

SECTION 02420 - METAL PIPE

(Follow all instructions and make all edits with "Track Changes" turned on. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the Project. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)

Comply with Section 02420 of the Standard Specifications modified as follows:

02420.10(a) Shapes - Replace the paragraph that begins "Provide either full-circle..." with the following paragraph:

Furnish either full-circle or elliptical pipe, as the Contractor may elect, unless otherwise shown or specified. The shapes of pipe fabricated and furnished may include any of the following:

Replace the bullet that begins "**Nestable Pipe** - Fabricate ..." with the following bullet:

- **Nestable Pipe** - Fabricate in two separate half sections designed to fit and fasten together to form a full-circle Cross Section of specified diameter. Fasten the two half sections together by approved means, providing at least 90 percent of the strength of a standard riveted longitudinal seam.

02420.10(b) Connecting Bands - Replace this subsection, except for the subsection number and title, with the following:

Use connecting bands according to the details as shown to make field joints for pipes and pipe arches not requiring watertight joints.

02420.10(c) Special Sections - Replace the paragraph that begins "Generally, special sections shall..." with the following paragraph:

Generally, furnish special sections according to the requirements specified for the pipe where they are used. Connect special sections to the pipe or to each other with connecting bands specified for use with the pipe where they are connected.

02420.10(d) Repair of Damaged Coating - Replace the paragraph that begins "In addition to the methods ..." with the following paragraph:

In addition to the methods given in AASHTO M 36 (ASTM A760) the Contractor may repair damaged zinc or aluminum coating by removing all loose or cracked coating, removing all welding flux, wire brushing the damaged area, and applying two coats (minimum 2 mils total thickness) of a high zinc dust content paint according to the general requirements of ASTM A780.

02420.10(e) Irrigation Pipe - Replace the paragraph that begins "In irrigation pipe installations..." with the following paragraph:

In irrigation pipe installations, where Type D coating (AASHTO M 190) is not specified, the Contractor is allowed to furnish pipe with Type D coating.

02420.10(e)(2) Field Joints - Replace this subsection, except for the subsection number and title, with the following:

Use connecting bands according to the details shown and make the field joints watertight.

02420.10(f) Siphon Pipe - Replace the paragraph that begins "Field joints shall provide..." with the following paragraph:

Furnish circumferential and longitudinal strength field joints to preserve the pipe alignment, prevent separation of pipe sections and provide a watertight joint. Attach the connecting bands so they lap a nearly equal portion of each pipe section to be connected.

02420.11 Ductile Iron - Replace this subsection, except for the subsection number and title, with the following:

Furnish ductile iron pipe according to the requirements of AWWA C151. Use Pressure Class 150 - 350 or Special Thickness Class 50 - 56, as directed.

02420.20(a) Bituminous Protective Coatings - Replace this subsection, except for the subsection number and title, with the following:

Furnish corrugated metal pipe and connecting bands with bituminous coatings according to the requirements of AASHTO M 190 and the following:

- Before immersion, ensure the metal is free of grease, dirt, dust, moisture or other contaminants.
- Apply the initial bituminous coating by one of the processes under 02420.20(a)(1) or 02420.20(a)(2).
- If a second dip is required to meet the coating thickness requirements of AASHTO M 190, the time and temperature requirements of 02420.20(a)(1) or 02420.20(a)(2) need not be followed for the second dip.
- Fill the corrugations for at least 40 percent of the circumference of the pipe to form the paved invert for both Type B and Type C coatings on either circular or arch type pipe.

02420.20(a)(1) Pipe Not Preheated - Replace the paragraph that begins "The temperature of the asphalt..." with the following paragraph:

Furnish asphalt at the time of pipe immersion at a temperature of 400 °F ± 5 °F. Provide an immersion duration meeting the following schedule:

02420.20(2) Pipe Preheated - Replace this subsection, except for the subsection number and title, with the following:

Furnish asphalt at the time of pipe immersion at a temperature of 380 °F ± 5 °F and the pipe preheated to a temperature 300 °F to 350 °F.

02420.20(b) Type D, Fully-Bituminous Coated, Fully-Lined - Replace this subsection, except for the subsection number and title, with the following:

Furnish a fully-bituminous coated, fully-lined interior lining that is smooth, uniform and free from sags and runs. Slight residual corrugations due to cooling and shrinkage of the lining will not be cause for rejection. At the three-sheet lap an interior nonuniformity equal to the thickness of the sheet is allowed. Maintain the thickness of the lining to the ends of the pipe.

02420.20(c) Optional Paved Invert - Replace this subsection, except for the subsection number and title, with the following:

If an asphalt coated pipe with a paved invert (Type C coating) is shown or specified, a centrifugally-applied interior lining according to Type D coating may be furnished as an alternate, providing the minimum thickness of bituminous coating over the crests of the corrugations is not less than 1/4 inch.

02420.30 Corrugated Steel Pipe for Underdrains - Replace this subsection, except for the subsection number and title, with the following:

Furnish corrugated steel pipe for underdrains according to the requirements of AASHTO M 36 (ASTM A760) Type III - Underdrain Pipes, except as modified in 02420.10(c) and 02420.10(d), and as follows:

(a) Class IV - Semicircular pipe may be used only as an alternate with the 6-inch size of perforated full-circle drain pipe.

(b) Connecting Bands - Furnish connecting bands for underdrain pipe field joints meeting the designs shown.

02420.40 Corrugated Aluminum Alloy Pipe - Replace this subsection, except for the subsection number and title, with the following:

Furnish corrugated aluminum alloy pipe, helical rib pipe, pipe arches and special sections according to the requirements of AASHTO M 196 (ASTM B745), Types I, II and III, except as follows:

(a) Shapes - The shapes of the pipes to be furnished may include any of the shapes described in 02420.10(a).

(b) Connecting Bands - Use connecting bands according to the requirements of AASHTO M 196 (ASTM B745) and the details shown to make field joints for pipes and pipe arches not requiring watertight joints.

(c) Special Sections - Furnish special sections such as elbows, wyes, tees, crosses, bends, reducers and flared inlets as shown or as directed.

Generally, furnish special sections according to the requirements specified for the pipe where they are used. Connect special sections to the pipe or to each other with connecting bands specified for use with the pipe where they are connected.

For elbows of 30 degrees or greater total angle, use a three-piece section of approximately equal length and equal-angle segments or pieces.

(d) Irrigation Pipe - In irrigation pipe installations where Type D coating is not shown or specified, the Contractor is allowed to furnish pipe with Type D coating.

If pipes are not furnished with Type D coating, ensure all riveted seams meet the applicable provisions of 02420.10(e)(1).

Use connecting bands according to AASHTO M 196 (ASTM B745) and the details shown, and make the field joints watertight for pipe installations used in irrigation.

(e) Siphon Pipe - Fabricate corrugated aluminum alloy pipe used in siphons with watertight seams.

Provide field joints with circumferential and longitudinal strength to preserve the pipe alignment, prevent separation of pipe sections and provide a watertight joint. Fabricate the connecting bands from aluminum alloy according to AASHTO M 196 (ASTM B745). Attach the connecting bands so they lap a nearly equal portion of each pipe section to be connected.

(f) Sloped or Skewed Ends - If the ends of pipe culverts require sloped ends, skewed ends or both, fabricate the ends in a manner that provides good workmanship and a smooth finish. Repair bituminous protective coatings and linings when specified.

02420.50 Corrugated Aluminum Alloy Pipe for Underdrains - Replace this subsection, except for the subsection number and title, with the following:

Furnish corrugated aluminum alloy pipe for underdrains according to the requirements of AASHTO M 196 (ASTM B745) Type III, except as follows:

(a) Special Sections - The provisions of 02420.40(c) apply.

(b) Connecting Bands - Furnish connecting bands for field joints meeting the requirements of AASHTO M 196 (ASTM B745) and the details shown.

02420.60 Acceptance - Replace this subsection, except for the subsection number and title, with the following:

Acceptance of pipes, underdrains, and protective coatings is according to 00165.35 and this Section.