

ELEMENTS ENERGY

Cilybebyll Biomass - Percolation Test Results and Soakaway details

1. Surface Water Drainage Approach

Surface water from the proposed biomass container (roof area approx. **48.8 m²**, as shown on the submitted planning drawings) will be directed via guttering into a **gravel-filled infiltration trench** located immediately adjacent to the structure.

This provides a **simple, robust and sustainable** means of managing runoff in accordance with **TAN 15** principles and the drainage hierarchy (infiltration to ground where feasible).

2. Infiltration Suitability (Percolation Test Summary)

Percolation testing was undertaken on 30 October 2025 at the proposed trench location and depth. The test used a standard **150 mm (75% → 25%) drop method**, repeated **three times** to obtain consistent results.

The average percolation value recorded was:

Vp = 37.3 seconds/mm

This lies within the generally accepted range (**12–100 s/mm**) for infiltration drainage, confirming that infiltration is a suitable method for managing roof water at this location.

3. Percolation Test Results

Test Run Time for 150 mm Drop Vp (s/mm)

Run 1	78 min (4,680 s)	31.2
Run 2	94 min (5,640 s)	37.6
Run 3	108 min (6,480 s)	43.2
Average	93 min	37.3

Test Conditions: Overcast.

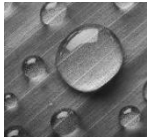
Soils Observed: Alluvial deposits (silty sand and gravel).

Test Depth: approx. 500 mm.

4. Proposed Infiltration Trench Detail

A gravel infiltration trench will be installed as follows:

- **Length:** approx. 34.4 m (perimeter of biomass cabin)



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- **Width:** approx. 0.5 m
- **Depth:** approx. 0.4 m
- **Material:** clean 20–40 mm angular stone
- **Construction:** wrapped in permeable geotextile to prevent silt ingress
- **Alignment:** around full perimeter of biomass container
- **Connection:** gutter downpipe discharging directly into trench

Given the modest roof area and the recorded infiltration rate, this trench provides adequate infiltration capacity for runoff from the proposed structure.

5. Conclusion

The percolation test demonstrates that local alluvial soils have **adequate permeability** for a small gravel infiltration trench.

The proposed trench provides a **simple, proportionate** means of managing surface water for this modest-sized development.