

THRUST BLOCK LENGTH

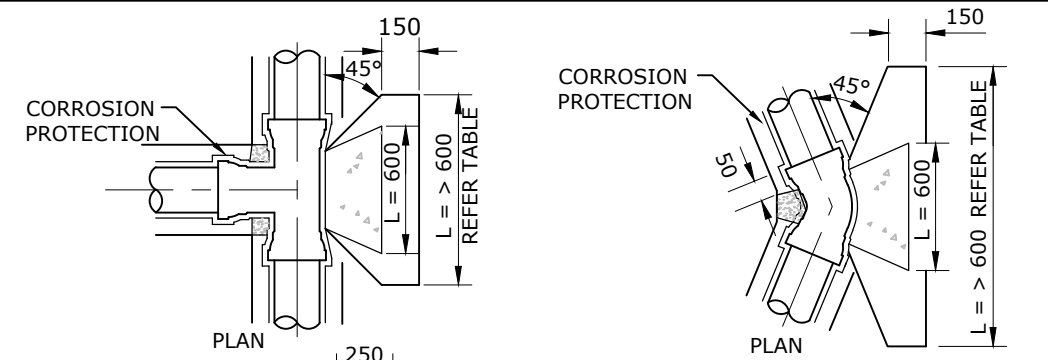
PIPE DN.	FITTING	MAX. THRUST IN KN	THRUST BLOCK HEIGHT	STIFF CLAY 50 KPa.	VERY STIFF CLAY SANDY LOAM 100KPa.	SAND & GRAVEL HARDCLAY 150KPa.	SAND & GRAVEL CEMENTED WITH CLAY 200KPa.	ROCK 240KPa
100	90° BEND	19.8	400	1000	●	●	●	●
	60° BEND	14.0		700	●	●	●	●
	45° BEND	10.7		●	●	●	●	●
	22.5° BEND	5.5		●	●	●	●	●
	11.25° BEND	2.7		●	●	●	●	●
	TEE OR CLOSED END	14.0		700	●	●	●	●
150	90° BEND	41.7	450	1860	930	●	●	●
	60° BEND	29.5		1320	660	●	●	●
	45° BEND	22.6		1000	●	●	●	●
	22.5° BEND	11.5		●	●	●	●	●
	11.25° BEND	5.8		●	●	●	●	●
	TEE OR CLOSED END	29.5		1300	660	●	●	●
200	90° BEND	71.7	550	*	1300	870	650	●
	60° BEND	50.7		1850	920	●	●	●
	45° BEND	38.8		1410	700	●	●	●
	22.5° BEND	19.8		720	●	●	●	●
	11.25° BEND	9.9		●	●	●	●	●
	TEE OR CLOSED END	50.7		1850	920	●	●	●
225	90° BEND	89.4	600	*	1500	1000	750	●
	60° BEND	63.2		2110	1060	700	●	●
	45° BEND	48.4		1620	810	●	●	●
	22.5° BEND	24.6		830	●	●	●	●
	11.25° BEND	12.4		●	●	●	●	●
	TEE OR CLOSED END	63.2		210	1060	700	●	●
250	90° BEND	109.0	650	*	1700	1120	840	700
	60° BEND	77.1		2400	1200	800	●	●
	45° BEND	59.0		1820	910	●	●	●
	22.5° BEND	30.1		930	●	●	●	●
	11.25° BEND	15.1		●	●	●	●	●
	TEE OR CLOSED END	77.1		2400	1200	800	●	●
300	90° BEND	158.6	700	*	2270	1510	1140	950
	60° BEND	112.2		*	1600	1070	800	670
	45° BEND	85.9		2453	1230	820	●	●
	22.5° BEND	43.8		1250	630	●	●	●
	11.25° BEND	22.0		630	●	●	●	●
	TEE OR CLOSED END	112.2		*	1600	1070	800	750

THRUST BLOCK LENGTH

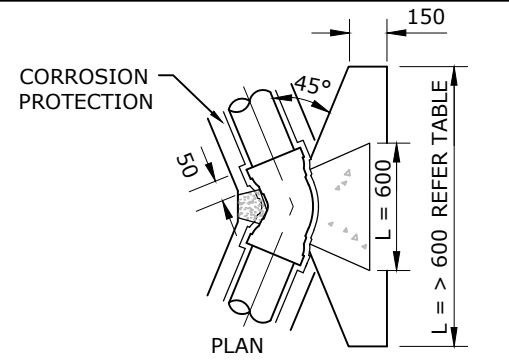
PIPE DN.	FITTING	MAX. THRUST IN KN	THRUST BLOCK HEIGHT	STIFF CLAY 50 KPa.	VERY STIFF CLAY SANDY LOAM 100KPa.	SAND & GRAVEL HARDCLAY 150KPa.	SAND & GRAVEL CEMENTED WITH CLAY 200KPa.	ROCK 240KPa
375	90° BEND	241.9	800	*	*	2220	1510	1260
	60° BEND	171.0		*	2140	1430	1070	890
	45° BEND	130.9		*	1640	1090	820	680
	22.5° BEND	66.7		1670	840	●	●	●
	11.25° BEND	33.5		840	●	●	●	●
	TEE OR CLOSED END	171.0		*	2140	1430	1070	890
450	90° BEND	342.6	900	*	*	2540	1900	1590
	60° BEND	242.3		*	2690	1800	1350	1120
	45° BEND	185.4		*	2060	1375	1030	860
	22.5° BEND	94.5		2100	1050	700	●	●
	11.25° BEND	47.5		1060	●	●	●	●
	TEE OR CLOSED END	242.3		*	2690	1800	1350	1120
500	90° BEND	418	1000	*	*	2790	2090	1740
	60° BEND	295.6		*	*	1970	1480	1230
	45° BEND	226.2		*	2260	1510	1130	940
	22.5° BEND	115.3		2310	1150	770	●	●
	11.25° BEND	58.0		1160	●	●	●	●
	TEE OR CLOSED END	295.5		*	*	1970	1480	1230
600	90° BEND	593	1100	*	*	*	2700	2250
	60° BEND	419		*	*	2540	1910	1590
	45° BEND	320		*	2920	1950	1460	1220
	22.5° BEND	164		2980	1490	990	750	620
	11.25° BEND	82.2		1500	750	●	●	●
	TEE OR CLOSED END	419		*	*	2540	1910	1590
750	90° BEND	909	1300	*	*	*	*	2920
	60° BEND	643		*	*	*	2480	2060
	45° BEND	492		*	*	2530	1890	1580
	22.5° BEND	251		*	1930	1290	970	810
	11.25° BEND	126.1		1940	970	650	●	●
	TEE OR CLOSED END	643		*	*	*	2480	2060
900 (Ø960 MSCL)	90° BEND	1,228	1500	*	*	*	*	3420
	60° BEND	868		*	*	*	2900	2420
	45° BEND	664		*	*	2960	2220	1850
	22.5° BEND	339		*	2260	1510	1130	940
	11.25° BEND	170		2270	1140	760	●	●
	TEE OR CLOSED END	868		*	*	*	3300	2650

THRUST BLOCK DIMENSIONS - 1200kPa

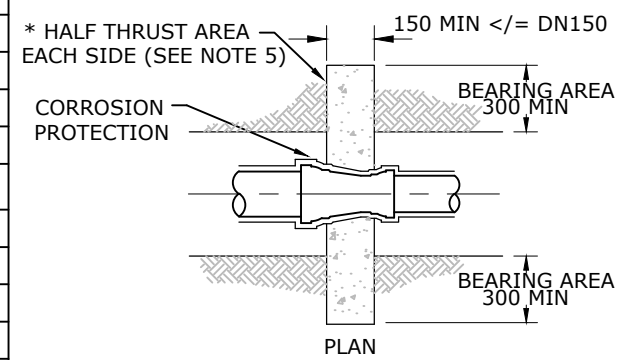
● INDICATES BLOCK LENGTH OF 600
* = SPECIAL DESIGN



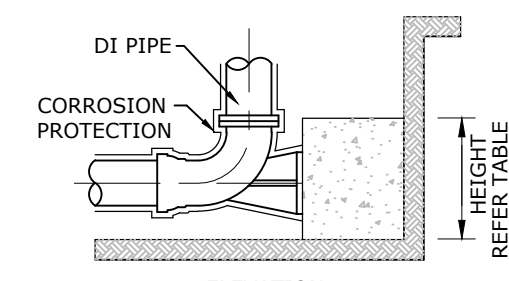
THRUST BLOCK FOR TEES
(FOR HORIZONTAL THRUST)



THRUST BLOCK FOR BENDS
(FOR HORIZONTAL THRUST)



TAPER THRUST BLOCK
(FOR HORIZONTAL THRUST)



FLUSHING/WASHOUT BEND THRUST BLOCK

(FOR HORIZONTAL THRUST) (MINIMUM REQUIRED THRUST AREA AS PER TEE OR CLOSED END)

NOTES

- ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
- CAST THE THRUST AREA OF ALL THRUST BLOCKS AGAINST A CLEAN FACE OF UNDISTURBED NATURAL SOIL. SOIL CLASSIFICATIONS USED ON THIS DRAWING ARE EXPLAINED IN SEQ-WAT-1200-1. DO NOT USE STANDARD THRUST BLOCKS AS SPECIFIED IN THIS DRAWING IN SOILS WITH < 50kPa BEARING CAPACITY EG;
 - VERY SOFT, SOFT OR FIRM CLAY.
 - LOOSE CLEAN SAND.
 - UNCOMPACTED FILL OR REFUSE.
 A GEOTECHNICAL ASSESSMENT AND INDIVIDUAL DESIGN IS REQUIRED FOR THESE SOILS.
- THRUST BLOCKS NOT TO INTERFERE WITH OTHER SERVICES OR BE LOCATED OUTSIDE THE WATER MAIN ALLOCATION WITHOUT WATER AGENCY APPROVAL.
- ALL CONCRETE GRADE N20. TABLE OF DIMENSIONS BASED ON REQUIRED TEST PRESSURE OF 1200kPa AND ACTUAL DI CL PIPE DIAMETERS.
- THE MINIMUM THRUST AREA FOR TAPER THRUST BLOCKS TO BE EQUAL TO THE DIFFERENCE BETWEEN THE THRUST AREAS FOR TEES OR CLOSED ENDS OF EQUIVALENT DIAMETER TO THOSE EACH SIDE OF TAPER. THE DETAIL SHOWN IS FOR < OR = DN150 MAINS. FOR LARGER MAINS, THE TAPER THRUST BLOCK SHALL BE REINFORCED AND OF A SIZE AS SHOWN IN SEQ-WAT-1206-1.
- FOR DOWNWARD VERTICAL THRUST, THE ALLOWABLE BEARING PRESSURES FOR VARIOUS SOILS MAY BE TAKEN AS TWICE THAT FOR HORIZONTAL THRUST SHOWN.
- WHEN POURING CONCRETE AGAINST FITTINGS PLACE A MEMBRANE OF POLYETHYLENE, PVC OR FELT BETWEEN THE FITTING AND CONCRETE TO PREVENT DAMAGE TO THE FITTING. PIPE JOINTS TO BE CLEAR OF CONCRETE.
- CONCRETE THRUST BLOCK ANCHORS FOR VALVES TO BE AS DETAILED ON SEQ-WAT-1206-1.

REV. No.	DATE	DESCRIPTION	AUTH.	SEQ WATER SERVICE PROVIDERS <small>WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE OCCUPATIONAL HEALTH & SAFETY LEGISLATION</small>	WATER SUPPLY STANDARD DRAWING TYPICAL THRUST BLOCK DETAILS MASS CONCRETE					GCCC	LCC	RCC	QUU	UW
					DRAWING No. SEQ-WAT-1205-1								VERSION	
					NOT TO SCALE								A	
					ORG DATE: 1/1/2013									