**General Notes:**

1. Work this Index with Specification 649.
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. Materials:
   - **A. Pole:** ASTM A1011 Grade 50, 55, 60 or 65 (less than or equal to 1/4") or ASTM A372 Grade 50, 60 or 65 (greater than or equal to 1/4") or ASTM A572 Grade 50, 60 or 65.
   - **B. Steel Plates and Pole Cap:** ASTM A36 or ASTM A709 Grade 50.
   - **C. Weld Metal:** E70XX.
   - **D. Bolt:** ASTM F3125, Grade A325, Type I.
   - **E. Washers:** ASTM F-167.
   - **F. Anchor Bolts:** ASTM F1554 Grade 55 with ASTM A595 Grade A (55 ksi yield) or Grade B (60 ksi yield).
   - **G. Stainless Steel Screws:** AISI Type 316.
   - **H. Reinforcing Steel:** ASTM A615 Grade 60.
   - **I. Galvanization:** Bolts, nuts and washers: ASTM F2329. All other steels: ASTM A123.
   - **J. Concrete:** Class C (Drilled Shaft) for all environment classifications.

4. Pole Fabrication:
   - A. Provide a round or 16 sided pole with a constant taper of 0.14 inches per foot.
   - B. Pole shaft may be either One or Two sections (with telescopic field splice).
   - C. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting bolts and plate washers) with lowering device manufacturer.
   - D. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting bolts and plate washers) with lowering device manufacturer.
   - E. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting bolts and plate washers) with lowering device manufacturer.
   - F. Ensure that all electronic equipment power is protected and conditioned with TVSS devices.
   - G. Furnish and install secondary TVSS protection on outlets for equipment in cabinet.

5. Pole Installation:
   - A. Splice Fiber optic cables in cabinet to preterminator patch panel.
   - B. Furnish and install TVSS protection on all cabling in cabinet.
   - C. Furnish and install secondary TVSS protection on outlets for equipment in cabinet.
   - D. Install the pole mounted cabinet with the hinges next to the pole.
   - E. Ensure that equipment cabinet is bonded to CCTV pole grounding system.
   - F. Locate the tag inside pole and visible from handhole. Include the following information:
     - **Financial Project ID:**
       - **Pole Height:**
         - **Steel:**
           - **Yield Strength:**
             - **Steel Screws:**
               - **Concrete:**
                 - **Yield Strength:**
                   - **Pole Base Wall Thickness:**

6. Cabinet Installation:
   - A. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1/4" in diameter.
   - B. Locate one cable guide 2" below the handhole.
   - C. Position other cable guide 1" directly below the top of the tenon.
   - D. Position five cable guides 1" directly below the top of the tenon.
   - E. Position six cable guides 1" directly below the top of the tenon.
   - F. Position seven cable guides 1" directly below the top of the tenon.

7. Lowering Device Installation:
   - A. Position 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 the lowering device so that the camera can be safely lowered without requiring lane closures.
   - C. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting bolts, parking stands, etc.) with lowering device manufacturer.

---

**Steel CCTV Pole Assembly**
ASHORE

**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>(15) #11</td>
</tr>
<tr>
<td>65</td>
<td>6'-0&quot;</td>
<td>12'-0&quot;</td>
<td>(15) #11</td>
</tr>
<tr>
<td>70</td>
<td>5'-0&quot;</td>
<td>14'-0&quot;</td>
<td>(18) #11</td>
</tr>
</tbody>
</table>

---

**ADDITIONAL BURIAL 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>8'-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>8'-0&quot;</td>
</tr>
<tr>
<td>1:2</td>
<td>9'-0&quot;</td>
<td>8'-0&quot;</td>
</tr>
</tbody>
</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>Number of Bolts</th>
<th>Anchor Bolt Diameter (in.)</th>
<th>Anchor Bolt Embedment (in.)</th>
<th>Minimum Anchor Bolt Projection (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>27</td>
<td>6</td>
<td>1.25</td>
<td>6</td>
<td>34</td>
<td>9.5</td>
</tr>
<tr>
<td>55</td>
<td>28</td>
<td>6</td>
<td>1.25</td>
<td>6</td>
<td>34</td>
<td>9.5</td>
</tr>
<tr>
<td>60</td>
<td>23</td>
<td>6</td>
<td>1.50</td>
<td>6</td>
<td>34</td>
<td>9.5</td>
</tr>
<tr>
<td>70</td>
<td>20</td>
<td>6</td>
<td>1.75</td>
<td>8</td>
<td>38</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>50</td>
<td>---</td>
<td>32</td>
<td>2.25</td>
</tr>
<tr>
<td>60</td>
<td>25'-0&quot;</td>
<td>0.75</td>
<td>14</td>
</tr>
<tr>
<td>65</td>
<td>30'-0&quot;</td>
<td>0.25</td>
<td>18</td>
</tr>
<tr>
<td>70</td>
<td>35'-0&quot;</td>
<td>0.25</td>
<td>18</td>
</tr>
</tbody>
</table>

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**FOUNDATION NOTES:**

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Shaft Design Table values are based on level ground (Flatter than 1:3). For foundation within slopes 1:2 and greater, increase the foundation depth in accordance with the Additional Burial Depth Due To Ground Slope table. For values in-between those shown in the table, use the higher value.

---

**BASE PLATE AND ANCHOR BOLT DESIGN TABLE**

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<td>0.25</td>
<td>18</td>
</tr>
<tr>
<td>70</td>
<td>35'-0&quot;</td>
<td>0.25</td>
<td>18</td>
</tr>
</tbody>
</table>
NOTE:
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.
Dome Type CCTV Camera

Finished Grade

2" Min. - 8" Max.

Dome Type CCTV Camera

Finished Grade

CCTV Pole (See Sheet 2)

Primary Ground Rod

Exothermic Weld (Typ.)

Ground Rod

Ground Rod (Typ.)

PRIMARY GROUND ROD

Ground Rod C

Ground Rod A

Ground Rod B

Ground Rod D

“Sphere Of Influence: 120 Degree”

“Modified Sphere Of Influence: 90 Degree”

DETAIL “B”

DETAIL “C”

DETAIL “D”

DETAIL “E”

GROUND MOUNTED CABINET (Configuration Shown)

Pole Mounted CCTV Cabinet (See DETAIL “C”)

Ground Rod Array Placement

1/2" PVC Conduit For Grounding Conductors

Pull Box (See DETAIL “B”)

Ground Mounted Cabinet

1/2" PVC Conduit For #4 AWG Ground Wire

Concrete Slab

Fiber Optic Pull Box

Fiber Optic Communications Conduits (As Shown On Plans)

GROUND MOUNTED CABINET

POLE MOUNTED CABINET

STEEL CCTV POLE GROUNDING

STEEL CCTV POLE

INDEX

649-020

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DESCRIPTION:

REVISED

L A S T

R E V I S I O N

11/01/17

10/16/17

10/31/17

11/01/17

FY 2018-19

STANDARD PLANS