



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Memorandum

November 06, 2009

**CONSTRUCTION MEMORANDUM
09-20**

TO: District Deputy Commissioners
Technical Services Directors
District Construction Directors
District Testing Engineers
District Area Engineers
Project Engineers/Supervisors
Office of Materials Management

FROM: Mark A. Miller, Director *Malomille*
Division of Construction Management

SUBJECT: Mandrel Testing of Thermoplastic Pipe

SUPERSEDES: Construction Memorandum 07-10

REFERENCE: 2010 Standard Specifications Section 715.09
2009 Interim GIFE Section 4.11.2

The purpose of this memo is to clarify the requirements for mandrel testing of thermoplastic pipe.

Section 715 of the Standard Specifications requires contractors to perform a pass or fail mandrel test on thermoplastic pipe that is 36 inches or less in diameter. The pipe materials that fall into this category are polyethylene and smooth wall PVC pipes that are in accordance with sections 907.19, 907.20, 907.21, 907.22, or 907.23.

The purpose of the mandrel test is to ensure that the pipe has not deflected due to backfill or other causes by more than 5% of its pay item diameter.

Form IC 715, Mandrel Testing of Pipe Structures, is to be used by field personnel to document mandrel testing of thermoplastic pipes. A copy of this form is attached and is also available on the Department's website in Section 4 of the 2009 Interim Edition of the GIFE at:

http://www.in.gov/dot/div/contracts/standards/GIFE_Interim09/GIFEindex.html

The following procedure is to be followed for mandrel testing:

- Determine which pipe structures will require mandrel testing and note them on an IC 715 along with the pipe material specification reference (i.e. – 907.19), pipe pay diameter and pipe structure length.
- Note the date that the backfill is completed for each structure.
- Visually inspect the pipe no sooner than 30 days after backfill is completed. Look for obvious damage, such as excessive deflection or joint failures.
- If the pipe cannot be visually inspected, require the contractor to perform a video inspection of the pipe. Review the results of the video inspection for damage.
- After the visual or video inspection, require the contractor to perform the mandrel test. Note the mandrel requirements in the specifications and check the mandrel to ensure that it has a diameter that is no less than 95% of the pipe pay item diameter.
- Note the date of the mandrel test on the IC 715.
- Have the contractor pull the mandrel through the pipe by hand.
- Record the result, either pass or fail, on the IC 715 for each structure tested.

If the pipe fails the mandrel test or the mandrel causes obvious damage to the pipe, require the contractor to remove and replace the deficient portion of the pipe. The deficient portion should be removed and replaced to the nearest pipe joint or structure, such as a manhole or inlet.

Lengths of pipe replaced must be mandrel tested in accordance with the procedure outlined above. A note should be made on the IC 715 that the test is being made for a replacement pipe.

Forms IC 715 are to be kept in the project file and a copy sent to the Division of Construction Management.

Questions and comments should be directed to the Division of Construction Management.

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