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## ORIGINATION FORM

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### Proposed Revisions to a Standard Plans Index

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

**Contact Information:**

Date: March 28, 2023

Originator: Joshua Turley

Phone: (850) 414-4475

Email: [joshua.turley@dot.state.fl.us](mailto:joshua.turley@dot.state.fl.us)

**Standard Plans:**

Index Number: 715-010

Sheet Number (s): 1-3 of 6

Index Title: HIGH MAST LIGHTING

**Summary of the changes:**

Sheet 1: Changed phrase from "full-penetration groove" to "complete joint penetration".

Sheet 2: Added Table numbers for reference.

Sheet 3: Corrected the welding arrows on Section A-A and C-C to be consistent with AWS; Added note to Section CC that silicone caulk should be done after galvanizing; Changed weld detail to say "CJP."

**Commentary / Background:**

Sheet 1: Changing non-standard language to standard language consistent with AWS.

Sheet 3: During a review of a fabricators QC Plan it was found that the Standards welding symbols were not formatted correctly. We corrected this to be consistent with AWS; Changed non-standard language about penetration welds to standard language consistent with AWS.

Spec 460 will accompany the revisions.

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

- | Yes                                 | No                                  |   |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Other Standard Plans –                      |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | FDOT Design Manual –                        |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Basis of Estimates Manual –                 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Standard Specifications – Daniel Strickland |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Approved Product List –                     |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Construction –                              |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Maintenance –                               |

**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) |

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Contact the Roadway Design Office for assistance in completing this form

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Email to: Rick Jenkins [rick.jenkins@dot.state.fl.us](mailto:rick.jenkins@dot.state.fl.us) and Darren Martin [darren.martin@dot.state.fl.us](mailto:darren.martin@dot.state.fl.us)

**HIGHMAST LIGHTING NOTES:**

1. Poles are designed to support the following:
  - A. One (1) cylindrical head assembly with a maximum effective projected area of 6 sf and 340 lbs (Max.)
  - B. Eight (8) cylindrical luminaires with a maximum effective projected are of 1.5 sf and 77 lbs each.
2. Shop Drawings: This Index is considered fully detailed, only submit shop drawings for minor modifications not detailed in the Plans.
3. High Mast Structure Materials:
  - A. Poles and Backing Rings:
    - a. Less than 3/16": ASTM A1011 Grade 50, 55, 60 or 65
    - b. Greater than or equal to 3/16": ASTM A572 Grade 50, 55, 60 or 65
    - c. ASTM A595 Grade A (55 ksi yield) or Grade B (60 ksi yield)
  - B. Steel Plates: ASTM A709 or ASTM A36
  - C. Pole Caps: ASTM A1011 Grade 50, 55, 60, or 65 or ASTM B209
  - D. Weld Metal: E70XX
  - E. Stainless Steel Screws: AISI 316
  - F. Anchor Bolts, Nuts and Washers:
    - a. Anchor Bolts: ASTM F1554 Grade 55
    - b. Nuts: ASTM A563 Grade A Heavy-Hex (5 per anchor bolt)
    - c. Plate Washer: ASTM A36 (2 per anchor bolt)
  - G. Nut Covers: ASTM B26 (319-F)
  - H. Concrete: Class IV (Drilled Shaft)
  - I. Reinforcing Steel: Specification 415
4. Fabrication:
  - A. Welding:
    - a. Specification Section 460-6.4 and
    - b. AASHTO LRFD Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals Section 14.4.4
  - B. Poles:
    - a. Round or 16-sided (Min.)
    - b. Taper pole diameter at 0.14 inches per foot
    - c. Pole shaft may be up to three sections (using telescopic field splices)
    - d. Circumferentially welded pole shafts and laminated pole shafts are not permitted
    - e. Fabricate Pole longitudinal seam welds (2 maximum) with 60 percent minimum penetration or fusion welds except as follows:
      - i. Use a full-penetration groove weld within 6 inches of the circumferential tube-to-plate connection and
      - ii. Use full-penetration groove welds on the female end section of telescopic (i.e., slip type) field splices for a minimum length of 42 inches.
  - C. Identification Tag: (Submit details for approval)
    - a. 2"x 4" (Max.) aluminum tag
    - b. ~~Locate on the inside of the pole and~~ visible from the handhole
    - c. Secure with 1/8" diameter stainless steel rivets or screws.
    - d. Include the following information on the ID Tag:
      1. Financial Project ID
      2. Pole Type
      3. Pole Height
      4. Manufacturers' Name
      5. Yield Strength (Fy of Steel)
      6. Base Wall Thickness
  - D. Except for Anchor Bolts, bolt hole diameters are bolt diameter plus 1/16" and anchor bolts holes are bolt diameter plus 1/2" (Max) prior to galvanizing.
  - E. Hot Dip Galvanize after fabrication
5. Coating:
  - A. Galvanize Anchor Bolts, Nuts and Washers: ASTM F2329
  - B. Hot Dip Galvanize all other steel items including plate washers: ASTM A123
6. Construction:
  - A. Foundation: Specification 455 Drilled Shaft, except that payment is included in the cost of the Structure.
  - B. After Installation: Place wire screen between top of foundation and bottom of baseplate in accordance with Specification 649-6.
7. Wind Speed by County:
 

**130 MPH**  
Alachua, Baker, Bradford, Calhoun, Clay, Columbia, Dixie, Duval, Gadsden, Gilchrist, Hamilton, Jackson, Jefferson, Lafayette, Leon, Liberty, Nassau, Madison, Putnam, Suwannee, Taylor, Union and Wakulla Counties.

**150 MPH**  
Bay, Citrus, De Soto, Flagler, Franklin, Glades, Gulf, Hardee, Hendry, Hernando, Highlands, Hillsborough, Holmes, Lake, Levy, Manatee, Marion, Okaloosa, Okeechobee, Orange, Osceola, Pasco, Pinellas, Polk, Santa Rosa, Seminole, St. Johns, Sumter, Volusia, Walton and Washington Counties.

**170 MPH**  
Brevard, Broward, Charlotte, Collier, Escambia, Indian River, Lee, Martin, Miami-Dade, Monroe, Palm Beach, Sarasota and St. Lucie Counties.

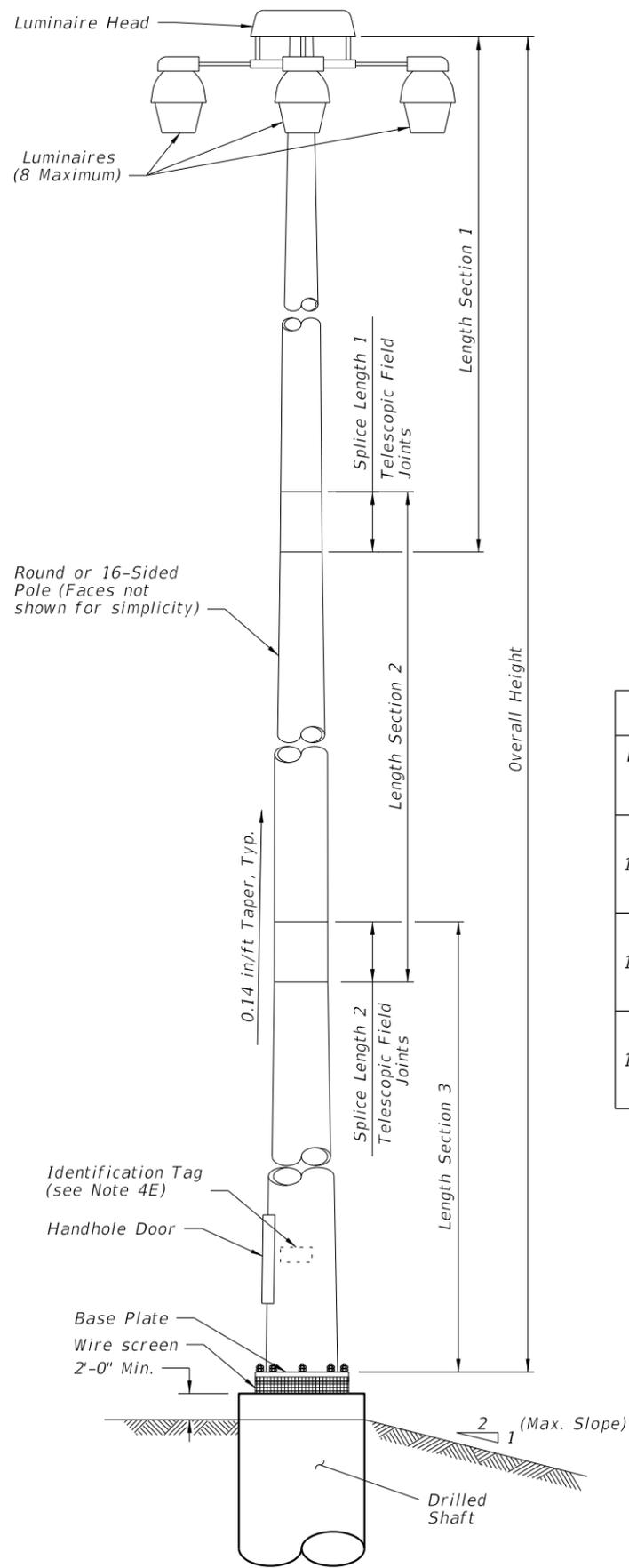
complete joint penetration

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**STANDARD POLE DESIGN NOTES**

LAST REVISION 11/01/18	REVISION	DESCRIPTION:		FY 2023-24 STANDARD PLANS	HIGH MAST LIGHTING	INDEX 715-010	SHEET 1 of 6
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**TABLE 1**

POLE DESIGN TABLE*												
Design Wind Speed	Pole Overall Height (ft)	SECTION 1 (TOP)				SECTION 2				SECTION 3		
		Length	Wall Thickness (in.)	Minimum Splice Length 1	Base Dia. (in.)	Length	Wall Thickness (in.)	Minimum Splice Length 2	Base Dia. (in.)	Length	Wall Thickness (in.)	Base Dia. (in.)
130 mph	80	41'-0"	0.250	2'-0"	11	42'-0"	0.250	--	16	--	--	--
	100	23'-0"	0.179	2'-0"	10	41'-0"	0.250	2'-6"	15	43'-0"	0.250	20
	120	41'-0"	0.250	2'-0"	12	43'-0"	0.250	2'-9"	17	43'-0"	0.313	22
150 mph	80	41'-0"	0.250	2'-0"	11	42'-0"	0.313	--	16	--	--	--
	100	23'-0"	0.179	2'-0"	10	41'-0"	0.250	2'-6"	15	43'-0"	0.313	20
	120	41'-0"	0.250	2'-6"	16	43'-0"	0.250	3'-0"	21	44'-0"	0.375	26
170 mph	80	40'-0"	0.250	2'-3"	13	43'-0"	0.313	--	18	--	--	--
	100	23'-0"	0.250	2'-0"	11	42'-0"	0.313	2'-6"	16	44'-0"	0.375	21
	120	41'-0"	0.250	3'-0"	18	44'-0"	0.313	3'-6"	23	45'-0"	0.375	28

\* Diameter Measured Flat to Flat

**TABLE 2**

BASE PLATE AND BOLTS DESIGN TABLE							
Design Wind Speed	Pole Overall Height (ft)	Base Plate Diameter (in.)	Base Plate Thickness (in.)	Bolt Circle (in.)	No. Bolts	Bolt Diameter (in.)	Bolt Embedment (in.)
130 mph	80	30.0	3.000	23.0	8	1.75	38
	100	34.0	3.000	27.0	8	1.75	42
	120	38.0	3.875	30.0	8	2.00	48
150 mph	80	30.0	3.000	23.0	8	1.75	43
	100	36.0	3.875	28.0	8	2.00	47
	120	44.0	3.875	35.0	8	2.25	52
170 mph	80	32.0	3.000	25.0	8	1.75	47
	100	37.0	3.000	29.0	8	2.00	54
	120	46.0	3.875	37.0	10	2.25	58

**TABLE 3**

SHAFT DESIGN TABLE				
Design Wind Speed	Pole Overall Height (ft)	Shaft Diameter	Shaft Length	Longitudinal Reinforcement
130 mph	80	4'-0"	13'-0"	14- #11
	100	4'-6"	14'-0"	16- #11
	120	4'-6"	16'-0"	16- #11
150 mph	80	4'-0"	14'-0"	14- #11
	100	4'-6"	16'-0"	16- #11
	120	5'-0"	18'-0"	18- #11
170 mph	80	4'-6"	15'-0"	16- #11
	100	4'-6"	17'-0"	16- #11
	120	5'-0"	20'-0"	18- #11

NOTE:  
 Shaft Design Table Shaft Length is based on level ground (flatter than 1:5). Increase the shaft depth in accordance with the Additional Shaft Depth Due to Ground Slope table for foundations with slopes 1:5 and steeper. Use the higher value for slope or diameter values that fall between those shown on the table.

**TABLE 4**

ADDITIONAL SHAFT DEPTH DUE TO GROUND SLOPE		
Ground Slope	4'-0" Shaft Diameter	5'-0" Shaft Diameter
1:5	3'-0"	4'-0"
1:4	4'-0"	5'-0"
1:3	5'-0"	6'-0"
1:2	7'-0"	9'-0"

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ELEVATION

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LAST REVISION 11/01/18	DESCRIPTION:
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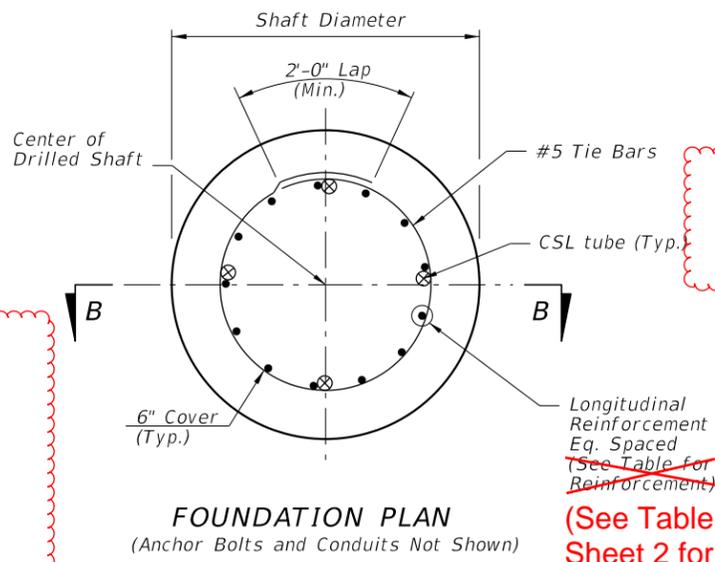
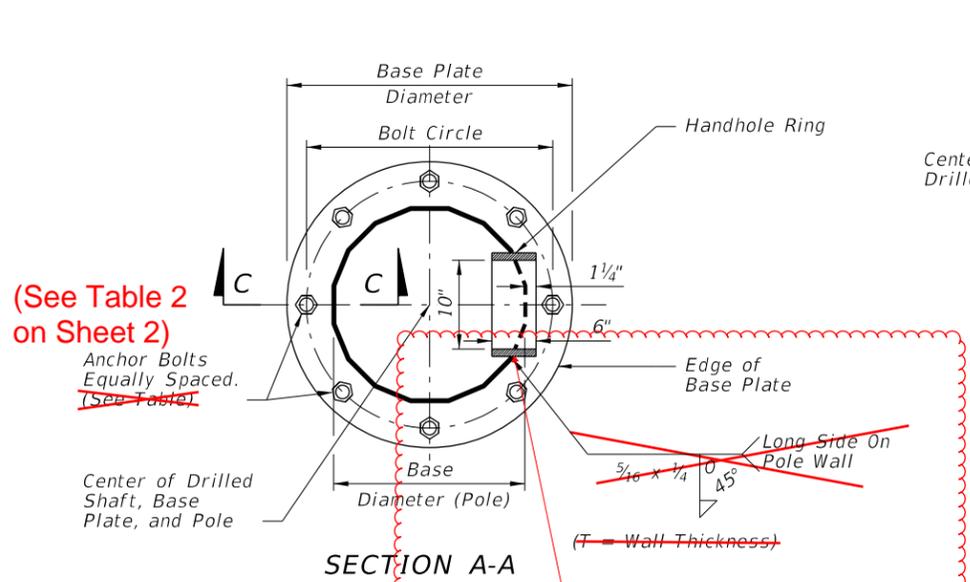


FY 2023-24  
STANDARD PLANS

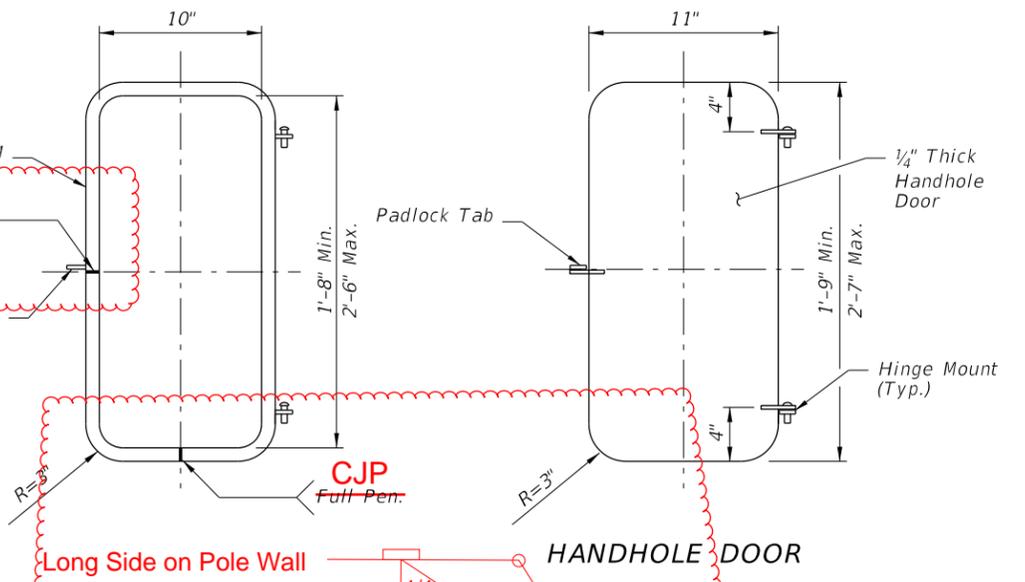
HIGH MAST LIGHTING

POLE DESIGN TABLES

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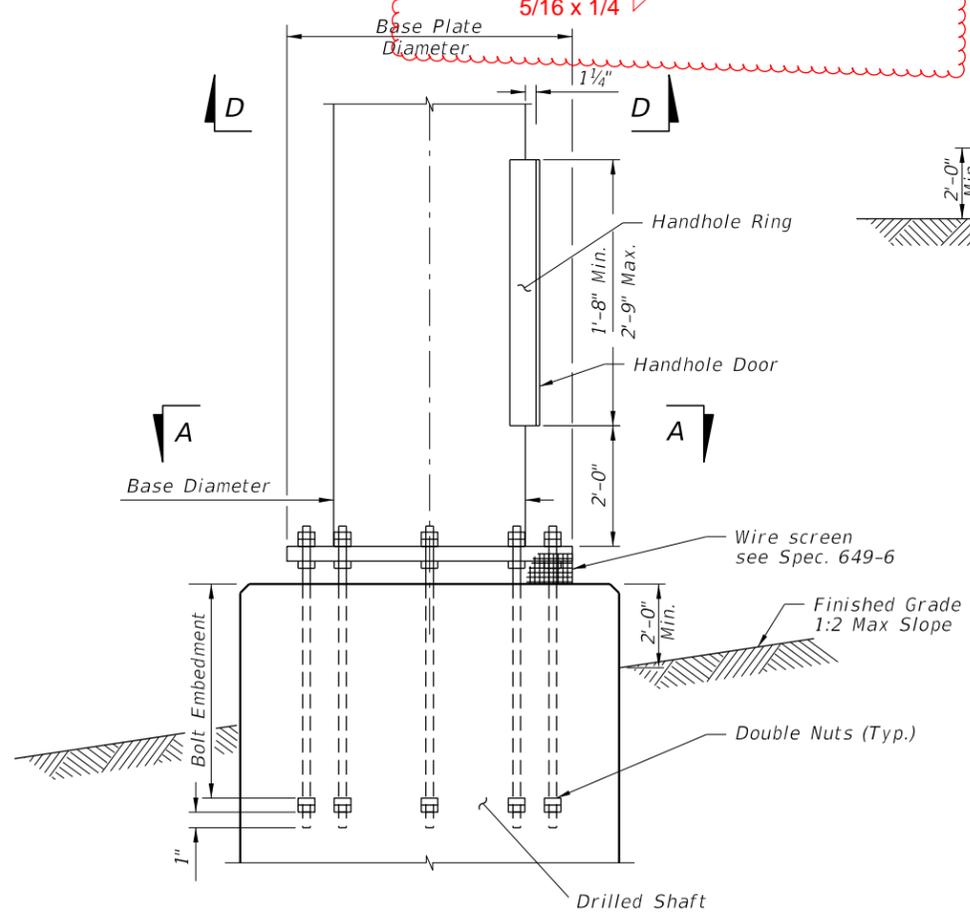


(See Table 3 on Sheet 2 for Reinforcement)

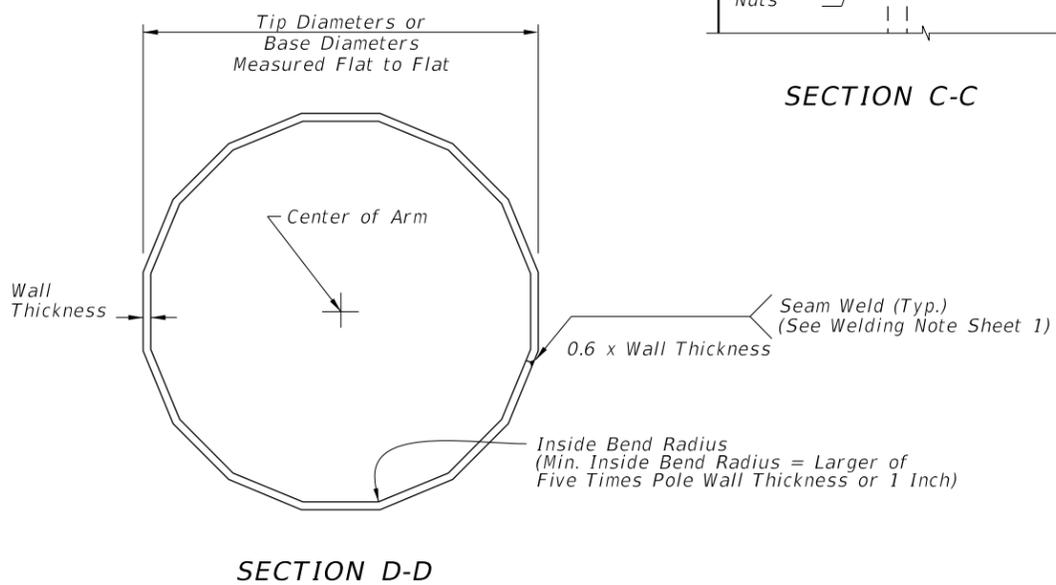
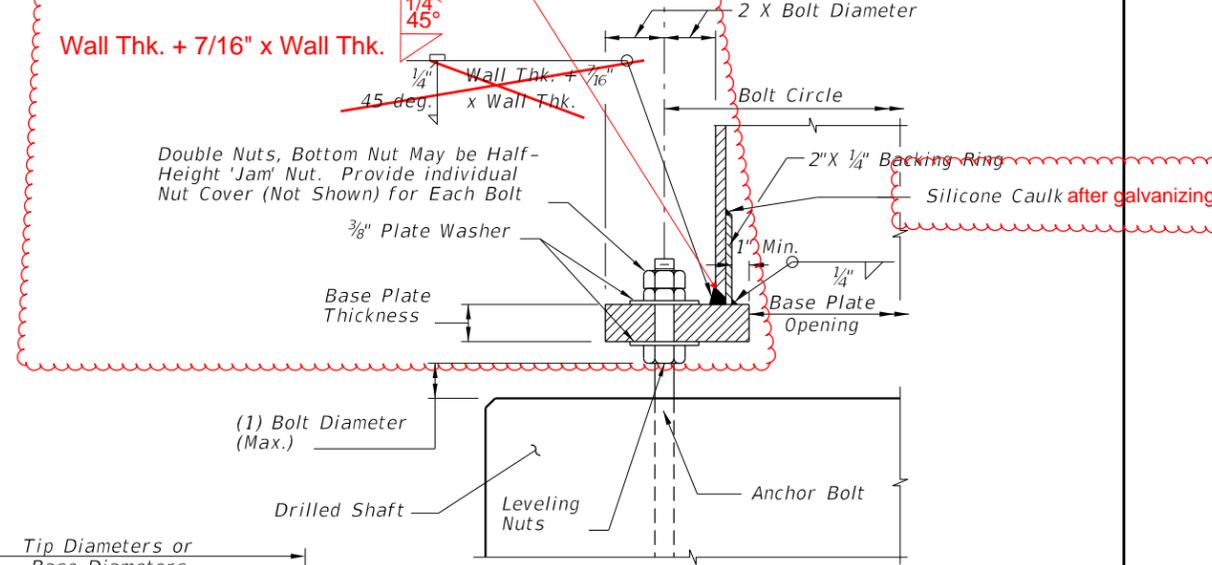
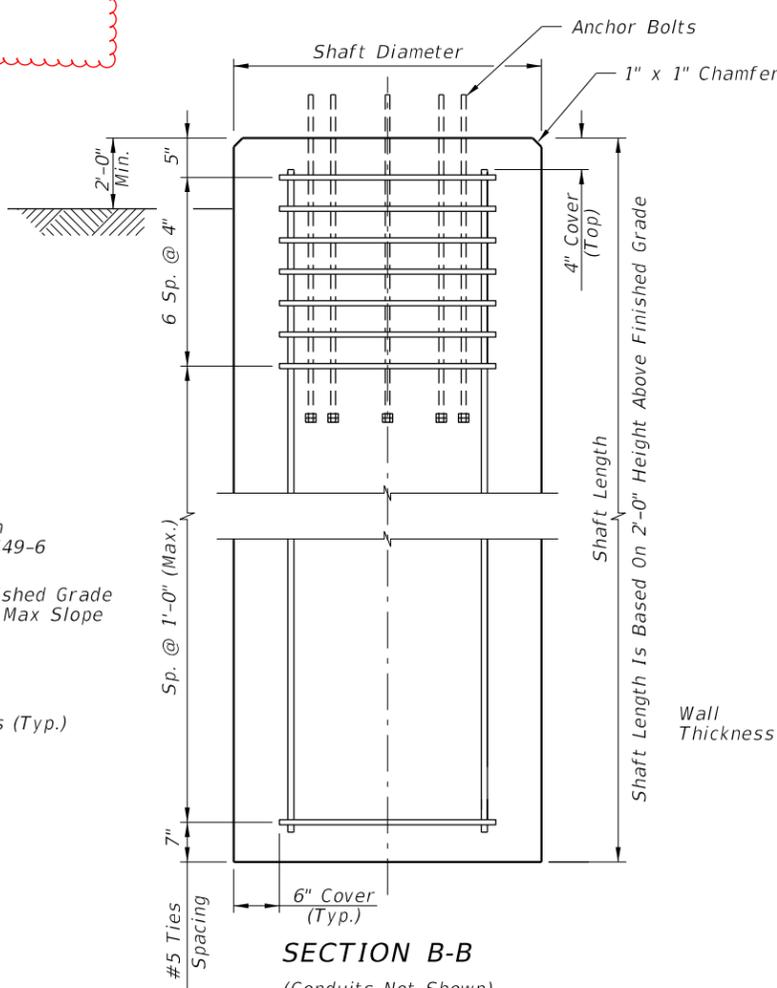


(See Table 2 on Sheet 2)

Long Side on Pole Wall



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LAST REVISION	DESCRIPTION:
11/01/20	



FY 2023-24  
STANDARD PLANS

HIGH MAST LIGHTING

POLE FOUNDATION

INDEX	SHEET
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**HIGHMAST LIGHTING NOTES:**

1. Poles are designed to support the following:
  - A. One (1) cylindrical head assembly with a maximum effective projected area of 6 sf and 340 lbs (Max.)
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  - A. Poles and Backing Rings:
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  - C. Pole Caps: ASTM A1011 Grade 50, 55, 60, or 65 or ASTM B209
  - D. Weld Metal: E70XX
  - E. Stainless Steel Screws: AISI 316
  - F. Anchor Bolts, Nuts and Washers:
    - a. Anchor Bolts: ASTM F1554 Grade 55
    - b. Nuts: ASTM A563 Grade A Heavy-Hex (5 per anchor bolt)
    - c. Plate Washer: ASTM A36 (2 per anchor bolt)
  - G. Nut Covers: ASTM B26 (319-F)
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    - e. Fabricate Pole longitudinal seam welds (2 maximum) with 60 percent minimum penetration or fusion welds except as follows:
      - i. Use a complete joint penetration weld within 6 inches of the circumferential tube-to-plate connection and
      - ii. Use complete joint penetration welds on the female end section of telescopic (i.e., slip type) field splices for a minimum length of 42 inches.
  - C. Identification Tag: (Submit details for approval)
    - a. 2"x 4" (Max.) aluminum tag
    - b. Locate on the inside of the pole and visible from the handhole
    - c. Secure with 1/8" diameter stainless steel rivets or screws.
    - d. Include the following information on the ID Tag:
      1. Financial Project ID
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      3. Pole Height
      4. Manufacturers' Name
      5. Yield Strength (Fy of Steel)
      6. Base Wall Thickness
    - D. Except for Anchor Bolts, bolt hole diameters are bolt diameter plus 1/16" and anchor bolts holes are bolt diameter plus 1/2" (Max) prior to galvanizing.
    - E. Hot Dip Galvanize after fabrication
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    - A. Galvanize Anchor Bolts, Nuts and Washers: ASTM F2329
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  7. Wind Speed by County:
 

**130 MPH**  
Alachua, Baker, Bradford, Calhoun, Clay, Columbia, Dixie, Duval, Gadsden, Gilchrist, Hamilton, Jackson, Jefferson, Lafayette, Leon, Liberty, Nassau, Madison, Putnam, Suwannee, Taylor, Union and Wakulla Counties.

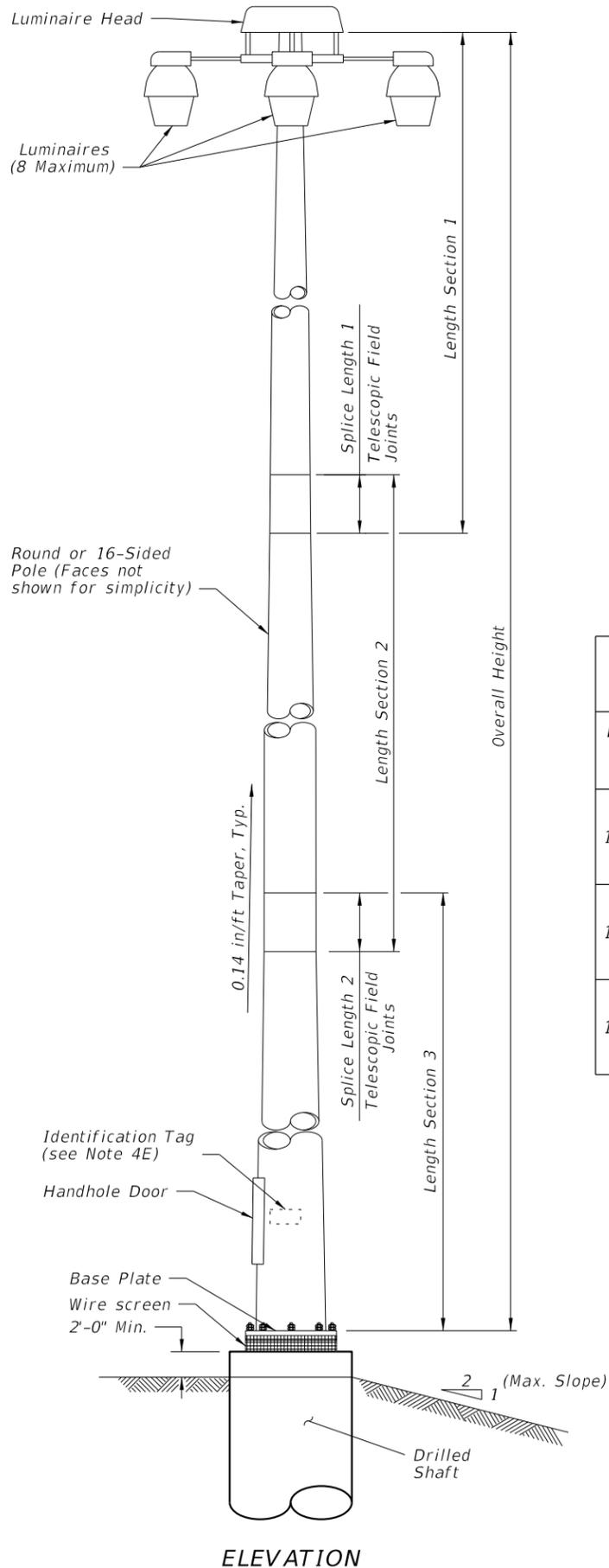
**150 MPH**  
Bay, Citrus, De Soto, Flagler, Franklin, Glades, Gulf, Hardee, Hendry, Hernando, Highlands, Hillsborough, Holmes, Lake, Levy, Manatee, Marion, Okaloosa, Okeechobee, Orange, Osceola, Pasco, Pinellas, Polk, Santa Rosa, Seminole, St. Johns, Sumter, Volusia, Walton and Washington Counties.

**170 MPH**  
Brevard, Broward, Charlotte, Collier, Escambia, Indian River, Lee, Martin, Miami-Dade, Monroe, Palm Beach, Sarasota and St. Lucie Counties.

**STANDARD POLE DESIGN NOTES**

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LAST REVISION 11/01/23	REVISION	DESCRIPTION:		<b>FY 2024-25 STANDARD PLANS</b>	<b>HIGH MAST LIGHTING</b>	INDEX 715-010	SHEET 1 of 6
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**TABLE 1  
POLE DESIGN TABLE\***

Design Wind Speed	Pole Overall Height (ft)	SECTION 1 (TOP)				SECTION 2				SECTION 3		
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\* Diameter Measured Flat to Flat

**TABLE 2  
BASE PLATE AND BOLTS DESIGN TABLE**

Design Wind Speed	Pole Overall Height (ft)	Base Plate Diameter (in.)	Base Plate Thickness (in.)	Bolt Circle (in.)	No. Bolts	Bolt Diameter (in.)	Bolt Embedment (in.)
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	100	37.0	3.000	29.0	8	2.00	54
	120	46.0	3.875	37.0	10	2.25	58

**TABLE 3  
SHAFT DESIGN TABLE**

Design Wind Speed	Pole Overall Height (ft)	Shaft Diameter	Shaft Length	Longitudinal Reinforcement
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	120	4'-6"	16'-0"	16- #11
150 mph	80	4'-0"	14'-0"	14- #11
	100	4'-6"	16'-0"	16- #11
	120	5'-0"	18'-0"	18- #11
170 mph	80	4'-6"	15'-0"	16- #11
	100	4'-6"	17'-0"	16- #11
	120	5'-0"	20'-0"	18- #11

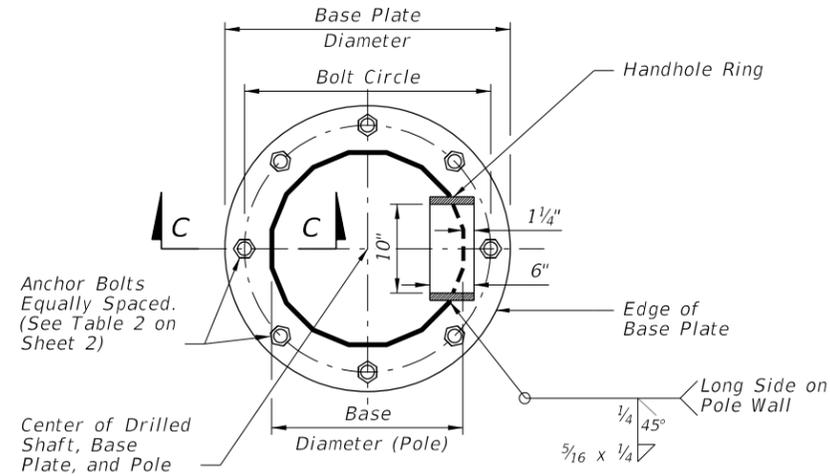
NOTE:  
Shaft Design Table Shaft Length is based on level ground (flatter than 1:5). Increase the shaft depth in accordance with the Additional Shaft Depth Due to Ground Slope table for foundations with slopes 1:5 and steeper. Use the higher value for slope or diameter values that fall between those shown on the table.

**TABLE 4  
ADDITIONAL SHAFT DEPTH DUE TO GROUND SLOPE**

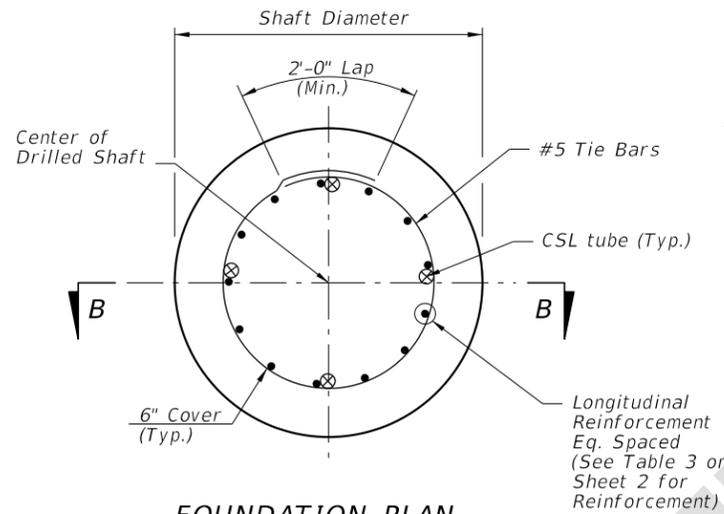
Ground Slope	4'-0" Shaft Diameter	5'-0" Shaft Diameter
1:5	3'-0"	4'-0"
1:4	4'-0"	5'-0"
1:3	5'-0"	6'-0"
1:2	7'-0"	9'-0"

ELEVATION

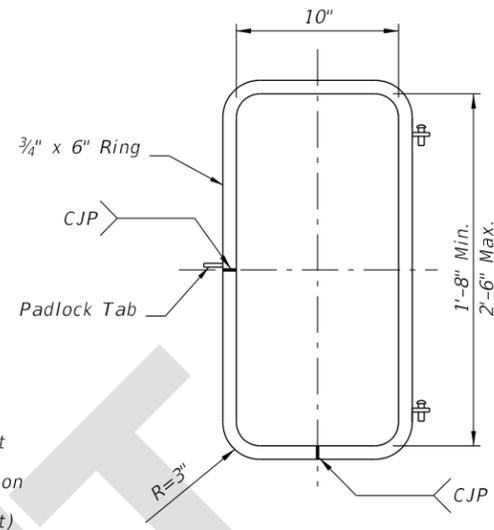
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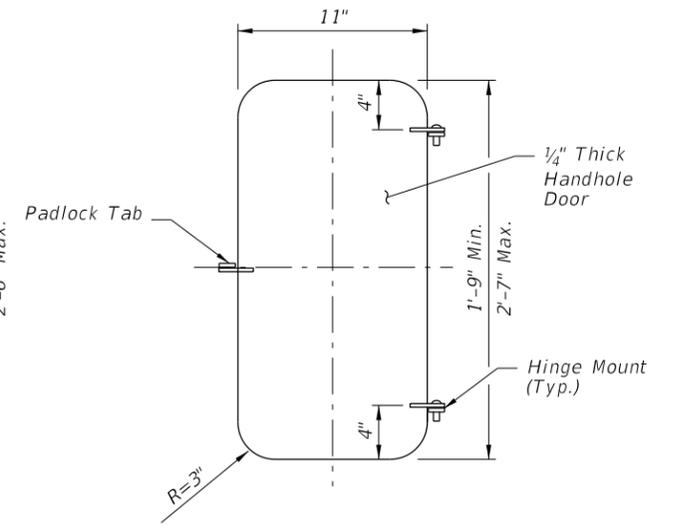
SECTION A-A



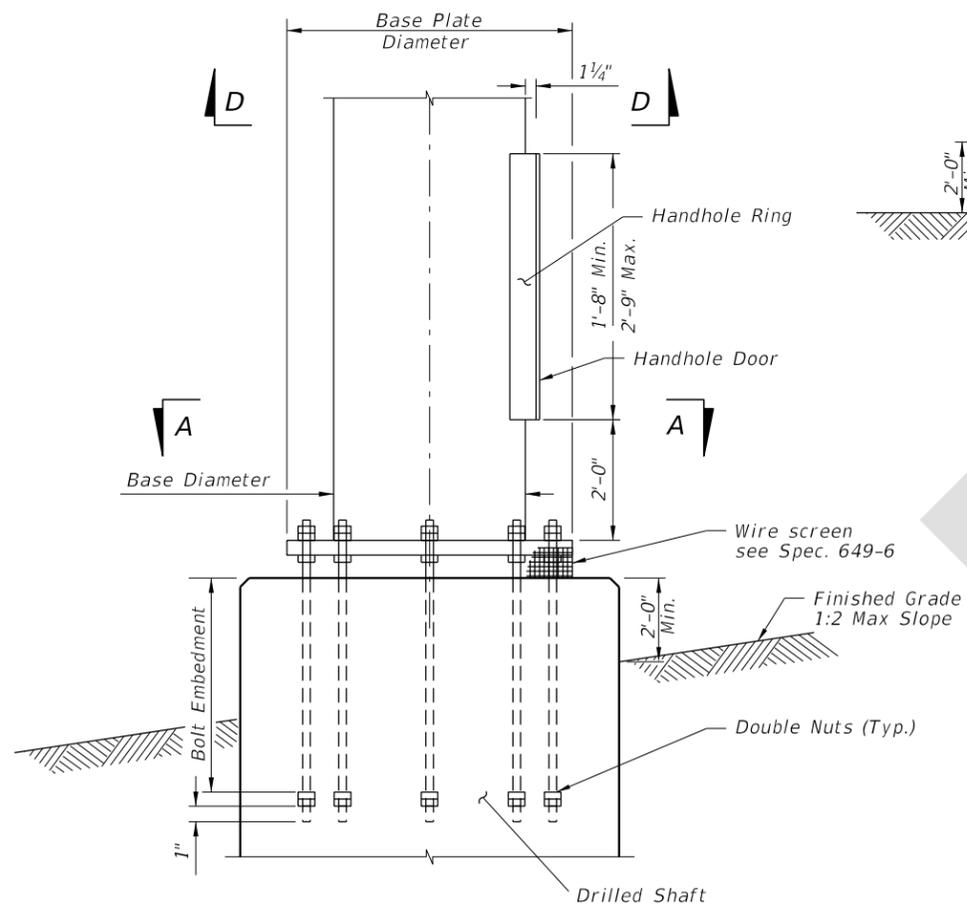
FOUNDATION PLAN  
(Anchor Bolts and Conduits Not Shown)



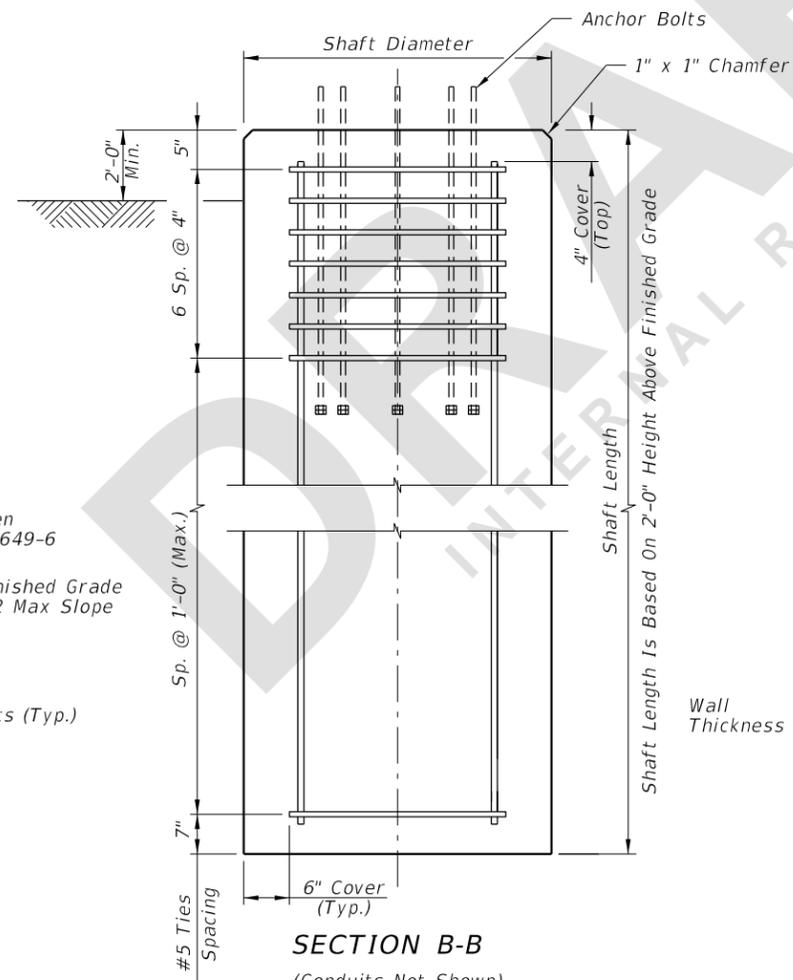
HANDHOLE RING



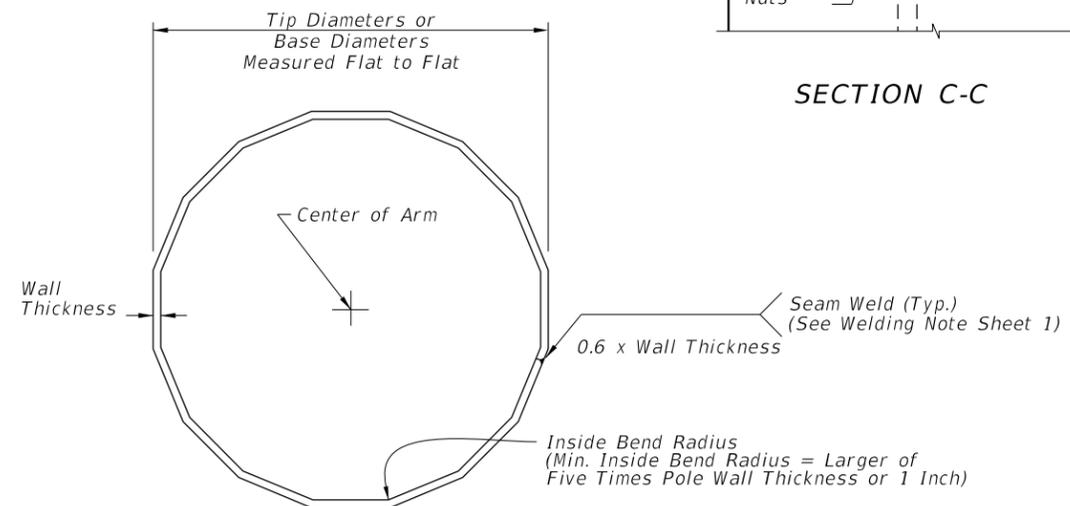
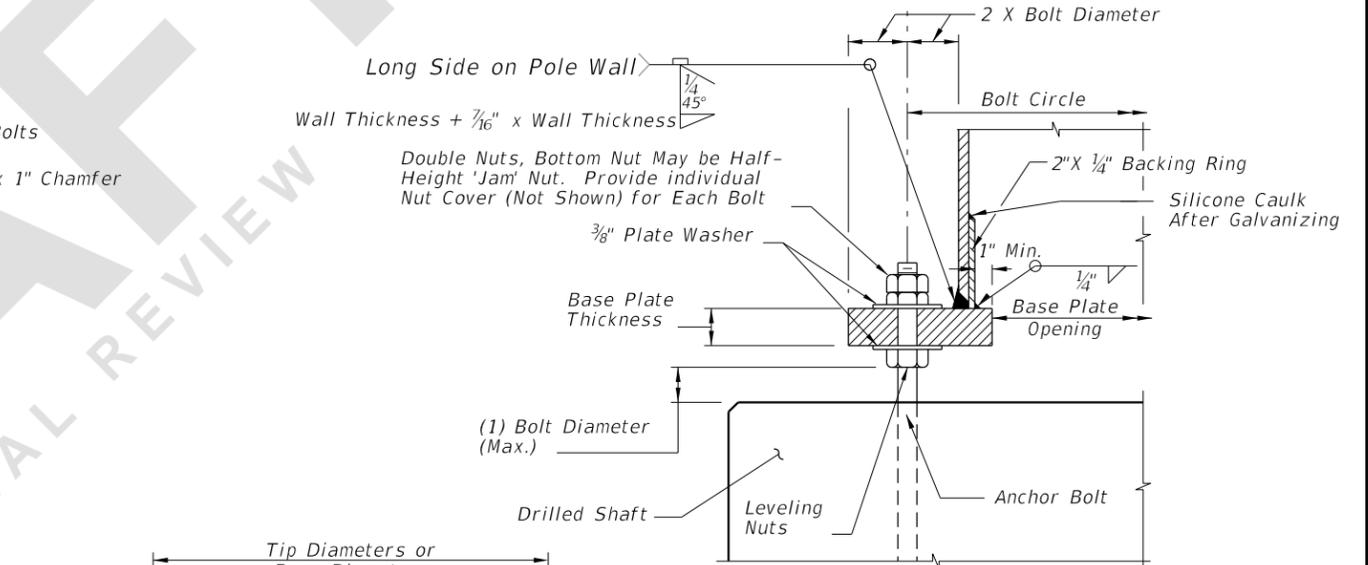
HANDHOLE DOOR



BASE PLATE AND ANCHORAGE ELEVATION  
(Conduits Not Shown)



SECTION B-B  
(Conduits Not Shown)



SECTION D-D

POLE FOUNDATION

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LAST REVISION	DESCRIPTION:
11/01/23	



FY 2024-25  
STANDARD PLANS

HIGH MAST LIGHTING

INDEX  
715-010

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