



FIGURE 104B-C: PLAN VIEW. OPPOSING BENDS USING DUAL WATER PLAIN BLOCKS

FIGURE 104B-D: OPPOSING BENDS USING DUAL WATER PLAIN BLOCKS (LONG SECTION)

FIGURE 104B-A: OPTIONS FOR CONCRETE RESTRAINT OF DUAL WATER OPPOSING TEES

FIGURE 104B-B: DUAL WATER OPPOSING TEES USING PLAIN BLOCKS (LONG SECTION)

FIGURE 104B-E: INTERSECTION IN PE

PE pipework throughout an entire intersection may be necessary where the main running straight through the intersection has bends to avoid obstructions in the intersection. Otherwise, PE is not typically required for this main.

GENERAL NOTES:

- Where the distance between bends is less than that shown in Table 104B-A, restrained pipe must be used between the two bends as outlined in MRWA-W-104A.
- Typically, where dual water bends and tees occur within the vicinity of more than one other service (ie: power, gas, communications, drainage or sewerage), concrete thrust restraints are not practical and shall not be specified.
- Adjacent dual pipe plain thrust blocks cannot be used when the tees or bends are closer together than the distance indicated in Table 104B-A.
- No vertical fabricated bends or vertical concrete thrust restraints are permitted between adjacent bends or tees.
- There are a number of ways of using restrained pipe and an in line restraints for restraining dual water tees. Refer to MRWA-W-104A and MRWA-W-205B for examples.

TABLE 104B-A: DEFLECTION FOR ADJACENT TEES OR BENDS

PIPE DIAMETER	VERTICAL DEFLECTION	REQUIRED PIPE LENGTHS	"D". MIN DISTANCE BETWEEN FITTINGS
≤DN225	≤375mm	1 x 6m	6m
DN300	450mm	2 x 3.7m	7.2m
DN375	550mm	2 x 4.3m	8.6m
DN450	600mm	2 x 5m	10m

KEY REFERENCES:

- Refer to MRWA-W-205A & B for conditions of use and details of dual water concrete block construction.
- Refer to MRWA-W-2012 for details of deflection of water mains.
- Refer to MRWA-W-104A for details of restrained main use at bends and tees.

DESIGNED:	R. JAGGER	DATE:	20/01/2011
DRAWN:	R. JAGGER	DATE:	20/01/2011
CHECKED:	NAME	DATE	APPROVED: NAME
3	FORMAT & TABLE 104B-A CHANGES	1/12/16	RJ / CP / JT
2	PUBLISHED FIRST ISSUE	21/03/12	R. JAGGER
1	PRE PUBLISHED DRAFT FOR COMMENT	12/07/11	R. JAGGER
REV	DESCRIPTION	DATE	APPROVED

MELBOURNE RETAIL WATER AGENCIES

MRWA WATER SUPPLY STANDARDS

CONCRETE THRUST ANCHOR BRANCHES & BENDS AND PE INTERSECTION PIPEWORK

NOT TO SCALE

MRWA-W-104B

ISSUED 2012 REVISION NO. 3