
ORIGINATION FORM

Proposed Revisions to a Standard Plans Index
(Please provide all information — Incomplete forms will be returned)

Contact Information:

Date: January 13, 2021
Originator: Malcolm Tomatani
Phone: (850) 921-7305
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Standard Plans:

Index Number: 641-020
Sheet Number (s): All
Index Title: Concrete CCTV Pole

Summary of the changes:

- Sheet 1: Move Note 3 to new Note 7; Added Note 7; Renumbered General Notes; Dashed the Identification Tag and the handhole in the CCTV POLE ASSEMBLY detail.
- Sheet 2: Updated the Assembly detail to match Sheet 1; Realigned the PLAN VIEW detail to match the Pole direction; Dashed the Identification Tag and the Handhole in the ELEVATION detail.
- Sheet 3: Updated the Assembly detail to match Sheet 1; Moved the Spiral wire note in the SPIRAL REINFORCING ELEVATION detail to the Notes and added See Note 1 to the Spiral Reinforcing call out; Dashed the Conduit Entry Holes in the POLE ELEVATION detail to be consent with the Pole's view.
- Sheet 4: Updated the Assembly detail to match Sheet 1; Added Note 5.
- Sheet 5: Added Handhole to the CONCRETE CCTV POLE GROUNDING detail and to DETAIL "D"-SIDE VIEW detail.

Commentary / Background:

The location of the couplings shown on the CCTV Pole Assembly on sheets 1 and 2 do not correlate with the location of the couplings shown on the Pole Elevation and Handhole Detail shown on sheets 3 and 4. The handhole should be located downstream of the traffic so all details and notes will be updated for the proper representation.

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

Yes	No	
☒	☐	Other Standard Plans – Rick Jenkins - Index 649-020
☐	☒	FDOT Design Manual –
☐	☒	Basis of Estimates Manual –
☐	☒	Standard Specifications –
☐	☒	Approved Product List –
☐	☒	Construction –
☐	☒	Maintenance –

Origination Package Includes:

(Email or hand deliver package to Rick Jenkins)

Yes	N/A	
☒	☐	Redline Mark-ups
☐	☒	Proposed Standard Plan Instruction (SPI)
☐	☒	Revised 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

GENERAL NOTES:

1. Work this Index with Specification 641.
2. This Index is considered fully detailed and no shop drawings are necessary. Submit Shop Drawings for minor modifications not detailed in the Plans.

~~3. Install pole plumb.~~

Moved to "Pole Installation"

~~3. Provide either round or 12-sided Poles.~~

~~4. See Index 635-001 for additional details for Pull Boxes.~~

~~5. Materials:~~

- A. Pole: Use Class VI concrete with 6 ksi minimum strength at transfer.
- B. Prestressing Strands: ASTM A416, Grade 270 low relaxation.
- C. Reinforcing Steel: ASTM A615, Grade 60
- D. Spiral Reinforcing: ASTM A1064 Cold-Drawn
- E. Bolts: ASTM F1554, Grade 55
- Nuts: ASTM A563, Grade A Heavy Hex
- Washers: ASTM F436
- F. Steel plates and Pole Cap: ASTM A36 or ASTM A709, Grade 50
- G. Galvanization: Bolts, nuts and washers: ASTM F2329
- All other steel: ASTM A123

~~6. Pole Fabrication:~~

- A. Cut the tip end of the prestressed strand first or simultaneously with the butt end.
- B. For spiral reinforcing, one turn is required for spiral splices and two turns are required at the top and bottom of poles.
- C. For Reinforcing Steel, lap splice to consist of a 3'-0" lap length at each splice. No more than two opposing rebar to be spliced at the same cross section. Stagger lap splices as needed.
- D. Provided a Class 3 surface finish in accordance with Specification 400.
- E. Provide a 1" minimum cover.
- F. Provide handhole and coupler cover plates made of non-corrosive materials. Attach cover plates to poles using lead anchors or threaded inserts embedded in the poles in conjunction with round headed chrome plated screws.
- G. Provide Identification Markings on the poles where indicated on the following sheets. Include the following information using inset numerals with 1" height or as approved in the Producers' Quality Control Program:

Financial Project ID
Pole Manufacturer
Pole Length

- H. Tie ground wires to the interior of reinforcing steel as necessary to prevent displacement during concreting operations.
- I. Storage, Handling and Erection locations shown may vary within $\pm 3"$.

~~7.~~

~~8. Cabinet Installation:~~

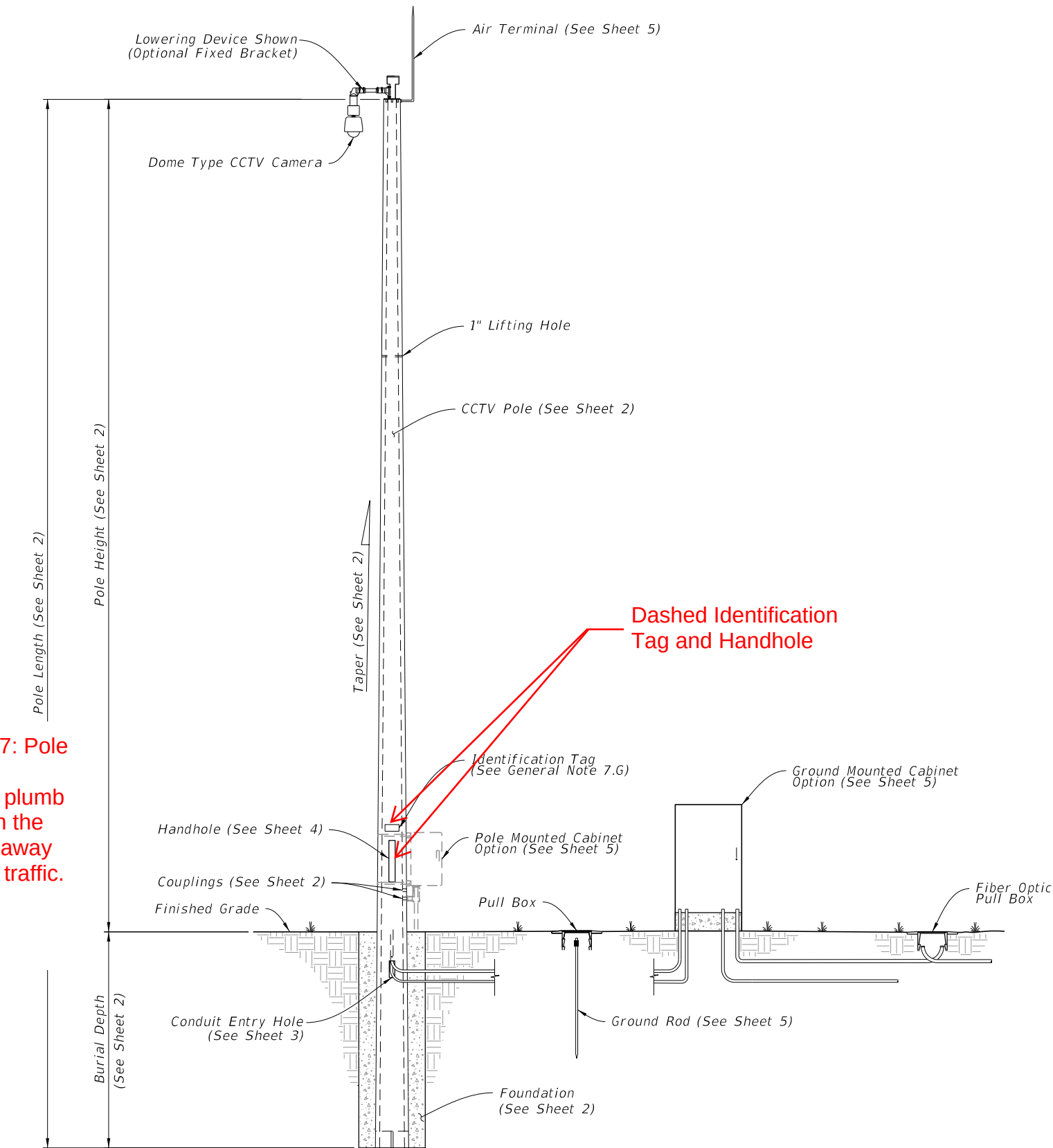
- A. Splice fiber optic cables in cabinet to preterminated patch panel.
- B. Furnish and install Surge Protection Devices (SPDs) on all cabling in cabinet.
- C. Furnish and install secondary SPDs protection on outlets for equipment in cabinet.
- D. Ensure that all electronic equipment power is protected and conditioned with SPDs.
- E. Ensure that equipment cabinet is bonded to CCTV pole grounding system.
- F. Install the pole mounted cabinet with the hinges next to the pole.
- G. Sizes and types of conduits and innerducts for network communications between the pullbox and cabinet are stated in the Contract Documents.

~~9. Lowering Device Installation:~~

- A. Place the lowering cable that moves within the pole in an interior conduit to prevent it from tangling or interfering with any electrical wire that is in the pole. Ensure that any electrical wire within the pole is routed securely and free from slack.
- B. Mount lowering arm perpendicular to the roadway or as shown in the plans. Position CCTV pole so that the camera can be safely lowered without requiring lane closures.
- C. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting plates, parking stand, etc.) with lowering device manufacturer.

Added New Note 7: Pole Installation:

- A. Install the Pole plumb
- B. Install Pole with the handhole located away from approaching traffic.



CCTV POLE ASSEMBLY

10/12/2020 8:19:39 AM

LAST REVISION		DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	CONCRETE CCTV POLE	INDEX 641-020	SHEET 1 of 5
11/01/17	11/01/21					

NOTES:

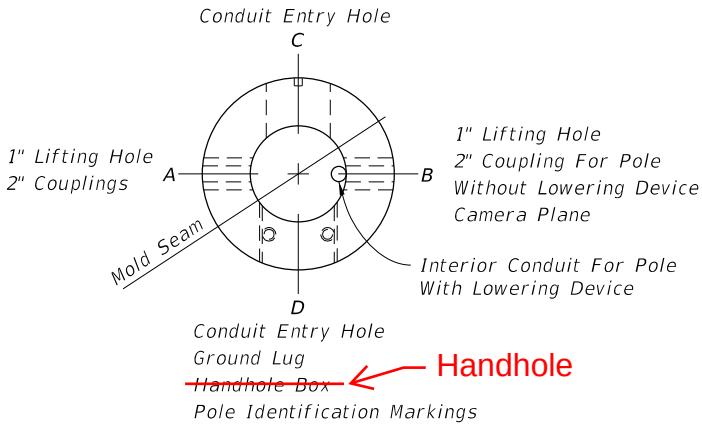
- 1. Diameter of 12-sided poles are measured flat to flat.
- 2. Total Taper applies to pole, strands and reinforcing.
- 3. For 12-Sided Pole and Round Roles Option 2, Stress prestressed strand to 70% of Ultimate before transfer. For Round Pole Option 1, stress prestressed strand
- 4. Pole Design Tables, Burial Depth is based on level ground (flatter than 1:5). Increase the burial depth in accordance with the Additional Burial 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.

Updated Detail to match Sheet 1

ADDITIONAL BURIAL DEPTH DUE TO GROUND SLOPE	
Ground Slope	Additional Burial Depth (feet)
1:5	3
1:4	4
1:3	5
1:2	7

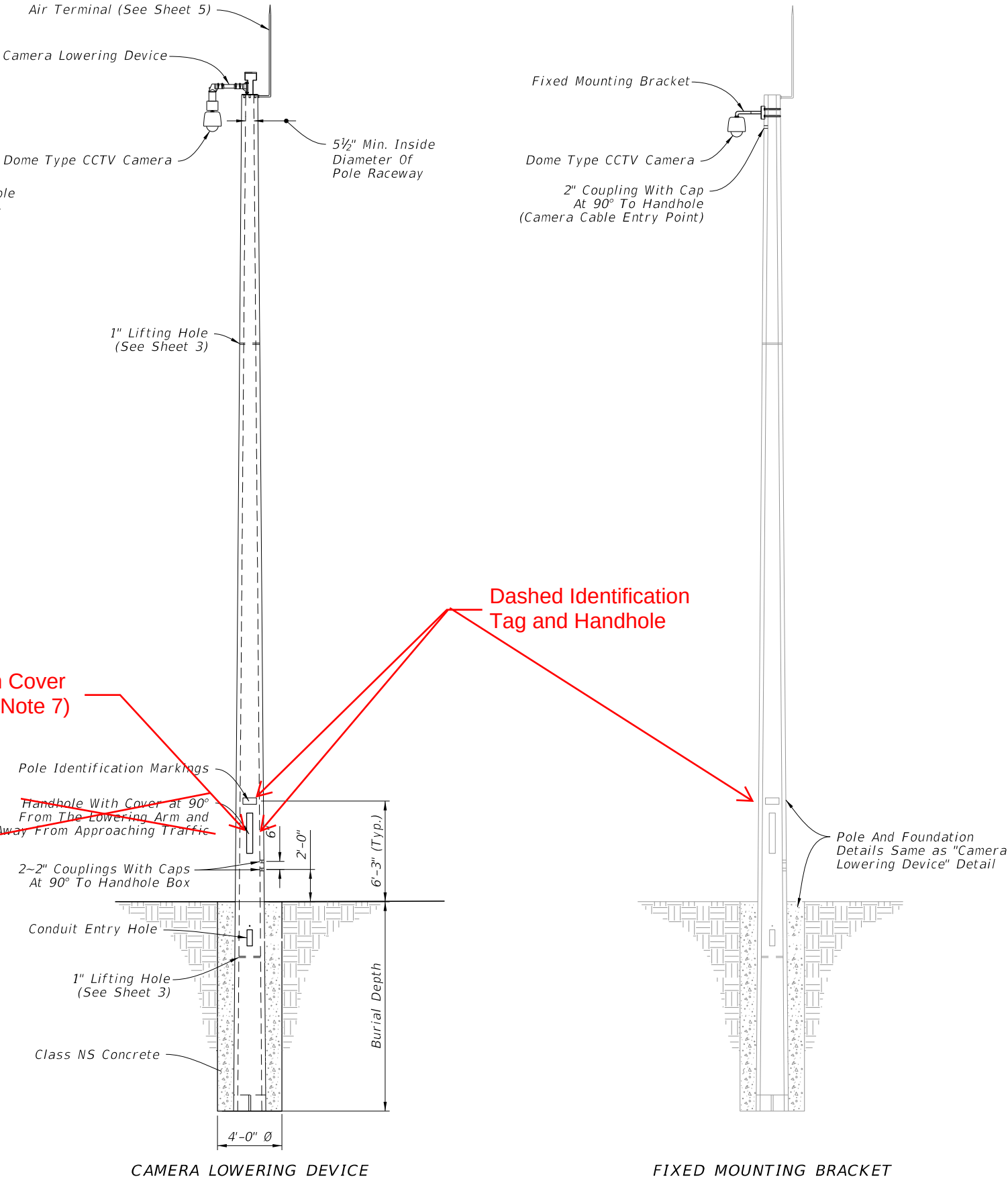
12-SIDED POLE DESIGN TABLE (See Note 1)										
Pole Length (ft)	Pole Height (ft)	Burial Depth (ft)	Total Taper (in/ft) (See Note 2)	Void Taper (in/ft)	Min. Wall Thickness Tip (in)	Min. Wall Thickness Butt (in)	Tip Diameter (in)	Butt Diameter (in)	Strand Pattern	Strand Diameter
63	50	13	0.18	0.18	3	3	12	23.34	1	0.6"
69	55	14	0.18	0.18	3	3	12	24.42	1	0.6"
75	60	15	0.18	0.18	3	3	12	25.50	2	0.6"
80	65	15	0.18	0.18	3	3	12	26.40	2	0.6"
86	70	16	0.18	0.18	3	3	12	27.48	2	0.6"

ROUND POLE DESIGN TABLE											
Pole Length (ft)	Pole Height (ft)	Burial Depth (ft)	Design Option	Total Taper (in/ft) (See Note 2)	Void Taper (in/ft)	Min. Wall Thickness Tip (in)	Min. Wall Thickness Butt (in)	Tip Diameter (in)	Butt Diameter (in)	Strand Pattern	S Di.
63	50	13	Option 1	0.216	0.192	3	3.76	12.15	25.76	3	
			Option 2	0.180	0.172	3	3.50	12.00	23.34	4	0.5"
69	55	14	Option 1	0.216	0.192	3	3.83	12.15	27.05	3	0.5"
			Option 2	0.180	0.173	3	3.50	12.00	24.42	4	0.5"
75	60	15	Option 1	0.216	0.192	3	3.90	12.15	28.35	3	0.5"
			Option 2	0.180	0.173	3	3.50	12.00	25.50	4	0.5"
80	65	15	Option 1	0.216	0.192	3	3.96	12.15	29.43	3	0.5"
			Option 2	0.180	0.174	3	3.50	12.00	26.40	4	0.5"
86	70	16	Option 1	0.216	0.192	3	4.03	12.15	30.73	3	0.5"
			Option 2	0.180	0.174	3	3.50	13.00	28.48	4	0.5"



PLAN VIEW

Realigned to match Pole direction



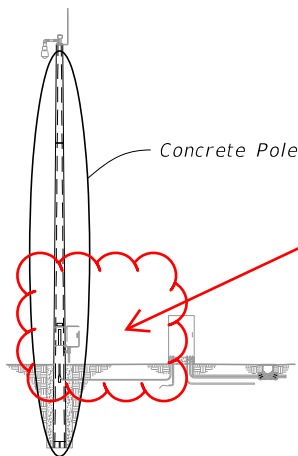
CAMERA LOWERING DEVICE

FIXED MOUNTING BRACKET

ELEVATION

10/12/2020 8:19:42 AM

10/12/2020 8:19:45 AM



ASSEMBLY

Updated Detail to match Sheet 1

1.25" Pitch
3'-0"

3" Pitch
Varies

Final Grade Location

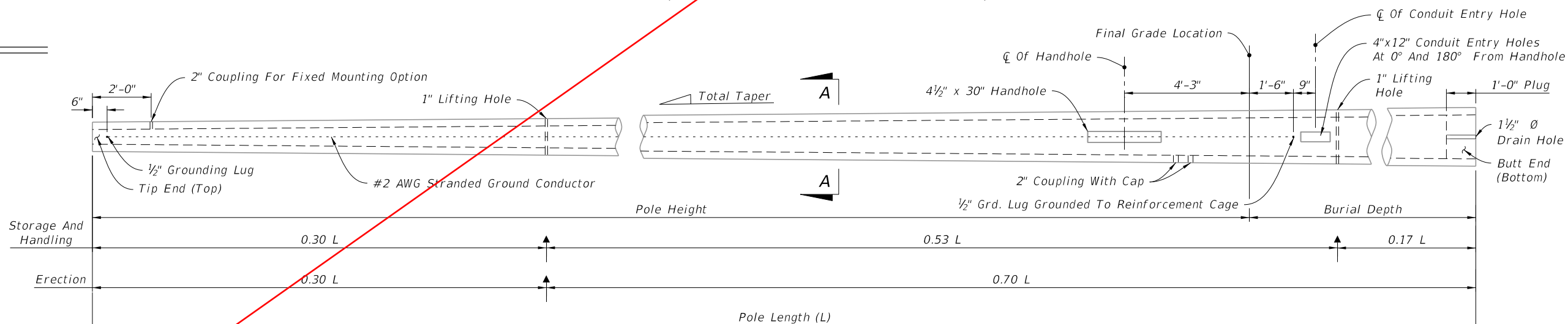
1.25" Pitch
Burial Depth

#5 Gage Spiral
Reinforcing

Moved to Notes as Note 1

Added: See Note 1

SPIRAL REINFORCING ELEVATION
(Strands, Holes and Fixtures Not Shown)



POLE ELEVATION

(Strands And Reinforcing Not Shown)

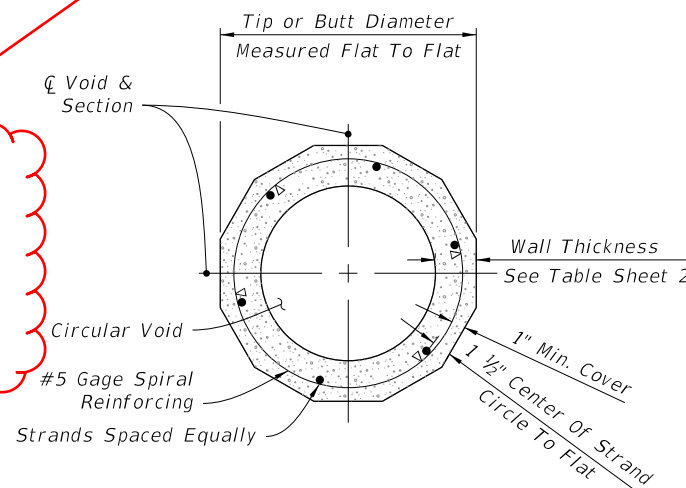
LEGEND:

- Prestressed Strand
- △ (4) #5 Rebar (Shown) or (6) #4 Rebar
- ↑ Lift Points

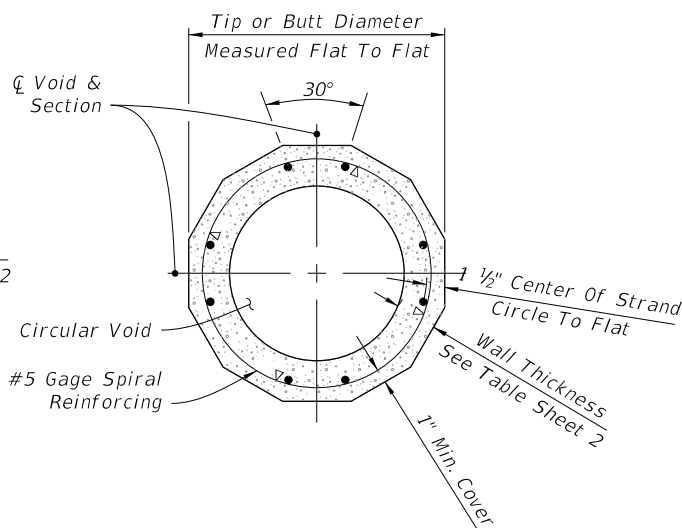
NOTE:

3. Strands and rebar shown are continuous from Tip End To Butt End.

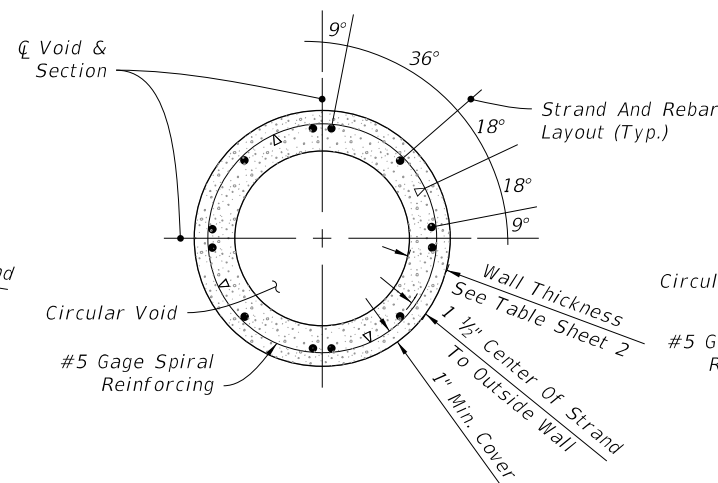
Added: Note 2



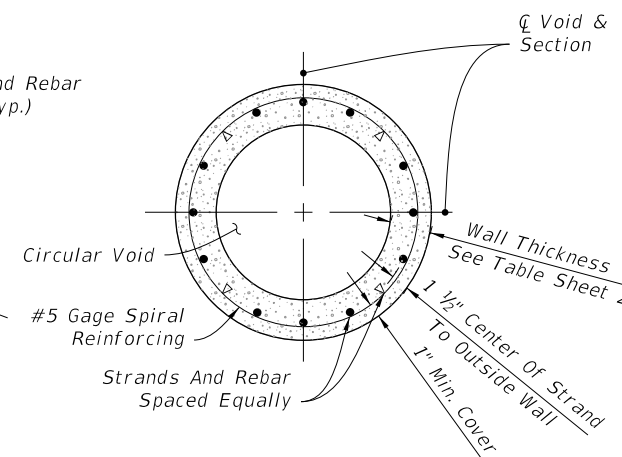
SECTION A-A
STRAND PATTERN 1



SECTION A-A
STRAND PATTERN 2



SECTION A-A
STRAND PATTERN 3
(Option 1)



SECTION A-A
STRAND PATTERN 4
(Option 2)

12 - SIDED CONCRETE POLE

ROUND CONCRETE POLE



FY 2021-22
STANDARD PLANS

CONCRETE CCTV POLE

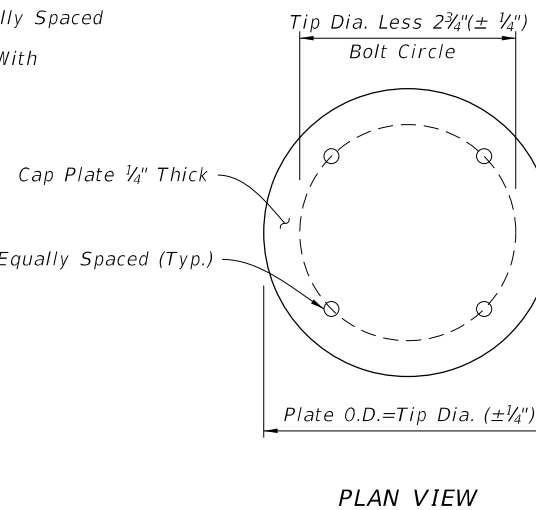
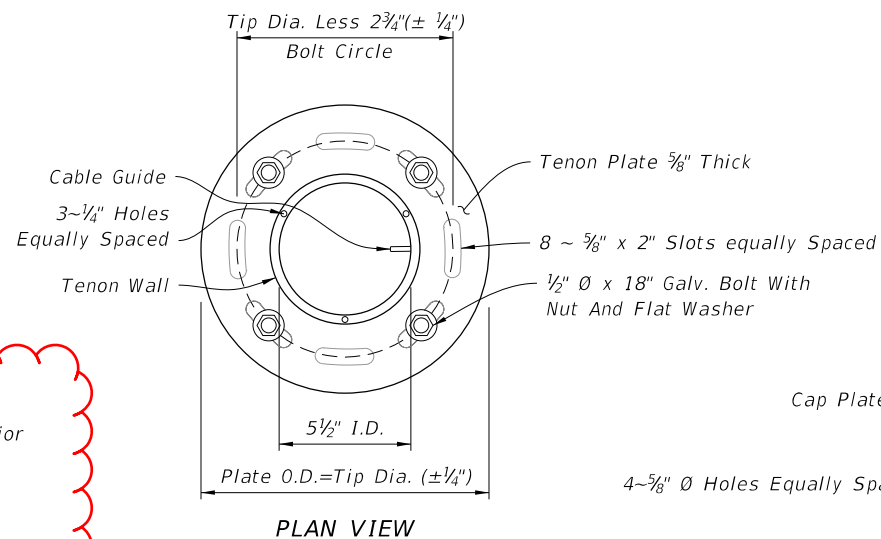
INDEX
641-020

SHEET
3 of 5

LAST REVISION
11/01/21

DESCRIPTION:

- Updated Detail to match Sheet 1

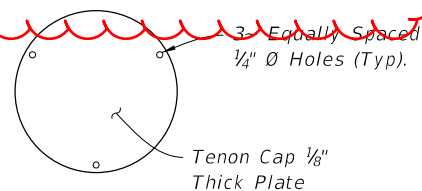


ASSEMBLY

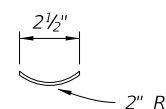
NOTES:

1. *Install all handhole and opening covers prior to shipping.*
2. *Install 1/2" Ø x 5" long stud with hex nut in insert before shipment.*
3. *As an alternate, embed 4-1/2" Ø x 18" stainless steel threaded rods with a threaded nut. At top of rod, thread a coupling nut to attach plate w/ 4-1/2" x 1 3/4" stainless steel bolts.*
4. *Handhole frame may be Cast Aluminum 356.2.*

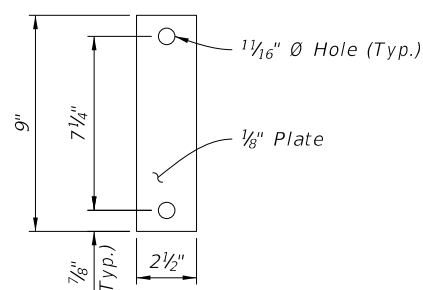
Added: Note 5: Work these details with Data Tables on Sheet 2.



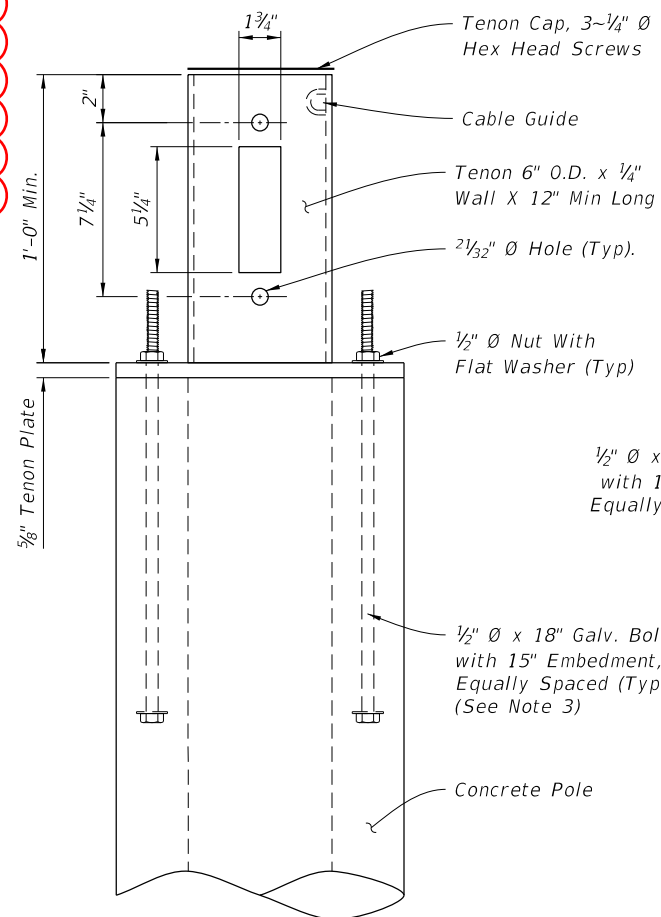
$\equiv TENON\ CAP:$



PLAN VIEW

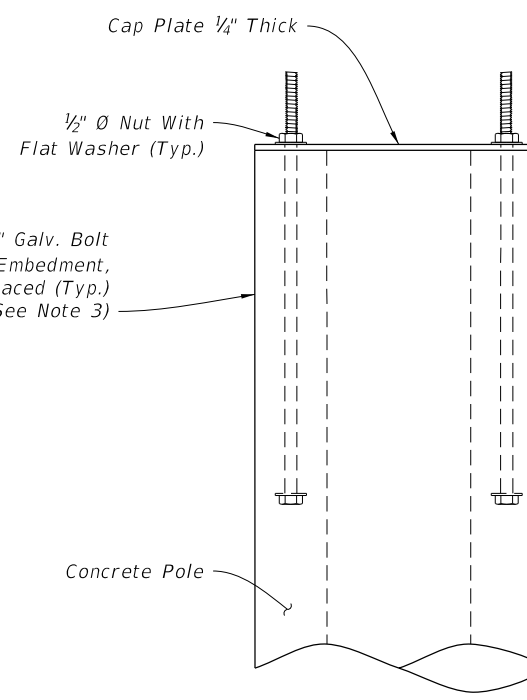


ELEVATION



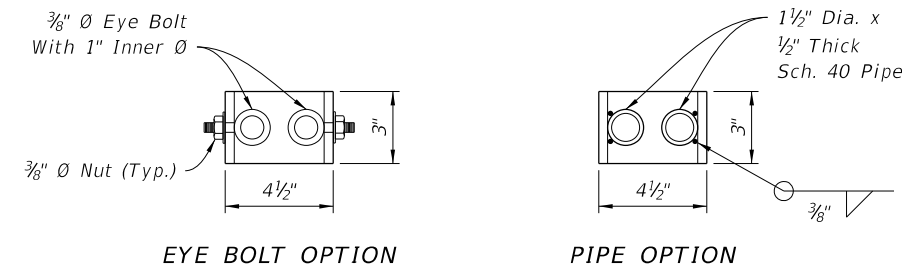
ELEVATION

LOWERING DEVICE TENON



ELEVATION

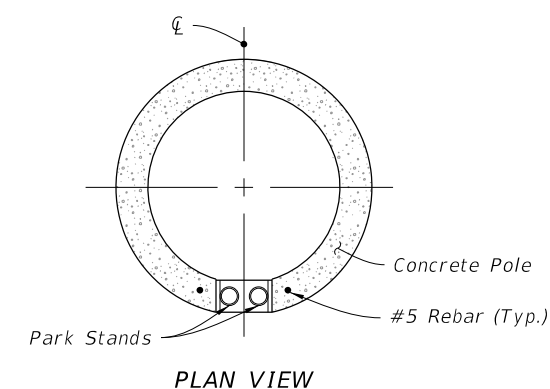
*CAP PLATE DETAIL
(Without Lowering Device)*



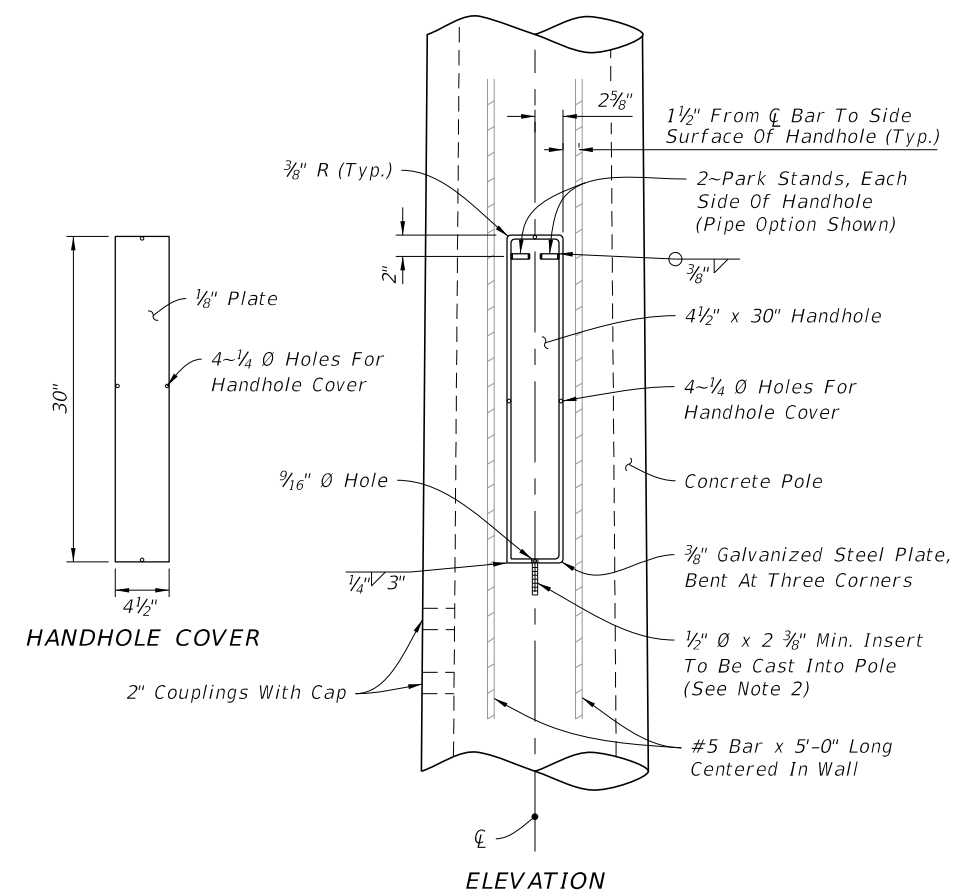
EYE BOLT OPTION

PIPE OPTION

== PARK STAND DETAIL



PLAN VIEW

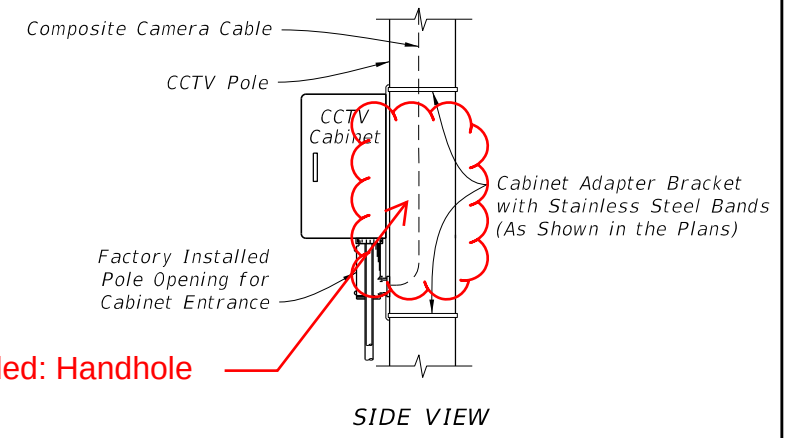
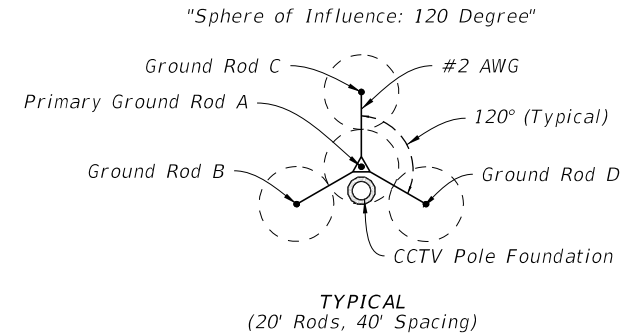
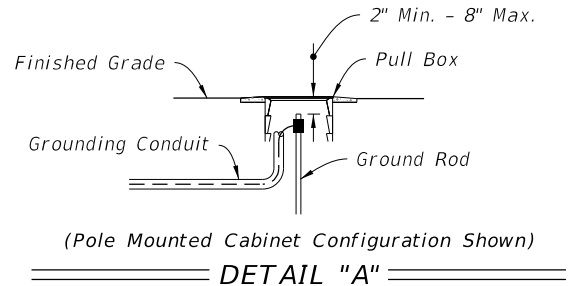
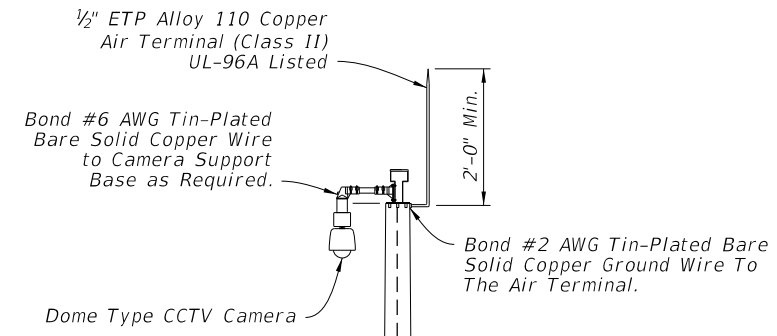


HANDHOLE COVER

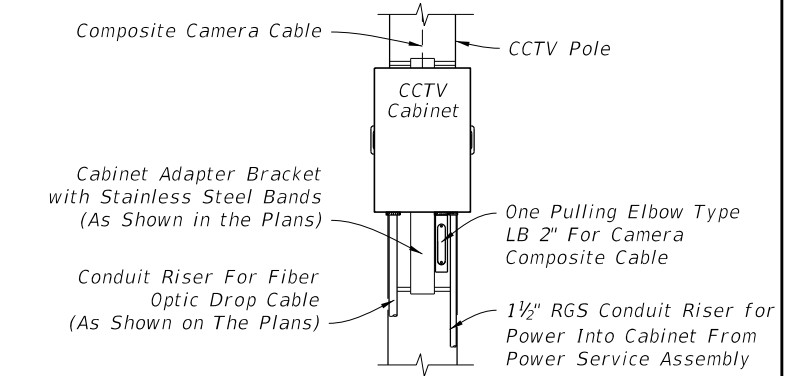
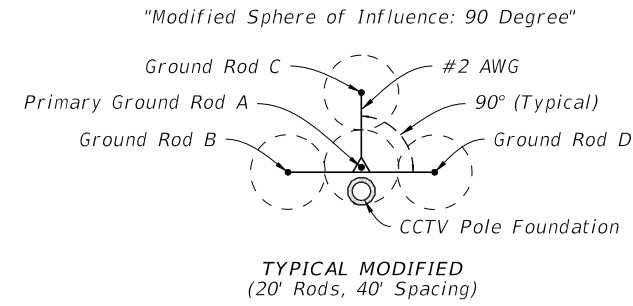
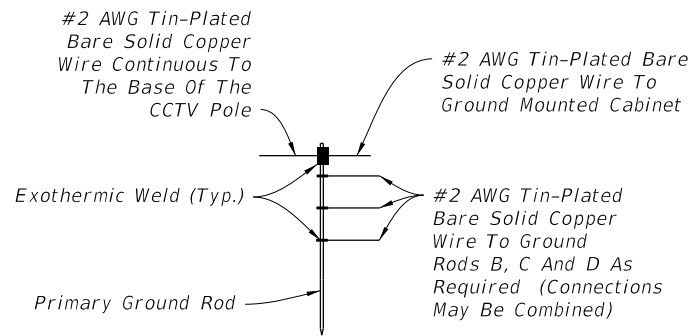
ELEVATION

≡ HANDHOLE DETAIL

LAST REVISION 11/01/17 REVISION 11/01/21	DESCRIPTION:	FY 2021-22 STANDARD PLANS	CONCRETE CCTV POLE	INDEX 641-020	SHEET 4 of 5
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CCTV Pole (See Sheet 3)
#2 Wire may be Routed Internally or Externally In Accordance With The Plans



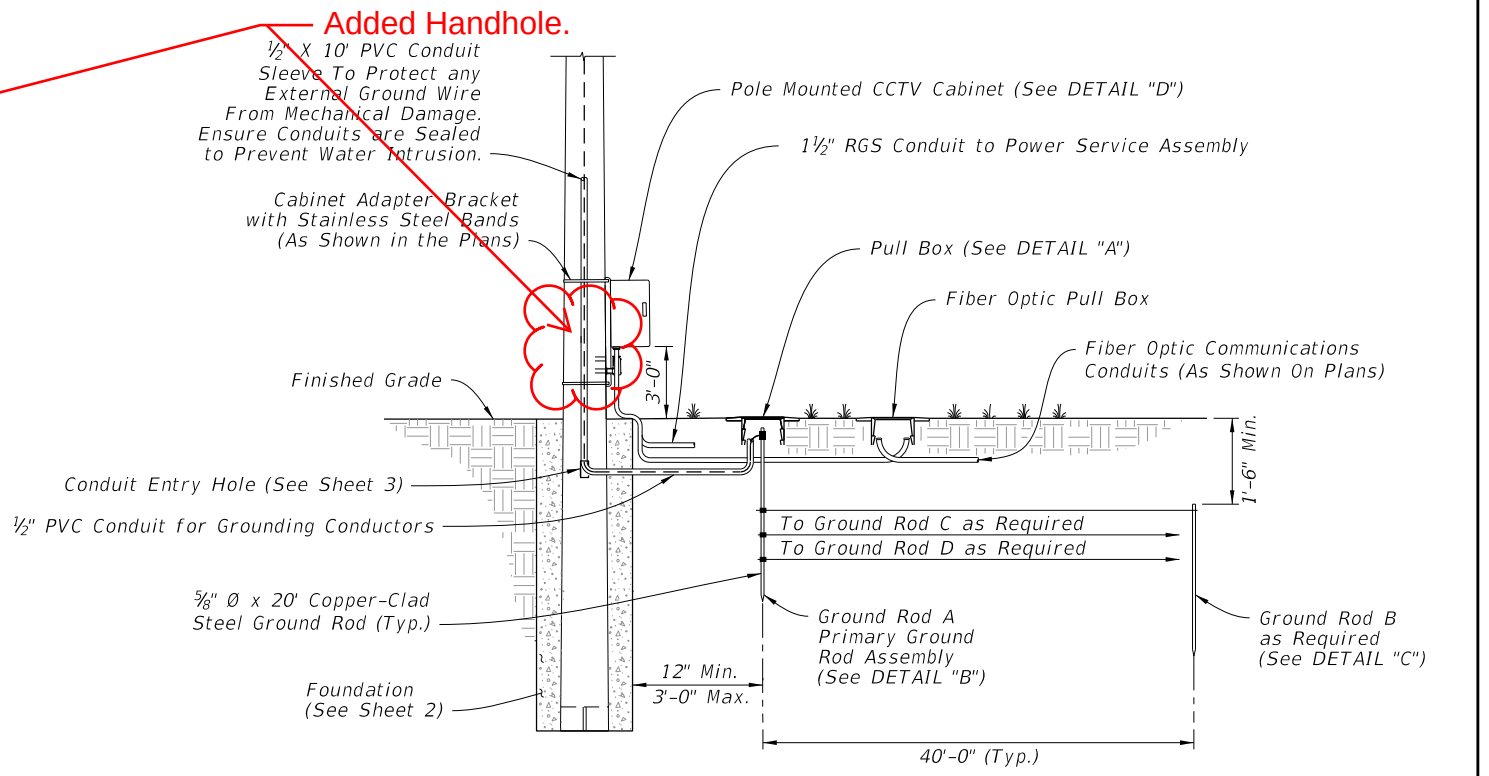
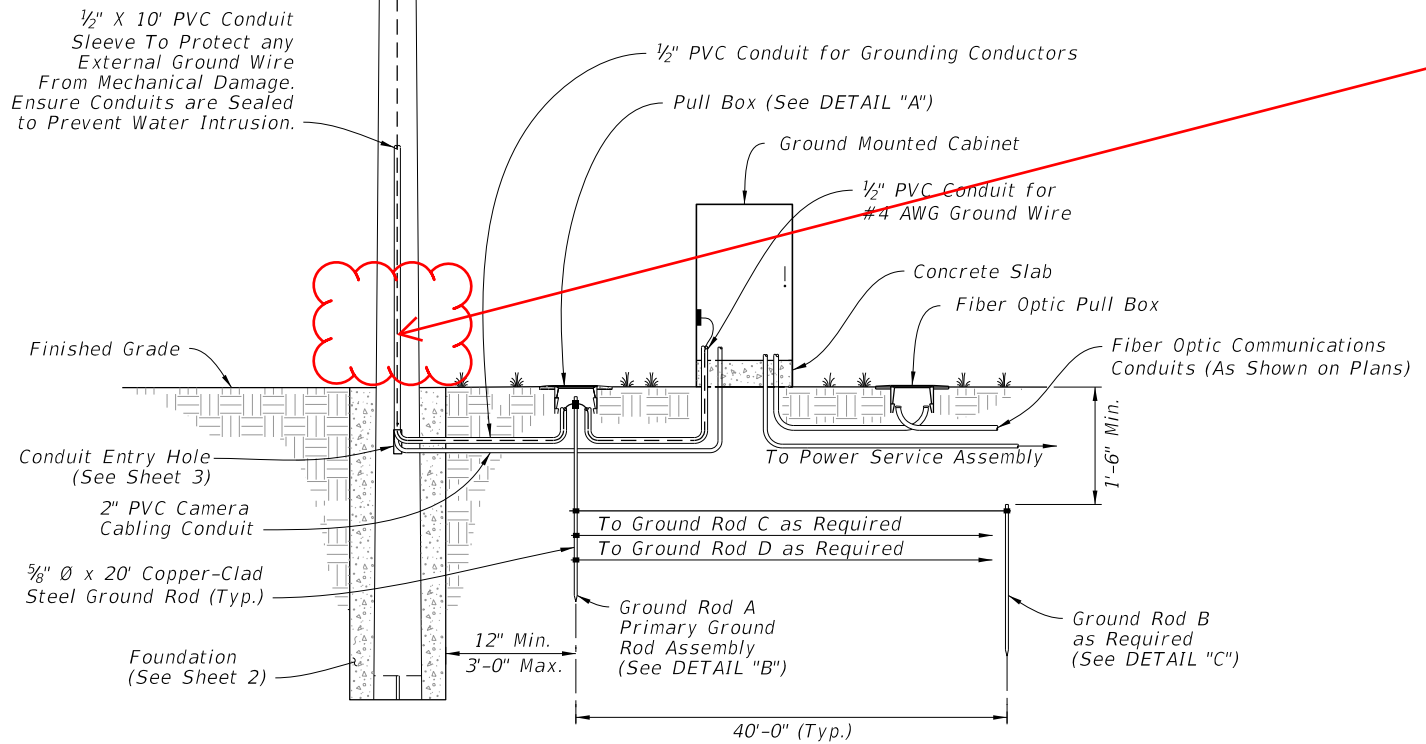
GROUND ROD ARRAY PLACEMENT

DETAIL "B"

DETAIL "C"

FRONT VIEW

DETAIL "D"



GROUND MOUNTED CABINET

POLE MOUNTED CABINET

CONCRETE CCTV POLE GROUNDING

10/12/2020 8:19:51 AM

LAST REVISION		DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	CONCRETE CCTV POLE	INDEX 641-020	SHEET 5 of 5
11/01/20	11/01/21						

1. Work this Index with Specification 641.

2. This Index is considered fully detailed and no shop drawings are necessary. Submit Shop Drawings for minor modifications not detailed in the Plans.

3. Provide either round or 12-sided Poles.

4. See Index 635-001 for additional details for Pull Boxes.

5. Materials:

- A. Pole: Use Class VI concrete with 6 ksi minimum strength at transfer.
- B. Prestressing Strands: ASTM A416, Grade 270 low relaxation.
- C. Reinforcing Steel: ASTM A615, Grade 60
- D. Spiral Reinforcing: ASTM A1064 Cold-Drawn
- E. Bolts: ASTM F1554, Grade 55
Nuts: ASTM A563, Grade A Heavy Hex
Washers: ASTM F436
- F. Steel plates and Pole Cap: ASTM A36 or ASTM A709, Grade 50
- G. Galvanization: Bolts, nuts and washers: ASTM F2329
All other steel: ASTM A123

6. Fabrication:

- A. Cut the tip end of the prestressed strand first or simultaneously with the butt end.
- B. For spiral reinforcing, one turn is required for spiral splices and two turns are required at the top and bottom of poles.
- C. For Reinforcing Steel, lap splice to consist of a 3'-0" lap length at each splice. No more than two opposing rebar to be spliced at the same cross section. Stagger lap splices as needed.
- D. Provide a Class 3 surface finish in accordance with Specification 400.
- E. Provide a 1" minimum cover.
- F. Provide handhole and coupler cover plates made of non-corrosive materials. Attach cover plates to poles using lead anchors or threaded inserts embedded in the poles in conjunction with round headed chrome plated screws.
- G. Provide Identification Markings on the poles where indicated on the following sheets. Include the following information using inset numerals with 1" height or as approved in the Producers' Quality Control Program:

Financial Project ID
Pole Manufacturer
Pole Length

- H. Tie ground wires to the interior of reinforcing steel as necessary to prevent displacement during concreting operations.
- I. Storage, Handling and Erection locations shown may vary within $\pm 3"$.

7. Pole Installation:

- A. Install the Pole plumb.
- B. Install Pole with the handhole located away from approaching traffic.

8. Cabinet Installation:

- A. *Splice fiber optic cables in cabinet to preterminated patch panel.*
- B. *Furnish and install Surge Protection Devices (SPDs) on all cabling in cabinet.*
- C. *Furnish and install secondary SPDs protection on outlets for equipment in cabinet.*
- D. *Ensure that all electronic equipment power is protected and conditioned with SPDs.*
- E. *Ensure that equipment cabinet is bonded to CCTV pole grounding system.*
- F. *Install the pole mounted cabinet with the hinges next to the pole.*
- G. *Sizes and types of conduits and innerducts for network communications between the pullbox and cabinet are stated in the Contract Documents.*

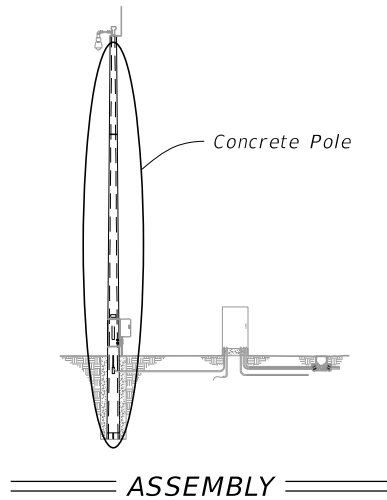
9. Lowering Device Installation:

- A. Place the lowering cable that moves within the pole in an interior conduit to prevent it from tangling or interfering with any electrical wire that is in the pole. Ensure that any electrical wire within the pole is routed securely and free from slack.
- B. Mount lowering arm perpendicular to the roadway or as shown in the plans. Position CCTV pole so that the camera can be safely lowered without requiring lane closures.
- C. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting plates, parking stand, etc.) with lowering device manufacturer.



LAST REVISION 11/01/21	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	CONCRETE CCTV POLE	INDEX 641-020	SHEET 1 of 5
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4/30/2021 12:57:11 PM



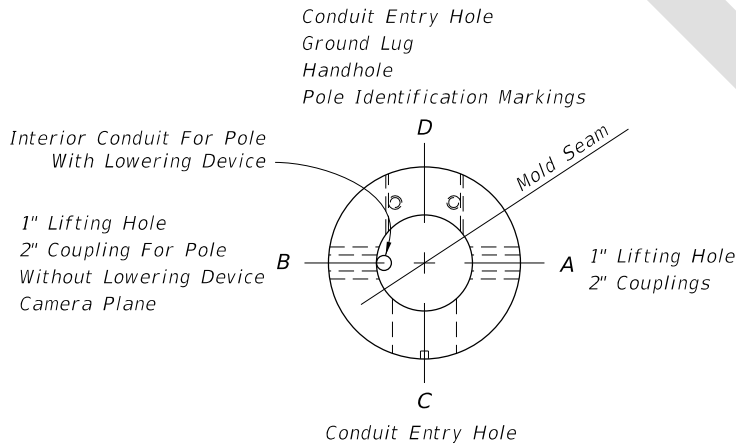
NOTES:

1. Diameter of 12-sided poles are measured flat to flat.
2. Total Taper applies to pole, strands and reinforcing.
3. For 12-Sided Pole and Round Roles Option 2, Stress prestressed strand to 70% of Ultimate before transfer. For Round Pole Option 1, stress prestressed strand to 60% of Ultimate before transfer.
4. Pole Design Tables, Burial Depth is based on level ground (flatter than 1:5). Increase the burial depth in accordance with the Additional Burial 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.

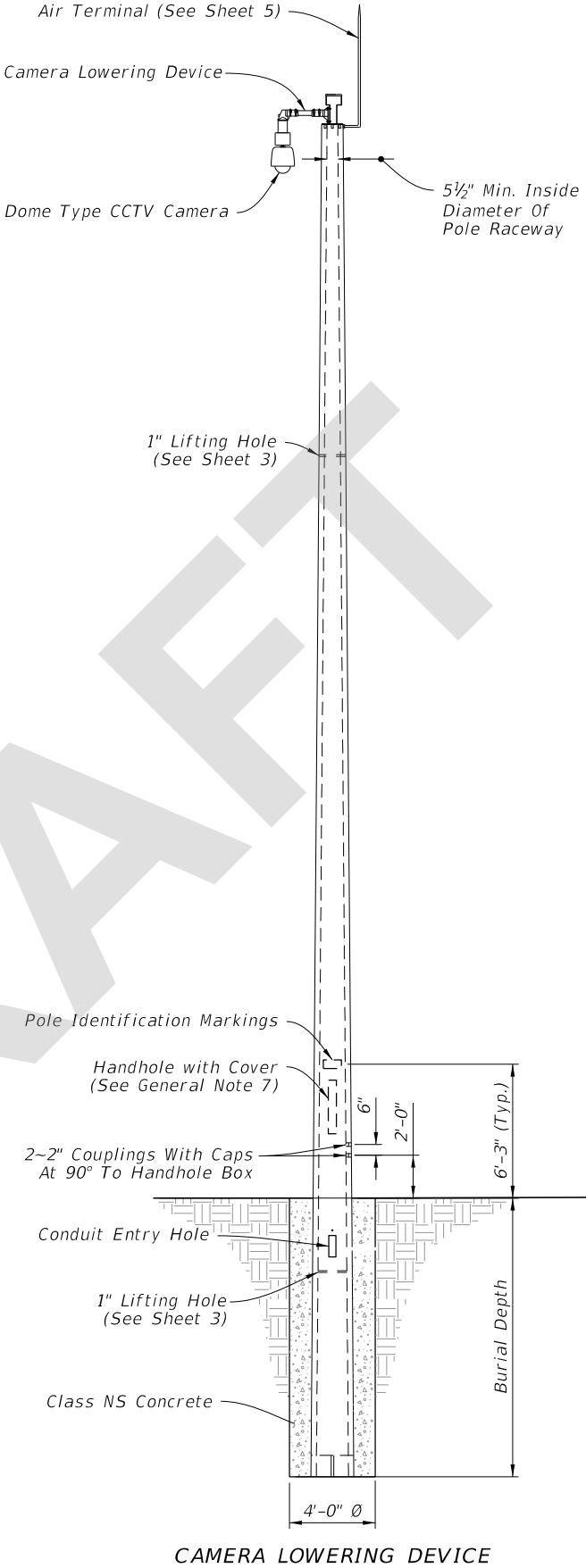
ADDITIONAL BURIAL DEPTH DUE TO GROUND SLOPE	
Ground Slope	Additional Burial Depth (feet)
1:5	3
1:4	4
1:3	5
1:2	7

12-SIDED POLE DESIGN TABLE (See Note 1)										
Pole Length (ft)	Pole Height (ft)	Burial Depth (ft)	Total Taper (in/ft) (See Note 2)	Void Taper (in/ft)	Min. Wall Thickness Tip (in)	Min. Wall Thickness Butt (in)	Tip Diameter (in)	Butt Diameter (in)	Strand Pattern	Strand Diameter
63	50	13	0.18	0.18	3	3	12	23.34	1	0.6"
69	55	14	0.18	0.18	3	3	12	24.42	1	0.6"
75	60	15	0.18	0.18	3	3	12	25.50	2	0.6"
80	65	15	0.18	0.18	3	3	12	26.40	2	0.6"
86	70	16	0.18	0.18	3	3	12	27.48	2	0.6"

ROUND POLE DESIGN TABLE											
Pole Length (ft)	Pole Height (ft)	Burial Depth (ft)	Design Option	Total Taper (in/ft) (See Note 2)	Void Taper (in/ft)	Min. Wall Thickness Tip (in)	Min. Wall Thickness Butt (in)	Tip Diameter (in)	Butt Diameter (in)	Strand Pattern	Strand Diameter
63	50	13	Option 1	0.216	0.192	3	3.76	12.15	25.76	3	0.5"
			Option 2	0.180	0.172	3	3.50	12.00	23.34	4	0.5"
69	55	14	Option 1	0.216	0.192	3	3.83	12.15	27.05	3	0.5"
			Option 2	0.180	0.173	3	3.50	12.00	24.42	4	0.5"
75	60	15	Option 1	0.216	0.192	3	3.90	12.15	28.35	3	0.5"
			Option 2	0.180	0.173	3	3.50	12.00	25.50	4	0.5"
80	65	15	Option 1	0.216	0.192	3	3.96	12.15	29.43	3	0.5"
			Option 2	0.180	0.174	3	3.50	12.00	26.40	4	0.5"
86	70	16	Option 1	0.216	0.192	3	4.03	12.15	30.73	3	0.5"
			Option 2	0.180	0.174	3	3.50	13.00	28.48	4	0.5"



PLAN VIEW



CAMERA LOWERING DEVICE



FIXED MOUNTING BRACKET

ELEVATION



FY 2022-23
STANDARD PLANS

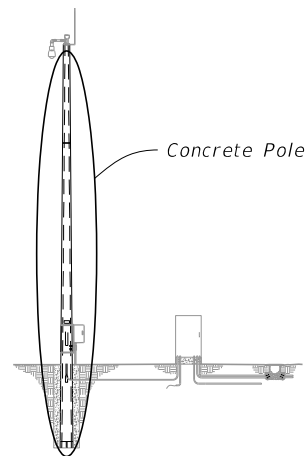
CONCRETE CCTV POLE

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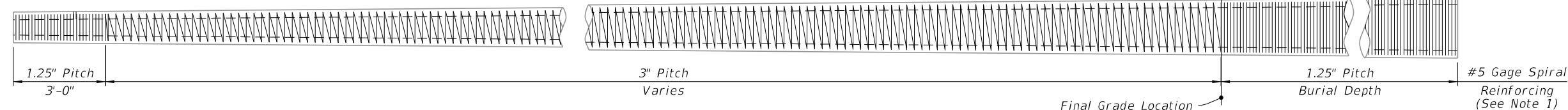
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REVISION
11/01/21

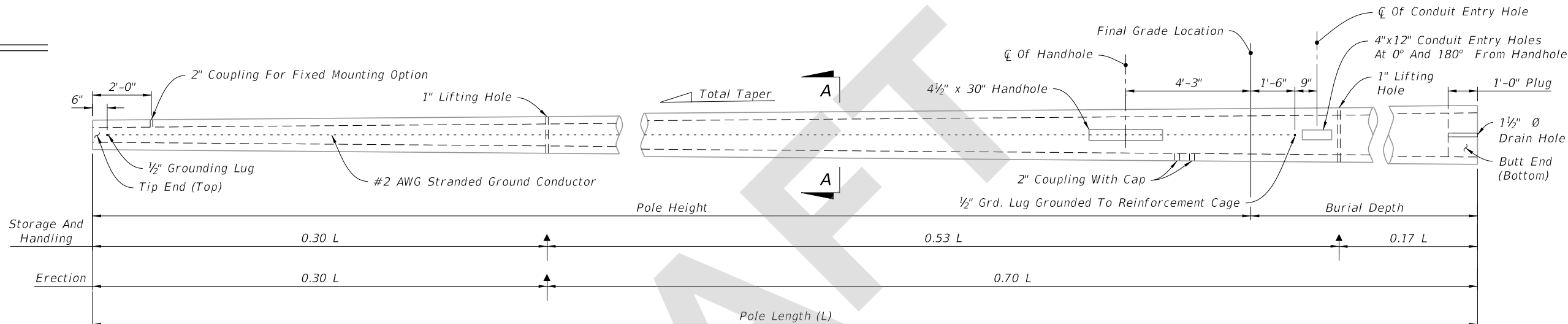
DESCRIPTION:



ASSEMBLY



SPIRAL REINFORCING ELEVATION (Strands, Holes and Fixtures Not Shown)



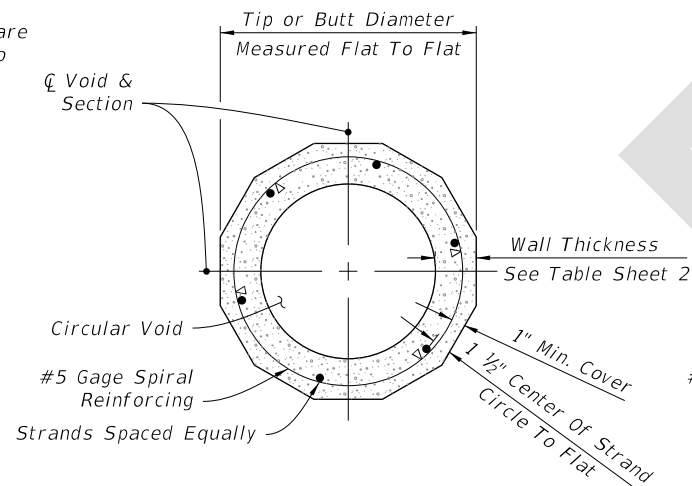
POLE ELEVATION (Strands And Reinforcing Not Shown)

NOTES:

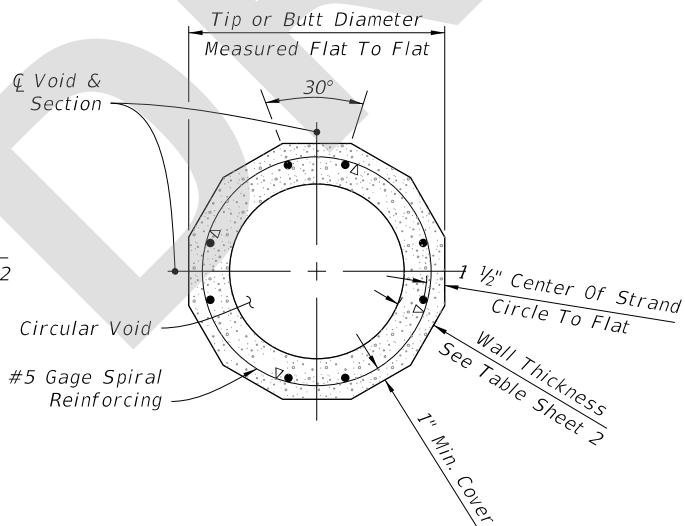
1. Spiral wire may be wrapped in two directions given that an equivalent area of spiral wire is provided to that shown in this Index and the cover requirements are met.
2. Work these details with Data Tables on Sheet 2.
3. Strands and rebar shown are continuous from Tip End to Butt End.

LEGEND:

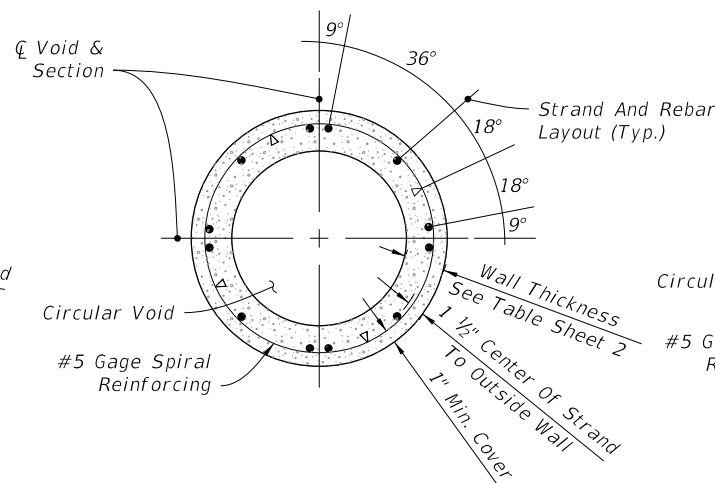
- Prestressed Strand
- △ (4) #5 Rebar (Shown) or (6) #4 Rebar
- ↑ Lift Points



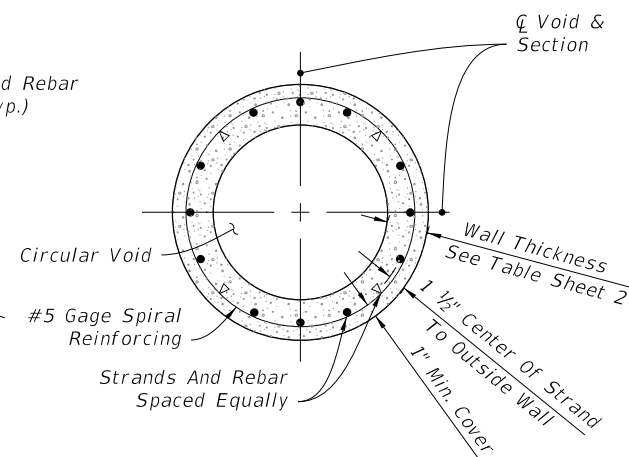
SECTION A-A
STRAND PATTERN 1



SECTION A-A
STRAND PATTERN 2



SECTION A-A
STRAND PATTERN 3
(Option 1)



SECTION A-A
STRAND PATTERN 4
(Option 2)

12 - SIDED CONCRETE POLE

ROUND CONCRETE POLE

LAST
REVISION
11/01/21

DESCRIPTION:

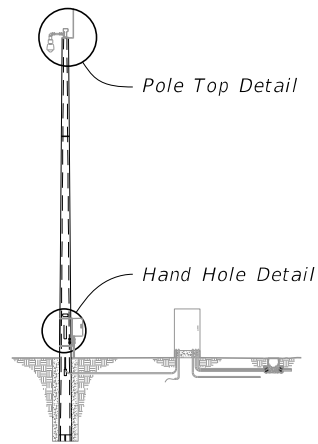


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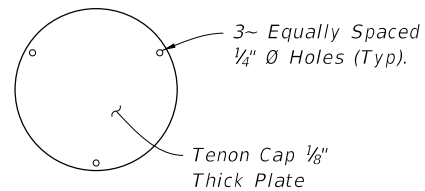
SHEET
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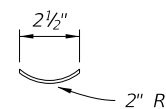
ASSEMBLY

NOTES:

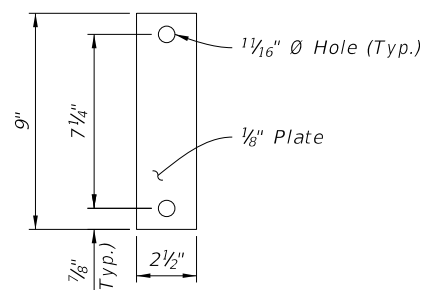
1. Install all handhole and opening covers prior to shipping.
2. Install $\frac{1}{2}$ " $\emptyset$ x 5" long stud with hex nut in insert before shipment.
3. As an alternate, embed 4- $\frac{1}{2}$ " $\emptyset$ x 18" stainless steel threaded rods with a threaded nut. At top of rod, thread a coupling nut to attach plate w/ 4- $\frac{1}{2}$ " x $1\frac{3}{4}$ " stainless steel bolts.
4. Handhole frame may be Cast Aluminum 356.2.
5. Work these details with Data Tables on Sheet 2.



TENON CAP

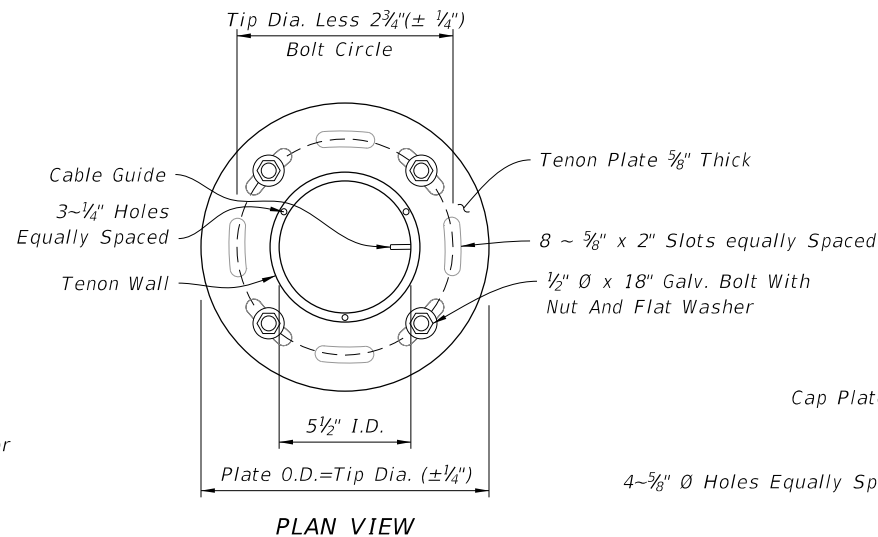


PLAN VIEW

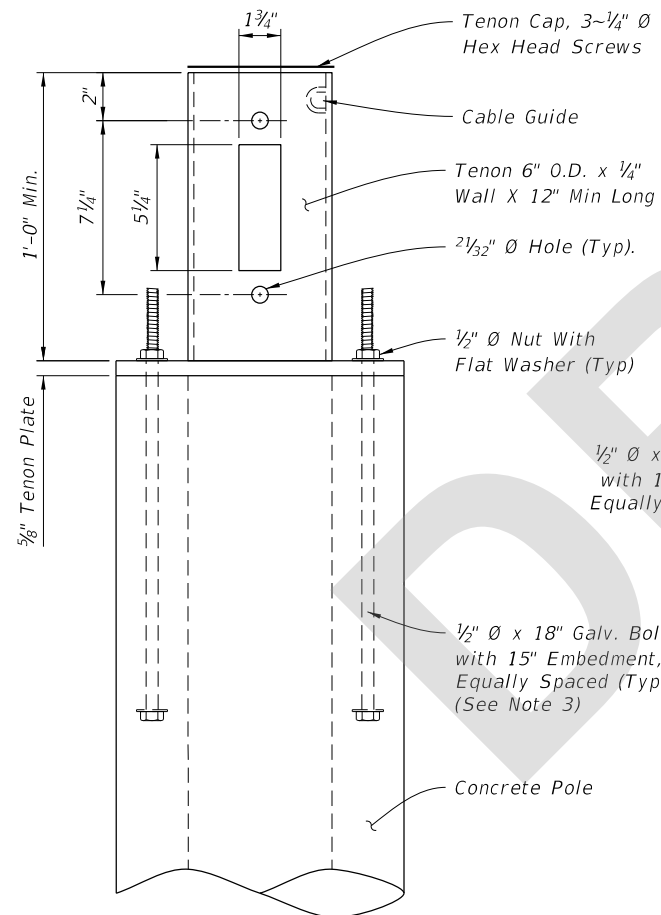


ELEVATION

TENON COVER

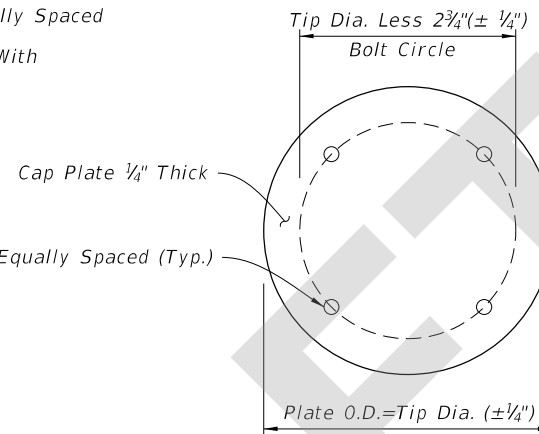


PLAN VIEW

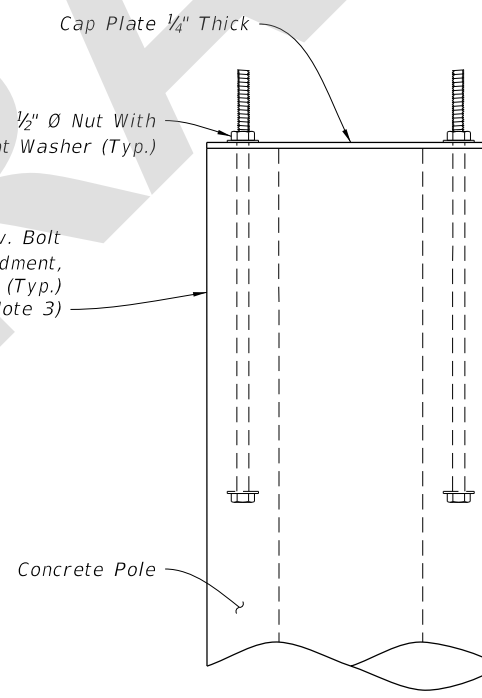


ELEVATION

LOWERING DEVICE TENON

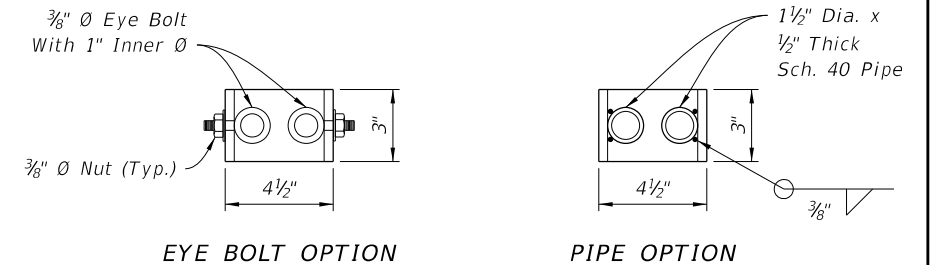


PLAN VIEW



ELEVATION

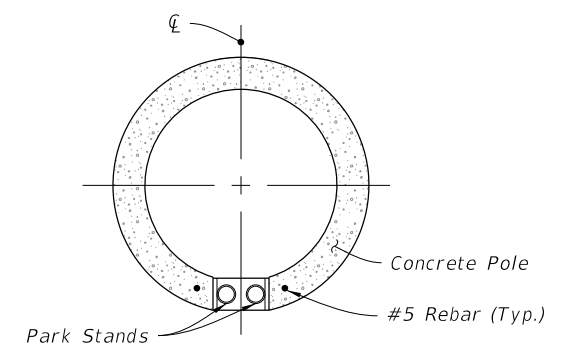
CAP PLATE DETAIL (Without Lowering Device)



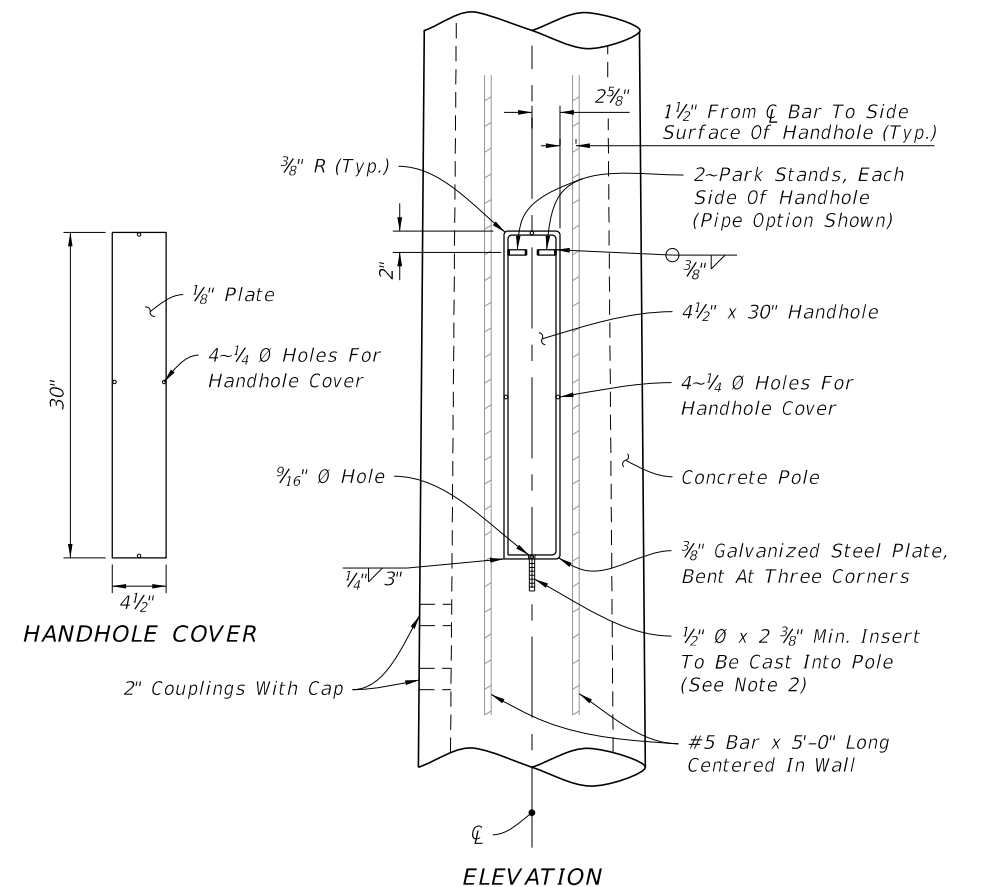
EYE BOLT OPTION

PIPE OPTION

PARK STAND DETAIL



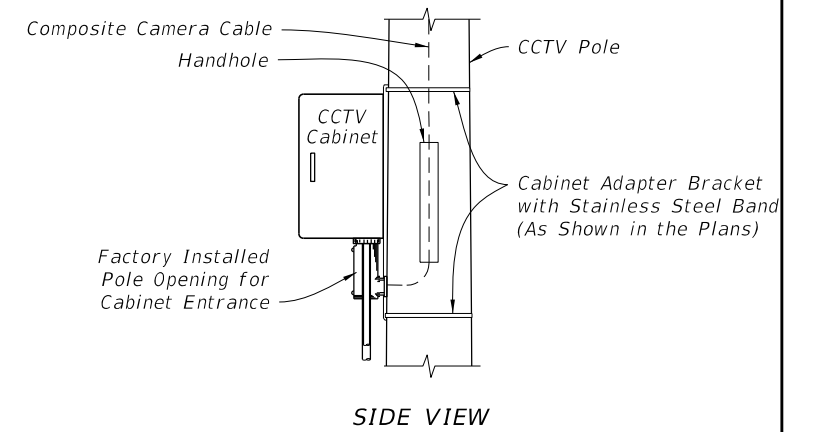
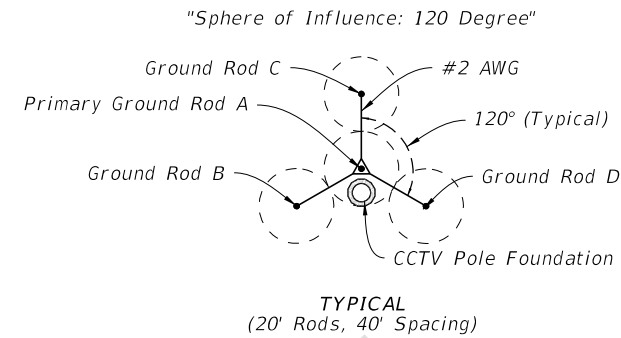
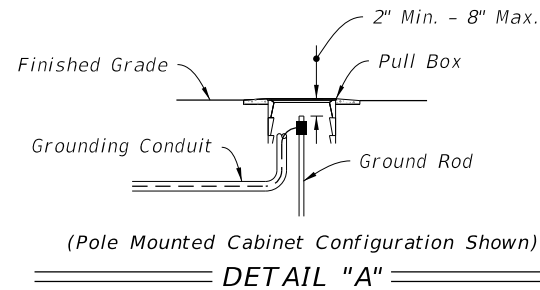
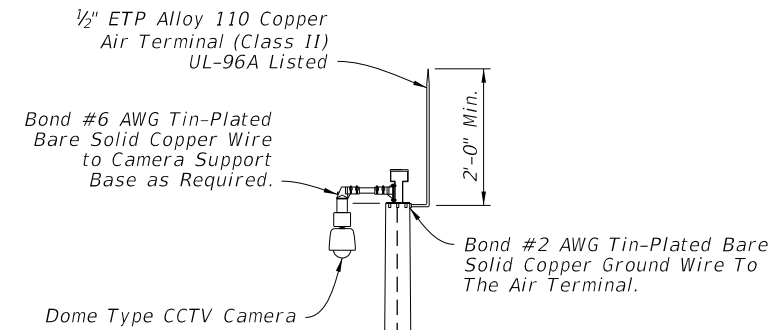
PLAN VIEW



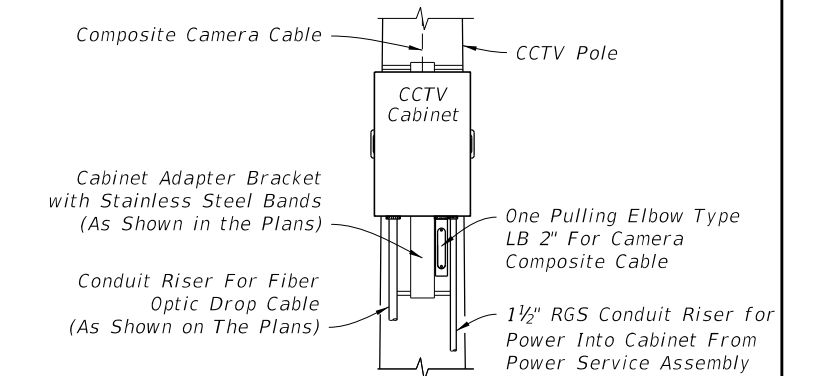
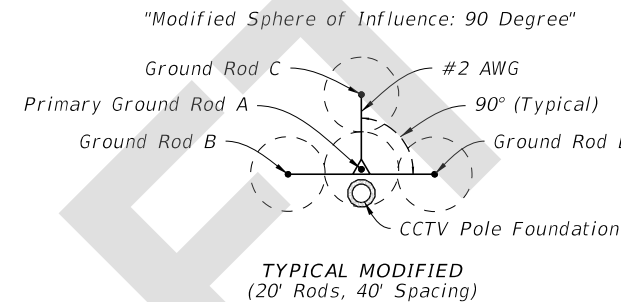
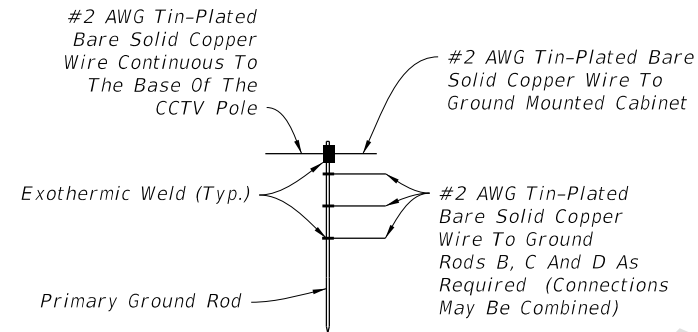
ELEVATION

HANDHOLE DETAIL

4/30/2021 12:57:25 PM



CCTV Pole (See Sheet 3)
#2 Wire may be Routed Internally or Externally In Accordance With The Plans

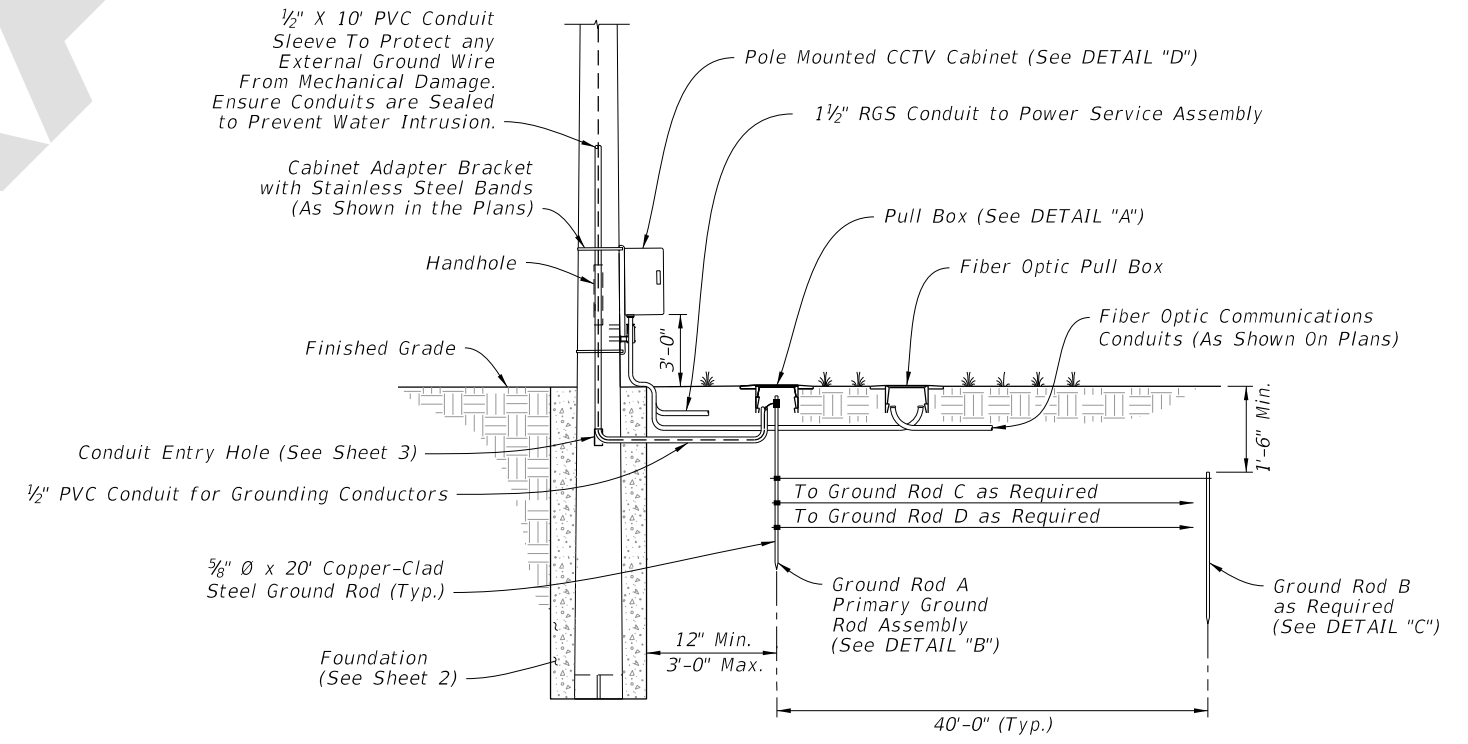
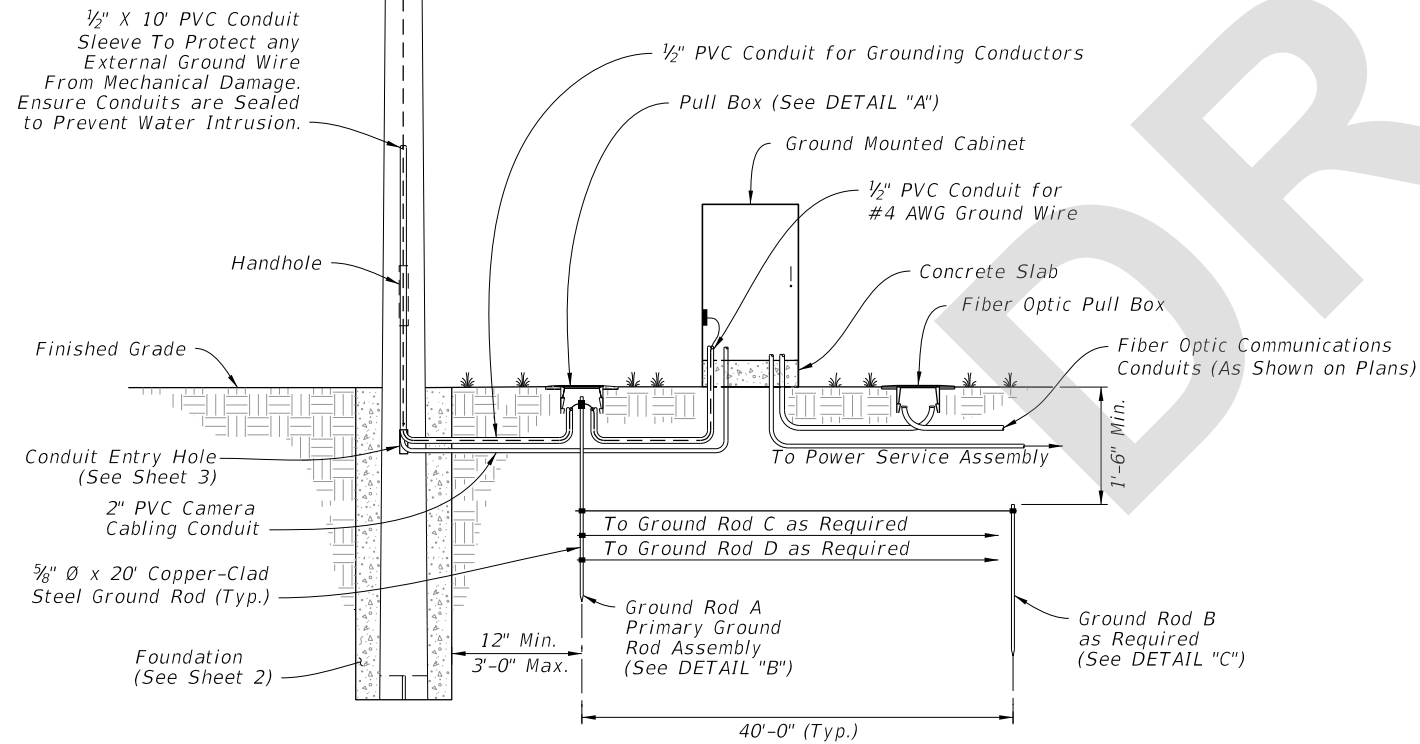


GROUND ROD ARRAY PLACEMENT

DETAIL "B"

DETAIL "C"

DETAIL "D"



CONCRETE CCTV POLE GROUNDING

LAST REVISION	DESCRIPTION:	FDOT	FY 2022-23 STANDARD PLANS	CONCRETE CCTV POLE	INDEX	SHEET
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