

## PIPE CULVERTS AND STORM AND SANITARY SEWERS

The Standard Specifications are revised as follows:

SECTION 715, AFTER LINE 27, INSERT AS FOLLOWS:

Concrete .....	702
Flowable Backfill .....	213
Geotextiles .....	918.02
Reinforcing Steel .....	910.01
Rubber Type Gaskets .....	906.04
Straps, Hook Bolts, and Nuts .....	908.12
Structure Backfill .....	904

*The maximum particle size of backfill material for corrugated pipe shall be less than one-half the corrugation depth.*

SECTION 715, BEGIN LINE 287, DELETE AND INSERT AS FOLLOWS:

### **715.09 Backfilling**

All plastic pipes, ~~except longitudinal underdrains, which are not fabricated with hydrostatic design basis rated resins and are installed within 5 ft (1.5 m) of mainline or public road approach pavement, paved shoulders, or sidewalks~~ shall be backfilled with *structure backfill* or flowable backfill. *Structure backfill shall be placed in accordance with 211.* Flowable backfill shall be placed in accordance with 213.07. ~~All other pipe installations shall be backfilled as shown on the plans or as directed. Structure backfill shall be placed in accordance with 211.04.~~

Prior to placing flowable backfill, all standing water shall be removed from the trench. If the water cannot be removed from the trench, structure backfill shall be used in lieu of flowable backfill to an elevation 2 ft (0.6 m) above the groundwater. The remainder of the trench shall be backfilled as shown on the plans.

~~Except where prohibited due to groundwater, flowable backfill may be used as a substitute for structure backfill.~~

~~After the completion of the backfill operation and prior to beginning the paving operation, all plastic pipes, except longitudinal underdrains, not fabricated with hydrostatic design basis rated resins installed within 5 ft (1.5 m) of mainline or public road approach pavement, paved shoulders, or sidewalks~~ All pipes, *except underdrains, shall will be mandrel tested visually inspected for acceptance a minimum of 30 days after the completion of backfill operations. Pipes that cannot be visually inspected shall be video inspected for acceptance in accordance with 718.07. The Engineer will determine the sections of pipe to be video inspected.*

*After the visual or video inspection, all polyethylene and smooth wall polyvinyl chloride pipes 36 in. (900 mm) or less in pipe pay item diameter shall be mandrel tested. The mandrel shall be a go/no go mandrel with a minimum of nine arms or prongs and a diameter of 5% less than the pipe pay item diameter. If the mandrel does not pass through the pipe when pulled by hand or the mandrel damages the pipe, the deficient pipe shall be removed, replaced, and mandrel tested a minimum of 30 days after the flowable backfill has been replaced.*

*Commercial and private drive pipes are excluded from the mandrel testing and video inspection requirements.*

Where material other than structure backfill or flowable backfill is permitted and used for backfilling, it shall be of such nature that compacts readily. That portion around and for 6 in. (150 mm) above the top of the pipe shall be free from large stones. This material shall be placed in layers not to exceed 6 in. (150 mm), loose measurement, and each layer compacted thoroughly by means of mechanical tamps. *Where coarse aggregate No. 8, No. 9, or No. 11 is used for structure backfill, geotextile shall be installed.*

An adequate earth cover, as shown on the plans, shall be placed over the structure before heavy equipment is ~~driven~~ operated over it.

Backfill for slotted drain pipe and slotted vane drain pipe shall consist of class A concrete on both sides of the pipe. During the backfilling and paving operations, the slot shall be covered to prevent infiltration of material into the pipe.

SECTION 715, BEGIN LINE 408, INSERT AS FOLLOWS:

Structure backfill will be measured in accordance with 211.09. Flowable backfill will be measured in accordance with 213.08.

Pavement replacement and subbase necessary due to structure replacement under an existing pavement will be measured to the neat lines shown on the plans.

For structures for which the plans permit pipes of differing sizes for either smooth or corrugated interiors, and the corrugated interior alternate is installed, measurement of ~~B-borrow~~ for structure backfill or flowable ~~mortar~~ backfill will be based on the neat line dimensions shown on the plans for the smooth interior alternate.

Grated box end sections will be measured per each for the specified type, surface slope, and pipe size.

*Video inspection for pipe will be measured by the linear foot (meter) as determined by the electronic equipment.*

*Mandrel testing of polyethylene and smooth wall polyvinyl chloride pipes 36 in. (900 mm) or less in pipe pay item diameter will not be measured for payment.*

*Geotextile used to wrap backfill material will not be measured for payment.*

SECTION 715, AFTER LINE 439, INSERT AS FOLLOWS:

*Structure backfill will be paid for in accordance with 211.10. Where used as a substitute for structure backfill, flowable backfill will be paid for as structure backfill. When specified for pipe backfill, flowable backfill will be paid for in accordance with 213.09.*

SECTION 715, AFTER LINE 461, INSERT AS FOLLOWS:

*Video inspections for pipe will be paid for at the contract unit price per linear foot (meter) completed.*

SECTION 715, AFTER LINE 562, INSERT AS FOLLOWS:

*Video Inspection for Pipe..... LFT (m)*

SECTION 715, AFTER LINE 592, INSERT AS FOLLOWS:

*Geotextile required for coarse aggregate No. 8, No. 9, or No. 11 structure backfill material will not be paid for separately. The cost of the geotextile shall be included in the cost of structure backfill.*

*The cost of providing the video inspection equipment, technician, videotapes, or computer disks shall be included in the cost of the video inspection for pipe. No additional payment will be made for repair or removal of pipes, backfill, the video re-inspection of the repairs or replaced pipe, and all other work associated with the repair or removal of unaccepted pipes.*

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