**GROUNDING AND BONDING**

REQUIREMENTS OF THE CURRENT EDITION OF THE CMSC AND THE CITY OF COLUMBUS STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL NON-CURRENT CARRYING METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR AT THE traffic signal CONTROLLER CABINET or power meter cabinet, as noted below.

1. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04)/POLYVINYL CHLORIDE CONDUITS (725.051) AND POLYETHYLENE CONDUITS (725.052) IN ADDITION TO THE CONDUCTORS SPECIFIED.
2. METAL PULL BOX FRAMES SHALL BE BONDED BY ATTACHMENT OF THE EQUIPMENT GROUNDING CONDUCTOR TO THE FRAME AS ILLUSTRATED ON SCD 4021 THROUGH 4023.
3. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, equipment grounding conductors shall be provided as shown in the details.
4. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS SHALL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT UNLESS OTHERWISE DIRECTED BY THE CITY.

2. CONDUITS.

1. THE 725.04 CONDUIT SHALL HAVE HEAVY DUTY GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.
2. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.
3. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRE FOR GROUNDING AND BONDING.

USE INSULATED COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SHALL BE AS FOLLOWS:

1. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
2. THE INSULATION SHALL BE GREEN WITH TWO (2) YELLOW STRIPES (TRACERS).
3. SPLICES IN THE GROUNDING AND BONDING CABLE SHALL NOT BE PERMITTED IN PULL BOXES.

4. GROUND ROD.

* 1. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED COPPER.

1. Power Service.

For locations without a power meter cabinet:

* 1. At the traffic signal cabinet, the grounding electrode conductor (ground wire) from the cabinet neutral (ac-) bar to the ground rod shall be a continuous un-spliced conductor.
  2. The service neutral (AC-) shall only be connected to ground at the main power service in the controller cabinet.

1. Power service disconnect switches are not used between the secondary side of the transformer supplying power service and the controller cabinet.
2. A power service main circuit breaker is used in the controller cabinet between the secondary side of the transformer supplying power service and the controller cabinet.

For locations with a power meter cabinet:

1. At the power meter cabinet, the grounding electrode conductor (ground wire) from the breaker box neutral (ac-) bar to the ground rod shall be a continuous un-spliced conductor.
2. The service neutral (AC-) shall only be connected to ground at the main power service in the power meter cabinet.
3. Power service disconnect switches are not used between the secondary side of the transformer supplying power service and the controller cabinet.
4. A power service main circuit breaker is used in the meter cabinet and the controller cabinet between the secondary side of the transformer supplying power service and the controller cabinet.

GROUNDING AND BONDING SHALL BE CONSIDERED INCIDENTAL TO ITEM 625, NO. *(fill in wire gauge)* AWG, 600 VOLT DISTRIBUTION CABLE, as per plan. 3/1/18