

Calculation Sheet

ref. D1196/14

project PARKS ROAD,
ARLECDON

Bingham Yates Limited

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part of structure DRAINAGE SCHEME

drawing CONISTON CONSULTANTS SC/KT/18/01

date Aug '19

calculations by G

checked by /

sheet no. SW1

Member Ref.	Calculations	Output
	<u>Determine Q_{bar} for site</u> Area of development site $(43 \times 60) + (14.5 \times 22) = 2900 \text{ m}^2$ (0.29 ha) Average rainfall for Arlecdon 975 mm Soil 0.45 (Soha catchment) Run off $\bar{Q} = 0.00108 \times 50^{0.89} \times 975^{1.17} \times 0.45^{2.19}$ $= 0.00108 \times 0.54 \times 3141 \times 0.18$ $= 0.33 \text{ cumecs.}$ <u>Flood Studies SR N-2 Table 1 1 year return period</u> Cumbria = 10 $\frac{Q}{\bar{Q}} = 0.87$ $Q = 0.87 \times 0.33 = 0.29 \text{ cumecs.}$ $Q_{\text{bar}}(\text{site}) = 0.29 \times 0.29 / 50 = \underline{\underline{1.74 \text{ l/sec}}}$ <u>limit outflow from site via vortex valve to Q_{bar}</u> <u>Q 1.74 l/sec</u>	(Met. office records)
		<u>Q_{bar} site</u> 1.74 l/sec

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ref. D196/y

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drawing

date Aug 19

calculations by J

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sheet no. SW2/

Member Ref.	Calculations	Output
	<u>Impermeable Area</u> (road, roofs & driveways) <u>Plots 1, 2, 3 & 8.</u> Roof 65 } 90 x 4 = 360 m² Drive 25 say N: <u>Plots 4-7</u> Roof 68 } 90 x 4 = 392 Drive 30 } N: <u>Plot 9</u> Roof 150 } = 193 Drive 35 } Say 950 m² <u>Road/Parking</u> 40 x 4.8 } = 390 m² 40 x 4.8 } + 5 radii } = 1340 m² <u>Design on 1:100 yr occurrence + 40% CC + 10% UC = 50%</u> MS-60 say 20mm ; r = 0.25 mins hrs 5 10 15 30 1 2 4 6 10 24 z₁ 0.32 0.48 0.55 0.70 1.0 1.3 1.7 2.0 2.4 3.3 MS-60 6.4 9 11 14 20 26 34 40 48 66 M100 1.01 1.09 1.92 1.98 2.03 2.0 1.93 1.89 1.82 1.71 M100 D 11.6 17 21 27.8 40.6 52 68.6 75.6 87.4 112.8 Inflow D x A 15.5 22.8 28.1 37.7 54.4 67.7 87.9 101.3 117.1 151 m³	<u>Impermeable Area</u> 1340 m² Fig A3a. Table A1

ref. **D11961g**

project PARUS RD, ARUEC DOJ

date Aug 19

calculations by 

sheet no. SW3

Required
Storage Vol
for 1:100
occurrence
+ 40% CC
+ 10% UC
115 m³.