



**25358 Land at Albany Drive, Copster Green, Ribble Valley, BB1 9ET**

**Issue 03 (08/06/2026)**

**Surface Water Drainage Assessment – Supporting Clarification**

The following calculations and supporting information have been prepared in response to the Lead Local Flood Authority (LLFA) consultation comments regarding the proposed surface water drainage strategy and compliance with Standard 3 of the National Standards for Sustainable Drainage Systems.

The LLFA comments principally relate to:

- the methodology adopted for determining the greenfield runoff rate;
- the contributing catchment area used within the post-development attenuation calculations; and
- demonstration that the proposed discharge rate and runoff volume control accord with the updated SuDS standards.

In response, the submitted calculations demonstrate:

- the equivalent greenfield runoff rate derived from the full undeveloped red line boundary area (1.120 ha);
- the proposed restricted discharge rate based on the 1 in 2-year (50% AEP) greenfield runoff rate;
- compliance with the minimum allowable discharge criteria of 3 l/s/ha; and
- the attenuation storage requirements associated with the positively drained post-development catchment entering the proposed surface water drainage system.

The proposed surface water drainage strategy restricts discharge to 9.0 l/s via a hydrobrake flow control device, with attenuation provided through a combination of permeable paving, geocellular storage crates and swale storage prior to discharge to the existing western boundary ditch/watercourse.



## Greenfield runoff calculations

### ICP SUDS Mean Annual Flood

#### Input

Return Period (years) 100      Soil 0.450  
Area (ha) 1.120      Urban 0.000  
SAAR (mm) 1175 Region Number Region 10

#### Results 1/s

QBAR Rural 9.0  
QBAR Urban 9.0

Q1 year 7.8  
Q2 year 9.0

Q30 years 15.3  
Q100 years 18.8

## Climate Change



### 1% annual exceedance rainfall event

#### Epoch

|       | Central allowance | Upper end allowance |
|-------|-------------------|---------------------|
| 2050s | 25%               | 40%                 |
| 2070s | 35%               | 50%                 |

\*Use '2050s' for development with a lifetime up to 2060 and use the 2070s epoch for development with a lifetime between 2061 and 2125.

This map contains information generated by Met Office Hadley Centre (2019): UKCP Local Projections on a 5km grid over the UK for 1980-2080. Centre for Environmental Data Analysis, 2022

**Director:** Jason.Jones B.Eng (Hons) MCIHT NMICE,  
**Associate Director:** Adam John Jones B.Eng (Hons) MEng CIWEM

FLOOD FLOW LTD

CONSULTING CIVIL AND  
STRUCTURAL ENGINEERS

Tel 07940 523819  
Website: [www.floodflow.co.uk](http://www.floodflow.co.uk)  
Email: [mail@floodflow.co.uk](mailto:mail@floodflow.co.uk)



## Attenuation Calculations

**Quick Storage Estimate**

**Micro Drainage**

**Variables**

FSR Rainfall  Cv (Summer)   
Return Period (years)  Cv (Winter)   
Region  Impervious Area (ha)   
Map M5-60 (mm)  Maximum Allowable Discharge (l/s)   
Ratio R  Infiltration Coefficient (m/hr)   
Safety Factor   
Climate Change (%)

Analyse OK Cancel Help

Enter Area between 0.000 and 999.999

**Quick Storage Estimate**

**Micro Drainage**

**Results**

**Global Variables require approximate storage of 297 m<sup>3</sup>**

Analyse OK Cancel Help

Enter Area between 0.000 and 999.999

Director: Jason Jones B.Eng (Hons) MCIHT NMICE,  
Associate Director: Adam John Jones B.Eng (Hons) MEng CIWEM

Flood Flow Ltd Registered in England and Wales No. 5548911