
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/Joshua Turley
Phone: (850) 414-4355
Email: Rick.Jenkins@dot.state.fl.us

Standard Plans:

Index Number: 700-040
Sheet Number (s): All 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; Changed dimension 'BK' extents in Base Plate Connection detail to match calculations.
- Sheet 3: Updated line work on Section A-A to correctly reflect correct geometry; Added (See Sheet 1) to the 'TH' and the 'TF' welds.
- Sheet 4: Corrected reference in Detail F.
- 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; Updating for errors and clarity.

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

Sheet 3: Updated for errors and clarity

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

- | Yes | No | |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Other Standard Plans – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | FDOT Design Manual – Dewayne Carver |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Basis of Estimates Manual – Ryan Gray |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Standard Specifications – Daniel Strickland |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Approved Product List – Missy Hollis |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Construction – Jason Russell |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Maintenance – Deanna Hutchison |

Origination Package Includes: (Submit package to Rick Jenkins)

- | Yes | N/A | |
|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Redline Mark-ups |
| <input type="checkbox"/> | <input type="checkbox"/> | Revised or Proposed Standard Plan Instruction (SPI) |
| <input type="checkbox"/> | <input type="checkbox"/> | Other Support Documents |

Implementation:

- | | |
|-------------------------------------|----------------------------------|
| <input type="checkbox"/> | Design Bulletin (Interim) |
| <input type="checkbox"/> | DCE Memo |
| <input type="checkbox"/> | Program Mgmt. Bulletin |
| <input checked="" type="checkbox"/> | 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. 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).

~~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 1/16"
- E. Anchor bolt hole diameters: Bolt diameter plus 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

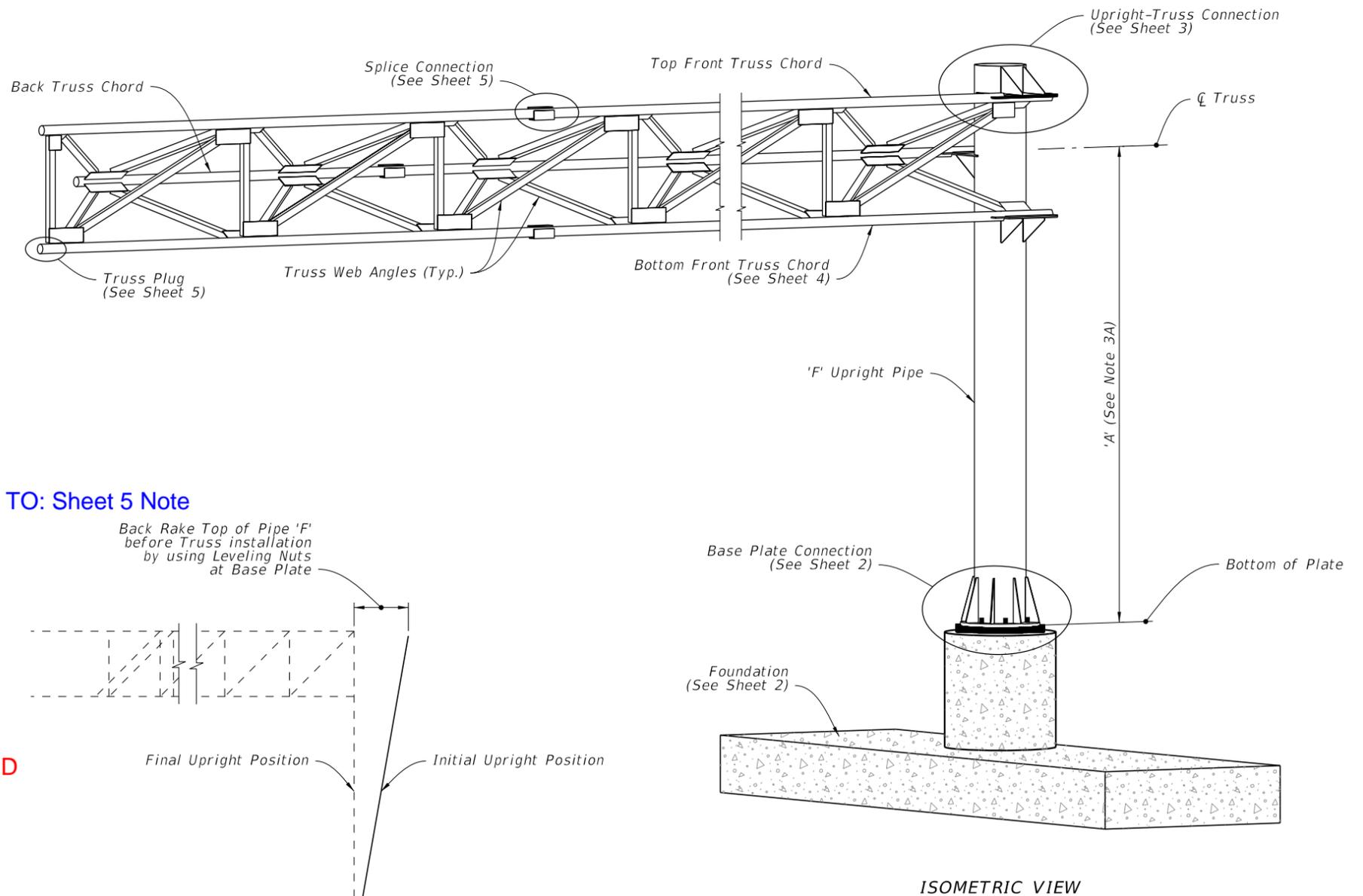
~~6. Coatings:~~

- 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

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.

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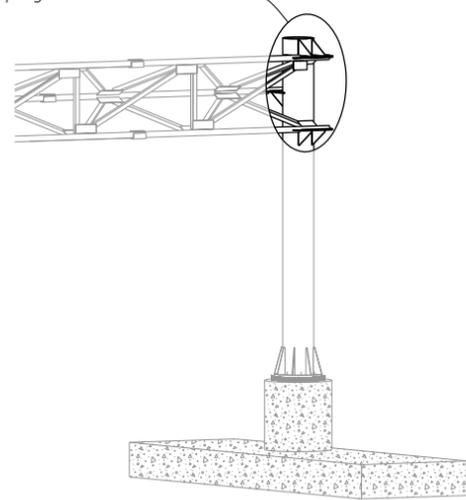
FY 2022-23
STANDARD PLANS

CANTILEVER SIGN STRUCTURE

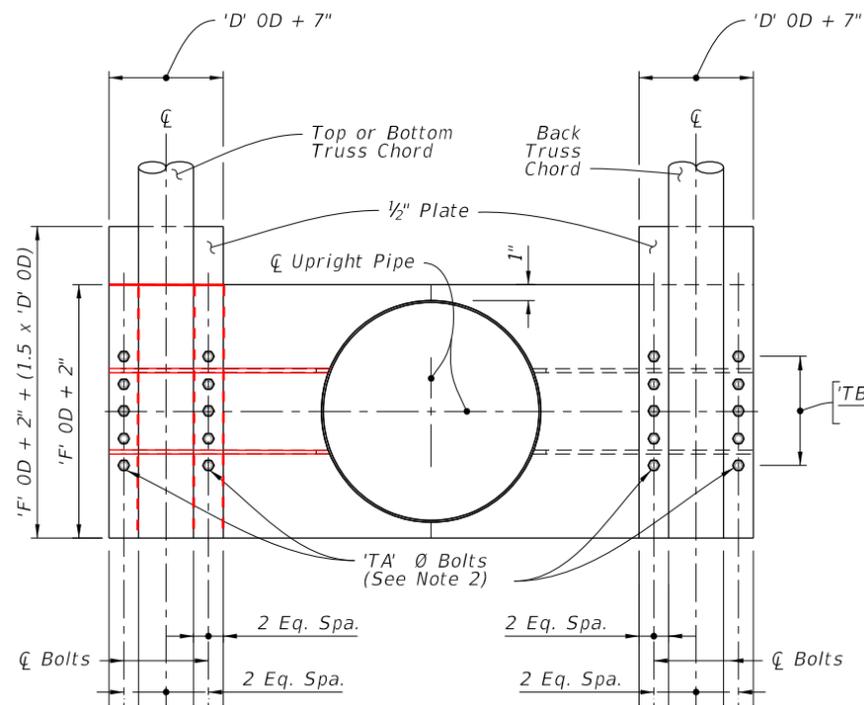
INDEX
700-040

SHEET
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Upright-Truss Connection

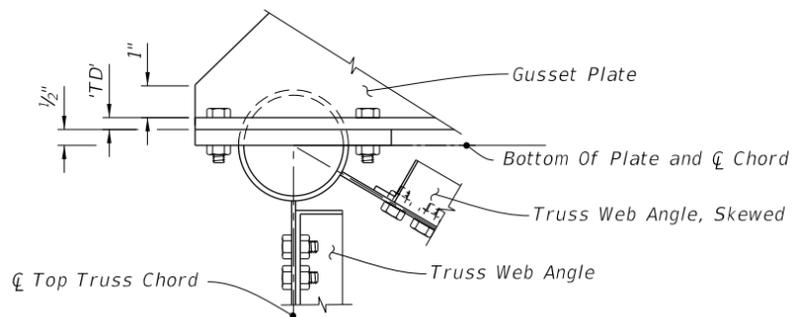


CANTILEVER ASSEMBLY

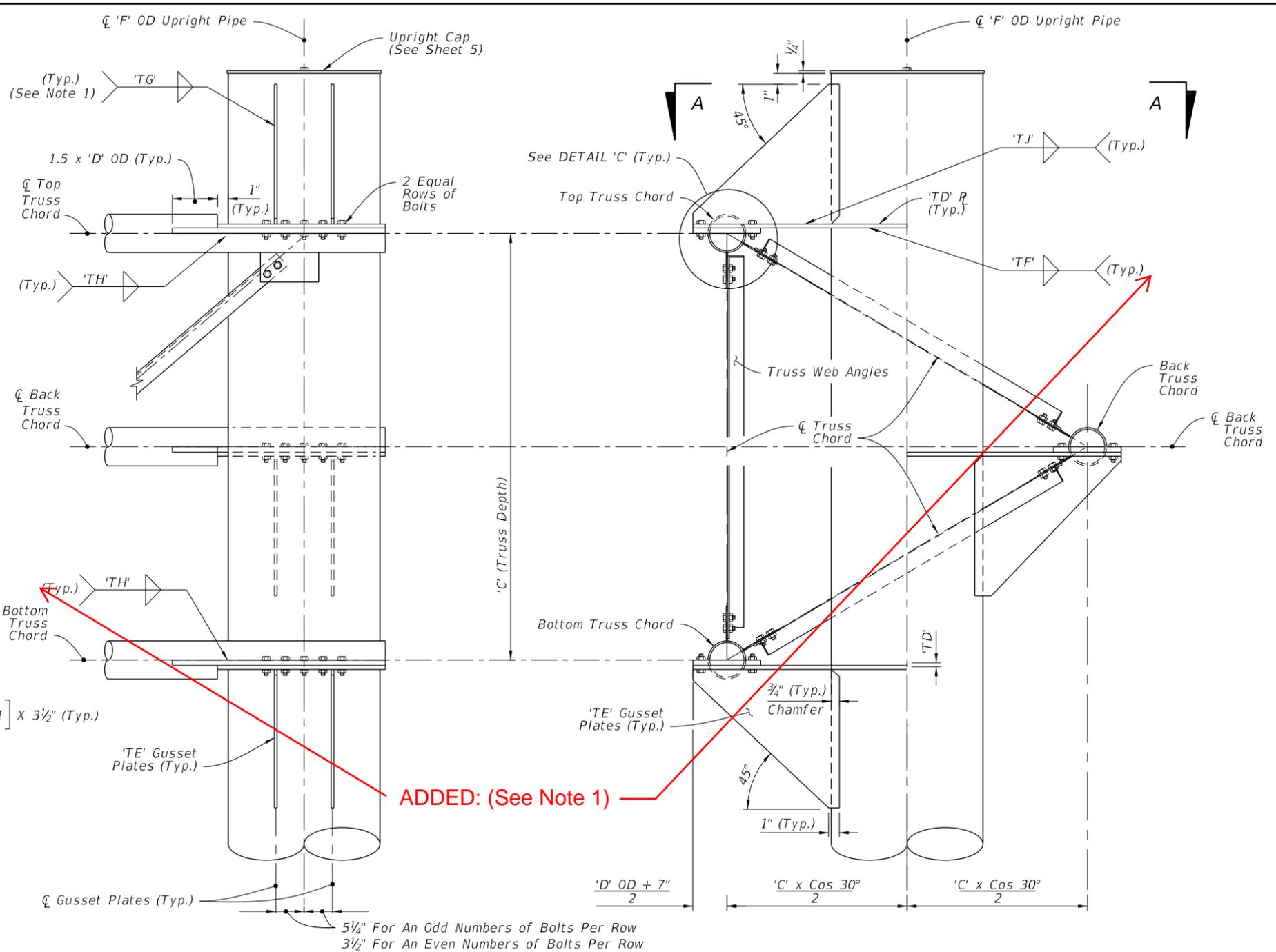


SECTION A-A

(With Gusset Plates And Web Angles Omitted For Clarity)



DETAIL 'C'



FRONT ELEVATION

SIDE ELEVATION

UPRIGHT-TRUSS CONNECTION DETAIL

(Web Members From Back Truss Chord Omitted For Clarity)

NOTE:

1. Wrap fillet weld around the stiffener termination on the tube wall.
2. Truss Chord Bolts:
 - A. Top and Bottom: Install 'TC' hex head bolts.
 - B. Back: Install 'TB' hex head bolts.

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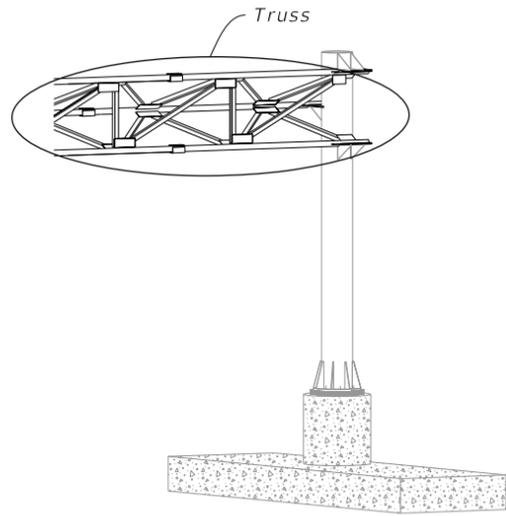


FY 2022-23
STANDARD PLANS

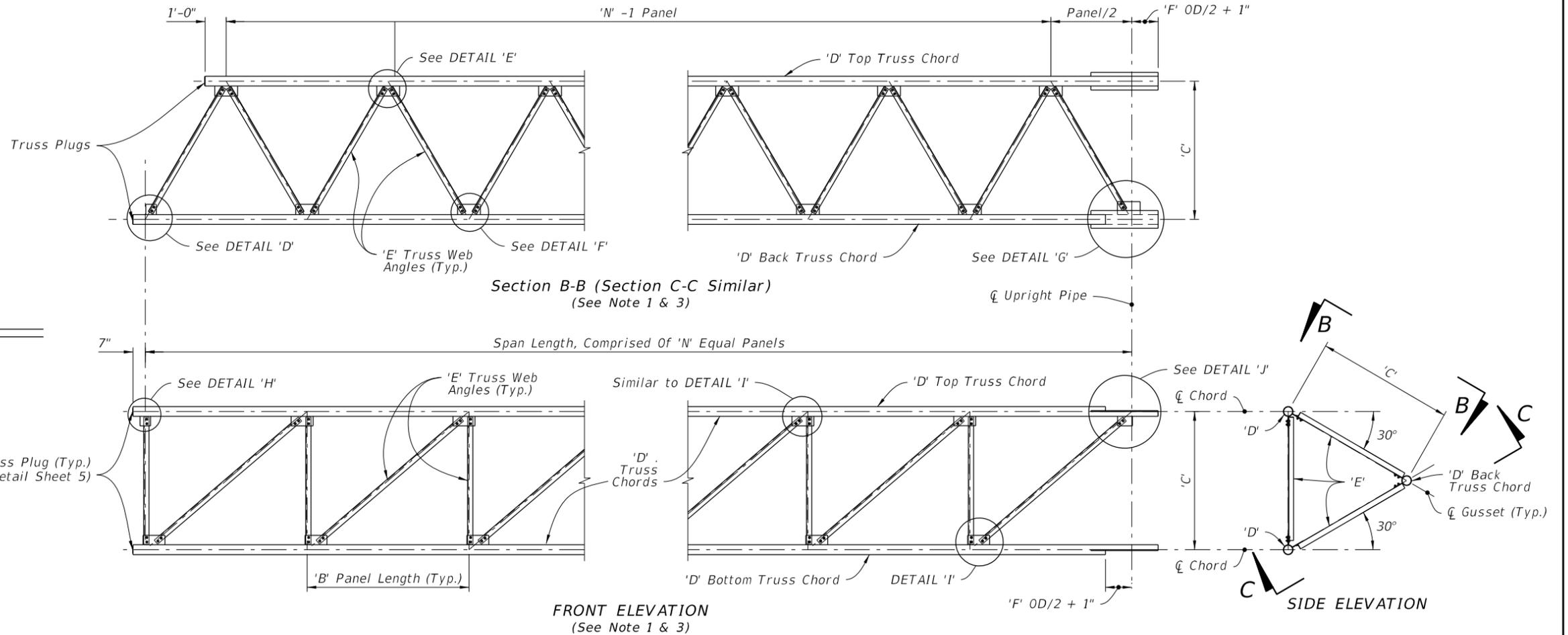
CANTILEVER SIGN STRUCTURE

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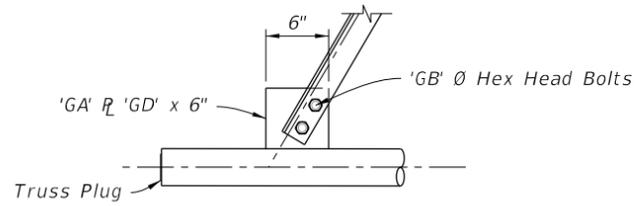
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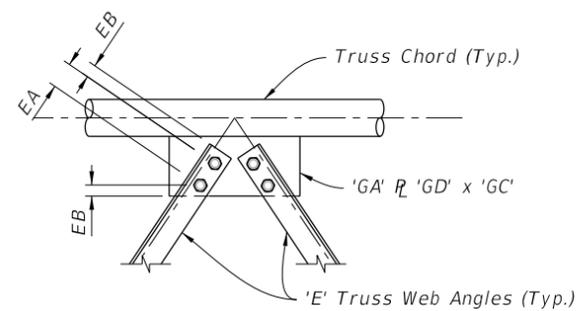
TRUSS NOTES:

1. Out-of-plane members are not shown for clarity.
2. Wrap fillet weld around plate termination on the tube wall.
3. Chord Splices not shown.

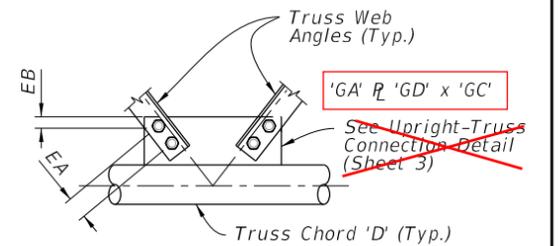
Bolt Size	Distance	
	EA	EB
1 1/4" Ø	4 3/8"	2 1/4"
1" Ø	3 1/2"	1 3/4"
7/8" Ø	3"	1 1/2"
3/4" Ø	2 1/2"	1 1/4"
5/8" Ø	2 1/4"	1 1/8"



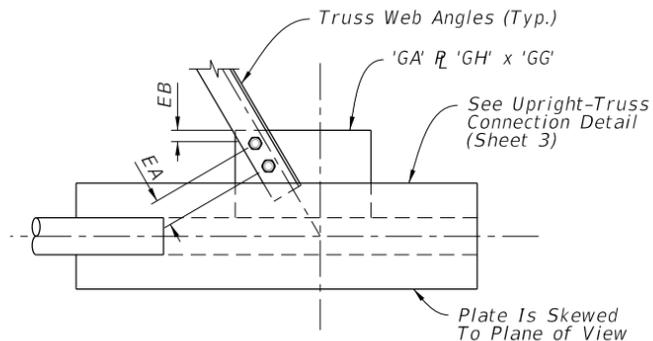
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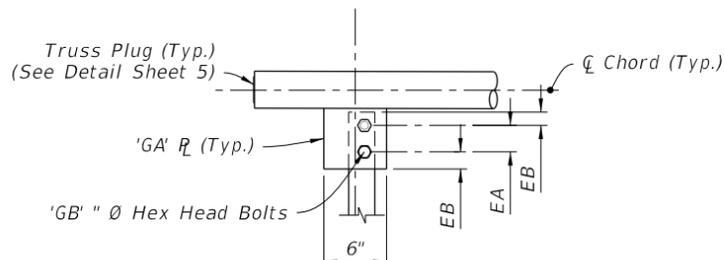
DETAIL 'E'



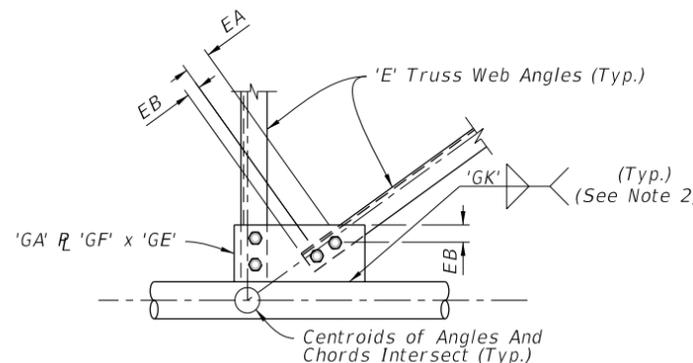
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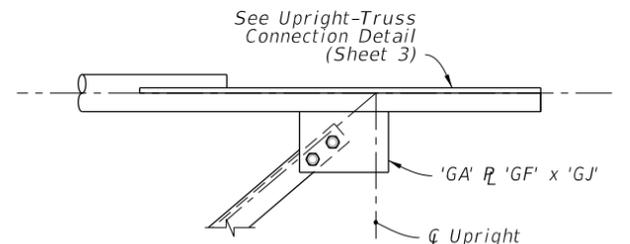
DETAIL 'G'



DETAIL 'H'



DETAIL 'I'



DETAIL 'J'

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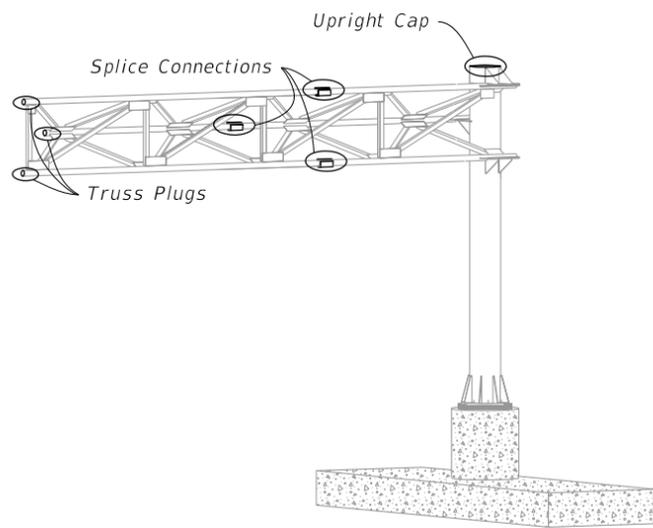


FY 2022-23
STANDARD PLANS

CANTILEVER SIGN STRUCTURE

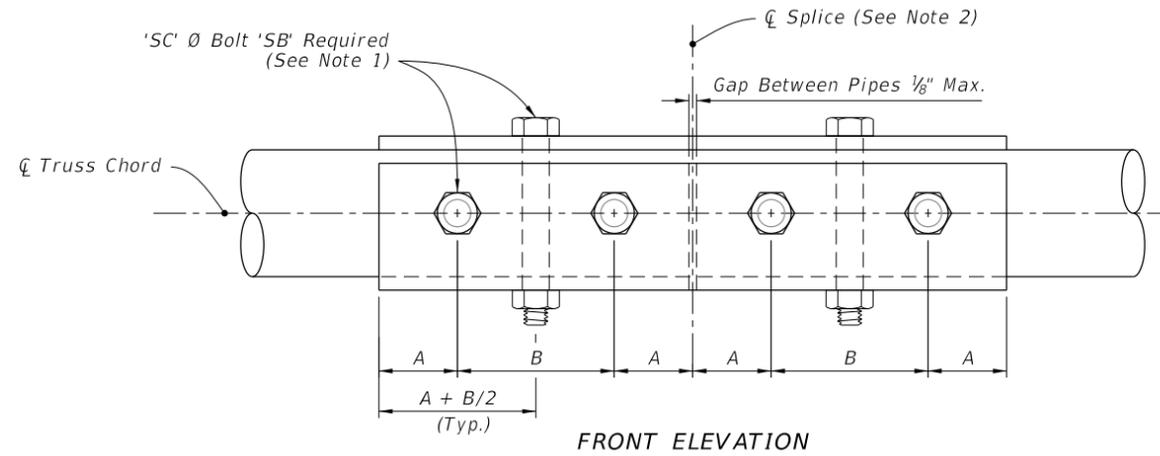
INDEX
700-040

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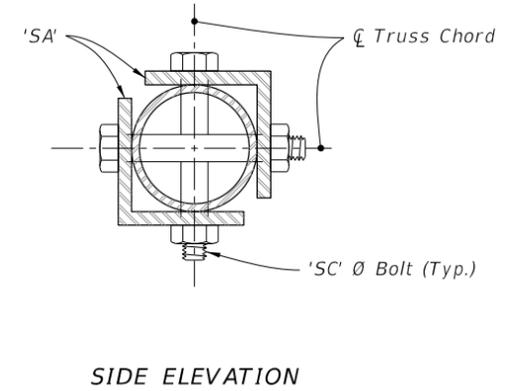


CANTILEVER ASSEMBLY

Bolt Size	Distance	
	A	B
1" Ø	1 3/4"	3 1/2"
7/8" Ø	1 1/2"	3"
3/4" Ø	1 1/4"	2 1/2"



SPLICE CONNECTION DETAIL

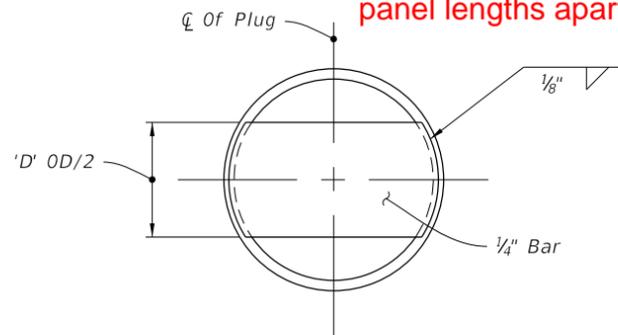


SPLICE CONNECTION NOTES:

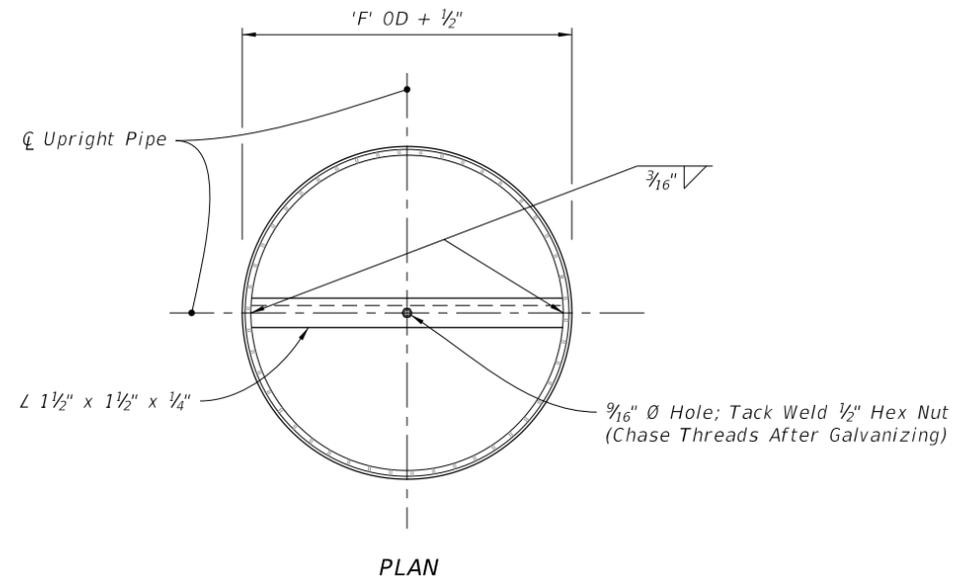
1. Only 6 bolts are shown in detail for clarity. (One Half Each Side Of Splice)
2. Splices are not permitted for trusses less than or equal to 40'. Splice optional for trusses greater than 40'.

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

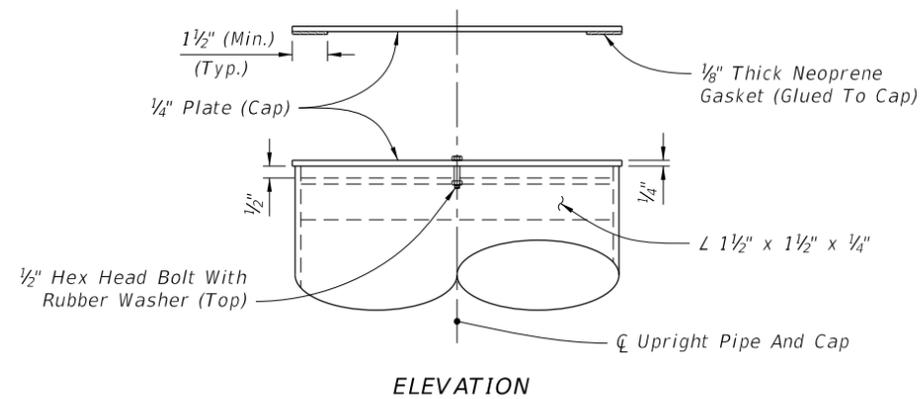
3. ←



TRUSS PLUG DETAIL



PLAN



UPRIGHT CAP DETAIL

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11/01/17	REVISION
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FY 2022-23
 STANDARD PLANS

CANTILEVER SIGN STRUCTURE

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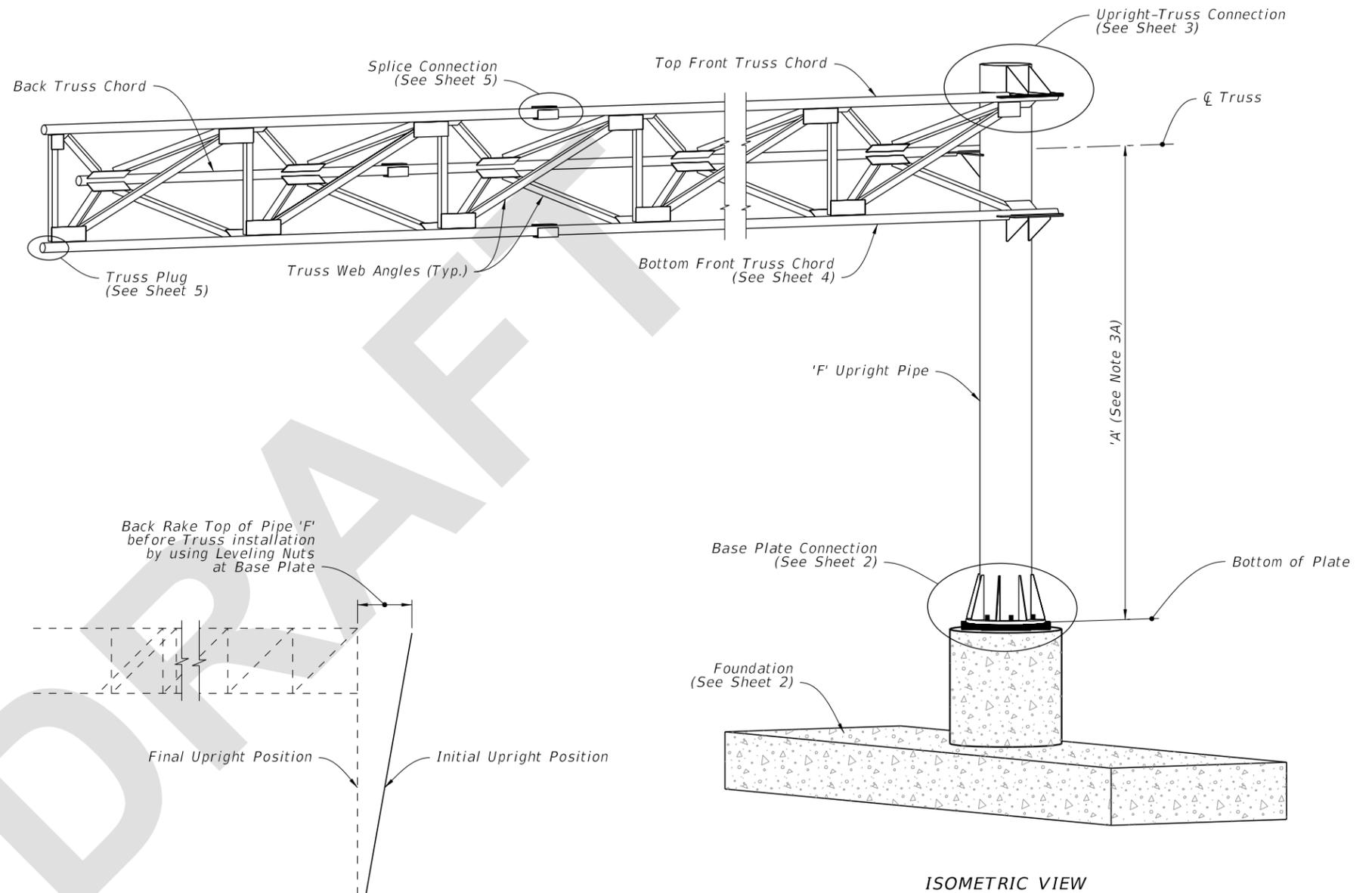
SHEET
 5 of 5

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).

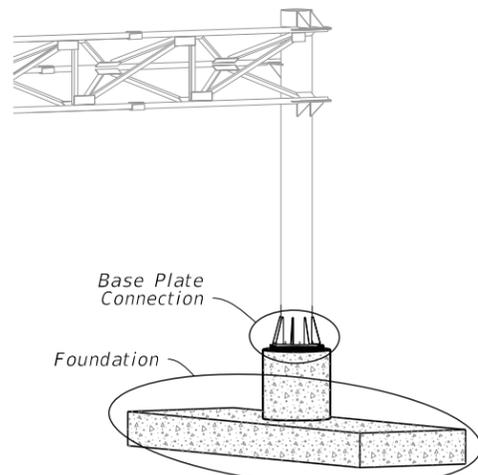


CAMBER DIAGRAM

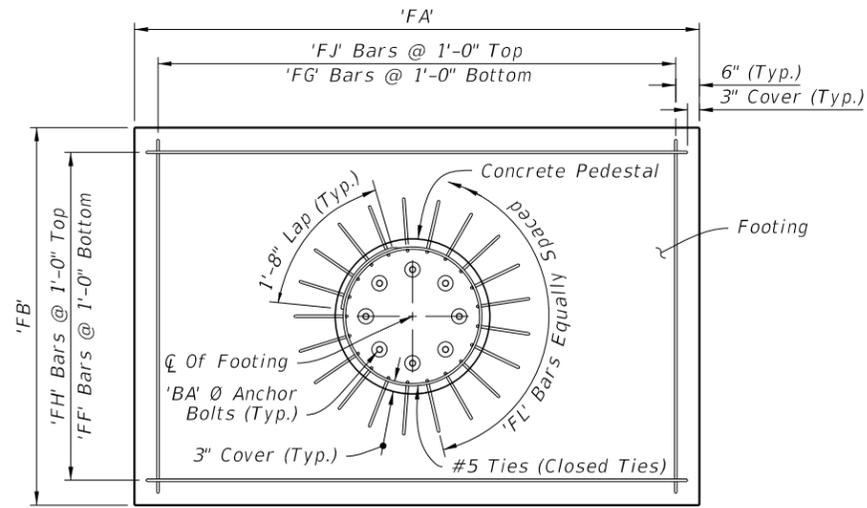
CANTILEVER SIGN ASSEMBLY

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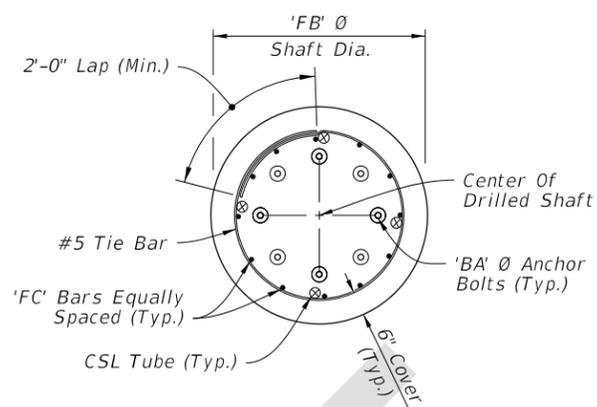
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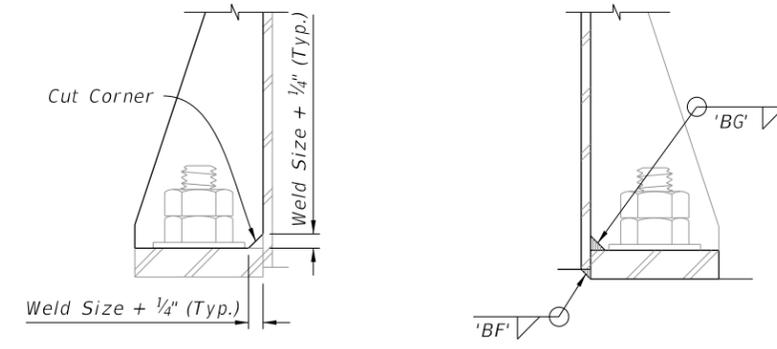
CANTILEVER ASSEMBLY



PLAN

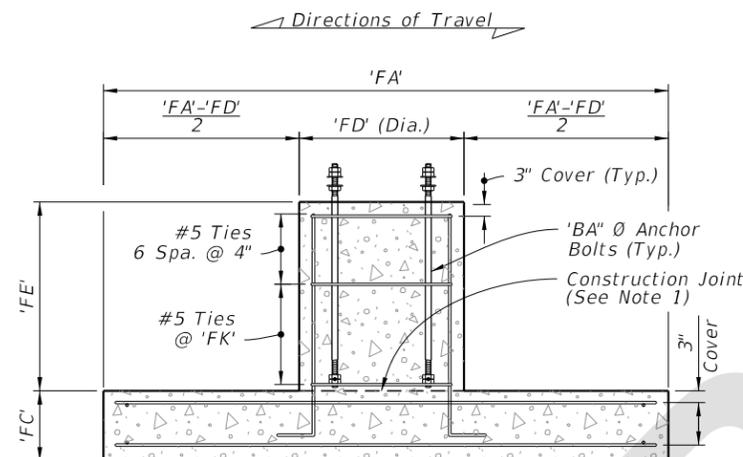


PLAN

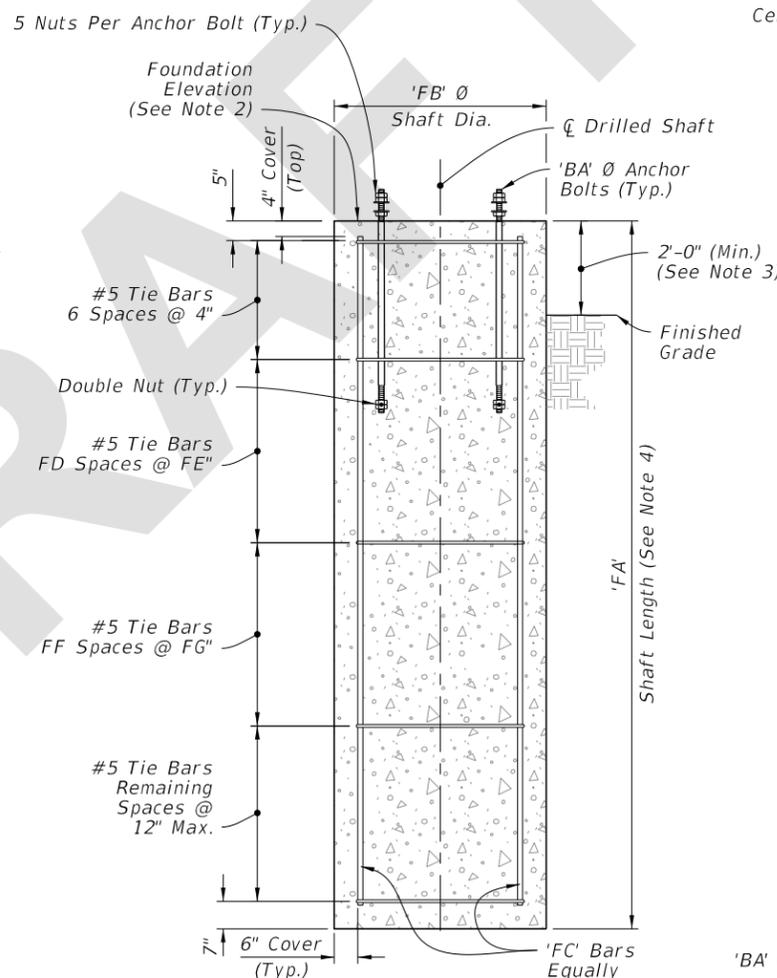


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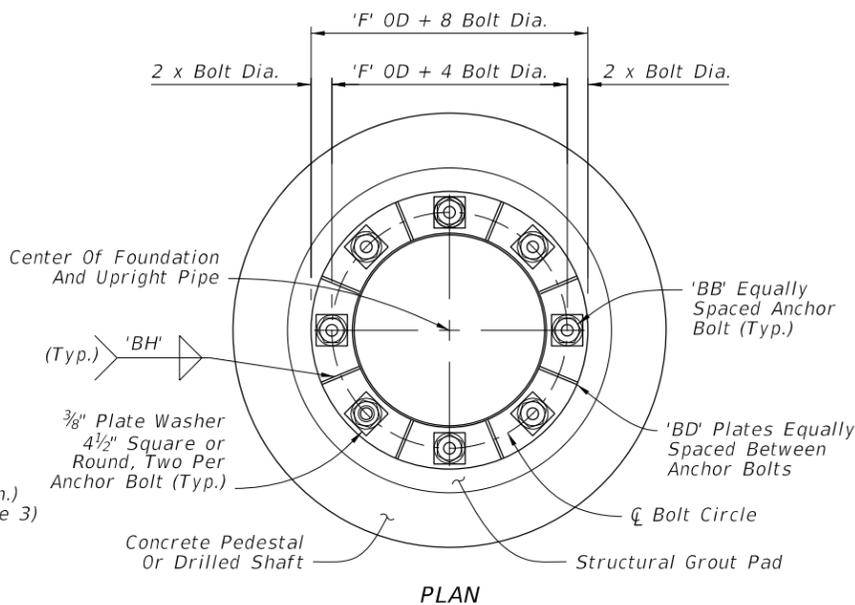
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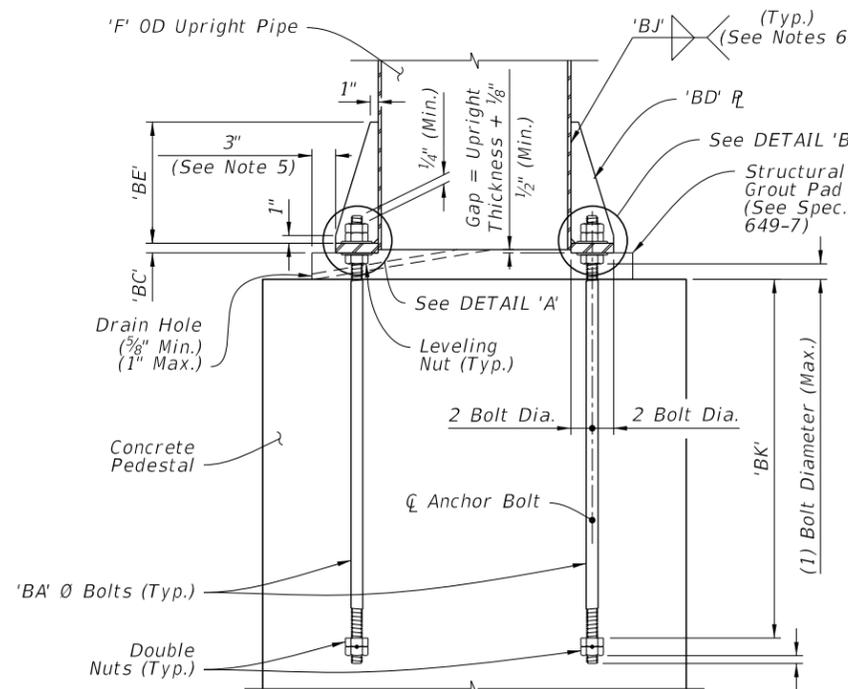
SIDE ELEVATION



ELEVATION



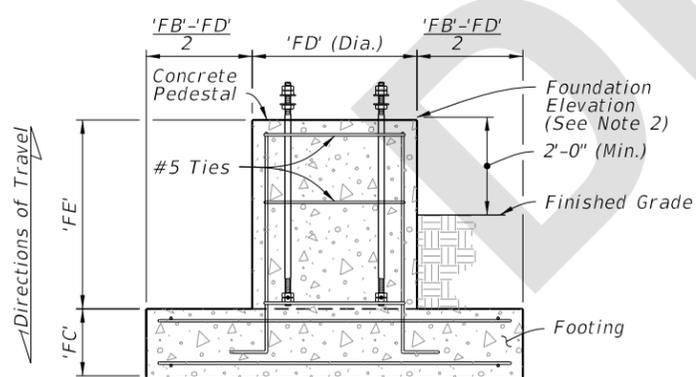
PLAN



ELEVATION

NOTES:

1. Construction joint allowed, roughen surface to 1/4" 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. 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).



FRONT ELEVATION

FOOTING AND PEDESTAL

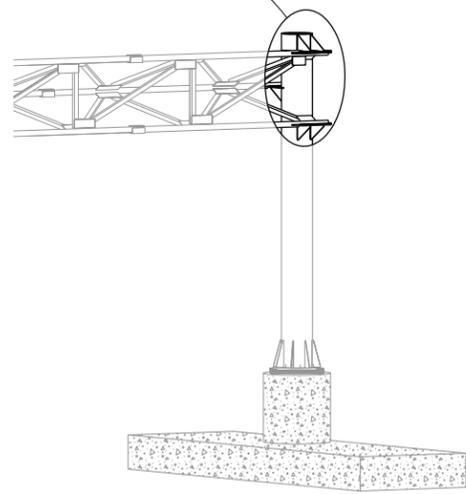
DRILLED SHAFT (Alternate Foundation)

FOUNDATION

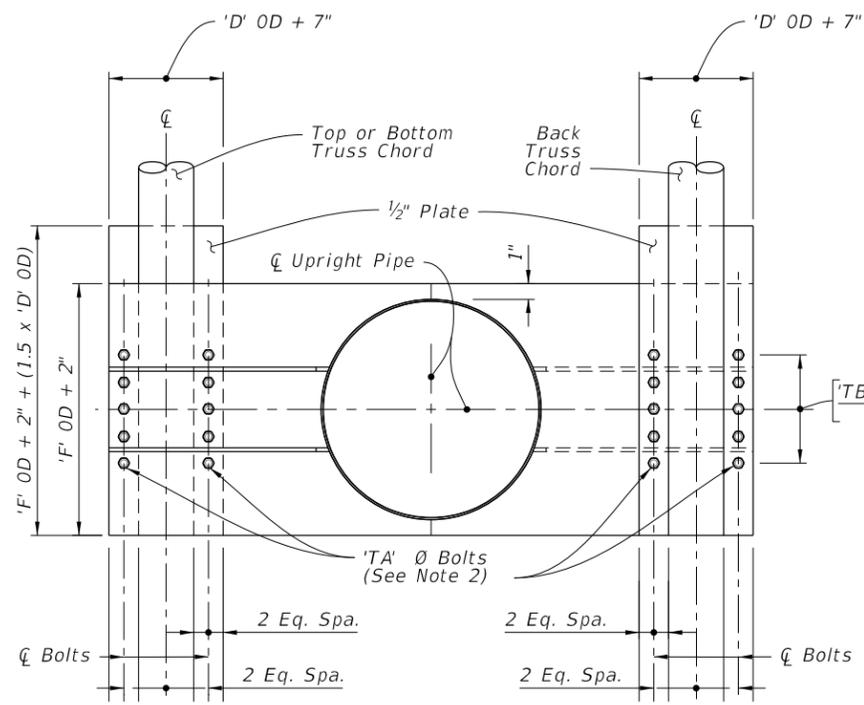
BASE PLATE CONNECTION

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

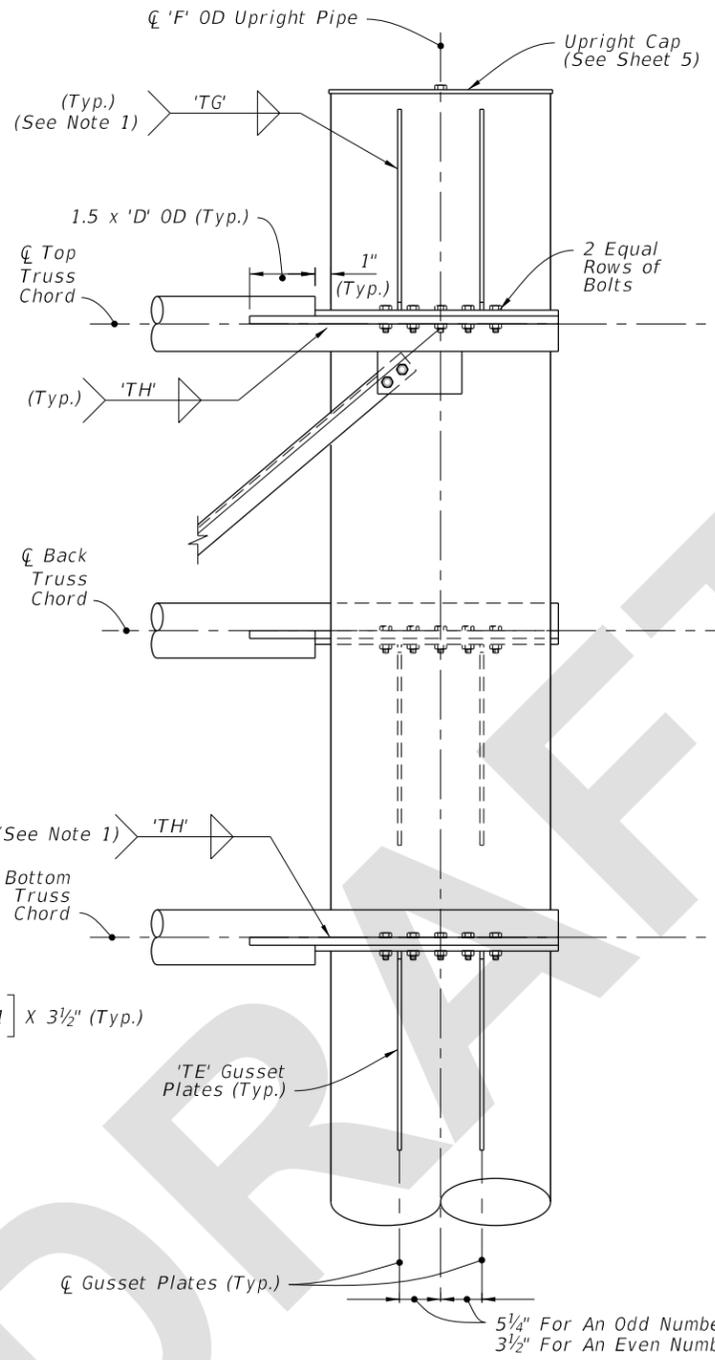


CANTILEVER ASSEMBLY

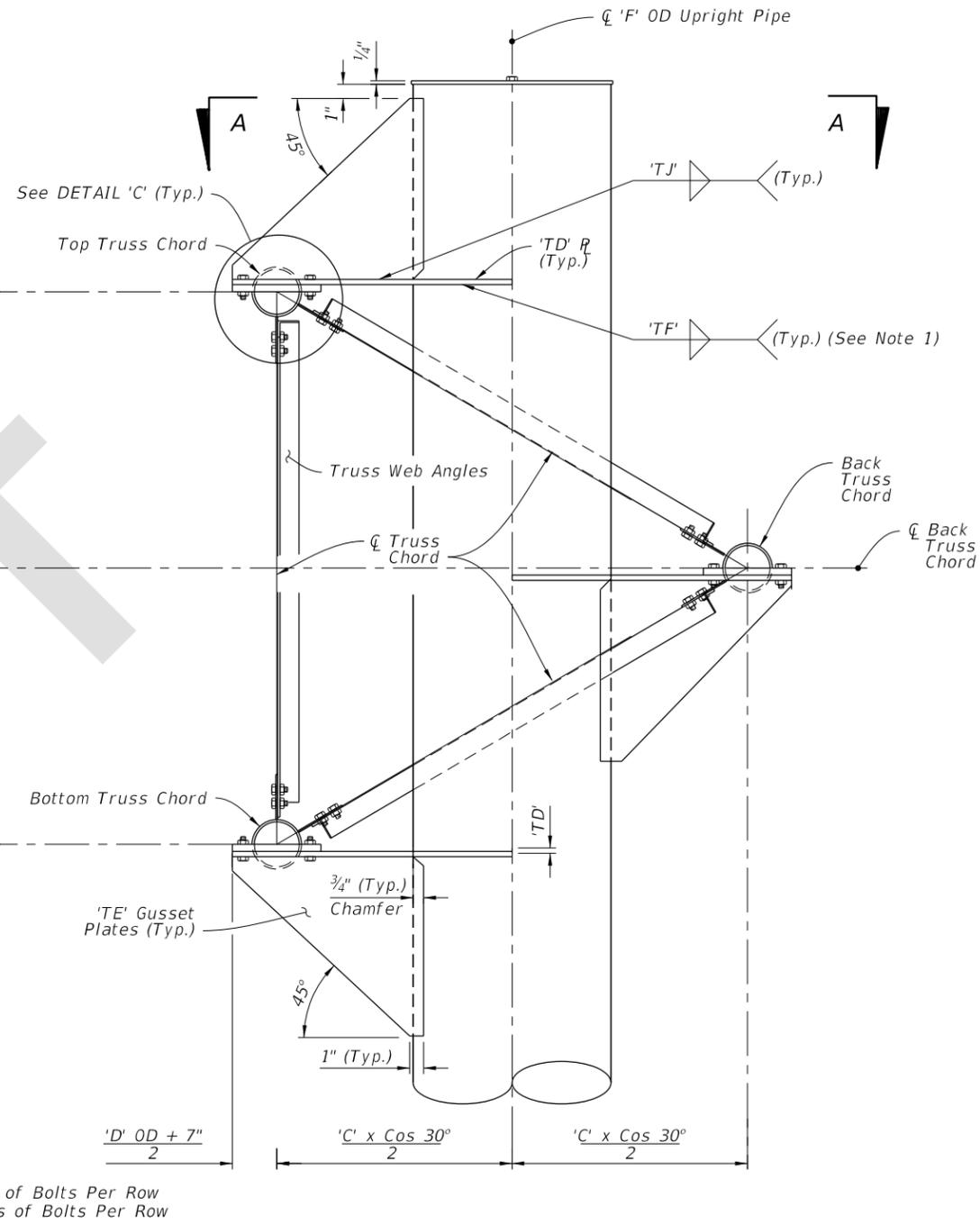


SECTION A-A

(With Gusset Plates And Web Angles Omitted For Clarity)



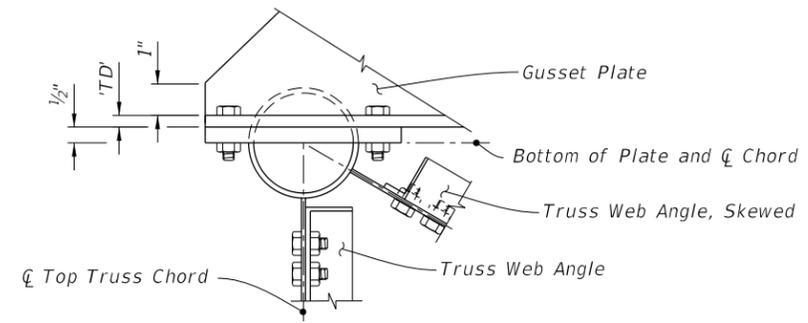
FRONT ELEVATION



SIDE ELEVATION

UPRIGHT-TRUSS CONNECTION DETAIL

(Web Members From Back Truss Chord Omitted For Clarity)



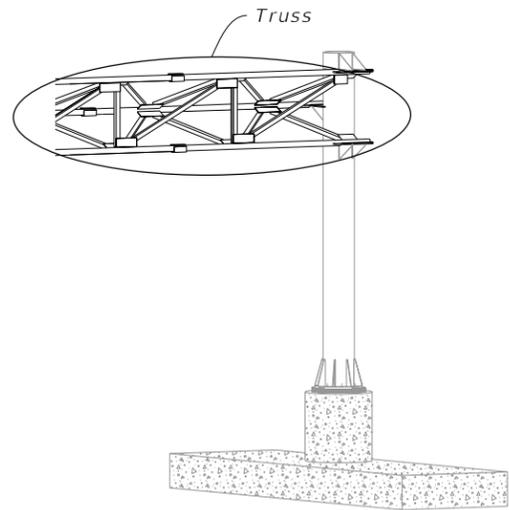
DETAIL 'C'

NOTES:

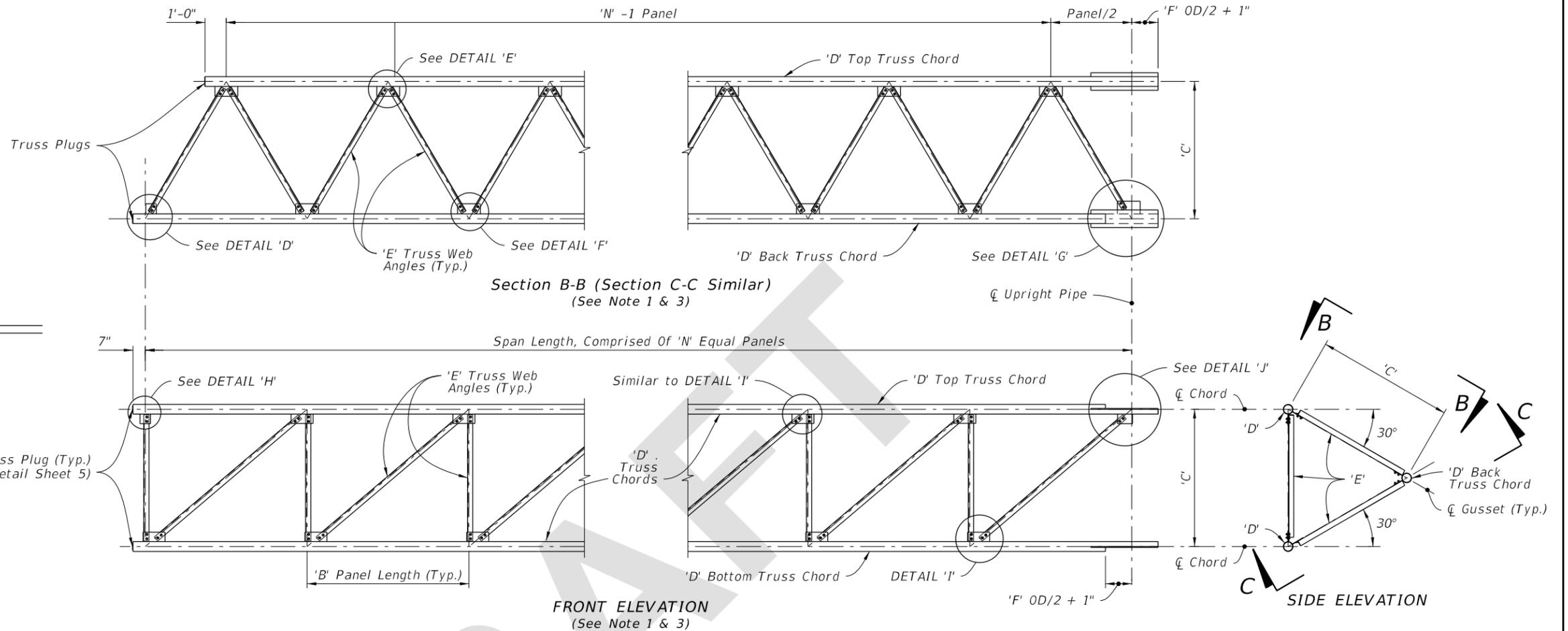
1. Wrap fillet weld around the stiffener termination on the tube wall.
2. Truss Chord Bolts:
 - A. Top and Bottom: Install 'TC' hex head bolts.
 - B. Back: Install 'TB' hex head bolts.

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LAST REVISION 11/01/22	REVISION	DESCRIPTION:		FY 2023-24 STANDARD PLANS	CANTILEVER SIGN STRUCTURE	INDEX 700-040	SHEET 3 of 5
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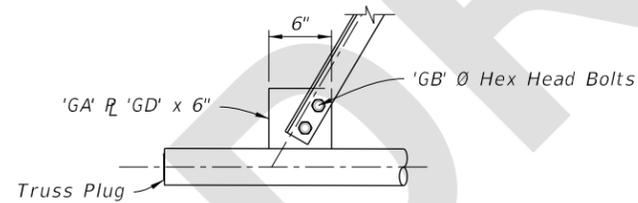
CANTILEVER ASSEMBLY



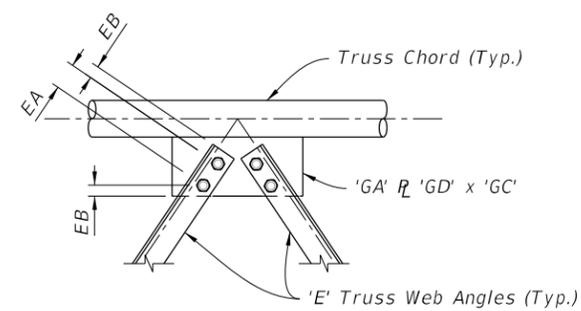
TRUSS NOTES:

1. Out-of-plane members are not shown for clarity.
2. Wrap fillet weld around plate termination on the tube wall.
3. Chord Splices not shown.

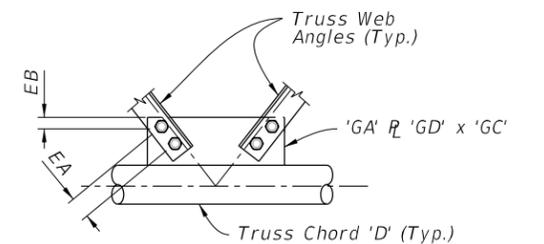
Bolt Size	Distance	
	EA	EB
1 1/4" Ø	4 3/8"	2 1/4"
1" Ø	3 1/2"	1 3/4"
7/8" Ø	3"	1 1/2"
3/4" Ø	2 1/2"	1 1/4"
5/8" Ø	2 1/4"	1 1/8"



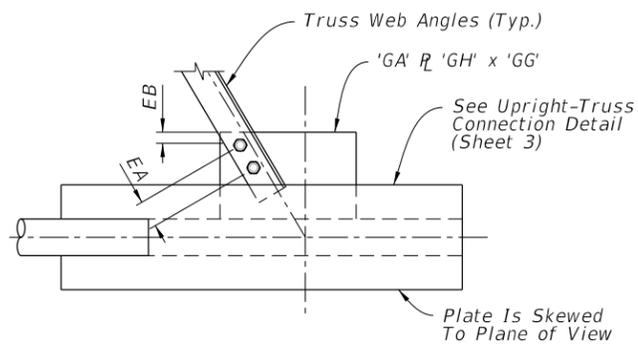
DETAIL 'D'



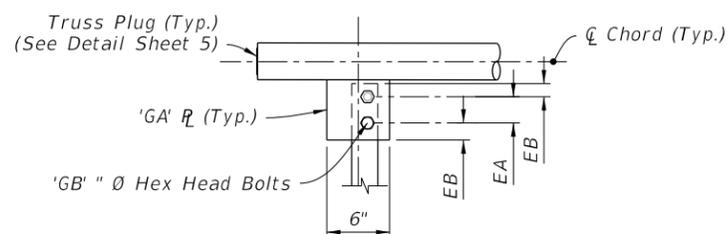
DETAIL 'E'



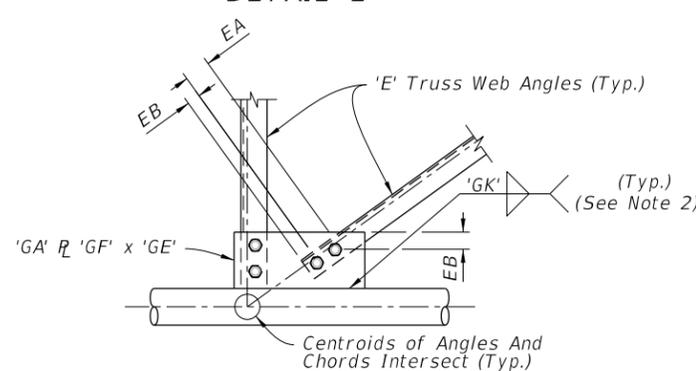
DETAIL 'F'



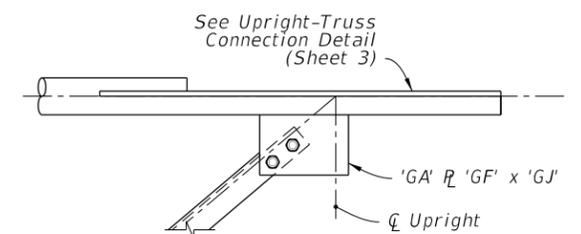
DETAIL 'G'



DETAIL 'H'



DETAIL 'I'



DETAIL 'J'

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LAST REVISION	DESCRIPTION:
11/01/22	

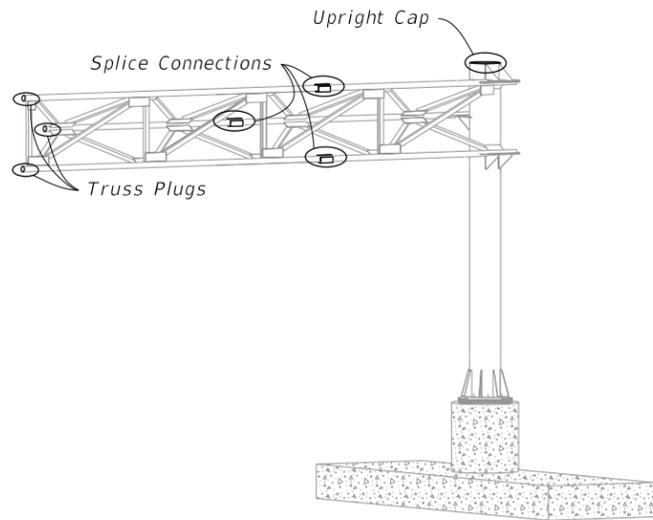


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STANDARD PLANS

CANTILEVER SIGN STRUCTURE

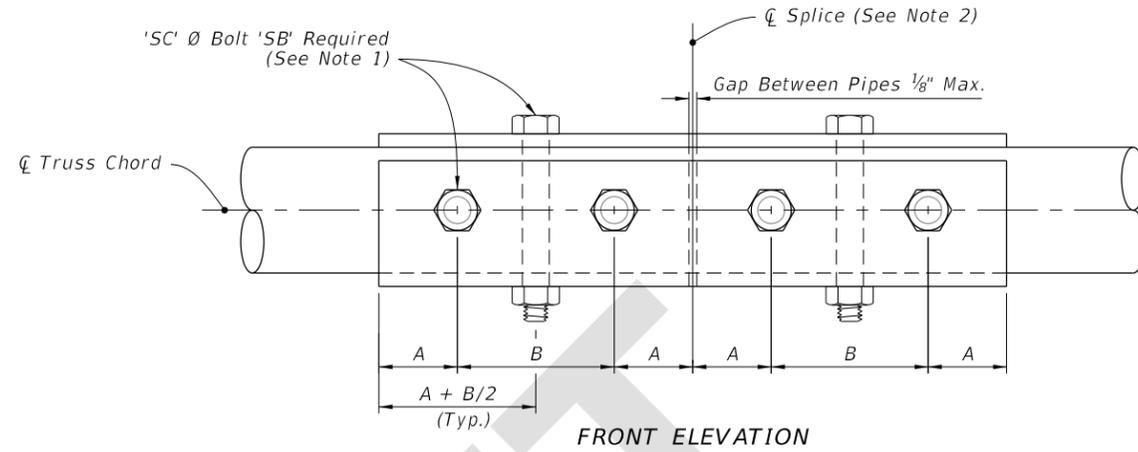
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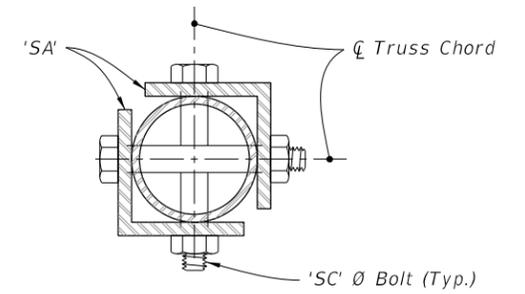


CANTILEVER ASSEMBLY

Bolt Size	Distance	
	A	B
1" Ø	1 3/4"	3 1/2"
7/8" Ø	1 1/2"	3"
3/4" Ø	1 1/4"	2 1/2"



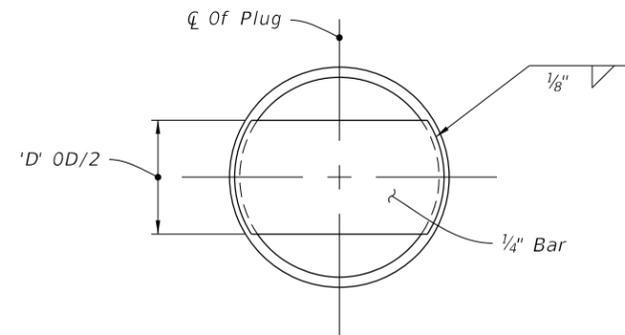
SPLICE CONNECTION DETAIL



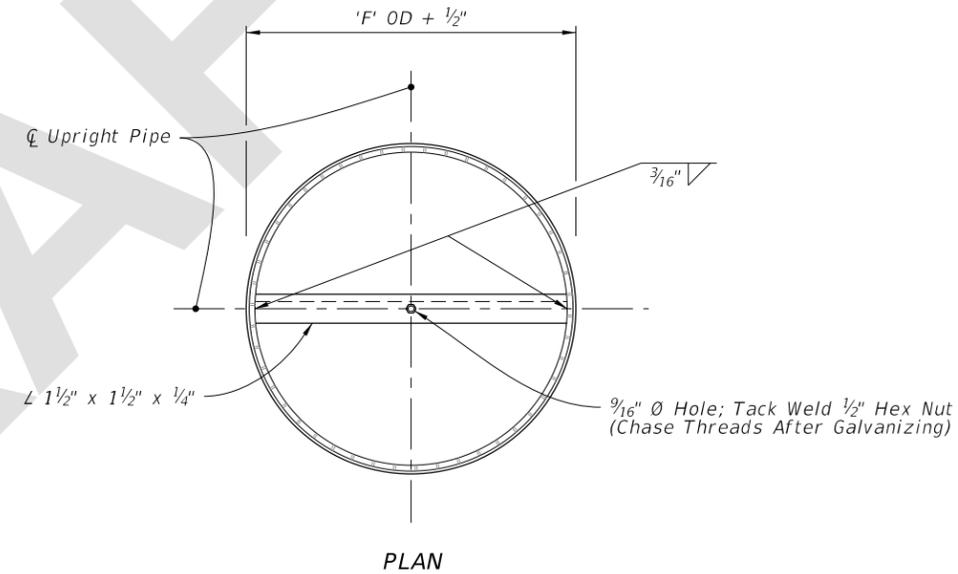
SIDE ELEVATION

SPLICE CONNECTION NOTES:

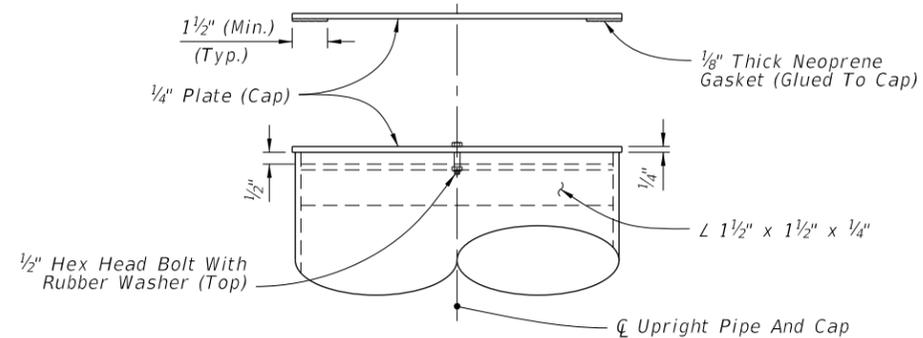
1. Only 6 bolts are shown in detail for clarity. (One Half Each Side Of Splice)
2. Splices are not permitted for trusses less than or equal to 40', Splice optional for trusses greater than 40'.
3. Chord Splices: "SD" Panel from upright is the closest panel in which a chord splice may be used. See Plans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



TRUSS PLUG DETAIL



PLAN



ELEVATION

UPRIGHT CAP DETAIL

8/10/2022 3:15:39 PM

LAST REVISION 11/01/22	REVISION	DESCRIPTION:
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CANTILEVER SIGN STRUCTURE

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