



		Project			Job No.	
		Berrite Works			AVO22034	
		Client			Calc sheet no	Rev.
		Berrite Limited			1	A01
Element		Brownfield Surface Water Runoff	Calc by	VW	Date	Jan 2023

Ref	Calculations	Output
	<p>Using the Modified Rational Method (as set out in CIRIA C753) to calculate the Brownfield runoff rate.</p> <p>$Q = 2.78 \times C \times i \times A$ (EQ. 24.5)</p> <p>i = Average rainfall intensity of the design storm in millimetres per hour, mm/hr.</p> <p>A = Effective impermeable area of the existing site in hectares, ha.</p> <p>Q = Rainfall runoff rate in litres per second, l/s.</p> <p>C = Dimensionless Runoff Coefficient. *</p> <p>2.78 = Conversion factor to address the rainfall unit being in mm/hr.</p> <p>*Ciria C753 (Section 24.6.2), volumetric and routing coefficients CV & CR (CV of the order 0.6 and the routing coefficient, CR of the order of 1.3) the two coefficients are usually incorporated into a single term with a value of between 0.8 and 1.0 depending on how effectively the catchment is drained.</p> <p>A constant rainfall intensity of 35mm/hr has been assumed (24.6.2 – Rainfall intensity).</p> <p>The estimated brownfield rainfall rate has been based on the existing drainage systems draining a total area of 0.228ha.</p> <p>$Q = 2.78 \times 1.0 \times 35 \times 0.228 = 22.18 \text{ l/s}$</p> <p>Growth curve factor has been derived from the 9 hydrological regions of the UK. Based on the Flood Studies Report.</p> <p>Growth Factors:</p> <p>1 Year = $22.18 \times 0.93 = 20.63 \text{ l/s}$</p> <p>30 Year = $22.18 \times 1.78 = 39.49 \text{ l/s}$</p> <p>100 Year = $22.18 \times 2.18 = 48.36 \text{ l/s}$</p>	