

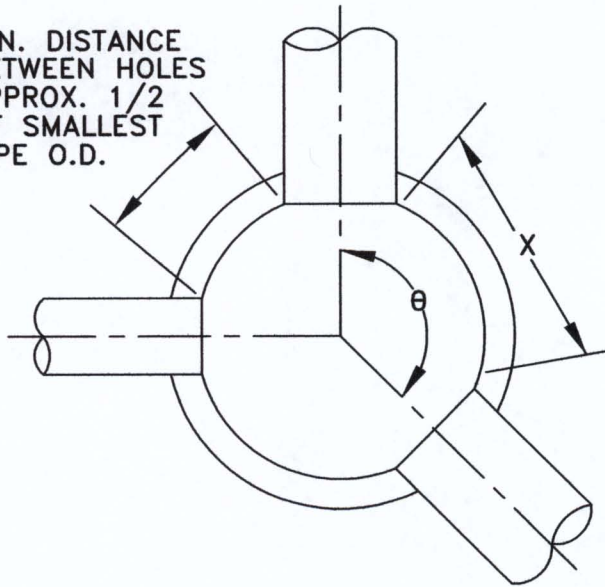
NOTE: EACH PAIR OF PIPES SHOULD BE CALCULATED FOR CLEARANCE.

INSIDE DIAMETER OF MANHOLE		CIRCUMFERENCE OF MANHOLE
4' (48")	=	150"
5' (60")	=	188"
6' (72")	=	226"
7' (84")	=	263"
8' (96")	=	301"

θ = ANGLE BETWEEN \angle OF PIPES
 C = CIRCUMFERENCE OF MANHOLE
 $P1$ = RADIUS OF O.D. OF PIPE #1
 $P2$ = RADIUS OF O.D. OF PIPE #2
 X = DISTANCE BETWEEN PIPES SHOULD
 BE GREATER THAN ONE-HALF THE
 O.D. OF THE SMALLER PIPE USED.

$$X = \frac{\theta}{360^\circ} (C) - (P1 + P2)$$

MIN. DISTANCE
BETWEEN HOLES
APPROX. 1/2
OF SMALLEST
PIPE O.D.



LARGE PIPE FOR MANHOLE

MANHOLE I.D. (0.707) = MAX. PIPE O.D.

MANHOLE DIAMETER	MAX. PIPE SIZE O.D.	
	FROM STRAIGHT THRU TO 45° DEFLECTION	IF 90° DEFLECTION
4' (48")	31.5"	25"
5' (60")	42"	32"
6' (72")	51"	38"
7' (84")	59"	44"
8' (96")	73.5"	50"

I.D. OF PIPE		O.D. OF PIPE
4"	=	4.215"
6"	=	6.275"
8"	=	8.400"
10"	=	10.500"
12"	=	12.500"
15"	=	15.300"
18"	=	18.701"
21"	=	22.047"
24"	=	24.803"
27"	=	27.953"
30"	=	31.496"
33"	=	35.433"
36"	=	39.371"

ALL SEWER PIPE INFORMATION BASED ON P.V.C. NON-PRESSURE DR 35

METRO WATER SERVICES

MAXIMUM PIPE SIZE AND
ANGLES FOR MANHOLES

NOT TO SCALE DATE: 02/22/08

DWG. NO. SDET026



Hal Battling
LICENSED COLLECTION OPERATOR

[Signature]
DIRECTOR OF WATER AND SEWERAGE SERVICES