

4. Fittings.

a. Bends.

- 1) Horizontal bends.
 - a) Not permitted on 24-inch and smaller diameter sewers.
 - b) On larger than 24-inch diameter sewers, may be used if approved by WSSC. Maximum horizontal bend deflection is 22-1/2° (degrees) or 1/16th.
- 2) Vertical bends on sewers are not permitted.

b. Tees, Wyes and Saddles on Mainline Sewers for Sewer House Connections (SHC).

- 1) SHCs on mainline sewers are only permitted on pipelines smaller than 15-inch diameter by use of tees, wyes or saddles, see Specifications and Standard Details S/6.0, S/6.1, S/6.2, S/6.3, S/6.7 and S/6.8.
- 2) For fittings required on SHCs, see Specifications and Standard Details S/6.0, S/6.1, S/6.2, S/6.3, S/6.7 and S/6.8.

c. Bends and Wyes on Mainline Sewers for Drop Manhole Connections.

- 1) For fittings and requirements for 8-inch through 12-inch sewer drop connections, see Standard Details S/3.1 and S/3.1a, and for 8-inch inside drop connections, see Standard Details S/3.1b and S/3.1c.
- 2) Drop connections on sewer pipelines larger than 12-inch, require approval from WSSC and modifications to Standard Details, see Part Two, Section 16 (Manhole Drop Connections) and Part Three, Section 6 (Modifications to Specifications and Standard Details).

d. Stoppers, Caps and Plugs.

- 1) Sewer pipelines with a diameter of 8-inch or greater shall be ended or terminated with a manhole or structure.
- 2) SHC(s) with a diameter of 6-inch or smaller shall be ended or terminated with a clean out or a manhole as applicable.
- 3) Sewer pipelines with a diameter of 8-inch or greater, terminated for future connection or extension, shall end with a manhole or structure and a one (1) foot temporary capped stub.
- 4) Stoppers shall be used only to temporarily plug a sewer pipeline during construction.
- 5) In accordance with the specifications, a stopper can be either a cap or plug.
- 6) On the drawing provide a callout for a stopper.



e. Other Fittings.

- 1) See Standard Details and Specifications for fittings not listed above.

f. DIP Fittings.

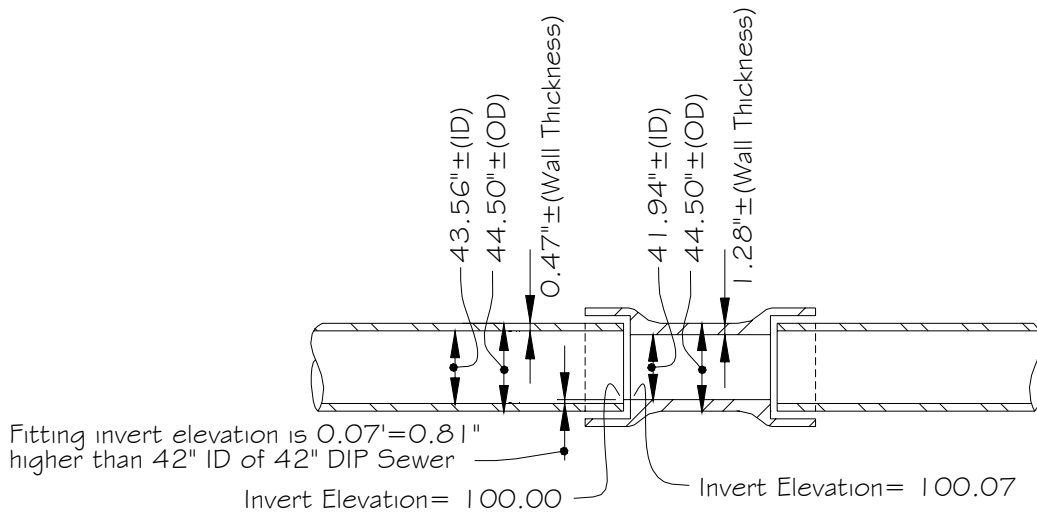
- 1) If the design has been approved for use of ductile iron fittings, take into account the difference between the inside diameter (ID) of the fittings and the ID of DIP. The different inside diameter could cause problems with the building up of solids at the change in pipe diameter, see Sketch "K". Verify that the use of these fittings will not affect the design of the sewer pipeline.

Example:

42" DIP, Class 50, per AWWA C151: OD = 44.50"
 Wall thickness = 0.47"
 ID = 43.56"±

42" diameter DI fitting, per AWWA C110: OD = 44.50"
 Wall thickness = 1.28"
 ID = 41.94"±

The difference in diameter between the pipe and fitting equals 1.62"± (43.56 - 41.94). Divide it by two and the radius difference will be 0.81"± or 0.07'. The invert of the fitting will be 0.81" higher than the pipe and may provide a location for the build up of solids.

**SKETCH "K"**

Fittings on Sewer Pipelines with Different Inside Diameters

