

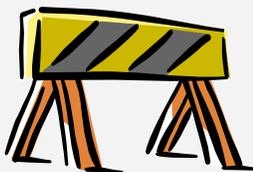
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BJO:DG

## Mandrel Testing of Corrugated Polyethylene Pipe (CPE)

This construction advisory is intended to emphasize and clarify the requirements for mandrel testing of CPE pipe. During the preconstruction meeting it should be pointed out if CPE pipe is installed, **at least 50 percent of each size must be mandrel tested**. The engineer should select those runs of pipe that may have been problematic during installation or in areas subjected to a high volume of construction traffic. The mandrel testing should be conducted 5 to 10 work days prior to paving.

Prior to testing, the contractor must provide an approved mandrel which is appropriate for testing CPE pipe (mandrel size for PVC is smaller). The mandrel must have at least nine points and be 95 percent of the nominal diameter of the pipe. Per AASHTO M 294 *Corrugated Polyethylene Pipe*, nominal pipe diameter is defined as 12", 15", 18", etc. Mandrels can be a fixed size or a variable size and are commercially available for most pipe sizes up to 48". The diameter of the mandrel, whether it is fixed or variable size, must be verified with a proving ring. As a rule of thumb, the length of the mandrel should be equal to or greater than the diameter.

The pipe should be cleaned thoroughly before testing. Even the smallest amount of debris can hinder the passage of the mandrel. During the test, the mandrel must be pulled through the pipe by hand. The use of a winch, come-along or other mechanical means is prohibited. If the mandrel can not be pulled through the pipe, the test fails and corrective action is required.

Prior to any corrective action, the contractor may opt to video the pipe to determine the cause of the mandrel not passing through or attempt to clean the pipe again and re-run the mandrel test. If the test still fails, the CPE pipe may be removed and reinstalled providing it has been inspected for damage and approved for re-use. The other option is to remove and replace the damaged pipe with new CPE or other acceptable pipe type. If CPE pipe is used it must be mandrel tested after installation. The use of a pipe "re-rounder" is not an acceptable method for corrective action. Video taping of CPE pipe for acceptance should be conducted only after passing mandrel tests have been achieved.

Two forms have been created to document CPE pipe installation and mandrel testing results for sewers and culverts, form numbers 1974 and 1975, respectively. **All CPE pipe installed on a project must be recorded on these forms along with mandrel test results.** This information must also be documented on the IDR. Upon completion of the form(s), the original version must be placed in the project files (file folder # 304 Drainage Items Testing) and a copy sent to the Grading and Drainage Engineer at C&T for inclusion in the mandated annual report to the legislature.