

Section 8.13

PIPE INSPECTION, EVALUATION AND REPAIR

8.13.1 Purpose

To establish a standard procedure to ensure consistent review of all post installation pipe inspections associated with construction projects.

8.13.2 Authority

Sections 20.23(3)(a) and 334.048(3), Florida Statutes (F.S.)

8.13.3 Reference

Section 430 of the Standard Specifications for Road and Bridge Construction

Section 431 of the Standard Specifications for Road and Bridge Construction

Section 948 of the Standard Specifications for Road and Bridge Construction

8.13.4 Review

The Project Administrator (PA) will review all of the equipment, inspection, and reporting criteria for the post installation pipe inspection to ensure compliance with the Standard Specifications. Prior to final acceptance, the PA will evaluate the nature and severity of any observed defects and provide the Contractor with the Department's perspective on pipe repairs.

8.13.5 Preconstruction Conference

Project Administrator Responsibilities

The PA, or their delegate, shall provide a comprehensive review of the equipment, inspection, and reporting criteria found in Section 430 of the Standard Specifications to familiarize the Contractor with all the requirements for the post installation inspection. Discussion topics should include:

- (1) Providing certification statements to the Department from the Contractor doing the work that the laser profiling and measurement technology is in compliance with the calibration criteria found on the Department's website.

- (2) Discussion of all components of the pipe inspection report to be submitted to the Department.
- (3) Providing the Department with a video report in the correct format and resolution.
- (4) Providing the Department with a video recording schedule and ensuring the video images are clear, easy to review, and are correctly identified with their respective project number, structure number, pipe type, and size, and any notes associated with the inspection.
- (5) Ensuring that all pipe runs are dewatered, free of silt, debris, and other obstructions prior to inspection.
- (6) Ensuring the video camera moves through all pipe runs at the speed designated in the Standard Specifications and that all defects are documented in their entirety.

8.13.6 Report Review, Evaluation and Repair Guidance

Project Administrator Responsibilities

The PA, or their delegate, is responsible for reviewing and evaluating the laser profiling and video inspection reports and to ensure the pipe videos and supporting documentation are available electronically in the project files (i.e. Project Solve Sharepoint PSSP and/or EDMS). The PA must ensure that each component of the pipe inspection process is in compliance with the Standard Specifications and completed before the culvert installation can be accepted.

8.13.6.1 Report Review

The PA is responsible for ensuring that the reports submitted by the Contractor meet the criteria found in Section 430 of the Standard Specifications before any defects are evaluated. If the Contractor fails to submit the necessary certifications or reporting requirements, the PA is responsible for contacting the Contractor to inform them that the report submittal does not meet the Standard Specifications. The PA should provide a list of report deficiencies for the Contractor to review. Once the deficiencies have been resolved, the PA can evaluate the amended reports.

8.13.6.2 Report Evaluation

When evaluating defects found in pipe inspection reports, the PA must consider the following policy previously set forth by the Department:

- (1) **Cracking in concrete pipe:** The Department relies on both the American Society for Testing and Materials (ASTM) C 76 and the American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) Chapter 27 when evaluating cracks in concrete pipe. Cracks less than 0.01" in width and less than 12" in length should be recorded as an observation but are not candidates for repair unless there is evidence of active infiltration. Any crack exceeding the length and width tolerances must be evaluated by a Specialty Engineer as being acceptable or in need of repair.
- (2) **Stains in pipe:** Stains in concrete pipe are not considered a defect in need of repair unless the stain, is associated with a crack in excess of the tolerances referenced in ASTM C 76 and AASHTO LRFD Chp. 27, is associated with active infiltration regardless of its location or size of crack, or it's associated with any other defect eligible for repair. Stains in aluminized steel pipe shall be evaluated to determine the presence of damage to the aluminized coating. Stains in thermoplastic pipe shall be evaluated to determine the presence of cracking.
- (3) **Infiltration:** The Standard Specifications require that Storm, Cross, and Gutter drains be water tight to 5 psi. If the Contractor has a leaking pipe, and states that the infiltration does not need to be repaired, he must demonstrate that the head pressure generated by the height of the water table exceeds that 5 psi requirement found in the Standard Specifications. If the water table head pressure does not exceed 5 psi at the top of the pipe then all infiltration must be repaired.
- (4) **Joint gaps in optional pipe materials:** The Standard Specifications do not have joint gap tolerances for metal, PVC, Polypropylene, or HDPE pipes. Since there is no joint gap tolerance for these pipe types, the Contractor is not required to repair joints with gaps in them. Repair is limited to hanging gaskets, joint damage, separated joints, and infiltration.
- (5) **Deflection:** All optional pipe materials have a deflection tolerance of 5% or more of the certified actual mean diameter of the pipe. Any pipe with deflections greater than the 5% tolerance must be replaced or repaired at no

cost to the Department. The only repair accepted by the Department is to remove the deflected sections and replace them using field joints.

NOTE: The Department has not adopted ASTM C1840 for the inspection, evaluation, or repair of concrete pipe.

8.13.6.3 Repair Guidance

The Department maintains the expectation that all culvert installations will be defect free and installed in accordance with the Standard Specifications. In the event that a defect is found in a pipe run, the first option of the Department would be to remove and replace the defective pipe at no cost. In situations where this is not practical, then consideration should be given to different repair remedies.

Project Administrator Responsibilities: The PA is responsible for reviewing the proposed repair procedures submitted by the Contractor and coordinating the review of the proposed repairs with the District Drainage Office to ensure hydraulic capacity is maintained. Proposed repair procedures should correspond to the Pipe Repair Matrix as found on the Department's website and the policy previously set forth by the Department. Specifically:

- (1) **Use of Chemical Grout for repair:** The Department does not accept the hand application of grout for pipe repair. All proposed grout repairs must utilize pressurized injection to ensure that the grout completely fills the defect and any voids associated with it.
- (2) **Use of Cured in Place point repairs:** The Department does not accept cured in place point repairs due to quality assurance and maintenance concerns. All point repairs proposed by the Contractor must consist of steel, aluminum, or rubber per Section 948 of the Standard Specifications.

In the event that a Contractor proposes a repair method that is not found on the Pipe Repair Matrix, it must be evaluated and accepted by the State Construction Office prior to use.