



Florida Department of Transportation

JEB BUSH
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

DENVER J. STUTLER, JR.
SECRETARY

December 9, 2005

Mr. Donald Davis
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 430
Proposed Specification: 4300480.D01 – Final Pipe Inspection.

Dear Mr. Davis:

We are submitting, for your approval, two copies of a proposed Supplemental Specification for Final Pipe Inspection.

This change is proposed by David Sadler of the State Construction Office to modify the current Final Pipe Inspection Specification.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to SP965DB or duane.brautigam@dot.state.fl.us.

If you have any questions relating to this specification change, please call Duane F. Brautigam, State Specifications Engineer at 414-4110.

Sincerely,

Signature on file

Duane F. Brautigam, P.E.
State Specifications Engineer

DFB/jo

Attachment

cc: General Counsel
Florida Transportation Builders' Assoc.
State Construction Engineer

FINAL PIPE INSPECTION.**(REV 9-30-05/2-5-05)**

SUBARTICLES 430-4.8 (of the Supplemental Specifications) is deleted and the following substituted:

430-4.8 Final Pipe Inspection: Based on Contract pavement type, upon completion of placement of concrete pavement or the placement of structural asphalt, but prior to placement of asphalt friction course, dewater installed pipe and provide the Engineer with a video ~~taping~~ recording schedule *allowing for pipe videoing and reports to be completed and submitted to the Department and reviewed prior to continuation of pavement.* Provide the Engineer with a video tape of pipe 48 inches [1,200 mm] or less in diameter, for examination. The Engineer may waive this requirement for side drains and cross drains which are short enough to inspect from each end of the pipe. The Engineer will inspect pipe for line and grade, joint gaps, joint misalignment, leaks, damage, and for debris.

For pipe 48 inches [1,200 mm] or less in diameter, provide the Engineer a video DVD and report using low barrel distortion video equipment with laser profile technology, non-contact video micrometer and associated software that provides:

- 1. Actual recorded length and width measurements of all cracks within the pipe.*
- 2. Actual recorded separation measurement of all pipe joints.*
- 3. Pipe ovality report.*
- 4. Deflection measurements and graphical diameter analysis report in terms of x and y axis.*
- 5. Flat analysis report.*
- 6. Representative diameter of the pipe.*
- 7. Pipe deformation measurements, leaks, debris, or other damage or defects.*
- 8. Deviation in pipe line and grade, joint gaps, and joint misalignment.*

Laser profiling and measurement technology must be certified by the company performing the work to be in compliance with the calibration criteria posted at: <http://www.dot.state.fl.us/construction/ContractorIssues/Laser.htm>.

Reports may be submitted in electronic media if approved by the Engineer.

For metal and plastic video recorded, laser profiled pipe that indicates deflection that appears to be in excess of that allowed by Specification, the Engineer will also inspect for deflection. The Engineer may require further testing of the pipe as a result of the inspection. If so directed by the Engineer, test pipe 36 inches [900 mm] and less in diameter using a mandrel. The mandrel shall be pulled by hand and be approved by the Engineer prior to use. For pipe larger than 36 inches [900 mm] in diameter, deflection shall be determined by a method approved by the Engineer. If use of a mandrel is selected as the means of further testing, the mandrel's diameter, length, and other requirements shall conform to 430-4.8.2. Remove, Rreplace and retest pipe failing to meet the specific deflection requirements for the type of pipe installed, at no cost to the

Department. Should the deflection test prove that the pipe met Specifications, the Department will bear the cost of the deflection testing.

The Engineer may waive this requirement for side drains and cross drains which are short enough to inspect from each end of the pipe.

SUBARTICLE 430-4.8.1 and 430-4.8.2 (Pages 393-394) are deleted and the following substituted:

430-4.8.1 Video Taping Report: Provide a high quality ~~VHS-DVD~~ *in a MPEG2 format videotape with a 460 lines of resolution-standard resolution of 720 x 480.* Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe and rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition.

The videotape image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe. ~~The tape speed shall be standard play.~~ The video tape will include an identification before each section of pipe filmed. The identification will include the project number, the structure number corresponding to the structure number on the set of plans for the project, size of pipe, the date and time, and indicate which pipe is being filmed if multiple pipes are connected to the structure. Notes should be taken during the video ~~taping~~ *recording process*. Provide the Engineer with copies of these notes along with the video.

Move the camera through the pipe at a speed not greater than 30 feet per minute [10 meters per minute]. Mark the video ~~tape~~ with the distance down the pipe. The distance shall have an accuracy of one foot per 100 feet [300 mm in 328 meters]. Stop the camera and pan when necessary to document defects. Film the entire circumference at each joint.

430-4.8.2 Mandrels: Use mandrels which are rigid, nonadjustable, odd-numbered legged (minimum 9 legs) having a length not less than its nominal diameter. The diameter at any point shall not be less than the allowed percent deflection of the certified actual mean diameter of the pipe being tested. The mandrel shall be fabricated of metal, fitted with pulling rings at each end, stamped or engraved on some segment other than a runner with the nominal pipe size and mandrel outside diameter.

FINAL PIPE INSPECTION.**(REV 12-5-05)**

SUBARTICLES 430-4.8 (of the Supplemental Specifications) is deleted and the following substituted:

430-4.8 Final Pipe Inspection: Based on Contract pavement type, upon completion of placement of concrete pavement or the placement of structural asphalt, but prior to placement of asphalt friction course, dewater installed pipe and provide the Engineer with a video recording schedule allowing for pipe videoing and reports to be completed and submitted to the Department and reviewed prior to continuation of pavement.

For pipe 48 inches [1,200 mm] or less in diameter, provide the Engineer a video DVD and report using low barrel distortion video equipment with laser profile technology, non-contact video micrometer and associated software that provides:

1. Actual recorded length and width measurements of all cracks within the pipe.
2. Actual recorded separation measurement of all pipe joints.
2. Pipe ovality report.
3. Deflection measurements and graphical diameter analysis report in terms of x and y axis.
4. Flat analysis report.
5. Representative diameter of the pipe.
6. Pipe deformation measurements, leaks, debris, or other damage or defects.
7. Deviation in pipe line and grade, joint gaps, and joint misalignment.

Laser profiling and measurement technology must be certified by the company performing the work to be in compliance with the calibration criteria posted at: <http://www.dot.state.fl.us/construction/ContractorIssues/Laser.htm> .Reports may be submitted in electronic media if approved by the Engineer.

For video recorded, laser profiled pipe that indicates deflection that appears to be in excess of that allowed by Specification, the Engineer may require further testing of the pipe . If directed by the Engineer, test pipe using a mandrel. The mandrel shall be pulled by hand and be approved by the Engineer prior to use. If use of a mandrel is selected as the means of further testing, the mandrel's diameter, length, and other requirements shall conform to 430-4.8.2. Remove, replace and retest pipe failing to meet the specific deflection requirements for the type of pipe installed, at no cost to the Department. Should the deflection test prove that the pipe met Specifications, the Department will bear the cost of the deflection testing.

The Engineer may waive this requirement for side drains and cross drains which are short enough to inspect from each end of the pipe.

SUBARTICLE 430-4.8.1 and 430-4.8.2 (Pages 393-394) are deleted and the following substituted:

430-4.8.1 Video Report: Provide a high quality DVD in a MPEG2 format video with a standard resolution of 720 x 480. Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe and rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition.

The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe. The video will include identification before each section of pipe filmed. The identification will include the project number, the structure number corresponding to the structure number on the set of plans for the project, size of pipe, the date and time, and indicate which pipe is being filmed if multiple pipes are connected to the structure. Notes should be taken during the video recording process. Provide the Engineer with copies of these notes along with the video.

Move the camera through the pipe at a speed not greater than 30 feet per minute [10 meters per minute]. Mark the video with the distance down the pipe. The distance shall have an accuracy of one foot per 100 feet [300 mm in 328 meters]. Stop the camera and pan when necessary to document defects. Film the entire circumference at each joint.

430-4.8.2 Mandrels: Use mandrels which are rigid, nonadjustable, odd-numbered legged (minimum 9 legs) having a length not less than its nominal diameter. The diameter at any point shall not be less than the allowed percent deflection of the certified actual mean diameter of the pipe being tested. The mandrel shall be fabricated of metal, fitted with pulling rings at each end, stamped or engraved on some segment other than a runner with the nominal pipe size and mandrel outside diameter.