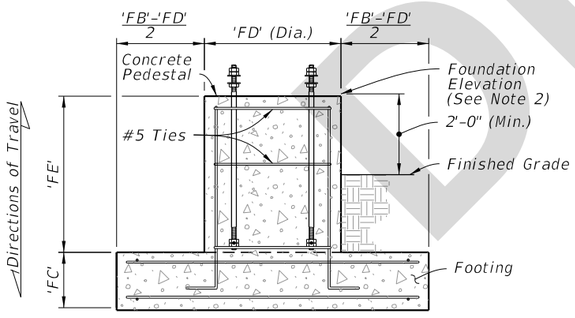
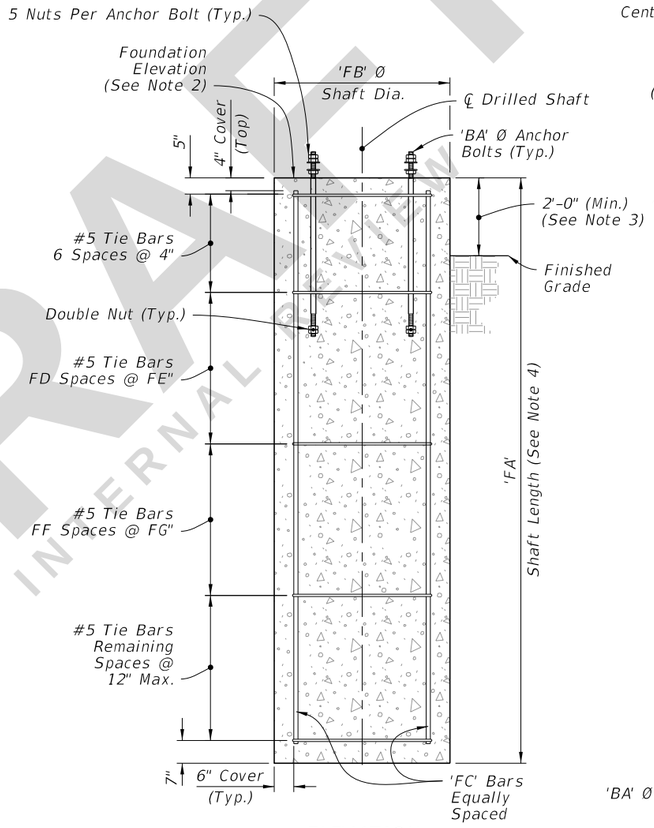


SIDE ELEVATION



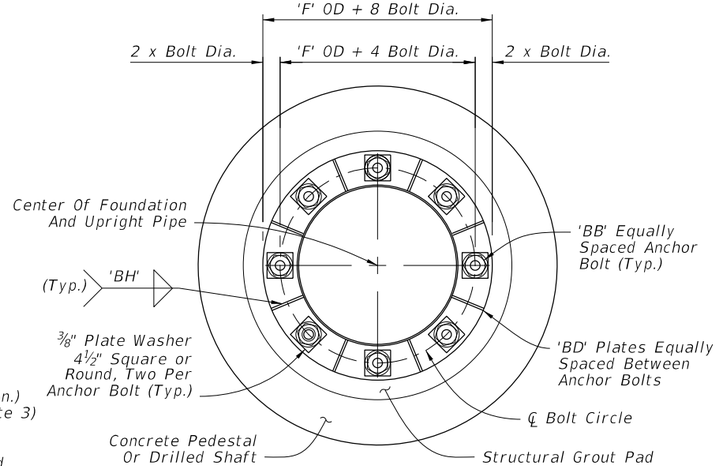
FRONT ELEVATION

FOOTING AND PEDESTAL



ELEVATION

DRILLED SHAFT
(Alternate Foundation)



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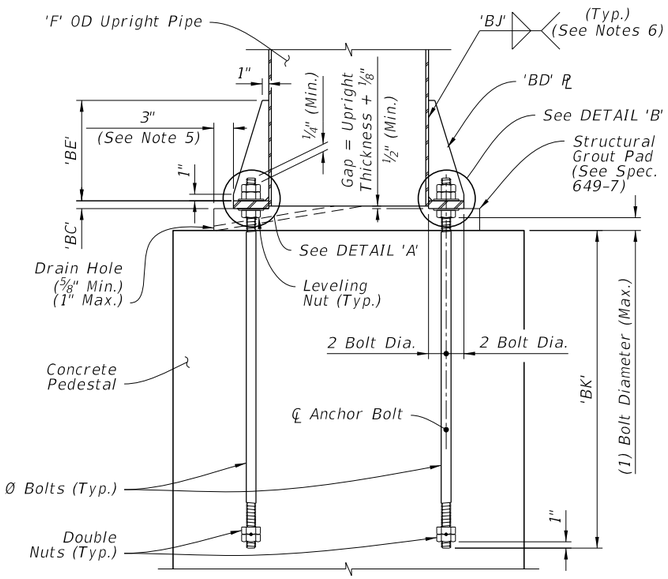

ELEVATION

FOUNDATION

BASE PLATE CONNECTION

NOTES:

1. Construction joint allowed, roughen surface to ¼" minimum amplitude prior to pour.
2. See Traffic Plans for elevation at top of Foundation.
3. Install Drilled Shaft with a 2'-0" minimum from top elevation of the drilled shaft to the finished grade, unless specified otherwise in the plans.
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6. Wrap fillet weld around the stiffener termination on the tube wall.
7. Weld plates 'BD' in a star pattern. A star pattern is one in which the plates on opposite and near opposite sides of the pole circle are successively welded in a pattern resembling a star. For an 8 plate circle with plates sequentially numbered 1 to 8, weld the plates in the following order: (1, 5, 7, 3, 8, 4, 6, 2).

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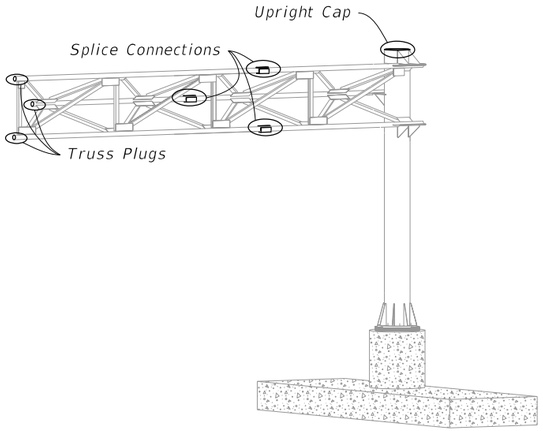
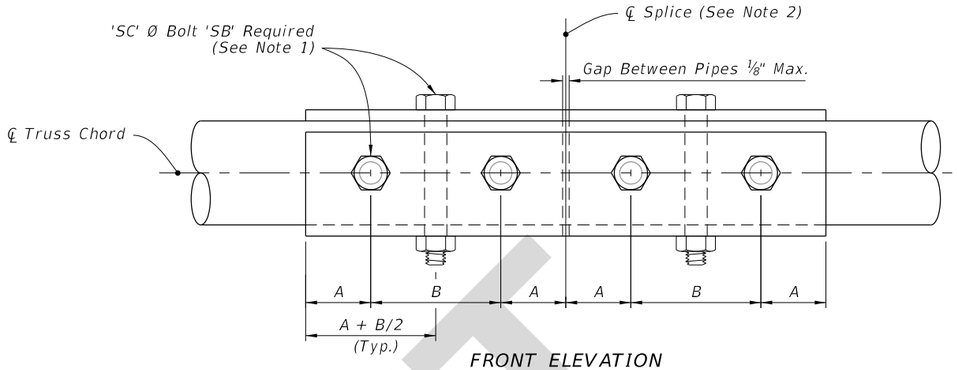
LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/22			FDOT FY 2023-24 STANDARD PLANS	CANTILEVER SIGN STRUCTURE	700-040	2 of 5

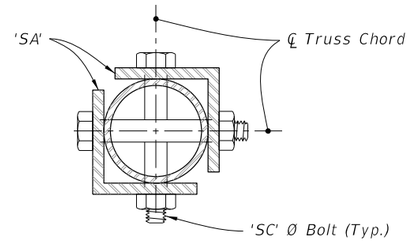


CANTILEVER ASSEMBLY

Bolt Size	Distance	
	A	B
1" Ø	1¾"	3½"
⅞" Ø	1½"	3"
¾" Ø	1¼"	2½"



FRONT ELEVATION

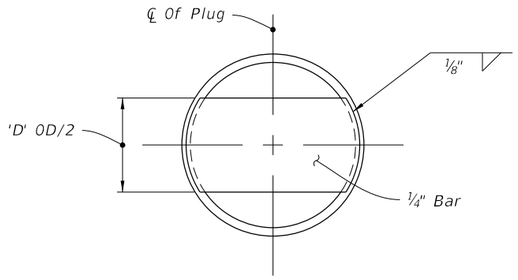


SIDE ELEVATION

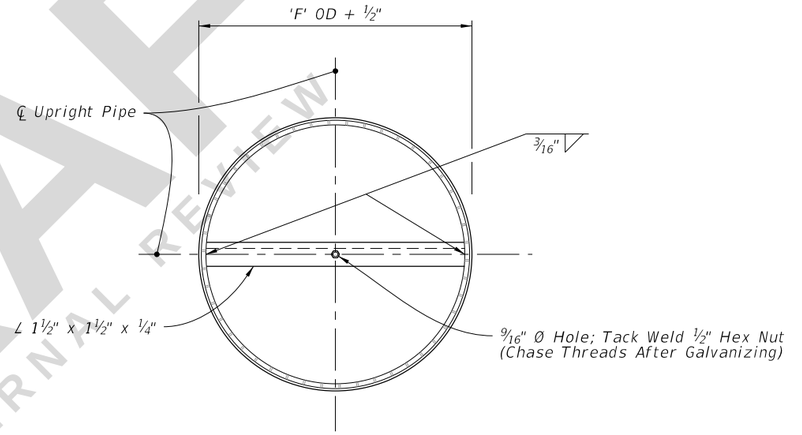
SPLICE CONNECTION DETAIL

SPLICE CONNECTION NOTES:

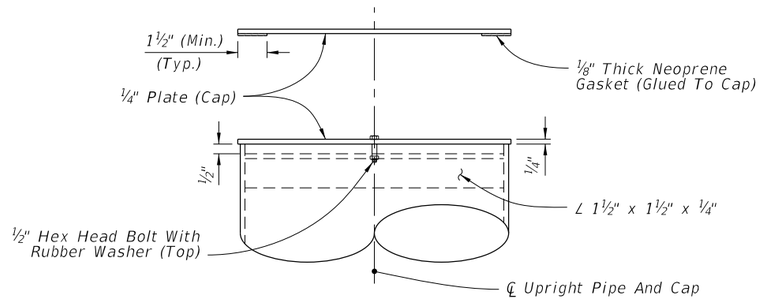
1. Only 6 bolts are shown in detail for clarity. (One Half Each Side Of Splice)
2. Splices are not permitted for trusses less than or equal to 40', Splice optional for trusses greater than 40'.
3. Chord Splices: "SD" Panel from upright is the closest panel in which a chord splice may be used. See Plans for CANTILEVER SIGN STRUCTURE DATA TABLE. Minimum splice spacing is two truss panel lengths apart.



TRUSS PLUG DETAIL



PLAN



ELEVATION

UPRIGHT CAP DETAIL

6/13/2022 11:36:10 AM

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2023-24 STANDARD PLANS	CANTILEVER SIGN STRUCTURE	INDEX	SHEET
11/01/22						700-040	5 of 5