

TWINHAM, 34 HURST ROAD, HASSOCKS
SIMULATION ASSESSMENT OF HALF DRAIN TIME FOR ATTENUATION TANK AND RAIN GARDEN

Parameter	Symbol	Value	Units	Notes
Catchment Area	A	150	m ²	Impermeable
Runoff Coefficient	C	1	-	Fully impermeable
Attenuation Tank Volume (960 Win)	V_tank	12.25	m ³	No tank infiltration
Flow Control Discharge (L/s)	Q_out_Lps	0.3	L/s	Constant discharge to pond
Flow to Infiltration Pond (m ³ /s)	Q_out_m3s	0.0003	m ³ /s	Converted flow rate
Flow to Infiltration Pond (m ³ /h)	Q_out_m3h	1.08	m ³ /h	Converted flow rate
Half Volume	V_half	6.125	m ³	Half of tank storage
Rain Garden Infiltration Rate (m/h)	f	0.045	m/h	Adjustable
Rain Garden Base Area (m ²)	A_pond	12.8	m ²	Adjustable

TWINHAM, 34 HURST ROAD, HASSOCKS
SIMULATION ASSESSMENT OF HALF DRAIN TIME FOR ATTENUATION TANK AND RAIN GARDEN

Duration (min)	Duration (hrs)	Rainfall Winter (mm)	Runoff Volume Winter (m³)	Tank Overflow Winter	Half-Drain Time Winter (hrs)	Full-Drain Time Winter (hrs)	Rainfall Summer (mm)	Runoff Volume Summer (m³)	Tank Overflow Summer	Half-Drain Time Summer (hrs)	Full-Drain Time Summer (hrs)
15	0.25	12	1.8	None	5.67	11.34	18	2.7	None	5.67	11.34
30	0.5	18	2.7		5.67	11.34	25	3.75		5.67	11.34
60	1	25	3.75		5.67	11.34	35	5.25		5.67	11.34
120	2	35	5.25		5.67	11.34	45	6.75		5.67	11.34
360	6	50	7.5		5.67	11.34	60	9		5.67	11.34
720	12	60	9		5.67	11.34	75	11.25		5.67	11.34
1440	24	75	11.25		5.67	11.34	90	13.5		5.67	11.34
2880	48	90	13.5		5.67	11.34	105	15.75		5.67	11.34
4320	72	100	15		5.67	11.34	120	18		5.67	11.34
10080	168	120	18		5.67	11.34	140	21		5.67	11.34
1 in 100 year + 45% CC Return Storm Event											

TWINHAM, 34 HURST ROAD, HASSOCKS
SIMULATION ASSESSMENT OF HALF DRAIN TIME FOR ATTENUATION TANK AND RAIN GARDEN

Parameter	Formula/ Reference	Value/ Formula	Units	Notes
Inflow volume (from tank) (m ³)	12.25	12.25	m ³	Assume full tank volume could be passed to Rain Garden
Rain Garden infiltration rate (m/h)	0.05	0.05	m/h	SI test
Rain Garden base area (m ²)	12.80	12.80	m ²	L * W
Infiltration capacity (m ³ /h)	0.58	0.58	m ³ /h	f * A_Rain Garden
Time to empty Rain Garden (hrs)	21.27	21.27	hrs	If pond receives full tank volume

TWINHAM, 34 HURST ROAD, HASSOCKS
SIMULATION ASSESSMENT OF HALF DRAIN TIME FOR ATTENUATION TANK AND RAIN GARDEN

Compliance Check	Limit (hrs)	Winter Result (hrs)	Winter Pass/Fail	Summer Result (hrs)	Summer Pass/Fail
Tank half-drain time	24	5.67	Pass	5.67	Pass
Tank full-drain time	24	11.34	Pass	11.34	Pass
Rain Garden drain time	24	10.63	Pass	10.63	Pass