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MEMORANDUM **Case # 13-05**

DATE: April 3rd, 2013

TO: MAG Specifications and Details Committee Members

FROM: Warren White, City of Chandler Representative

SUBJECT: Proposed MAG Section 740, Polypropylene Pipe and Fittings for Gravity Storm Drain and Sanitary Sewer > > April Update

Updated case material based on previous Committee and Working Group meetings. Included is both the redline version (based on Section 738) and clean version for the proposed Section 740. Here are some points that were addressed in this update:

- Changed all Subsections to have 740 Section referenced (as opposed to 738).
- Revised all references to AASHTO MP21-11 to AASHTO M330. AASHTO MP21-11 was a provisional standard. AASHTO has since voted to move to a full standard and has assigned a number (M330). New standard should be published in a month or so.
- Section 740.4 Fittings – changed reference to 740.3 for gasket type.
- Section 740.9 Care of Pipe and Materials – Instead of referencing 736.5 – that language has now been incorporated.
- Added reference to Section 615 and 618 in the General notes.
- Moved 740.2.5 Thermal Welding Material language to under 740.4 Fittings.
- Made consistent with Case # 12-12 for SRPE material

SECTION 740
POLYPROPYLENE PIPE & FITTINGS FOR STORM DRAIN & SANITARY SEWER

740.1 GENERAL:
This specification covers the requirements of profile wall (both dual wall and triple wall) (Type S or Type D) polypropylene (PP) pipe manufactured per ASTM F2736, ASTM F2764, AASHTO M330 for storm drain and sanitary sewer systems. When noted on the plans or in the special provisions, storm drains, irrigation and sanitary sewers may be constructed using PP pipe. The PP pipe will be of the sizes 12 inch diameter through 60 inch diameter. Construction and installation shall be in accordance with Section 615 for storm drain and irrigation water and Section 618 for sanitary sewers.

The size of the PP pipe to be furnished shall be designed by the Engineer and shown on the plans or in the project specifications.

740.2 MATERIALS:

740.2.1 Base Material Composition: Profile pipe base material and fittings shall meet polypropylene materials requirements as stated in Section 4, Table 1 of ASTM F2736, Section 5, Table 1 of ASTM F2764 or Section 6, Table 1 AASHTO M330.

740.2.3 Gaskets: Rubber gaskets shall be manufactured from a natural rubber, synthetic elastomer or a blend of both and shall comply in all respects with the physical requirements in ASTM F477, unless the project specifies a special gasket, such as nitrile.

740.2.4 Water Stops: Water stops shall be manufactured from a natural or synthetic rubber and shall conform to the requirements of ASTM C923. The water stop shall have expansion rings, a tension band, or a take-up device used for mechanically compressing the water stop against the pipe.

740.2.5 Lubricant: The lubricant used for assembly shall comply to manufacturer's recommendations and have no detrimental effect on the gasket or pipe.

738.3 JOINING SYSTEMS:

740.3.1 Gasket Type: Joints for the piping system and fittings shall consist of an integrally formed bell and spigot gasketed joint. The joint shall be designed so that when assembled, the elastomeric gasket located on the spigot is compressed radially on the pipe or fitting bell to form a water tight seal. The joint shall be designed so to prevent displacement of the gasket from the joint during assembly and when in service. The elastomeric gasket shall meet the provision of ASTM F477. Gasketed watertight joints shall meet laboratory test pressure of 10.8psi when tested in accordance with ASTM D3212.

All pipes shall have a home mark on the spigot end to indicate proper penetration when the joint is made.

The bell and spigot configurations for the fittings shall be compatible to those used for the pipe.

Joints shall provide a seal against exfiltration and infiltration. All surfaces of the joint upon which the gasket may bear, shall be smooth and free of any imperfections, which would adversely affect sealability. The assembly of the gasketed joints shall be in accordance with the pipe manufacturer's recommendations.

740.4 FITTINGS:

Fittings for PP pipe may include tees, elbows, manhole adapter rings, plugs, caps, adapters and increasers. Fittings shall be joined by gasket type joints in accordance with Subsection 740.3.

The material used for thermally welding the pipe material shall be compatible with the base material.

A clamp gasket or approved method shall be provided at manhole entry or connection to reduce infiltration and exfiltration. Where precast manholes are used, entrance holes must be large enough to allow for proper grouting around the manhole gasket.A non-shrink grout shall be used for grouting.

740.5 CERTIFICATION:

The manufacturer shall furnish an affidavit (certification) that all materials delivered shall comply with the requirements of ASTM F2736, ASTM F2764 or AASHTO M330.

740.6 DIMENSIONS AND TOLERANCES:

Polypropylene pipe dimensions shall comply with dimensions given in Section 6,2 of ASTM F2736, Section 6.2 of ASTM F2764 or Section 7.2 of AASHTO M330.

740.7 CLASSIFICATIONS:

PP pipe (Type S or Type D) shall meet the minimum Pipe Stiffness (PS) requirements of ASTM F2736, ASTM F2764 or AASHTO M330. The PS test shall be conducted in accordance with ASTM D2412 with the exceptions listed in accordance with ASTM F2736, ASTM F2764 and AASHTO M330.

740.8 MARKINGS:

Markings on pipe shall be per ASTM F2736, ASTM F2764 or AASHTO M330. These markings shall be clearly shown on the pipe at intervals of approximately 12 feet and include but not limited to the following: the manufacturers name or trademark, nominal size, the specification designation, plant designation code, date of manufacture or an appropriate code. All fittings shall be marked with the designation number of the specification and with the manufacturers identification symbol.

740.9 CARE OF PIPE AND MATERIALS:

All pipe and materials shall be manufactured, handled, loaded, shipped and unloaded in such manner as to be undamaged and in sound condition, in the completed work. Particular effort shall be exercised to protect the ends of pipe. Repairs on damaged pipe shall be made to the satisfaction of the Engineer otherwise they shall not be used i n the work and shall be replaced with an equal pipe or special in an acceptable condition. At all times rubber gaskets shall be stored in a cool, dark place until ready for use.

- End of Section -

SECTION 740
POLYPROPYLENE PIPE & FITTINGS FOR STORM DRAIN & SANITARY SEWER

740.1 GENERAL:
This specification covers the requirements of profile wall (both dual wall and triple wall) (Type S or Type D) polypropylene (PP) pipe manufactured per ASTM F2736, ASTM F2764, AASHTO M330 for ~~gravity flow, low pressure~~ storm drain and sanitary sewer systems. When noted on the plans or in the special provisions, ~~gravity flow, low pressure~~ storm drains, irrigation and sanitary sewers may be constructed using PP pipe. The PP pipe will be of the sizes 12 inch diameter through 60 inch diameter. ~~For the purpose of this specification, low pressure is defined as the test pressures of 3.5 psi of air or 4 feet of water as specified in Section 615.11~~. Construction and installation shall be in accordance with Section 615 for storm drain and irrigation water and Section 618 for sanitary sewers.

~~All pipe joints shall conform to the controlled pressure lab test of 10.8 psi of air or 25 feet of water as stipulated in ASTM D3212.~~

~~Installation for storm drainage applications shall be per Section 615. For sanitary sewer applications, installation shall be per Section 618.~~

The size of the PP pipe to be furnished shall be designed by the Engineer and shown on the plans or in the project specifications.

740.2 MATERIALS:

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740.2.3 Gaskets: Rubber gaskets shall be manufactured from a natural rubber, synthetic elastomer or a blend of both and shall comply in all respects with the physical requirements in ASTM F477, unless the project specifies a special gasket, such as nitrile.

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All pipes shall have a home mark on the spigot end to indicate proper penetration when the joint is made.

The bell and spigot configurations for the fittings shall be compatible to those used for the pipe.

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740.8 MARKINGS:

Markings on pipe shall be per ASTM F2736, ASTM F2764 or AASHTO M330. These markings shall be clearly shown on the pipe at intervals of approximately 12 feet and include but not limited to the following: the manufacturers name or trademark, nominal size, the specification designation, plant designation code, date of manufacture or an appropriate code. All fittings shall be marked with the designation number of the specification and with the manufacturers identification symbol.

740.9 CARE OF PIPE AND MATERIALS:

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