

Bryn Cemlyn Micro Hydro Stage 1 Geomorphology Survey Report

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2 Introduction

This geomorphology photo survey has been carried out to form part of an application for an existing hydro scheme, Bryn Cemlyn Hydro, which was licenced originally in 2013 and subsequently the licence had a variation which was issued on 20/11/2017. The abstraction Licence was WA/064/0003/004/V001 and impoundment licence was WA/064/0003/005/V001. The licence holder was Mr Hywel Bromley Davenport. He died in 2021. The family did not know that NRW had to be notified within 15 months of the death in order for the existing licences to be retained therefore they did not transfer the licence and it was then deemed to have expired and NRW order the owners to cease operation. The scheme has not therefore been operational since May 2025. The existing hydro was developed on the site of an existing Victorian era hydroscheme, utilising the same powerhouse, tailrace and using most of the pre existing pipeline lined with a new pipe.

The methodology for the survey is based on NRW Supporting Guidance Note: SGN 2 Geomorphology photosurveys for hydropower developments v1.2.

3 Project Description

3.1 Layout

The existing intake location is at grid ref SH 72819 22775A pipeline installed mainly within a victorian pipeline is installed to convey the water to the turbine house, and the water returns to the river by a short tailrace channel back to the Afon Mawddach at grid ref SH 72974 22879.

The layout is shown on drawing 'Location Plan' and also the map accompanying this survey report.

4 Methodology

The survey was carried out using the guidance in NRW Supporting Guidance Note: SGN2 Geomorphology photosurveys for hydropower developments. Photos were taken at the key locations on the site, along the deprived reach and upstream of the deprived reach. The survey was carried out on 5th August 2026 during a period of severe drought. Thus water levels shown are much lower than typical.

It is hoped that all necessary information has been included. If more information is required please request it.

The report presents a map showing the location of the project and all photograph locations. The photos are then provided including number, grid ref and description.

In order to facilitate presenting and sending the report in a manageable way, the size of photos has been reduced below their original size. If larger, higher resolution photos are required please request the required ones.

The 10 figure grid references are provided based on the Ordnance Survey Mastermap combined with GPS measurements from a mobile phone.

The staff used to provide a scale is a telescopic staff. The staff has small degradations of 1 cm, written lengths every 0.1m and the markings change colour from red to black every 1m. When collapsed it is approx 1.2m long.

Photos of the substrate were taken adjacent to the water, using a foot to provide a scale. If this was not possible due to fast flowing water covering the width of the bed then a photograph has not always been included. The type of substrate photographed was generally the predominant substrate at the photograph location.

The terms 'left bank' and 'right bank' refer to the bank seen when viewed from upstream looking downstream. Due to the constrained nature of the watercourse, with a deep narrow channel, steep banks, and vegetation at this time of year it was challenging to get good photos.

5 Map of Photographs

Please refer to attached drawing Geomorphology Survey Map.

6 Photographs

6.1 Structures

6.1.1 Intake Location (I.)

Grid reference SH 72819 22775. Existing Structure



Figure 1: View from downstream 1



Figure 2: View from downstream 2



Figure 3: Bed substrate

6.1.2 Turbine House

Grid ref SH 72960 22870



Figure 4: Turbine House

6.1.3 Outfall and Tailrace

Grid ref SH72974 22879



Figure 5: Outfall pipe



Figure 6: Downstream end of tailrace



Figure 7: Tailrace viewed from downstream



Figure 8: Tailrace viewed from upstream



Figure 9: Tailrace substrate

6.2 Photos along River

6.2.1 Point 1. Watercourse mouth

Grid ref SH 72962 22889. Junction of unnamed watercourse with Afon Mawddach



Figure 10 - View upstream of Mawddach



Figure 11 - View downstream of Mawddach



Figure 12: Downstream end of tributary



Figure 13: View up tributary



Figure 14: Substrate at mouth of tributary

6.2.2 Point 2.

In deprived reach steep falls approx 5m from mouth of tributary downstream of bridge. Grid ref SH 72958 22887



Figure 15 - Looking upstream towards bridge



Figure 16 - Bed substrate

6.2.3 Point 3.

Grid ref SH 72954 22883. Watercourse passes beneath timber bridge



Figure 17 - View beneath bridge showing stone abutments



Figure 18 -Bed substrate beneath bridge

6.2.4 Point 4.

2m high falls, approx 5m upstream from bridge SH 72950 22877



Figure 19 - View of falls



Figure 20 - Bed substrate at base of falls

6.2.5 Point 5.

Grid ref SH 72921 22852. Culvert, 850mm diameter approx 15m downstream from house



Figure 21 - Downstream end of culvert



Figure 22 - Bed substrate downstream of culvert

6.2.6 Point 6

Grid ref SH 72910 22845. 900m diameter culvert beneath road with 1m drop below.



Figure 23 – downstream end of culvert



Figure 24 – Bed substrate downstream of culvert

6.2.7 Point 7

Grid ref SH 72897 22837. 3m high falls immediately upstream of culvert beneath A470.



Figure 25 - View of falls



Figure 26 - Substrate at bottom of falls

6.2.8 Point 8

Grid Ref SH 72870 22825. Stone wall (forming ford across stream)



Figure 27 - 1.2m high stone wall across stream



Figure 28 - Bed substrate below wall



Figure 29 - View upstream from wall



Figure 30 - View downstream from wall

6.2.9 Point 9

Grid Ref SH 72854 22810.



Figure 31 - View upstream



Figure 32: View downstream



Figure 33: Bed substrate

6.2.10 Point 10

Approximately 10m upstream of intake at land boundary. Grid Ref. SH 72812 22772



Figure 34 - View upstream



Figure 35 - View downstream



Figure 36 - Substrate