ORIGINATION FORM

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

Contact Information:
Date: January 15, 2021
Originator: Malcolm Tomatani
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Standard Plans:
Index Number: 649-020
Sheet Number(s): All Sheets
Index Title: Steel CCTV Pole

Summary of the changes:
Sheet 1: Added Note 3 to the General Notes to stay consistent with 641-020; Added Note D and E to new Note 6; Added the Cabinet Adapter Bracket and dashed the handhole in the STEEL CCTV POLE ASSEMBLY detail.
Sheet 2: Updated the Assembly detail to match Sheet 1; Dashed the handhole in the ELEVATION detail.
Sheet 3: Updated the Assembly detail to match Sheet 1.
Sheet 4: Updated the Assembly detail to match Sheet 1.
Sheet 5: Updated the Assembly detail to match Sheet 1.
Sheet 6: Dashed the handhole in the CONCRETE CCTV POLE GROUNDING detail and added the handhole to DETAIL "E"-SIDE VIEW detail.

Commentary / Background:
The handhole should be located downstream of the traffic so all details and notes will be updated for the proper representation. Also added notes to make Index consistent with Standard Plans Index 641-020.

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

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑</td>
<td></td>
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</table>
|     | ☐  | Other Standard Plans – 641-020 Rick Jenkins
| ☐   | ☑  | 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
<table>
<thead>
<tr>
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</table>
| ☚   | ☑     | 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
GENERAL NOTES:
1. Work this Index with Specification 649.
2. This Index is completed fully; only submit shop drawings for minor modifications not detailed in the Plans.

Materials:
A. Pole: ASTM A1011 Grade 50, 55, 60 or 65 (less than 3.0 ksi yield) or ASTM A572 Grade 50, 60 or 65 (greater than or equal to 3.0 ksi yield) or ASTM A595 Grade A (55 ksi yield) or Grade B (60 ksi yield).
B. Steel Plates and Pole Cap: ASTM A36 or ASTM A709 Grade 50.
C. Weld Metal: E70XX.
D. Bolts: ASTM F3225, Grade A325, Type 1.
E. Washers: ASTM A563.
F. Anchor Bolts: ASTM F1554 Grade 55 with ASTM A563 Grade A heavy hex nuts and ASTM A36 plate washers.
G. Handhole Cover: ASTM A1011 Grade 50, 55, 60 or 65.
H. Stainless Steel Screws: AISI Type 316.
I. Reinforcing Steel: ASTM A615 Grade 60.
J. Galvanization: Bolts, nuts and washers: ASTM F2329 All other steel including plate washer: ASTM A123
K. Concrete: Class IV (Drilled Shaft) for all environment classifications.

Fabrication:
A. Welding:
   a. Specification 460-6.4 and
B. Poles:
   a. Round or 16-sided (Min.)
   b. Taper pole diameter at 0.14 inches per foot
   c. Fabricate Pole longitudinal seam welds (2 maximum) with 60 percent minimum penetration or fusion welds except as follows:
      1. Use a full-penetration groove weld within 6 inches of the circumferential tube-to-plate connection and
      2. Use full-penetration groove welds on the female end section of telescopic (i.e., slip type) field splices for a minimum length of one and one-half times the inside diameter of the female section plus 6 inches.
   d. Pole shaft may be either one or two sections (with telescopic field splice)
   e. Circumferentially welded pole shafts and laminated pole shafts are not permitted
   f. 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 bolt holes are bolt diameter plus 1/2” (Max) prior to galvanizing.

Pole Installation:
A. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1/2” in diameter.
B. Install Anchor Bolts in accordance with Specification 649-5
C. Cable Supports: Electrical Cable Guides and Eyebolts.
   a. Locate top and bottom cable guides within the pole aligned with each other.
   b. Position one cable guide 2” below the handhole.
   c. Secure with 1/4” 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. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1/2” in diameter.

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 device 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 stands, etc.) with lowering device manufacturer.

Description:
11/01/21
Updated Detail to match Sheet 1

NOTES:
1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (jam nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.

SECTION A-A

SECTION B-B

JOINT WELD DETAIL
To secure the cover plate, install a steel chain from the cover to the pole or by mounting the cover with hinges and install a padlock tab.
Updated Detail to match Sheet 1
GENERAL NOTES:
1. Work this Index with Specification 649.
2. This Index is considered fully detailed; only submit shop drawings for minor modifications not detailed in the plans.
3. See Index 635-001 for additional details for Pull Boxes.

4. Materials:
   A. Pole: ASTM A1011 Grade 50, 55, 60 or 65 (less than 1/2") or ASTM A572 Grade 50, 60, 65 (greater than or equal to 1/2") or ASTM A570 Grade A (55 ksi yield) or Grade B (60 ksi yield).
   B. Steel Plates and Pole Cap: ASTM A36 or ASTM A709 Grade 50.
   C. Weld Metal: E70XX.
   D. Bolts: ASTM F3125, Grade A325, Type 1.
   E. Anchor Bolts: ASTM F1554 Grade 55 with ASTM A563 Grade A heavy-hex nuts and ASTM A36 plate washers.
   G. Handhole Cover: ASTM A1011 Grade 50, 55, 60 or 65.
   H. Stainless Steel Screws: AISI Type 316.
   I. Reinforcing Steel: ASTM A615 Grade 60.
   J. Galvanization: Bolts, nuts and washers: ASTM F2329 All other steel including plate washer: ASTM A123
   K. Concrete: Class IV (Drilled Shaft) for all environment classifications.

5. Fabrication:
   A. Welding:
      a. Specification 660-6.4 and
   B. Poles:
      a. Round or 16-sided (Min.
      b. Taper pole diameter at 0.14 inches per foot
      c. Fabricate Pole longitudinal seam welds (2 maximum) with 60 percent minimum penetration or fusion welds except as follows: 1. Use a full-penetration groove weld within 6 inches of the circumferential tube-to-plate connection and 2. Use full-penetration groove welds on the female end section of telescopic (i.e., slip type) field splices for a minimum length of one and one-half times the inside diameter of the female section plus 6 inches.
      d. Pole Shaft may be either one or two sections (with telescopic field splice).
      e. Circumferentially welded pole shafts and laminated pole shafts are not permitted
   C. Identification Tag: (Submit details for approval)
      a. Financial Project ID
      b. Locate on the inside of the pole and visible from the handhole
      c. Secure with 1/2" 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 bolt holes are bolt diameter plus 1/8" (Max) prior to galvanizing.

6. Pole Installation:
   A. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1 1/2" in diameter.
   B. Install Anchor Bolts in accordance with Specification 649-5.
   C. Cable Supports: Electrical Cable Guides and Eyebolts.
      a. Locate top and bottom cable guides within the pole aligned with each other.
      b. Position one cable guide 2" below the handhole.
      c. Position other cable guide 1" directly below the top of the tenon.
      d. Include other cable guide 1" below the top of the tenon.
   D. Install Pole with the handhole located away from approaching traffic.
   E. Install the Pole pump
   F. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting plates, parking stands, etc.) with lowering device manufacturer.

7. Cabinet Installation:
   A. Splice fiber optic cables in cabinet to predetermined 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 inner ducts for network communications between the pullboxes and cabinet are stated in the Contract Documents.

8. 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 device 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 stands, etc.)
### SHAFT DESIGN TABLE

<table>
<thead>
<tr>
<th>Pole Overall Height (ft)</th>
<th>Shaft Diameter</th>
<th>4'-0&quot; Shaft Length</th>
<th>5'-0&quot; Shaft Diameter</th>
<th>Longitudinal Reinforcement</th>
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<tbody>
<tr>
<td>50</td>
<td>6'-0&quot;</td>
<td>11'-0&quot;</td>
<td>12'-0&quot;</td>
<td>(14) #11</td>
</tr>
<tr>
<td>55</td>
<td>7'-0&quot;</td>
<td>12'-0&quot;</td>
<td>12'-0&quot;</td>
<td>(14) #11</td>
</tr>
<tr>
<td>60</td>
<td>8'-0&quot;</td>
<td>12'-0&quot;</td>
<td>13'-0&quot;</td>
<td>(16) #11</td>
</tr>
<tr>
<td>65</td>
<td>9'-0&quot;</td>
<td>12'-0&quot;</td>
<td>13'-0&quot;</td>
<td>(16) #11</td>
</tr>
<tr>
<td>70</td>
<td>10'-0&quot;</td>
<td>14'-0&quot;</td>
<td>15'-0&quot;</td>
<td>(18) #11</td>
</tr>
</tbody>
</table>

### ADDITIONAL SHAFT DEPTH DUE TO GROUND SLOPE

<table>
<thead>
<tr>
<th>Ground Slope</th>
<th>4'-0&quot; Shaft Diameter</th>
<th>5'-0&quot; Shaft Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>9'-0&quot;</td>
<td>9'-0&quot;</td>
</tr>
<tr>
<td>1.75</td>
<td>9'-0&quot;</td>
<td>9'-0&quot;</td>
</tr>
<tr>
<td>2.0</td>
<td>9'-0&quot;</td>
<td>9'-0&quot;</td>
</tr>
</tbody>
</table>

### FOUNDATION NOTES:

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Shaft Design Table Shaft Length is based on 1'-0" height above the finished grade. If the shaft length is less than 1.3, increase the shaft length 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.

### BASE PLATE AND ANCHOR BOLT DESIGN TABLE

<table>
<thead>
<tr>
<th>Pole Overall Height (ft)</th>
<th>Base Plate Diameter (in)</th>
<th>Base Plate Thickness (in)</th>
<th>Anchor Bolt Diameter (in)</th>
<th>Number of Bolts</th>
<th>Anchor Bolt Embedment (in)</th>
<th>Minimum Anchor Bolt Projection (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>24</td>
<td>2.5</td>
<td>0.375</td>
<td>6</td>
<td>2.25</td>
<td>0.375</td>
</tr>
<tr>
<td>55</td>
<td>28</td>
<td>2.5</td>
<td>0.375</td>
<td>6</td>
<td>2.25</td>
<td>0.375</td>
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<tr>
<td>60</td>
<td>32</td>
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<td>0.375</td>
<td>6</td>
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<td>0.375</td>
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<td>35</td>
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<tr>
<td>70</td>
<td>40</td>
<td>2.5</td>
<td>0.375</td>
<td>6</td>
<td>1.75</td>
<td>0.375</td>
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### POLE DESIGN TABLE

<table>
<thead>
<tr>
<th>Pole Overall Height (ft)</th>
<th>Section 1 (Top)</th>
<th>Section 2 (Bottom)</th>
<th>Unit</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Length</td>
<td>Wall Thickness (in)</td>
<td>Wall Thickness (in)</td>
</tr>
<tr>
<td>50</td>
<td>12'-0&quot;</td>
<td>0.75</td>
<td>0.25</td>
</tr>
<tr>
<td>55</td>
<td>15'-0&quot;</td>
<td>0.75</td>
<td>0.25</td>
</tr>
<tr>
<td>60</td>
<td>18'-0&quot;</td>
<td>0.75</td>
<td>0.25</td>
</tr>
<tr>
<td>65</td>
<td>21'-0&quot;</td>
<td>0.75</td>
<td>0.25</td>
</tr>
<tr>
<td>70</td>
<td>24'-0&quot;</td>
<td>0.75</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### FOUNDATION DETAILS:

- **Slope of Handhole:**
  - Use the higher value for slope or diameter values that fall between those shown on the table.

- **Ground Slope:**
  - Additional Shaft Depth Due To Ground Slope table for foundations with slopes 1.5 and steeper.

- **Handhole with Cover**
  - See General Note 6.

- **Top of Foundation**
  - See Shaft Design Table.
**Ground Rod Array Placement**

<table>
<thead>
<tr>
<th>DETAIL &quot;D&quot;</th>
<th>DETAIL &quot;E&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Rod C as Required</td>
<td>Ground Rod C as Required</td>
</tr>
<tr>
<td>Ground Rod D as Required</td>
<td>Ground Rod D as Required</td>
</tr>
</tbody>
</table>

**STEEL CCTV POLE GROUNDING**

**GROUND MOUNTED CABINET**

- **Concrete Slab**
- **Fiber Optic Communications Conduits (As Shown On Plans)**
- **Concrete Camera Pole**
- **Finished Grade**
- **Ground Rod A Primary Ground Rod Assembly (See DETAIL "C")**
- **Primary Ground Rod Assembly (See DETAIL "C")**
- **Ground Rod B as Required (See DETAIL "D")**
- **Ground Rod C as Required**
- **Ground Rod D as Required**
- **Foundation (Drilled Shaft) (See Sheet 2)**

**POLE MOUNTED CABINET**

- **Concrete Camera Pole**
- **Finished Grade**
- **Ground Rod A Primary Ground Rod Assembly (See DETAIL "C")**
- **Primary Ground Rod Assembly (See DETAIL "C")**
- **Ground Rod B as Required (See DETAIL "D")**
- **Ground Rod C as Required**
- **Ground Rod D as Required**
- **Foundation (Drilled Shaft) (See Sheet 2)**

**STEEL CCTV POLE**

- **Concrete Camera Pole**
- **Finished Grade**
- **Ground Rod A Primary Ground Rod Assembly (See DETAIL "C")**
- **Primary Ground Rod Assembly (See DETAIL "C")**
- **Ground Rod B as Required (See DETAIL "D")**
- **Ground Rod C as Required**
- **Ground Rod D as Required**
- **Foundation (Drilled Shaft) (See Sheet 2)**

**Stainless Steel Bands**

- **Cabinet Adapter Bracket with Stainless Steel Bands**

- **Composite Camera Cable**

- **CCTV Pole**

- **Fiber Optic Drop Cable** (As Shown In The Plans)

- **Power Service Assembly**

**Composite Camera Cable**

- **CCTV Pole**

- **Fiber Optic Drop Cable** (As Shown In The Plans)

- **Power Service Assembly**

**Fiber Optic Pull Box**

- **Composite Camera Cable**

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