

Construction Memo No. 10-00

MEMO TO: Chief District Engineers
TEBM's for Construction
District Construction Engineers
Resident Engineers
Active Consultant Engineers

FROM: Dexter Newman, P. E. Director
Division of Construction

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DATE: June 12, 2000

SUBJECT: Pipe Installation under 2000 Standard Specifications

The 2000 Kentucky Transportation Cabinet Standard Specification for Road and Bridge Construction has several changes in the Culvert Pipe, Entrance Pipe, Storm Sewer Pipe and Equivalents, Section 701. Below find a brief outline of the major changes. It is advised to thoroughly review this section before construction Culvert pipe for contract construction under the 2000 Specifications.

- Bedding material use either **No. 8 aggregate, No. 9M aggregate, or a crushed aggregate up to 3/8 inch maximum** size. Bedding is still placed up to an elevation of 0.3 of the culvert diameter. Fill material depends on type of pipe.
- Section 701.02.05 (A) lists **acceptable types of backfill** for Reinforced Concrete Pipe, Corrugated Metal Pipe and Thermoplastic Pipe. Note each pipe has different types and sizing of pipe.
- Granular backfill up to spring line (1/2 diameter) for Reinforced Concrete Pipe. Granular backfill up to one over top of Corrugated Metal Pipe and Thermoplastic Pipe. Remaining backfill should be in accordance with Standard Drawing RDI- 020-07.

- Backfill in 6" lifts. When **top of pipe is within one (1) pipe diameter of the subgrade, backfill with flowable fill** to an elevation of one (1) foot above the pipe from outside edge of shoulder or back of curb to outside edge of shoulder or back of curb as applicable. When installing under existing pavement, backfill with flowable fill to subgrade elevation. The Department will not measure the quantity for payment and will consider it **incidental** to the pipe bid item. When the Engineer determines that it is necessary and to the Department's benefit to excavate beyond the typical excavation limits shown in the Standard Drawings, the Department will measure the quantity of flowable fill required for backfill outside the typical excavation limits as Extra Work
- When granular backfill is used, **the surrounding conditions are not similar in gradation**, and the pipe is located within the area bounded by the centerline and a distance 25 feet outside the edge of shoulder or back of curb, as applicable, **wrap the bedding and granular backfill in geotextile fabric**. The Department will not require geotextile fabric for entrance pipe. When geotextile fabric is required according to this section or the Engineer's direction, install according to Section 214. The department will measure the quantity of fabric use and pay per square yard.
- Provide soil tight joints. Wrap all pipe joints with geotextile fabric when their inner diameter is 54 inches or greater.
- When a Reinforced Concrete joint is located 12 feet or less from the outlet on a 3:1 or steeper slope, provide a tied joint according to the Standard Drawings.
- Construct Corrugated Metal joints using a band with annular corrugations and a bolt, bar and strap connector. Use a minimum **nominal band width of 12 inches for pipe less than 42 inches in diameter** and a minimum **nominal band width of 24 inches for pipe 42 inches in diameter or greater**. Use a nominal 24-inch or wider band regardless of pipe diameter whenever a joint is within 12 feet or less from an outlet on a 3:1 or steeper slope. Ensure the band is manufactured from the same base material as the pipe it is joining. The Department may allow dimple band connections for field cut pipe. Install the connecting bands according to the manufacturer's written recommendations

- For Thermoplastic Pipe, use an integral bell and spigot type with elastomeric seal joints. When a joint is located 12 feet or less from the outlet on a 3:1 or steeper slope, use a cleated integral bell locking joint or a standard coupling aided by two #14 by 2-inch galvanized sheet metal screws inserted through the coupling into the corrugation crest 2 inches apart circumferentially at the bell and spigot coupler's quarter points.
- Metal End Structures no longer required for Thermoplastic entrance pipe.
- **Testing of Pipe.** The Engineer will visually inspect all pipes. The Department **may require camera or mandrel** testing, KM 64-114, for any pipe when deflection, cracking, joint faulting, or any other interior damage is suspected. If the pipe shows damage, repair or replace as the Engineer directs. If the pipe shows deflection of 10 percent or greater, remove and replace the pipe. If the pipe shows deflection greater than 5 percent but less than 10 percent, the Department will allow the pipe to remain in place at a reduced unit price. Do not pave over any pipe until inspection and any required testing is completed. When paving will not be delayed by the wait, test pipe 30 days or more after backfilling is completed.

These changes were made to ensure quality pipe installation. Good construction practices and installation are still expected.

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