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. Materials:
   A. Pole: ASTM A1011 Grade 50, 55, 60 or 65 (less than 3 ksi) or ASTM A572 Grade 50, 60 or 65 (greater than or equal to 3 ksi) or ASTM A369 Grade A (5 ksi yield) or Grade B (60 ksi yield).
   B. Steel Plates and Pole Cap: ASTM A36 or ASTM A309 Grade 50.
   C. Weld Metal: E70XX.
   D. Bolts: ASTM F3125, 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 Frame: ASTM A109 Grade B or ASTM A36.
   H. Handhole Cover: ASTM A1011 Grade 50, 55, 60 or 65.
   I. Stainless Steel Screws: AISI Type 316.
   J. Reinforcing Steel: ASTM A615 Grade 60.
   K. Handhole: Bolts, nuts and washers: ASTM F3332K All other steel including plate washer: ASTM A123
   L. Concrete: Class IV (Drilled Shaft) for all environment classifications.
4. 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 splices).
      e. Circumferentially welded pole shafts and lami nated pole shafts are not permitted
   C. Identification Tag:
      1. Financial Project ID
      2. Pole Type
      3. Pole Height
      4. Manufacturer's 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 3/16 (Max) prior to galvanizing.
5. Pole Installation:
   A. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1/2 inch 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 the following information on the ID Tag:
         1. Financial Project ID
         2. Pole Type
         3. Pole Height
         4. Manufacturer's Name
         5. Yield Strength (Fy of Steel)
         6. Base Wall Thickness
   D. Identification Tag:
      a. 2" x 4" (Max) aluminum tag
      b. Locate on the inside of the pole and visible from the handhole
      c. Secure with #10 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. Manufacturer's Name
         5. Yield Strength (Fy of Steel)
         6. Base Wall Thickness
      E. Except for Anchor Bolts, bolt hole diameters are bolt diameter plus 1/16 and anchor bolt holes are bolt diameter plus 3/16 (Max) prior to galvanizing.
6. Cabinet Installation:
   A. Pole: ASTM A1011 Grade 50, 55, 60 or 65 (less than 3 ksi) or ASTM A572 Grade 50, 60 or 65 (greater than or equal to 3 ksi) or ASTM A369 Grade A (5 ksi yield) or Grade B (60 ksi yield).
   B. Steel Plates and Pole Cap: ASTM A36 or ASTM A309 Grade 50.
   C. Weld Metal: E70XX.
   D. Bolts: ASTM F3125, 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 Frame: ASTM A109 Grade B or ASTM A36.
   H. Handhole Cover: ASTM A1011 Grade 50, 55, 60 or 65.
   I. Stainless Steel Screws: AISI Type 316.
   J. Reinforcing Steel: ASTM A615 Grade 60.
   K. Handhole: Bolts, nuts and washers: ASTM F3332K All other steel including plate washer: ASTM A123
   L. Concrete: Class IV (Drilled Shaft) for all environment classifications.
7. 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.
**Shaft Design Table**

<table>
<thead>
<tr>
<th>Pole Overall Height (ft)</th>
<th>Shaft Diameter</th>
<th>Shaft Length</th>
<th>Longitudinal Reinforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>6'-0&quot;</td>
<td>11'-0&quot;</td>
<td>(14) #11</td>
</tr>
<tr>
<td>60</td>
<td>6'-0&quot;</td>
<td>12'-0&quot;</td>
<td>(16) #11</td>
</tr>
<tr>
<td>70</td>
<td>7'-0&quot;</td>
<td>14'-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>1.4</td>
<td>9'-0&quot;</td>
<td>8'-0&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>9'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>1.2</td>
<td>7'-0&quot;</td>
<td>6'-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 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.

**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>Anchor Bolt Embosssment (in.)</th>
<th>Minimum Anchor Bolt Projection (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>22</td>
<td>6</td>
<td>1.5</td>
<td>22</td>
<td>9.5</td>
</tr>
<tr>
<td>60</td>
<td>23</td>
<td>6</td>
<td>1.5</td>
<td>22</td>
<td>9.5</td>
</tr>
<tr>
<td>70</td>
<td>24</td>
<td>6</td>
<td>1.5</td>
<td>22</td>
<td>9.5</td>
</tr>
</tbody>
</table>

**Pole Design Table**

<table>
<thead>
<tr>
<th>Pole Overall Height (ft)</th>
<th>Section 1 (Top)</th>
<th>Section 2 (Bottom)</th>
<th>Joint</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Elevation**

- Camera Lowering Device
- Fixed Mounting Bracket
- 7" x 27" x 1/2" Handhole, 90° from the lowering arm and away from approaching traffic
- 1" Of Handhole
- Top of Foundation
- See Shaft Design Table

**Steel CCTV Pole**

- Air Terminal (See Sheet 6)
- Dome Type CCTV Camera
- Fixed Mounting Bracket
- 2" Hole With Nipple Grommet (See Sheet 5)
NOTES:
1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (split nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Use these details with data table on Sheet 2.
### Handhole Location

- **Handhole Ring**
- **Handhole Cover Plate**
- **CCTV Pole**
- **Foundation**
- **Finished Grade**
- **Anchor Bolts (Typ.)**
- **Wire Screen (See Spec. 649)**
- **Wall Thickness**
- **Eye Bolt Option**

### Handhole Details

- **Handhole Ring**
- **Handhole Cover Plate**
- **CCTV Pole**
- **Anchor Bolt**
- **Base Plate**
- **Wire Screen (See Spec. 649)**
- **Foundation**

### Cable Guide Detail

- **1/4" x 3" x 11/2" Plate**
- **Pole Wall**
- **Eye Bolt Option**
- **Eye Bolt**
- **Wall Thickness**
- **Pole Wall**
- **1" Ø Hole**

### Park Stand Details

- **1/2" Ø Hole (Typ.)**
- **1/2" Ø Hole (Typ.)**
- **Tack Weld Cover Clip (Typ.)**
- **Cover Clip (Typ.)**
- **Tack Welded Cover Clip (Typ.)**
- **Full Penetration Weld**
- **Teams**

### Description:

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 pad lock tab.

**Note:**

- **1/4" Rod With 1" Inner Ø**
- **1/4" Rod With 1" Inner Ø**
- **Bend Rod To Allow 1/4" Legs similar to Cable Guide Detail**

**Revision:** 01/01/17

**Last Revision:**

**FY 2020-21 Standard Plans**

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**Sheet:** 4 of 6
**Dome Type CCTV Camera**

- **2'-0" (Typ.)**
- **12" Min.**

**CCTV Pole (See Sheet 2)**

- **3'-0" Max.**
- **To Power Service Assembly**
- **Composite Camera Cable**
- **Fiber Optic Drop Cable**
- ** LB 2"**
- **One Pulling Elbow Type**
- **(20' Rods, 40' Spacing)**

**1½ Steel Band**

**With Stainless Steel Band**

**Composite Camera Cable**

**CCTV Pole**

**Steel CCTV Pole Grounding**

**DETAIL "B"**

- **Ground Rod C**
- **Primary Ground Rod A**
- **Ground Rod D**
- **CCTV Pole Foundation**

**DETAIL "C"**

- **1½ PVC Conduit For Grounding Conductors**
- **Ground Mounted Cabinet**
- **Concrete Slab**
- **Fiber Optic Pull Box**
- **Fiber Optic Communications Conducts (As Shown On Plans)**

**DETAIL "D"**

- **To Ground Rod C as Required**
- **To Ground Rod D as Required**
- **Ground Rod A Primary Ground Rod Assembly (See DETAIL "C")**
- **3'-0" Max.**
- **12" Min.**
- **1½ Steel Band**

**DETAIL "E"**

- **Pole Mounted CCTV Cabinet (See DETAIL "E")**
- **1½ RGS Conduit to Power Service Assembly**
- **Pole Plate With Stainless Steel Band**
- **Composite Camera Cable**
- **CCTV Pole**

**STEEL CCTV POLE GROUNDING**

**GROUND MOUNTED CABINET**

- **2½ PVC Camera Cabling Conduit**
- **¾" x 20 Copper-Clad Steel Ground Rod (Typ.)**
- **Foundation (Drilled Shaft) (See Sheet 2)**

**POLE MOUNTED CABINET**

- **4½" (Typ.)**
- **60° (Typ.)**
- **To Power Service Assembly**
- **5½" (Typ.)**
- **1½ Steel Band**

**Fiber Optic Communications Conducts (As Shown On Plans)**

**Composite Camera Cable**

**CCTV Pole**

**Steel CCTV Pole**

**DETAIL "B"**

- **2½ PVC Conduit For Grounding Conductors**
- **Ground Box (See DETAIL "B")**
- **Ground Mounted Cabinet**
- **Concrete Slab**
- **Fiber Optic Pull Box**
- **Fiber Optic Communications Conducts (As Shown On Plans)**

**DETAIL "C"**

- **Ground Rod C Primary Ground Rod Assembly (See DETAIL "C")**
- **3'-0" Max.**
- **12" Min.**
- **1½ Steel Band**

**DETAIL "D"**

- **To Ground Rod C as Required**
- **To Ground Rod D as Required**
- **Ground Rod A Primary Ground Rod Assembly (See DETAIL "C")

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**DESCRIPTION:**

- **FY 2020-21 STANDARD PLANS**
- **INDEX**
- **SHEET**

**LAST REVISION:**

- **01/01/17**