Plot 2 Arlecdon Road, Arlecdon, Frizington, Cumbria - Dwelling (Dormer Bungalow) - Proposed Surface Water Attenuation / Soakaway Design – Dec 2022

Percolation test data (Approved Document Part H & BRE 365)

2no test holes at 300mm x 300mm set below incoming flow level, the water was timed between 75% & 25% in seconds and filled three consecutive time prior to the tests as requested within the BRE, see details below;

Vp

- Test 1 – 146 mins
- Test 2 – 152 mins

Average percolation time – 149 min – (6min average increase)
Vp - 143 x 60 / 150 = 59 sec per mm (2.6 seconds per mm increase)

Roof area
Based on a property with a floor area of 230m²
A x 1.29 (roof pitch factor)
Surface water - 230m² x 1.29 = 296.70m²

Incoming Water
Based upon 57mm total rainfall
296.70m² x 0.057 = 16.90m³ (surface water)
Total Incoming water = 16.90m³

Soil filtration
f= 10-3
3Vp
0.001 = **2.46m³**
(3x59.6)178.8

Outfall Volume
f = Soil filtration – **d** = Duration of storm in minutes
$O = as^{50} \times f \times d$
O = .0135 x 2.46 x 60 = **1.99m³**

Soakaway Volume
1.99m³ + 16.90m³ = **18.90m³**

Soakaway Required
Part H Design – 7.5m³ + 5% voids = **19.845m³**
BRE Design calculation (JDP Calculations) = **19.360m³**

Soakaway Tank Calculations
Plot 2 Arlecdon Road - (Tank Size – 9.6 x 4.8 x 0.42m) - **19.360m³**