

4300100 PIPE CULVERTS
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comments: (6-25-18)

The proposed language that further strengthens the prohibition of altering the corrugations is the right decision. The reason why corrugations are drilled is to more hastily install a buoyant material in a wet trench due to high groundwater and counter flotation forces. The ban on drilling holes in corrugations is justified because it prevents the destruction of structural integrity of the corrugation and otherwise invalidation of the pipe's AASHTO M294/M330 compliance, as well as invalidating the Engineer's AASHTO LRFD design used in the FDOT Cover Height Table (which assumed that the pipe met AASHTO M294/M330 and did not have drilled corrugations). The corrugated thermoplastic pipe is expected to structurally perform for its service life whether above or below the groundwater table. The current FDOT Drainage Manual Cover Height Table assumes that "the pipes will be installed at or above the established water table" and therefore not subjected to hydrostatic buckling or buoyancy/flotation. The use of the pipe below the established groundwater would be a variance from the Cover Height Table design. Additional language to Section 430 should also be considered: "If the corrugated thermoplastic pipe invert is to be installed below the established groundwater table, the contractor shall provide design certification by a licensed professional engineer in accordance with the AASHTO LRFD Design Manual."

Response: Thanks for your comment, we believe the suggested additional language is design related, and Section 430 would not be the appropriate location. Therefore, we forwarded the comment to the Office of Design, Drainage Section for their input. The following response was provided:

"The statement within Appendix C of the Drainage Manual regarding the pipes being installed at or above the established water table is intended for all pipe types, not just thermoplastics. The condition of an unsubmerged pipe is a conservative assumption (compared to a submerged pipe) because the buoyancy of the groundwater above the pipe reduces the dead load of the soil on the pipe. It is the responsibility of the Engineer of Record to make sure the pipe has the minimum design cover to prevent floatation, but a submerged pipe does not require an additional AASHTO LRFD calculation for structural loading."

No change made.

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Comments: (7-13-18)

We kindly request your consideration of our proposed revision below... "No field modifications such as cutting or drilling into or through the corrugations or ribs of plastic pipe except when necessary to meet the dimensional requirements shown in the Plans."

Response: Thanks for your comment. We do agree with the principle of your suggestion, however since this Section is written to the Contractor regarding construction operations, the intention of saying "no field modifications" is implicit (except when necessary to meet the Plan (field) requirements).

No change made.
