

# EXPECTED IMPLEMENTATION JULY 2024 (FY 2024-25)

## 630 CONDUIT. (REV 8-1-23) (FA 8-21-23) (FY 2024-25)

SUBARTICLE 630-3.1 is deleted and the following substituted:

### 630-3 Installation Requirements.

**630-3.1 General:** Install the conduit in accordance with NEC or National Electrical Safety Code (NESC) requirements and the Standard Plans. Consider the locations of conduit as shown in the Plans as approximate. Construct conduit runs as straight as possible and obtain the Engineer's approval for all major deviations in conduit locations from those shown in the Plans. Include buried cable warning tape with all trenched conduit. Mark the location of the conduit system with route markers as shown in the Plans and approved by the Engineer. Ensure that all route markers used are new and consistent in appearance.

For conduit installed by directional bore, install in accordance with Section 555. For conduit installed by jack and bore, install in accordance with Section 556.

Use only intermediate galvanized metal conduit, rigid galvanized metal conduit, rigid aluminum conduit or PVC coated intermediate metal conduit for above-ground electrical power service installations and rigid galvanized metal conduit or rigid aluminum conduit for underground electrical power service installations. Meet the requirements of Section 562 for coating all field cut and threaded galvanized pipe.

Use Schedule 80 PVC or fiberglass reinforced epoxy conduit in or on structural elements.

For non-structural, above ground ITS communication and electrical conduit, use intermediate galvanized metal conduit, rigid galvanized metal conduit, or Schedule 80 PVC conduit.

Use HDPE with an SDR number less than or equal to 13.5, Schedule 80 HDPE, Schedule 40 HDPE, Schedule 80 PVC, or Schedule 40 PVC for underground installations of electrical conduit in earth for ITS electrical applications.

Use HDPE with an SDR number less than or equal to 11, Schedule 80 PVC or Schedule 40 PVC for underground installations in earth or concrete for ITS and traffic control signal applications, except, use only HDPE with an SDR number less than or equal to 11 for blown fiber optic cable installations on limited access facilities.

Use HDPE with an SDR number less than or equal to 13.5, Schedule 80 PVC, or Schedule 40 PVC for underground installations of electrical conduit in earth for lighting applications and landscape irrigation applications.

Use HDPE with an SDR number less than or equal to 13.5, Schedule 80 PVC, Schedule 40 PVC, or rigid galvanized metal for underground installations of electrical conduit in concrete for lighting applications.

Use the following conduit for toll site applications:

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bores.

1. HDPE with SDR number less than or equal to 11 for directional

2. Schedule 80 PVC for open trenching of exterior conduits and vertical conduits under the footprint of a toll equipment building/cabinet, except for power service conduits.

3. Rigid steel conduit coated with PVC or a bituminous coating painted up to 6 inches above finished grade for power service conduit and vertical conduits entering or leaving the ground outside the footprint of a toll equipment building/cabinet.

4. Rigid galvanized steel elbows and bends for HDPE and PVC conduit raceways longer than 200 feet in length and 2 inches trade size and larger, except for conduits serving vehicle detection loop pull boxes.

5. Use Electrical Metallic Tubing (EMT) for the portion of conduit that extends greater than 24 inches into the toll equipment building interior.

6. Rigid galvanized steel conduit for exterior above grade conduit and conduit mounted to toll gantries.

7. Do not use Electrical Nonmetallic Tubing (ENT).

Do not place more than the equivalent of three 90 degree bends or a total of 270 degrees of bends, including the termination bends, between the two points of termination in the conduit, without a pull box. Obtain the Engineer's approval to use corrugated flexible conduits for short runs of 6 feet or less.

When a conduit installation changes from underground to above-ground, make the change a minimum of 6 inches below finished grade.

Install a No. 12 AWG pull wire or polypropylene cord inside the full length of all conduits. Ensure that a minimum of 24 inches of pull wire/cord is accessible at each conduit termination.

Ensure the conduit includes all required fittings and incidentals necessary to construct a complete installation.

When earth backfill and tamping is required, place backfill material as per Section 120 in layers approximately 12 inches thick and tamp each layer to a density equal to or greater than the adjacent soil.

When backfilling trenches in existing pavement, use a flowable fill meeting the requirements of Section 121.

Provide a standard clearance between underground control cable and electrical service cable or another parallel underground electrical service cable that meets NESC requirements.

Prevent the ingress of water, dirt, sand, and other foreign materials into the conduit prior to, during, and after construction. Seal the ends of conduit after wiring is complete with a moisture resistant sealant that is designed for this specific application.

**630-3.1.1 Fiber Optic Cable Conduit:** Install the conduit system so the fiber optic cable maintains a minimum bend radius of 20 times the cable diameter. Use approved methods for connecting inner duct or conduit within or between plowed

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portions, trenched portions, and bored portions. Submit the conduit manufacturer's coupling method and material to the Engineer for approval.

