FY 2013/2014 QC Category No. 12C
STATEWIDE INSPECTION GUIDELIST
Intelligent Transportation Systems

CONDUIT

1. Conduit used is the proper type for the type of installation being performed. The conduit is installed at the proper depth. [Index 18202]

2. All conduit trenches are appropriately backfilled. [Index 18202, Spec. 630-3]

3. Seal conduit ends in a controller base, pole, pull box, junction box, or pedestal with approved moisture resistant material approved by the Engineer. [Spec. 630-3.5]

4. Pull wire or cord is installed per [Spec 630-3.1].

PULL and FIBER OPTIC BOXES

5. Verify that box is listed on Approved Product List (APL) and is permanently marked with the APL certification number. [Spec. 635-2]

6. All pull and fiber optic boxes shall have a 1'-0" wide and 6" deep concrete aprons sloped away from box. [Index 17700]

7. For fiber optic pull boxes, install ground rods and tone wire as required and shown in the plans. [Spec. 630-3.1; Index 17700]

8. Store a total of 200 feet of fiber optic cable in fiber optic splice boxes. [Spec. Index 17700]

9. Store 50 feet of spare fiber optic cable in fiber optic pull boxes [Index 17700]

10. Do not place the pull or fiber optic boxes in roadways, driveways, parking areas, ditches, or public sidewalk curb ramps [Spec. 635-3.2]

11. Ensure that all pull box covers include words describing the application for which it is to be used, such as "FDOT TRAFFIC SIGNAL" (signalized intersection applications), "FDOT FIBER OPTIC CABLE (fiber optic cable applications), FDOT ELECTRICAL (other electrical applications), FDOT LIGHTING (highway lighting applications), FDOT TRAFFIC MONITORING (traffic monitoring applications), or text as shown in the plans permanently cast into their top surface. [Spec. 635-2.2.2]

FIBER OPTIC CABLE

12. Ensure no point discontinuities greater than 0.1 decibel per reel. [Spec. 633-2.1.5.3]

13. Mark the jacket with the cable manufacturer's name, fiber type, fiber count, date of manufacture, the words "FDOT FIBER OPTIC CABLE," and the sequential cable lengths marked in feet. [Spec. 633-2.1.1.8]

14. Present the results of the OTDR testing (i.e., traces for each fiber) and a loss table showing details for each splice or termination tested to the Engineer in an approved electronic format. [Spec. 633-3.1.8.2]

15. Ensure that the splice loss for a SMF fusion splice does not exceed a maximum bidirectional average of 0.1 decibel per splice. [Spec. 633-3.1.8.3]

16. Ensure that the attenuation in the connector at each termination panel and its associated splice does not exceed 0.5 decibel. [Spec. 633-3.1.8.4]

LOCATE SYSTEM

17. Ensure that the locate system includes aboveground route markers, warning tape, tone wire, and electronics. [Spec. 630-2]

18. Install locate wire grounding units (WGUs) in pull boxes and splice boxes as shown in the plans or directed by the Engineer. [Spec. 630-2.3]

LABELING

19. Ensure all patch panel connectors are clearly and permanently labeled. [Spec. 633-3.1.7]

20. Ensure that the cable tags are permanent labels suitable for outside plant applications and are affixed to all fiber optic cables. [Spec. 633-3.1.1]

21. Ensure that each SRM is labeled and identified as an FDOT fiber optic cable marker as shown in the plans and approved by the Engineer. [Spec. 630-2.5]

DMS, RWIS, and HAR

22. Verify DMS and HAR are listed on the APL. [Spec. 781-1]

23. Pre-Installation Field Testing on all DMS is to be conducted at a contractor-provided facility. Notify the Engineer a minimum of 10 calendar days before the start of any tests. [Spec. 781-3.12.3]

24. After the DMS system installation and system testing are successfully completed, conduct one continuous 72-hour, full-operating test prior to conducting the 60-day test period. [Spec. 781-3.12.6]

25. Ensure that the DMS and HAR systems and equipment furnished have a manufacturer's warranty covering defects in assembly, fabrication, and materials for a minimum of five years from the date of final acceptance by the Engineer in accordance with 5-11 of all the work to be performed under the Contract. Ensure that RWIS have a minimum 3-year warranty. Ensure that warranties are transferred to the Department and documented.[Spec. 781-6]

CCTV

26. Verify CCTV camera is listed on the APL. [Spec. 782-1.2.1]

27. Ensure that the installed equipment provides unobstructed video images of the roadway, traffic, and other current conditions around a roadside CCTV field site; that it responds to camera control signals from the operator; and that the video images can be transmitted to remote locations for observation. [Spec. 782-1.1]

28. Develop and submit a test plan for field acceptance tests (FATs) to the Engineer for review and approval. [Spec. 782-1.4.1]

29. Ensure that CCTV cameras and video display equipment furnished, assembled, or installed have a manufacturer's warranty covering defects in assembly, fabrication, and materials for a minimum of three years from the date of final acceptance by the Engineer in accordance with 5-11 of all work to be performed under the Contract. Ensure that warranties are transferred to the Department and documented. [Spec. 782-3.1]

NETWORK HARDWARE-ETHERNET SWITCHES, TERMINAL SERVERS, ENCODERS, AND DECODERS

30. Verify switches, terminal servers, encoders, and decoders are listed on the APL. [Spec. 784-1.1]

31. Develop and submit a test plan for FATs to the Engineer for consideration and approval. [Spec. 784-1.4, 784-2.4, 784-3.4]

32. Perform local field operational tests at field sites according to test procedure requirements. [Spec. 784-1.4.2, 784-2.4.2, 784-3.4.2]

33. Perform local field operational tests at the device field site and end-to-end video streaming tests as required by the Engineer in order to demonstrate compliance with Department specifications. [Spec. 784-3.4.2]

34. Provide an MFES having a manufacturer's warranty for equipment and parts furnished to be free from defects in fabrication, assembly, and materials for five years from the date of final acceptance by the Engineer in accordance with 5-11 of all work to be performed under the Contract. Ensure that warranties are transferred to the Department and documented. [Spec. 784-4.2]

35. Provide a device server having a manufacturer's warranty for equipment and parts furnished to be free from defects in fabrication, assembly, and materials for five years from the date of final acceptance by the Engineer in accordance with 5-11 of all work to be performed under the Contract. Ensure that warranties are transferred to the Department and documented. [Spec. 784-4.3]

36. Provide a DVE or DVD having a manufacturer's warranty for equipment and parts furnished to be free from defects in fabrication, assembly, and materials for two years from the date of final acceptance by the Engineer in accordance with 5-11 of all work to be performed under the Contract. Ensure that warranties are transferred to the Department and documented. [Spec. 784-4.4]

GROUNDING AND SURGE PROTECTIVE DEVICES (SPDs)

37. Verify that SPDs are listed on the APL. [Spec. 785-2.2]

38. Verify that SPDs are installed on all power, data, video and any other conductive circuit. The goal of FDOT requirements is to provide protection at demarcation points where conductive cables enter or exit cabinets or other protected equipment locations. [Spec. 785-2.2]

39. A single point grounding system is required. Each ground rod must have a minimum length of 20 feet (rods can be constructed of minimum 8-foot sections). No. 2 AWG solid bare tinned copper wire and exothermic welds must be used when bonding multiple rods together. [Spec. 785-2.3.1]

40. The grounding system must be bonded to a main ground bar within the site equipment cabinet. [Spec. 785-2.3.1]

41. An ideal grounding system would have a resistance of 5 ohms or less. However, this resistance measurement may not be practically achievable depending upon site conditions (soil resistivity, etc.). If a resistance to ground measurement of 5 ohms or less cannot be achieved, then a grounding system consisting of four 20-foot rods (configured to create multiple arrays per the specifications and standards) is acceptable, regardless of the ground resistance measurement. Ground resistance measurements for the constructed system must be provided to the Engineer. [Spec. 785-2.3.1]

42. Require and verify that ground resistance measurements are performed correctly by qualified personnel using the Fall-of-Potential method. The Fall-of-Potential test method and testing procedures are commonly described in detail within the user manuals of the “earth ground electrode testers” that should be used to conduct such tests. [785-2.3.3]

VDS (MVDS, VVDS, MTDS, AVDS)

43. Verify that vehicle detection system is listed on the APL. [Spec. 660-1]

44. Ensure that the vehicle detection and data collection systems have a manufacturer’s warranty covering defects for a minimum of five years from the date of final acceptance by the Engineer in accordance with 5-11 and Section 608. [Spec. 660-4]