

CALCULATION OF WASTEWATER FLOWS FROM A TREATMENT PLANT TO A SOAKAWAY

PROJECT

719-21 Chapel Farm Whitewell Whitchurch

22 January 2024

TITLE

Calculation of Wastewater Flows from 1 Toilet Block

DETAILS	Number of Properties	Washbasin	Shower	Urinal	Bath	Kitchen Sink	Dishwasher	Household Washing Machine	Commercial Washing Machine	WCs	Floor Drains
Toilet Block	1	1	1		1	1			1	1	
TOTAL	1	1	1		1	1			1	1	

DETERMINATION OF FOUL DRAINAGE FLOW RATES

FROM: BS EN 752-4:1998 Annex C Table Nos. C.1 & C.2

NOTE - The discharge unit will depend on the type of drainage system inside the building and the size of the appliance. Where no specific information is available, the higher value should be used.

Appliances	Typical Values of Discharge Units k_{DU}	Discharge Unit Value DU	Number of Appliances	Discharge Units per Appliance
Washbasin	0.3 to 0.6	0.6	1	0.6
Shower	0.3 to 0.6	0.6	1	0.6
Urinal	0.3 to 0.8	0.8		
Bath	0.8 to 1.3	1.3	1	1.3
Kitchen Sink	0.8 to 1.3	1.3	1	1.3
Dishwasher	0.2 to 0.8	0.8		
Household Washing Machine	0.5 to 0.8	0.8		
Commercial Washing Machine	1.0 to 1.5	1.5	1	1.5
WCs (4.0 l to 9.0 l cistern)	1.2 to 2.5	2.5	1	2.5
Floor Drains (DN 50 to DN 100)	0.6 to 2.0	2		

Total number of discharge units **7.8**

FREQUENCY FACTORS

TYPE OF BUILDING

k_{DU}

Dwelling, Guesthouse, Office (intermittent use)

0.5

k_{DU}

0.5

Dwelling, Guesthouse, Office (intermittent use)

TOTAL PEAK FLOW = 1.4 l/s

From British Water Code of Practice - Flows and Loads 4

Caravan Site - Touring **100** Per person/activity/day
Number of Persons **16**
Litres/Day **1600** or **1.6** m³/day

As a check assume maximum water usage occurs twice a day, morning & evening over one interval of 30.0 mins
1600 Litres/Day
0.44 l/s

Peak Flow **1.40** Litres/Second

Assumed Average % Peak Flow Discharge **15%** = **0.21** Litres/Second 18.10 m³/day

18097.66 litres/day

DISCHARGE TO SOAKAWAY = 0.21 Litres/Second