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.

Materials:
A. Pole: ASTM A1011 Grade 50, 55, 60 or 65 (less than 1½") or ASTM A572 Grade 50, 60 or 65 (greater than or equal to 1½") or ASTM A595 Grade A (55 ksi yield) or Grade B (60 ksi yield).
B. Steel Plates and Pole Cap: ASTM A56 or ASTM A596 Grade 50.
C. Weld Metal: E70XX.
D. Bolts: ASTM F1322, Grade A325, Type 1.
F. Washers: ASTM F-436.
G. Anchor Bolts: ASTM F1354 Grade 5S with ASTM A563 Grade A heavy hex nuts and ASTM A36 plate washers.
H. Handhole Frame: ASTM A109 Grade 36 or ASTM A36.
I. Handhole Cover: ASTM A1011 Grade 50, 55, 60 or 65.
J. Stainless Steel Screws: AISI Type 316.
K. Reinforcing Steel: ASTM A615 Grade 60.
L. Galvanization: Bolts, nuts and washers: ASTM F1322H All other steel including plate washer: ASTM A123.
M. Concrete: Class IV (Drilled Shaft) for all environment classifications.

Fabrication:
A. Bentig:
1. Specification Section 460-4.4 and
B. Poles:
1. Round or 16-sided (Min.)
2. Taper pole diameter at 0.14 inches per foot
3. Fabricate pole longitudinal seam welds (2 maximum) with 60 percent minimum penetration or fusion welds except as follows:
   a. Use a full-penetration groove weld within 6 inches of the circumferential tube-to-plate connection and
   b. 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.
4. Pole shaft may be either one or two sections (with telescopic field splice).
5. Circumferentially welded pole shafts and laminated pole shafts are not permitted
6. Pole may be either one or two sections (with telescopic field splice).
7. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1½" in diameter.
8. Install Anchor Bolts in accordance with Specification 649-5
C. Cable Supports: Electrical Cable Guides and Eyebolts:
1. Locate top and bottom cable guides within the pole aligned with each other.
2. Position one cable guide 2" below the handhole.
3. Position other cable guide 1" directly below the top of the tenon.
D. Identification Tag: (Submit details for approval)
1. 2" x 4" (Max.) aluminum tag
2. Locate on the inside of the pole and visible from the handhole
3. Secure with 1½" diameter stainless steel rivets or screws
4. Include the following information on the ID Tag:
   a. Financial Project ID
   b. Pole Type
   c. Pole Height
   d. Manufacturers Name
   e. Yield Strength (Fy of Steel)
   f. Base Wall Thickness
5. Except for Anchor Bolts, bolt hole diameters are bolt diameter plus 1½" and anchor bolt holes are bolt diameter plus 1½" (Max) prior to galvanizing.

Pole Installation:
A. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1½" in diameter.
B. Install Anchor Bolts in accordance with Specification 649-5
C. Cable Supports: Electrical Cable Guides and Eyebolts:
1. Locate top and bottom cable guides within the pole aligned with each other.
2. Position one cable guide 2" below the handhole.
3. Position other cable guide 1" directly below the top of the tenon.
4. Position Park Stand 2" below the top of the handhole.

Cabinet Installation:
A. Splice fiber optic cables in cabinet to preterminator 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 pullbox and cabinet are stated in the Contract Documents.
H. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1½" 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 CCT 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.

Steel CCTV Pole Assembly
Steel Pole

**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>35</td>
<td>4'-0&quot;</td>
<td>11'-0&quot;</td>
<td>(6) #14</td>
</tr>
<tr>
<td>35</td>
<td>4'-0&quot;</td>
<td>12'-0&quot;</td>
<td>(6) #14</td>
</tr>
<tr>
<td>35</td>
<td>4'-6&quot;</td>
<td>13'-0&quot;</td>
<td>(6) #14</td>
</tr>
<tr>
<td>35</td>
<td>4'-9&quot;</td>
<td>14'-0&quot;</td>
<td>(6) #14</td>
</tr>
<tr>
<td>70</td>
<td>5'-0&quot;</td>
<td>18'-0&quot;</td>
<td>(10) #12</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>3'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>1:4</td>
<td>3'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>1:3</td>
<td>3'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>1:2</td>
<td>3'-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 Circle (in.)</th>
<th>Number of Bolts</th>
<th>Anchor Bolt Embedment (in.)</th>
<th>Anchor Bolt Projection (in.)</th>
<th>Minimum Anchor Bolt Projection (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>28</td>
<td>2.5</td>
<td>22</td>
<td>6</td>
<td>12.5</td>
<td>10</td>
<td>8.5</td>
</tr>
<tr>
<td>55</td>
<td>28</td>
<td>2.5</td>
<td>22</td>
<td>6</td>
<td>12.5</td>
<td>10</td>
<td>8.5</td>
</tr>
<tr>
<td>60</td>
<td>33</td>
<td>2.5</td>
<td>29</td>
<td>6</td>
<td>15.0</td>
<td>12</td>
<td>9.5</td>
</tr>
<tr>
<td>65</td>
<td>33</td>
<td>2.5</td>
<td>29</td>
<td>6</td>
<td>15.0</td>
<td>12</td>
<td>9.5</td>
</tr>
<tr>
<td>70</td>
<td>40</td>
<td>2.5</td>
<td>33</td>
<td>6</td>
<td>17.5</td>
<td>15</td>
<td>10.5</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></td>
<td>Length</td>
<td>Wall Thickness</td>
<td>Length</td>
</tr>
<tr>
<td></td>
<td>(in.)</td>
<td>(in.)</td>
<td>(in.)</td>
</tr>
<tr>
<td>50</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>55</td>
<td>25' 0&quot;</td>
<td>0.25</td>
<td>28' 0&quot;</td>
</tr>
<tr>
<td>60</td>
<td>33' 0&quot;</td>
<td>0.25</td>
<td>29' 0&quot;</td>
</tr>
<tr>
<td>65</td>
<td>33' 0&quot;</td>
<td>0.25</td>
<td>29' 0&quot;</td>
</tr>
<tr>
<td>70</td>
<td>38' 0&quot;</td>
<td>0.25</td>
<td>26' 0&quot;</td>
</tr>
</tbody>
</table>

**BASE PLATE**

- **Overall Height**
- **Section 1 Length**
- **Section 2 Length**
- **Top of Foundation**
- **Finish Grade**
- **Concrete**
- **Camera Lowering Device**
- **Fixed Mounting Bracket**

**ELEVATION**
NOTE:

To secure the cover plate, install a steel chain from the cover to the pole or, by mounting the cover with hinges and installing a padlock tab.
**DESCRIPTION:**

**POLE TOP PLATE**

- **PLAN VIEW:**
  - 8-1/8" Ø Holes Equally Spaced
  - 4-3/4" X 3 1/2" Bolts With Double Nuts and Washers

**CAP PLATE DETAIL**

- **ELEVATION:**
  - Pole Tip O.D. + 1/4"

**POLE TOP DETAIL**

- **PLAN VIEW:**
  - Cap Plate 9/16" Thick

**LOWERING DEVICE TENON**

- **ELEVATION:**
  - 1" Plate

**TENON COVER**

- **PLAN VIEW:**
  - 1" Plate

**TENON CAP**

- **PLAN VIEW:**
  - 1/2" Hole (Typ.)

**STEEL CCTV POLE**

- **LAST REVISION:** 11/01/17
- **INDEX:** 649-020