

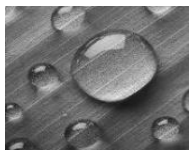
ELEMENTS ENERGY

**Cilybebyll Biomass
Extension**

**Flood Risk &
Consequence
Assessment**

November 2025

**Hydropower Consultancy &
Development**



Document Control

Scheme Name: Cilybebyll Biomass Extension
Client Name: Richard Bowen

Client Address: Cilybebyll, Swansea

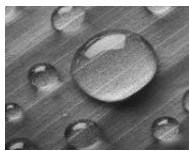
Elements Energy Ltd Reference: CB

Elements Energy Ltd
Tel: 07717811107

Document Control			
File Name:	CB-DOC-Flood Risk & Consequence Assessment-A-201125-ARC		
	Original Rev A	Revision B	Revision C
Prepared by:	A.Cropper		
Approved by:	A.Cropper		
Date:	20.11.2025		
Status:	Approved		
Comments:			

Disclaimer

This report, and information or advice which it contains, is provided by EE Ltd solely for internal use and reliance by its Client in performance of EE Ltd's duties and liabilities under its contract with the client. Any advice or recommendations within this report should be read and relied upon only in the context of the reports as a whole. The advice and opinions in this report are based upon information available to EE Ltd at the date of this report and may be based on assumptions. Following final delivery of this report to the Client, EE Ltd will have no further obligation or duty to advise the Client on any matters, including development affecting the information or advice provided in this report. This report has been produced by EE Ltd in the professional capacity as Consulting Engineers. The content of this report do not, in any way, purport to include any manner of legal advice or opinion. EE Ltd accepts no responsibility or liability for any loss or damage incurred due to the use of the information within this report.

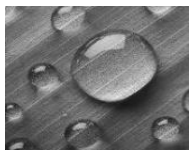


ELEMENTS ENERGY

Cilybebyll Biomass Extension
Flood Risk Assessment

CONTENTS

1. INTRODUCTION	3
2. FLOOD FLOWS	3
3. FLOOD ZONE	3
4. FLOOD PROTECTION.....	4
<u>5.</u> FLOOD RISKS FROM THE PROPOSAL - DRAINAGE	5
5. CONCLUSION.....	5



1. INTRODUCTION

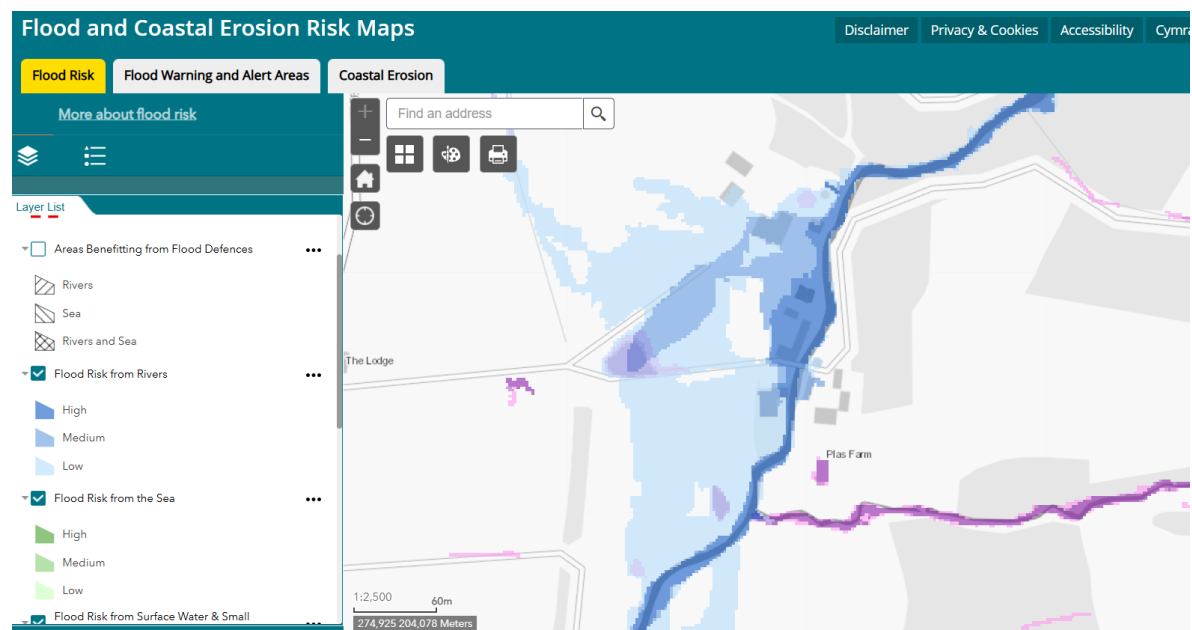
This document presents a flood risk and consequence assessment for the installation and operation of a containerised biomass boiler adjacent to the existing agricultural barn and existing biomass boiler.

2. FLOOD FLOWS

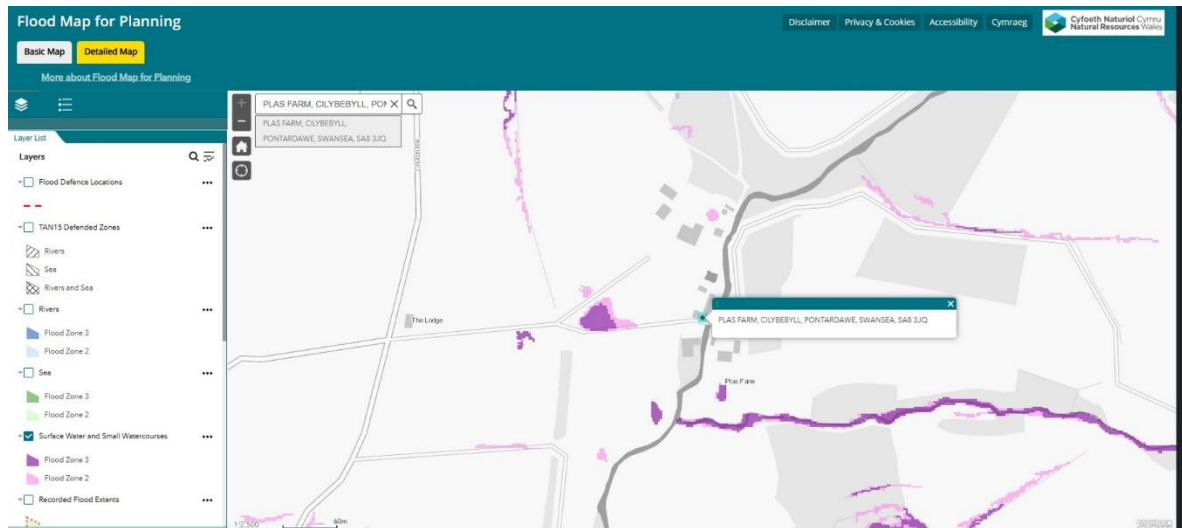
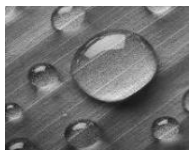
The Low Flows Enterprise Model was used to calculate flows. In summary the the 1 in 100 average flow is $0.149\text{m}^3/\text{s}$. The 1 in 1000 average flow is $0.288\text{m}^3/\text{s}$. The scheme has been designed with expectation of well above calculated flows as climate change may lead greatly higher and more frequent flood flows, with exceptionally high peak flood flows.

3. FLOOD ZONE

The scheme is located within the low risk flood zone.



The biomass cabin location is within NRW flood Zone C



Surface water runoff NRW map

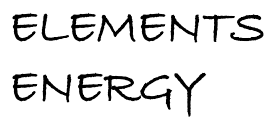
4. FLOOD HISTORY

There is no record or recollection of flooding at this location in the past 68 years (since our family acquired the farm in 1957), including during extreme rainfall events such as Storm Desmond & Eva (2015), Storm Dennis (2020), Storm Jorge (2020), Storm Callum (2018). Anecdotally, there is no known flood history at this location prior to our family's tenure either.

5. FLOOD PROTECTION

The nature of the location is that during an extreme flood event the watercourse is unlikely to burst its banks but if it does the velocities of water will be low as the water is no longer confined to a narrow channel with this in mind it is depth of water above ground level rather than wash out or erosion that is of consideration for protection.

The floor level of the cabin will be such that it sits above ground level and thus the ground being saturated will not enter the cabin itself. Additionally electrical equipment will be raised above the floor level by a minimum of 0.5m to ensure it is protected from flood water.



6. FLOOD RISKS FROM THE PROPOSAL - Drainage

The location of the proposal alongside the agricultural barn on the edge of the field has the potential to absorb rainfall into its vegetation and soils which slow the drainage to the watercourse approximately 21m away. The proposed container cabin could potentially increase run off to the extent defined by its footprint. In terms of flooding elsewhere this scale of footprint is close to negligible but even so the building is to be installed on gravel with a 0.4m deep gravel surround on the building to enable all run off from the cabin roof to soak into the ground and behave in line with runoff conditions pre-development.

7. CONCLUSION

Given the above information, the development of the proposed scheme at Plas Farm, Cilybebyll is unlikely to alter flood risks in any manner, and the systems is designed appropriately given the new age of climate change related flood risk. The gravel soakaway drainage as detailed in the accompanying drainage statement also ensures that surface water runoff from the proposal footprint does not increase flood risk elsewhere.