

Project SITE OFF LODGELANDS ARDINGLY

Project No.

Subject STORM DRAINAGE

By M.K.9

Checked

Date 09-01-25

Sheet No. 2.

SOAKAWAY

$$h_{max} = a(e^{-b} - 1) \quad \text{CIRIA Report 156.}$$

where

$$a = \frac{A_B}{P} - \frac{A_D}{P \cdot q}, \quad b = \frac{P \cdot q}{n A_B}$$

For a 2x2m soakaway filled with crates

$$A_B = 4 \text{ m}^2 \quad P = 8 \text{ m} \quad n = 0.95 \quad q = 0.0176 \text{ m/h} \quad A_D = 147 \text{ m}^2$$

$$\therefore a = 0.5 - 1044 \text{ i}, \quad b = 0.0370$$

Duration (h)	100% Rainfall (mm/h)	Enhanced rainfall (mm/h)	a (m)	b	h_{max} (m)
1	34	49	-50.6	-0.0174	0.88
2	24	28	-28.7	-0.0346	0.99
6	12.9	12.1	-12.1	-0.0002	1.21
12	7.8	4.8	-4.09	-0.190	0.78

100% Storm + 40%

$$\text{Time to half empty} = \frac{0.95 \times 4}{0.0176 \times 8} \ln \left(\frac{1.21 + 0.5}{\left(\frac{1.21 + 0.5}{2} \right)} \right) = \frac{11.8 \text{ h}}{2}$$

< 24h Satisfactory

Provide

1 N° - 2x2m soakaway 1.2m deep filled with plastic crates.

Check infiltration rate of sandstone when an excavator is available on site