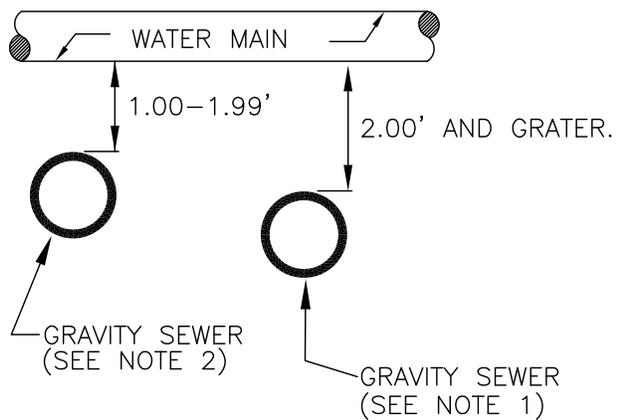


NOTES:

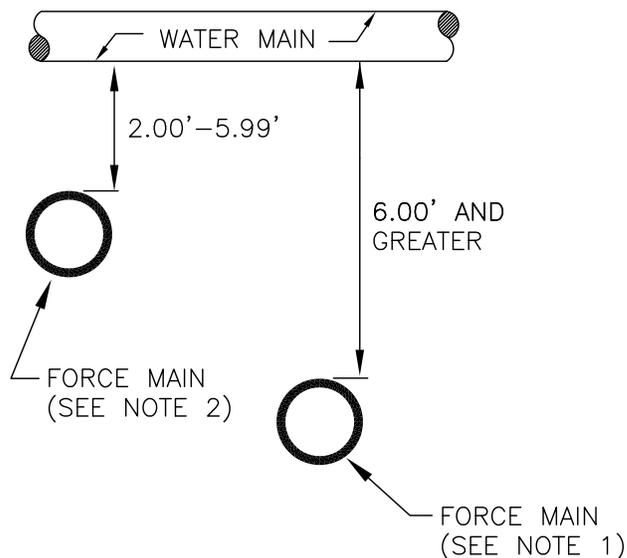
1. Where a water main crosses above a gravity sewer with a 2' or greater vertical clearance (outside surface to outside surface), no extra protection is required. Where a water main crosses above a pressure sewer with 6' or greater vertical clearance, no extra protection is required.
2. Where a water main must cross above a gravity sewer with less than 2' of clearance, construct or replace the sewer line with ductile iron pipe (D.I.P.) or approved equal. The D.I.P. must have a "push-on" joint or approved equal if the sewer joints are located 6' or more beyond the outside surface of the water main. If a joint is located less than 6' from the outside surface of the water main, then a restrained joint or approved equal shall be used. See the plan views on sheet 3 for reference. In no case shall the water main be less than 1' above a gravity sewer or 2' above a pressure sewer.
3. Where a water main crosses below either a gravity sewer or a pressure sewer, construct or replace the sewer line with D.I.P. or approved equal following the guidelines given in Note No. 2. In no case shall the water main be less than 2' below either a gravity or pressure sewer line.
4. The minimum horizontal clearance without extra protection between a water main and a pressure or gravity sewer line shall be 6' outside surface to outside surface.
5. The minimum horizontal clearance between a water main and a sewer manhole shall be 6' from the outside surface of the water main to the centerline of the manhole.
6. Where a 6' horizontal clearance cannot be maintained with a gravity sewer, construct or replace the sewer line with D.I.P. or approved equal following the guidelines given in Note No. 2. In no case shall a gravity sewer line be located less than 2' horizontally from a water main.
7. In no case shall a pressure sewer line be located less than 6' horizontally from a water main.
8. The American National Standard for the thickness design of Ductile Iron Pipe (ANSI/AWWA C150/A21.50) shall be used to determine the required class of D.I.P. except that for D.I.P. with a diameter of 3" through 24", a minimum of Class 350 is required and for D.I.P. with a diameter greater than 24", a minimum of Class 200 is required.
9. Where the sewer line is a gravity sewer, the D.I.P. installation of replacement pipe shall extend a minimum of 6' beyond each side of the water main, measured horizontally from and perpendicular to the water main.
10. Where the sewer line is a pressure sewer, the D.I.P. installation of replacement pipe shall extend a minimum of 10' beyond each side of the water main, measured horizontally from and perpendicular to the water main.
11. In general, when unusual conditions such as, but not limited to, highway or bridge crossings prevent the water and sewer line separations required by this detail from being met, the Pima County Regional Wastewater Reclamation Department will review and may approve (subject to Arizona Department of Environmental Quality's approval), requests for authorization to use alternate construction techniques and joints on a case-by-case basis.
12. All Ductile Iron Pipe shall be internally lined to meet the most recent Pima County Regional Wastewater Reclamation Department specifications.

ISSUED:		STANDARD DETAIL		DETAIL NO.
6/97		SEWER/WATER		SD-106
REVISED:		CROSSING DETAILS		SHEET 1 OF 4
11/17				

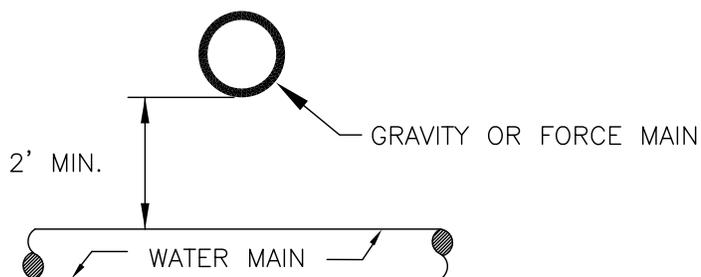
VERTICAL SEPARATION



GRAVITY SEWER CROSSING
(SEWER UNDER WATER MAIN)



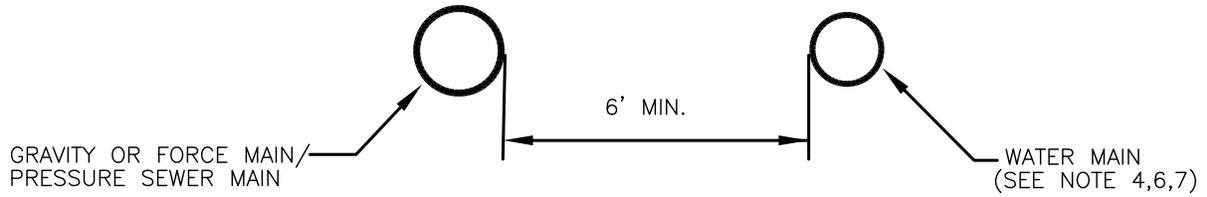
FORCE MAIN CROSSING
(SEWER UNDER WATER MAIN)



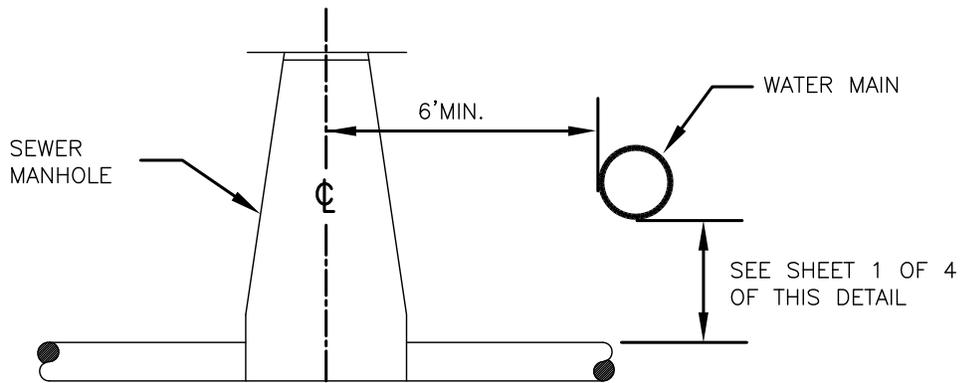
GRAVITY OR FORCE MAIN CROSSING
(SEWER ABOVE WATER MAIN)

ISSUED:		STANDARD DETAIL		DETAIL NO.
REVISID:		SHEET INDEX		SD-106
3/16		SHEET 2 OF 4		

HORIZONTAL SEPARATION

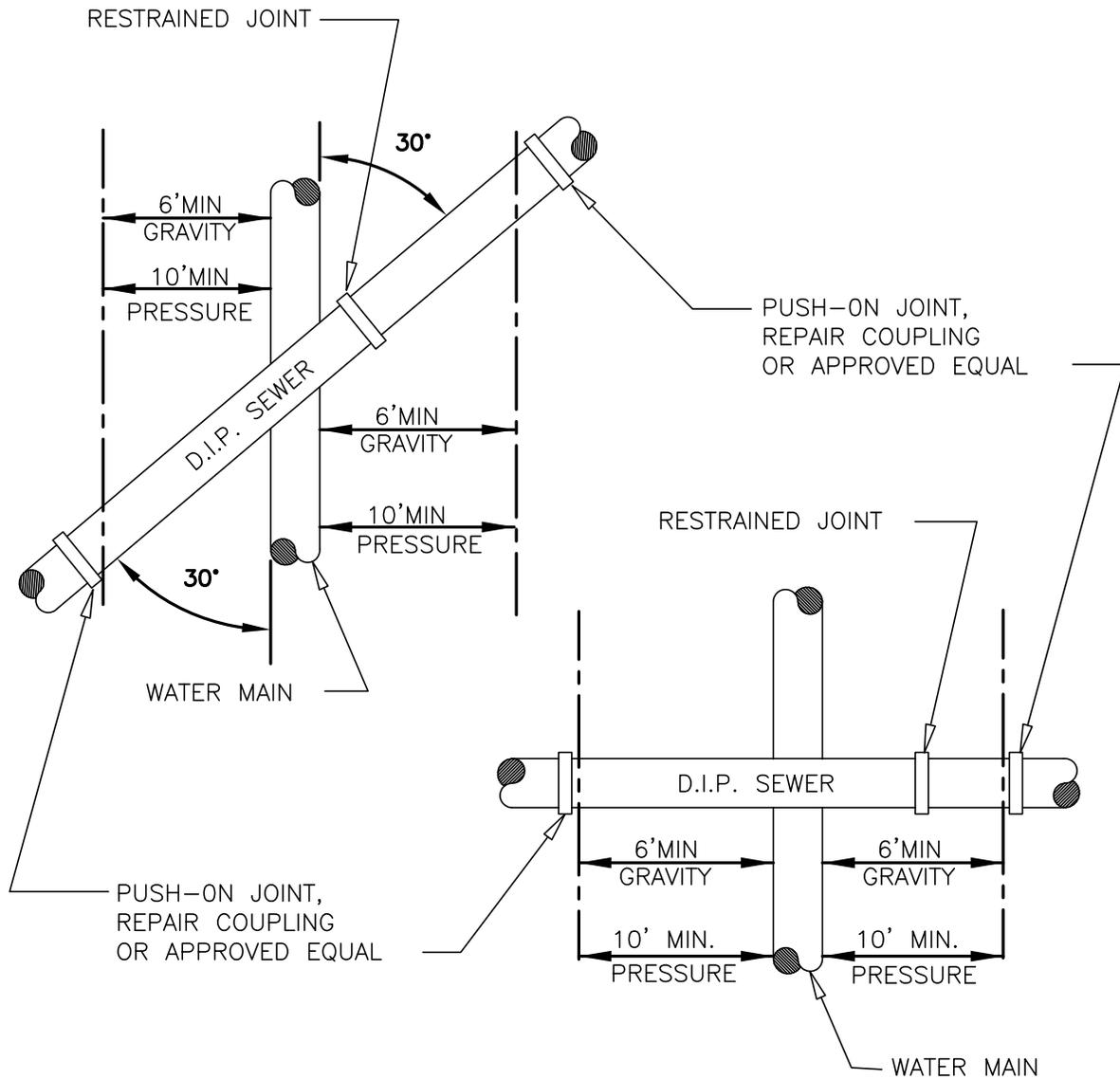


SEWER / WATER SEPARATION (PARALELL ALIGNMENTS)



ISSUED:		STANDARD DETAIL		DETAIL NO.
REVISIED:		SEWER/WATER CROSSING DETAIL		SD-106
3/16				SHEET 3 OF 4

PLAN VIEWS



NOTE:

FOR ALL CONSTRUCTION OF SEWER REPLACEMENT WITH LESS THAN 30° ANGLE (PER DETAIL) SURVEY (PER TUCSON WATER SECTION 0215) SHALL BE PERFORMED FOR THE NEW SEWER MAIN.

ISSUED:		STANDARD DETAIL		DETAIL NO.
REVISED:		SEWER/WATER CROSSING DETAIL		SD-106
8/17				SHEET 4 OF 4