715-R-764 PIPE CULVERTS, AND STORM AND SANITARY SEWERS

(Revised 11-17-23)

The Standard Specifications are revised as follows:

SECTION 715, BEGIN LINE 41, DELETE AND INSERT AS FOLLOWS:

(a) Type 1 Pipe

Type 1 pipe shall be used for culverts under mainline pavement and public road approaches and shall be in accordance with the following:

Clay Pipe, Extra Strength.....907.08
Corrugated Aluminum Alloy Pipe and Pipe-Arches.....~~908.04~~[B]
Corrugated Polyethylene Pipe, Type S .....*[A]
Corrugated Polypropylene Pipe .....*[A]
Corrugated Steel Pipe and Pipe-Arches .....~~908.02~~[B]
Non-Reinforced Concrete Pipe, Class 3.....907.01
Polymer Precoated Galvanized Corrugated Steel
Pipe and Pipe-Arches.....~~908.08~~[B]
Profile Wall Polyethylene Pipe, Closed.....*[A]
Profile Wall Polyethylene Pipe, Ribbed.....*[A]
Profile Wall PVC Pipe .....*[A]
Reinforced Concrete Horizontal Elliptical Pipe.....907.03
Reinforced Concrete Pipe 907.02
Smooth Wall Polyethylene Pipe.....*[A]
Smooth Wall PVC Pipe.....*[A]
Spiral Rib Steel Pipe .....~~908.02~~[B]
Structural Plate Pipe and Pipe-Arches .....~~908.09~~[B]

*[A] All thermoplastic pipes shall be from the QPL of Thermoplastic Pipe and Liner Pipe Sources in accordance with 907.16.

[B] *All metal pipes shall be from the QPL of Metal Pipe Sources in accordance with 908.01.*

(b) Type 2 Pipe

Type 2 pipe shall be used for storm sewers and shall be in accordance with the following:

Clay Pipe, Extra Strength.....907.08
Corrugated Polyethylene Pipe, Type S .....*[A]
Corrugated Polypropylene Pipe .....*[A]
Fully Bituminous Coated and Lined Corrugated Steel
Pipe and Pipe-Arches.....~~908.07~~[B]
Non-Reinforced Concrete Pipe, Class 3.....907.01
Polymer Precoated Galvanized Corrugated Steel
Pipe and Pipe-Arches Type IA and Type IIA.....~~908.08~~[B]
Profile Wall Polyethylene Pipe, Closed .....*[A]
Profile Wall Polyethylene Pipe, Ribbed.....*[A]
Profile Wall PVC Pipe .....*[A]
Reinforced Concrete Horizontal Elliptical Pipe.....907.03
Reinforced Concrete Pipe 907.02

Smooth Wall Polyethylene Pipe.....*[A]
Smooth Wall PVC Pipe.....*[A]

*[A] All thermoplastic pipes shall be from the QPL of Thermoplastic Pipe and Liner Pipe Sources in accordance with 907.16.

[B] *All metal pipes shall be from the QPL of Metal Pipe Sources in accordance with 908.01.*

(c) Type 3 Pipe

Type 3 pipe shall be used for culverts under all drives and field entrances. All Type 1 pipe materials are acceptable.

(d) Type 4 Pipe

Type 4 pipe shall be used for drain tile and longitudinal underdrains and shall be in accordance with the following:

Clay Pipe** 907.08
Corrugated Polyethylene Drainage Tubing.....*[A]
Corrugated Polyethylene Pipe, Type S** .....*[A]
Corrugated Polyethylene Pipe, Type SP .....*[A]
Drain Tile** 907.10
Non-Reinforced Concrete Pipe 907.01
Perforated Clay Pipe** 907.09
Perforated PVC Semicircular Pipe.....*[A]
Profile Wall PVC Pipe .....*[A]

*[A] All thermoplastic pipes shall be from the QPL of Thermoplastic Pipe and Liner Pipe Sources in accordance with 907.16.

** These materials shall be used for drain tiles only.

(e) Type 5 Pipe

Type 5 pipe shall be used for broken-back pipe runs where coupled or jointed pipe is desirable and shall be in accordance with the following:

Corrugated Aluminum Alloy Pipe and Pipe-Arches.....~~908.04~~[B]
Corrugated Polyethylene Pipe, Type S .....*[A]
Corrugated Polypropylene Pipe .....*[A]
Corrugated Steel Pipe and Pipe-Arches .....~~908.02~~[B]
Fully Bituminous Coated and Lined Corrugated Steel Pipe and Pipe-Arches.....~~908.07~~[B]
Polymer Precoated Galvanized Corrugated Steel Pipe and Pipe-Arches.....~~908.08~~[B]
Profile Wall Polyethylene Pipe, Closed .....*[A]
Profile Wall Polyethylene Pipe, Ribbed.....*[A]
Profile Wall PVC Pipe .....*[A]
Smooth Wall Polyethylene Pipe.....*[A]
Smooth Wall PVC Pipe.....*[A]
Spiral Rib Steel Pipe .....~~908.02~~[B]

*[A] All thermoplastic pipes shall be from the QPL of Thermoplastic Pipe and Liner Pipe Sources in accordance with 907.16.

[B] *All metal pipes shall be from the QPL of Metal Pipe Sources in accordance with 908.01.*

SECTION 715, BEGIN LINE 142, INSERT AS FOLLOWS:

(i) Underdrain Outlet Pipe

Pipe for underdrain outlets and drain tile outlets shall be PSM PVC pipe, profile wall PVC pipe, smooth wall polyethylene pipe, or smooth wall PVC pipe from the QPL of Thermoplastic Pipe and Liner Pipe Sources in accordance with 907.16 and 907.24. Schedule 40 PVC pipe in accordance with 907.24*(b)* is also allowable.

SECTION 715, BEGIN LINE 165, DELETE AND INSERT AS FOLLOWS:

(l) Roadway Drain Casting Extensions

Pipe used for extending roadway drain castings located in a bridge deck shall be in accordance with ~~907.23~~*907.24(b)*, 907.28, or 908.10. Pipe support brackets and all hardware shall be galvanized in accordance with ASTM A153, class D or ASTM B695, class 40, type I. A Type C certification in accordance with 916 shall be provided for the pipe brackets.

SECTION 907, BEGIN LINE 216, DELETE AND INSERT AS FOLLOWS:

907.16 Thermoplastic Pipe Requirements

A QPL of ~~t~~*T*hermoplastic ~~p~~*P*ipe and ~~l~~*L*iner ~~p~~*P*ipe *Sources* will be maintained by the Department. The QPL will specify the manufacturer and thermoplastic pipe designation. All of these materials shall comply with the applicable AASHTO or ASTM requirements listed in the following table and will only be accepted from qualified manufacturers. The manufacturer is defined as the plant which produces the thermoplastic pipe. The manufacturer shall become qualified by establishing a history of satisfactory quality control of these materials as evidenced by the test results performed by the manufacturer's testing laboratory.

Summary of Thermoplastic Pipe Specification Requirements				
Pipe Material	Standard Specification	AASHTO	ASTM	Manufacturer Requirement
Corrugated Polyethylene Drainage Tubing	907.17(a)	M 252		ITM 806, Procedure O
Corrugated Polyethylene Pipe	907.17(b)	M 294*		ITM 806, Procedure O
Corrugated Polypropylene Pipe	907.19	M 330		ITM 806, Procedure O
Perforated PVC Semicircular Pipe	907.18		D3034	ITM 806, Procedure A
Profile Wall HDPE Liner Pipe	907.25(b)		F894	ITM 806, Procedure A or 916, Type A Certification
Profile Wall PVC Liner Pipe	907.25(c)		F949	ITM 806, Procedure A or 916, Type A Certification
Profile Wall PVC Pipe	907.22 907.24(c)	M 304		ITM 806, Procedure O
Profile Wall Polyethylene Pipe	907.20		F894	ITM 806, Procedure A
~~Schedule 40~~ PVC *Plastic*	907.24(b)		D1785	916,

Pipe*, Schedule 40*			~~or~~ ~~D2665~~	Type C Certification
Slotted Vane Drain Pipe	*908.14*	*M 278*	*F679*	*ITM 806, Procedure A*
Smooth Wall Polyethylene Pipe	907.21 907.24(d)		F714	ITM 806, Procedure A
Smooth Wall PVC Pipe	907.23 907.24(e)	M 278	F679	ITM 806, Procedure A
Solid Wall HDPE Liner Pipe	907.25(a)		F714	ITM 806, Procedure Q or 916, Type A Certification
Type PSM PVC Pipe and Fittings	907.24(a)		D3034	ITM 806, Procedure A
* Pipe in accordance with AASHTO M 294 shall be manufactured with virgin materials.				

SECTION 907, BEGIN LINE 291, DELETE AND INSERT AS FOLLOWS:

(b) ~~Schedule 40~~ PVC *Plastic* Pipe, *Schedule 40*

~~Pipe~~*PVC plastic pipe* shall be in accordance with ASTM D1785 *when Schedule 40 is specified* ~~or D2665~~ and shall have a minimum pipe stiffness of 150 psi at 5% deflection when determined in accordance with ASTM D2412. Material furnished under this specification shall reference ASTM D1785 ~~or ASTM D2665~~ in the product print line. A Type C certification in accordance with 916 shall be provided for the ~~s~~Schedule 40 PVC *plastic* pipe.

SECTION 908, BEGIN LINE 3, DELETE AND INSERT AS FOLLOWS:

908.01 ~~Blank~~*Metal Pipe Requirements*

A QPL of Metal Pipe Sources will be maintained by the Department. The QPL will specify the manufacturer and pipe designation. All of these materials shall comply with the applicable AASHTO or ASTM requirements listed in the following table and will only be accepted from qualified manufacturers. The manufacturer is defined as the plant which produces the metal pipe, pipe-arch, or arch. The manufacturer shall establish and maintain a history of satisfactory quality control of these materials. This history will be based on achieving and maintaining a "Compliant" status with the AASHTO PEAS program in accordance with ITM 806, Procedure O.

Summary of Metal Pipe Specification Requirements				
Pipe Material	*Standard Specification*	*AASHTO*	*ASTM*	*Manufacturer Requirement*
Cast Iron Soil Pipe	*908.10*		*A74*	*Buy America Certification*
Corrugated Aluminum Alloy Pipe and Pipe-Arches	*908.04*	*M 196*		*ITM 806, Procedure O*
Corrugated Steel Pipe and Pipe-Arches	*908.02*	*M 36*		*ITM 806, Procedure O*
Fully Bituminous Coated Corrugated	*908.07*	*M 36*		*ITM 806, Procedure O*

and Lined Steel Pipe and Pipe-Arches				
Polymer Precoated Galvanized Corrugated Steel Culvert Pipe and Pipe-Arches	*908.08*	*M 245*		*ITM 806, Procedure O*
Slotted Drain Pipe	*908.14*	*pipe: M 36*	*grate: A36, Grade 36*	*ITM 806, Procedure O*
Steel Pipe	*908.11*		*A139, grade B or A53 Type E, grade B*	*ITM 806, Procedure O*
Structural Plate Pipe, Pipe-Arches, and Arches; Aluminum Alloy	*908.09(b)*	*M 219*		*ITM 806, Procedure O*
Structural Plate Pipe, Pipe-Arches, and Arches; Steel	*908.09(a)*	*M 167 and LRFD Bridge Construction Specifications*		*ITM 806, Procedure O*