



## **ENGINEERING DEPARTMENT** Development Division

### **MEMORANDUM**

**DATE:** November 1, 2006  
**TO:** Development Community  
**FROM:** David A. Moody, P.E., Engineering Director  
**SUBJECT:** Use of HDPE Pipe within the City of Peoria

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The following is the recommended specification for the use of High-Density Polyethylene (HDPE) pipe material within the City of Peoria:

1. Such piping material shall be allowed for storm water uses only. This would include underground storage and storm drains.
2. Approval shall be granted on a case-by-case basis. As such, the applicant shall request review and approval of its application directly from the City Engineer. This requirement may be rescinded once successful installations have occurred.
3. The application shall contain design-loading calculations, based on the anticipated conditions. Calculations shall demonstrate that the resulting bending stress does not exceed 3000 psi. This value is based on recommendations of the Corrugated Polyethylene Pipe Association (CPPA).
4. Installation of the pipe shall be per Maricopa Association of Governments (MAG) Standard Specifications, Section 603, "Installation for High Density Polyethylene Pipe", except as noted herein.
5. Foundation for pipe placement shall be per MAG standard specifications, Section 601.4.1, which states "*The material upon which the conduit or structure is to be placed shall be accurately finished to the grade or dimensions shown on the plans or as directed by the Engineer. The bottom portion of the trench shall be brought to grade so that the conduit or structure will be continuously in contact with the material on which it is being placed. If rocky or unsuitable soil is encountered, Subsection 601.2.5 applies.*"
6. Pipe bedding shall be select material, type B or aggregate base, as per MAG Table 702-1. Material shall be free of broken concrete, broken pavement, wood or other foreign material.
7. At the discretion of the City Engineer (based on site conditions and existing soil conditions), pipe bedding backfill may be required to meet MAG Standard Specifications, Section 628, "*Controlled Low Strength Material Requirements (CLSM)*", to one-foot above the pipe.
8. Compacted backfill shall be placed in six to eight inch lifts, compacted around the pipe with vibratory compactors. Lift placement and compaction shall be repeated until enough material is placed and compacted to provide a minimum of one-foot of cover over the pipe.

9. Whenever corrugated HDPE pipe is interfaced with concrete, it shall do so at a structure and the contractor shall install a water stop, in accordance with MAG Standard Specifications, Sections 738 and 615.
10. MAG Subsection 615.10(C) and (D) shall also apply to HDPE storm drain installations, except where the maximum permitted HDPE pipe deflection shall be limited to five percent of the nominal pipe diameter or as recommended by CPPA, whichever is stricter. This applies to the initial inspection (at completion of the installation and backfill) and at the final inspection (one-year from the date of the subdivision final approval).
11. Any pipe found to exceed the deflection standard shall be removed or repaired. If required by the City Engineer, the Contractor shall mandrel all installed HDPE pipe in the presence of a City Inspector, or may submit an alternate deflection measurement technique to the Engineering Department for approval. The Contractor shall perform another mandrel test on the removed or repaired section. Testing results and certification shall be provided to the City Engineer or their designee.
12. Pipe size shall be limited to 48-inches or smaller.
13. The applicant shall submit, to the City Engineering Department, complete installation specifications for review as part of the construction plan submittal.
14. HDPE pipe material may be allowed in public rights-of-way with the approval of the City Engineer, as outlined in item number 16 below. However, in no case shall the pipe be installed within the required water/sewer easement, with the exception of areas crossing such easements, provided that such crossings occur at an angle between 45 and 90 degrees.
15. Prior to acceptance of any HDPE pipe from a specific manufacturer; the manufacturer must be pre-approved by the City of Peoria Engineering Department. This approval shall be granted based on satisfaction of the following items:
  - (a) The Manufacturer has a training program approved by the city to contain a minimum of 3 hours of field training and 2 hours of class room training. For inspectors and installers.
  - (b) The Manufacturer offers such training to City staff (at no cost to the City), contractors, designers, geotechnical engineering/testing firms at least once in any given calendar year.
  - (c) The Manufacturer provides a certificate of completion to any attendee. This certificate of completion is only valid for a maximum period of two years.
16. The contractor that is installing the HDPE pipe must have at least one person onsite during the installation that has a valid Certificate of Completion of training (within 2-years of completion of such training) from a manufacturer approved by the City of Peoria.
17. Prior to acceptance of HDPE material, the developer/contractor shall provide a compaction testing report certified by a Professional Engineer registered in the State of Arizona to meet the criteria outlined here in.