

SP00445 (Special Provisions for the 2024 Book) (Bidding on or after: ~~1109~~-01-26
Last updated: ~~076-2201~~-26
Requires SP02410, SP02415, SP02420 & SP02510
Requires SP00405 if sawcutting is required or for pipes under 72 inches
May require SP00510 for pipes over 72 inches.
Requires SP01120 when irrigation pipe is required.
Requires SP02440 when gaskets are required)

(This Section requires SP00415 when constructing new runs or extensions of sanitary sewer, storm sewer, or culvert pipes with any joints, including where the new pipe meets existing pipe or manhole. When SP00415 is used, ensure that a video pipe inspection pay item is included under 00415.90 and in the schedule of items.)

SECTION 00445 - SANITARY, STORM, CULVERT, SIPHON, AND IRRIGATION 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 00445 of the Standard Specifications modified as follows:

00445.02 Contractor's Options - Replace the paragraph that begins "If the Contractor has an option ..." with the following paragraph:

If the Contractor has an option of using different kinds of pipe, the option and its installation and other limits are as shown or on the Pipe Data Sheet.

00445.03 Size Determination - Replace this subsection, except for the subsection number and title, with the following:

The nominal size of pipe is determined according to AASHTO tolerances for pipe dimensions for the appropriate kind or class of pipe.

00445.10 General - Replace this subsection, except for the subsection number and title, with the following:

Furnish appropriate certification from the manufacturer or fabricator, based on the manufacturer's quality control tests, that the Materials used in the production of the pipe meet the Specifications. Materials and strength are as specified for the particular kind of pipe and fittings required.

Use flexible elastomeric gasket Joints on all pipes and fittings. Furnish caps or plugs with each fitting, outlet or stub as required, with the same type of gasket or Joint as the pipe.

For sanitary sewers provide tee or wye fittings in the main of the same Materials as the pipe. Furnish fittings of sufficient strength to withstand all handling and load stresses encountered.

Furnish Material joining the fittings to the pipe that is free from cracks and that adheres tightly to each joining surface.

Cap or plug all fittings and provide with gaskets of the same Material as used in the pipe Joint. Fit with an approved mechanical stopper or install an integrally cast knockout plug. Provide a cap or plug capable of withstanding test pressures without leaking and, when later removed, permits continuation of piping with jointing similar to Joints in the installed line.

00445.11(a) Pipe Anchors - Replace this subsection, except for the subsection number and title, with the following:

Use pipe anchors according to the Standard Drawings and as shown. Furnish metal bands according to the material Specifications for the Metal pipe that they are attached to.

00445.11(b) Slip Joints - Replace this subsection, except for the subsection number and title, with the following:

Construct slip Joints according to the details shown. Furnish the outer sleeve and tapered section according to the material Specifications for the Metal pipe that they are installed with.

00445.11(c) Safety End Sections - Replace this subsection, except for the subsection number and title, with the following:

Use safety end sections according to 02420.10 and the Standard Drawings. Provide safety bars unless otherwise shown.

00445.11(e) Tracer Wire - Replace this subsection, except for the subsection number and title, with the following:

Use 12-gauge stranded or solid copper insulated high molecular weight polyethylene (HMW-PE) tracer wire or 12-gauge copper clad steel reinforced insulated HMW-PE tracer wire. Use a green, minimum 45 mil thick HMW-PE insulated cover. Use a tracer wire that is UL rated for 140 °F.

00445.11(f) Fittings for Concrete Pipe - Replace this subsection, except for the subsection number and title, with the following:

Where fittings are fabricated by inserting a stub into a hole cut in the pipe, grout with a non-shrinking grout. Coat surfaces to receive grout with an epoxy bonding agent prior to grouting. Do not allow fitting stubs to protrude inside of the sewer pipe.

00445.40(b) Line and Grade - Replace the paragraph that begins "Centerline and grade control ..." with the following paragraph:

Centerline and grade control is established prior to the start of construction and the Special Provisions will indicate if the Agency or the Contractor establishes the control.

Replace the paragraph that begins "Do not vary from established ..." with the following paragraph:

Do not vary from established line and grade by more than 1/32 inch per inch of pipe diameter or 1/2 inch for pipe diameter of 16 inches or longer, subject to the following limitations:

00445.40(d) Laying Pipe on Curves - Replace this subsection, except for the subsection number and title, with the following:

Lay pipe on horizontal or vertical curves as shown or approved. When deflecting the pipe from a straight line, either in the vertical or horizontal plane, or when long radius curves are shown, do not exceed the amount of deflection allowed by the pipe manufacturer.

00445.40(f) Installation of Sanitary Sewer Service Tees and Wyes - Replace the paragraph that begins "The maximum line or ..." with the following paragraph:

Accomplish line or grade changes with fittings and long radius curves or bends. Do not exceed 45 degrees line or grade change with any one fitting.

00445.43(a) General - Replace the paragraph that begins "Lay pipe proceeding upgrade ..." with the following paragraph:

Lay pipe proceeding upgrade with spigot ends in the direction of flow. Assemble Joints according to the recommendations of the manufacturer for the type of Joint used. Furnish a trench bottom that has a continuous and uniform bearing and support for the pipe at every point between Joints.

Replace the paragraph that begins "Prevent excavated or other ..." with the following paragraph:

Prevent excavated or other foreign material from getting into the pipe. Plug or close off pipes that are stubbed off for future connection. When cutting or machining of the pipe is necessary, use only the tools and methods recommended by the pipe manufacturer. Furnish field Joints that:

00445.43(d) Polyethylene Pipe - Replace this subsection, except for the subsection number and title, with the following: Replace the paragraph that begins "Assemble and join ..." with the following paragraph:

Install solid-wall HDPE and corrugated polyethylene pipe and fittings according to the manufacturer's recommendations.

Assemble and join solid-wall HDPE pipe at the site using the thermal butt fusion method to provide a leak-proof Joint. Threaded or solvent-cement Joints are not allowed. Use Equipment and procedures in strict compliance with the manufacturer's recommendations. Use personnel certified as fusion technicians by the manufacturer of the pipe or fusing Equipment to accomplish the fusing.

Provide Joints for corrugated polyethylene pipe made with either plain end or bell-and-spigot coupling.

00445.43(f) Polypropylene Pipe - Replace the paragraph that begins "When the ambient air ..." with the following paragraph:

When the ambient air temperature is less than 10 °F, do not install, move, cover, bury, or otherwise handle the polypropylene pipe. All polypropylene pipe handled at temperatures below 10 °F is rejected and not allowed to be used on the Project.

00445.44 Strutting Metal Pipe - Replace this subsection, except for the subsection number and title, with the following:

When the Plans or Special Provisions call for Metal pipe to be installed in a tied or strutted condition, place the ties or struts before backfilling, according to the details shown. Strutting with timber is not allowed in pipe furnished with paved inverts or with centrifugally applied bituminous inner linings. Remove the ties and struts after the embankment over the pipe is completed and compacted.

00445.47 Contact Surfaces, Aluminum to Concrete - Replace the paragraph that begins "Where uncoated aluminum ..." with the following paragraph:

Where uncoated aluminum pipe or aluminum coated steel pipe is touching portland cement concrete, give the contact surfaces of the pipe a coating of asphalt mastic applied at a rate that will give a minimum dry film thickness of 50 mils.

00445.71(a) General - Replace this subsection, except for the subsection number and title, with the following:

Provide storm gravity sewer systems, sanitary gravity systems, siphon systems and irrigation systems and appurtenances that successfully pass a hydrostatic or air test prior to acceptance and are free of visible infiltration of water. Test manholes as specified in Section 00470.

On pipe 30 inches in diameter and larger, individual Joints may be tested by an approved Joint testing device. Submit all testing procedures and details for review by the Engineer.

00445.71(c) Testing Equipment - Replace this subsection, except for the subsection number and title, with the following:

Provide all necessary testing Equipment and perform the tests in a manner that provides observable and accurate measurements of either air or water leakage under the specified conditions. Calibrate and certify gauges at the direction of the Engineer. Provide the certification with the gauge.

00445.72(a) General - Replace the paragraph that begins "The method, Equipment ..." with the following paragraph:

Submit the method, Equipment and personnel used in testing for approval by the Engineer. The Engineer may, at any time, require a calibration check of the instrumentation used.

00445.72(a)(1) Safety Precautions - Replace this subsection, except for the subsection number and title, with the following:

Only qualified personnel are allowed to conduct the test. Furnish plugs used to close the system for the testing that are capable of resisting the expected internal pressures. Securely brace plugs, if necessary.

00445.72(b) Exfiltration Leakage Testing - Replace this subsection, except for the subsection number and title, with the following:

Prior to the exfiltration leakage test, the pipe test section may be filled with clear water to permit normal absorption into the pipe walls. Keep the test pipe section saturated for a minimum of 4 hours. After the absorption period, refill the pipe to the required test head.

Exfiltration leakage of more than 0.04 gallons per hour per inch diameter per 100 feet of pipe is unacceptable, except 0.3 gallons per hour, per inch per 100 feet may be used in arid climate zones if approved by the Engineer. The minimum hydrostatic head for testing is a minimum 6-foot water column above the crown of the highest section of pipe including service connections or exceed the maximum estimated groundwater level. The Engineer will make the final decisions regarding test height for the water in the pipe section.

Limit the length of pipe tested by exfiltration so that the pressure on the invert of the lower end of the section does not exceed 16 feet of water column. Account for all service connection footage for computing allowable leakage.

00445.72(c) Air Testing - Replace the paragraph that begins "The pressure ~~guage~~gauge ..." with the following paragraph:

Provide a pressure gauge for use in air testing having minimum divisions of 0.1 psi and an accuracy of 0.0625 psi. All air testing is by the time pressure drop method. The test procedure is as follows:

00445.72(c)(2) Replace this subsection, except for the subsection number, with the following:

Determine the average height of the groundwater over the line. Increase the required test pressures by 0.433 psi for each foot of average water depth over the exterior crown of the pipe.

00445.72(c)(6) Replace the paragraph that begins "For air permeable Materials ..." with the following paragraph:

For air permeable Materials (concrete & clay) the tested section is acceptable if the time recorded in paragraph (6) above is not less than the time in seconds (T) computed by the formula:

Replace the paragraph that begins "C = the sum of the ..." with the following paragraph:

C = the sum of the computations (0.0003882 dL) for each size of pipe and its length in the section, except that the minimum value for C is 1

Replace the paragraph that begins "For non-air permeable pipe ..." with the following paragraph:

For non-air permeable pipe (Metal, PVC, HDPE, ABS composite), the section tested is acceptable if the time recorded in (6) above is not less than the time determined by the following equation.

00445.72(d)(1) General - Replace this subsection, except for the subsection number and title, with the following:

The Contractor may test each individual Joint for leakage using a pneumatic Joint testing apparatus. The method, Equipment and personnel used in individual Joint testing is as approved. The Engineer may, at any time, require a calibration check of the instrumentation used. Use a pressure gauge having minimum divisions of 0.1 psi and have an accuracy of 0.0625 psi. Pass all air used through a single control panel.

00445.72(d)(2) Method - Replace this subsection, except for the subsection number and title, with the following:

All air testing is by the time pressure drop method. The test procedure is as follows:

- a. Determine the average height of the groundwater over the line. Increase the test pressures required below by 0.433 psi for each foot of average water depth over the exterior crown of the pipe.
- b. Add air slowly to the section being tested until the internal air pressure is raised to 4 psi greater than the average backpressure due to groundwater.

00445.72(d)(3) Acceptance - Replace this subsection, except for the subsection number and title, with the following:

The Joint is considered acceptable if the pressure drops less than 1 psi within 5 seconds.

00445.75 Repairs - Replace the paragraph that begins "Following a successful ..." with the following paragraph:

Following a successful hydrostatic or air test, visible infiltration of groundwater in any section is considered evidence that the original test was in error or that failure of the section has occurred. Correct such failures and retest the repaired sections, at no additional cost to the Agency.

00445.91 Payment - Replace the paragraph that begins "In item (a), the ..." with the following paragraph:

In item (a), the nominal pipe diameter is inserted in the first blank. The type of pipe is inserted in the second blank. The appropriate flow line depth range is inserted in the third blank.

Replace the paragraph that begins "In item (b), the nominal pipe ..." with the following paragraph:

In item (b), the nominal pipe diameter is inserted in the first blank. For arch type pipe, the nominal diameter of circular Metal pipe from which the pipe arch is formed, or reformed, is inserted in the first blank. The type of pipe is inserted in the second blank.

Replace the paragraph that begins "In items (c) and (d) ..." with the following paragraph:

In items (c) and (d), the nominal pipe size is inserted in the blank.

Replace the paragraph that begins "In item (e), the ..." with the following paragraph:

In item (e), the outer sleeve slip Joint size is inserted in the blank. The inner sleeve will be included in payment made for the smaller pipe.

Replace the paragraph that begins "In item (f) and (g)..." with the following paragraph:

In items (f) and (g), the nominal pipe diameter is inserted in the blank.

Replace the paragraph that begins "In item (h), the ..." with the following paragraph:

In item (h), the type of pipe slope anchor is inserted in the first blank and the nominal pipe diameter is inserted in the second blank.

Replace the paragraph that begins "In item (l), the ..." with the following paragraph:

In item (l), the nominal pipe diameter is inserted in the blank.

Replace the paragraph that begins "In item (m), the ..." with the following paragraph:

In item (m) the nominal pipe diameter is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.