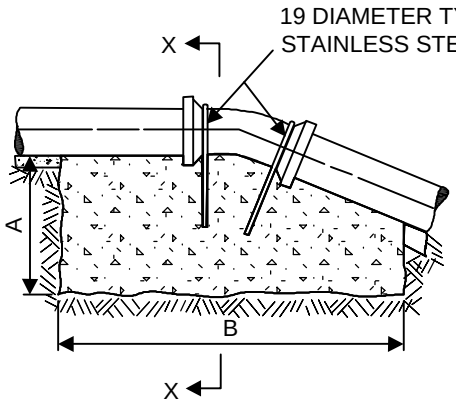
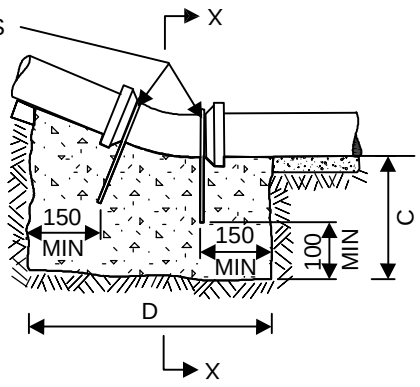
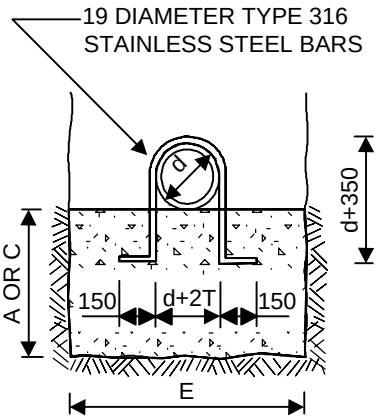


VERTICAL BEND UP



VERTICAL BEND DOWN



SECTION X-X

PIPE SIZE (D) (millimetres)	ANGLE OF BEND	VOLUME OF CONCRETE FOR VERTICAL BEND UP (m^3)	DIMENSIONS FOR CONCRETE THRUST BLOCKS FOR VERTICAL BENDS * (millimetres)				
			A	B	C	D	E
150	11 1/4° 22 1/2° 45°	0.21 0.41 0.75	265 385 715	750 1000 1000	450 450 600	750 750 750	1050 1050 1050
200	11 1/4° 22 1/2° 45°	0.36 0.70 1.29	340 665 1025	1000 1000 1200	450 450 600	750 750 750	1050 1050 1050
250	11 1/4° 22 1/2° 45°	0.53 1.05 1.94	510 835 1230	1000 1200 1500	450 450 600	1000 1000 1000	1050 1050 1050
300	11 1/4° 22 1/2° 45°	0.76 1.48 2.74	685 940 1450	1050 1500 1800	600 600 750	1050 1050 1050	1050 1050 1050
350	11 1/4° 22 1/2° 45°	1.02 1.99 3.68	805 1055 1630	1200 1800 2150	600 600 750	1200 1200 1200	1050 1050 1050
400	11 1/4° 22 1/2° 45°	1.31 2.58 4.76	835 1140 1850	1500 2150 2450	1000 1050 1200	1350 1350 1350	1050 1050 1050
450	11 1/4° 22 1/2° 45°	1.65 3.24 5.98	1045 1435 1965	1500 2150 2900	1050 1050 1350	1350 1350 1350	1050 1050 1050

*** TEST PRESSURE 1.0 MPa, SOIL BEARING PRESSURE = 71.8 kPa**

*** IF DIMENSION FOR A PARTICULAR SIDE OF THE THRUST BLOCK VARIES FROM THAT SHOWN, ADJUST REMAINING DIMENSIONS TO OBTAIN REQUIRED VOLUME**

DIMENSIONS IN MILLIMETERS

Winnipeg

THE CITY OF WINNIPEG
WATER & WASTE DEPARTMENT

Reference Spec. No.
CW 2110

CONCRETE THRUST BLOCKS FOR VERTICAL WATERMAIN BENDS

Designed By: TW
Drawn By: BH
Scale: N.T.S.
Checked By: TW
Date: 04-02-16
Revision: 2
Drawing No. SD-005
Approved:
UNDERGROUND WORKS COMMITTEE