

PRELIMINARY ESTIMATE OF FOUL WATER PUMPING REQUIREMENTS

Estimate of Pumping Station incoming flows:

	m ³ /hr	l/s
Domestic Type Foul Water	0.1	0.03
Cooling Tower Discharge	12.0	3.33
Water Treatment Plant (Cooling Tower Make-Up)	3.0	0.83
Demineralised Water Treatment Plant	4.6	1.28
Total:	19.7	5.47

Estimated Foul Water Pumping Rate and Pipe Diameter

Minimum pumped velocity for self cleansing	1 m/s
Minimum pipe diameter without requiring a macerator/muncher	0.1 m
Therefore, minimum allowable pumped flow, Qp = (Based on flow equation, Q = VA)	0.0079 m ³ /s

Minimum pump rate is therefore, say, 0.008m³/s or 8l/s

Estimated Foul Water Pumping Station Sump Size

Estimated Pumping Rate, Qp, =	0.008 m ³ /s
Number of starts per hour for economical use of pump (typical = 6 - 10), say:	8 starts
Therefore, cycle time for pump, T = or	450 seconds 7.5 minutes
Minimum Effective Sump Volume applying formula; Ve = ((T*Qp)/4)	0.9 m ³

Minimum sump volume required is approximately 1m³