**Utility Conduit General Notes:**

1. Furnish and install approved Conduits and Fittings in accordance with the Specifications, this Standard, the National Electric Code (NEC) and as directed by the Engineer.

2. Furnish Schedule 80 PVC Rigid Nonmetallic Conduits in accordance with NEC 710-4 and UL Standard 652 and Fittings in accordance with NEC 710-19 and UL Standard 546. Furnish conduit and fittings with UL Labeled Conduit — on each 10-foot length Fittings — stamped or molded on each fitting. Connect Conduit and Fittings using solvent cement in accordance with manufacturer's recommendations.

3. Furnish and install NEC Type 4X non-metallic or galvanized steel PullBoxes sized in accordance with NEC requirements and the maximum limits shown. Provide gasketed weatherproof covers for the PullBoxes. Permanently label the covers of the PullBoxes to indicate the utility contained within. Letters and symbols shall be a minimum of 0.5" tall and may be stamped or molded into PullBox covers. Install PullBoxes adjacent to Begin and End Bridges, Begin and End Retaining Walls and at all intersections as required. Align PullBoxes at Begin or End Retaining Walls adjacent to bridges. Position PullBox openings as shown, do not place PullBox openings on the traffic face of Traffic Railings.

4. Furnish and install Expansion Fittings at locations shown in the Plans. Certify that Expansion Fittings used at a given location are rated to accommodate the anticipated movement at that location along bridge decks — see Structures Plans, Expansion Joint Data Table along retaining walls and other unspecified locations = 2" minimum.

5. Furnish and install Expansion / Deflection Fittings at locations shown in the Plans. Certify that Expansion / Deflection Fittings used at a given location are rated to accommodate a minimum rotation of 30 degrees and the anticipated movement at that location along bridge decks = see Structures Plans, Expansion Joint Data Table along retaining walls and other unspecified locations = 0.7" minimum.

6. Slab out and cap conduits and drive steel pipe to permanently locate ends as shown unless otherwise shown in Plans.

7. Shift vertical rail reinforcement symmetrically to provide 2" clearance to PullBoxes. Space shifted vertical reinforcement at 3" centers minimum. Cut horizontal rail reinforcement to provide 2" clearance to PullBoxes and provide supplemental reinforcement. Shift a maximum of 1" but do not cut rail reinforcement to facilitate conduit Expansion Fitting and Expansion / Deflection Fitting placement. Do not bundle conduits or conduits and horizontal reinforcement.

8. Unless otherwise shown in the Plans, include the cost of furnishing and installing Conduit PullBoxes. Expansion and Expansion / Deflection Fittings and all associated hardware required to complete the installation in the cost for the Traffic Railing or Pedestrian Railing (Parapet) that the conduit is installed in.

**Instructions to Designer:**

Verify the applicability of this Standard for a given project. Coordinate with the District Utility Coordinator to determine the present and future utility requirements at the project location. Provide supplemental designs, notes, details, wiring diagrams and wiring specifications in the Plans as required to complement this Standard.

Specify in the Structures Plans the type of PullBoxes required — PullBox “A1” = multiple raceways; PullBox “A2” = single raceway. Generally, multiple raceway PullBoxes can be used where utilities contained within individual raceways (conductors) can share a common PullBox. Single raceway PullBoxes should be used where it is desirable or required that utilities contained within individual raceways (conductors) be isolated from each other.

Specify the type of Fittings required at Expansion Joint locations on bridges. Expansion Fittings or Expansion / Deflection Fittings. Generally, Expansion Fittings can be typically used for bridges on tangent or large radius curved alignments. For smaller or no transverse movement is expected at Expansion Joints. Expansion / Deflection Fittings are typically required for bridges on curved alignments or combined curved and tangent alignments where transverse movement is expected at Expansion Joints.

For electrical service, specify the use of THHN or XHHW conductors only.