Afon Wnin 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, Afon Wnin Hydro, which was licenced originally in 2016 and subsequently the licence had a variation which was issued on 4/7/2017. The abstraction Licence was WA/064/0005/022/V001 and impoundment licence was WA/064/0005/029/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 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 scheme has 2 intakes. Intake 1 is at grid ref SH 71354 21792 and Intake 2 is at SH 71241 21709. Pipelines are installed from these intakes down to a small powerhouse from which the water is discharged through screen and onto the bedrock bank and returns to the river at SH 71294 21517.

The layout is shown on drawing ‘Location Plan’.

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 14th October 2026 during a period of medium-high flows with water typically covering the width of the stream bed.

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 object used to provide a scale is a bucket. The bucket is 300mm across and 200mm high..

Photos of the substrate were taken adjacent to the water, using a foot (size 10 wellie) 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 1

Grid reference SH 71354 21792

Figure 1: View from downstream 1



Figure 2: Bed substrate



6.1.2 Intake 2

Grid ref SH 71241 21709.

Figure 3: View from downstream 1



Figure 4: Bed substrate



6.1.3 Turbine House and Outfall

Grid ref SH 71294 21517

Figure 5: View from downstream



Figure 6: Bed substrate



6.2 Photos along watercourses

6.2.1 Point 1.

Grid ref SH 71236 21734. Upstream of Intake 2



Figure 7 – View upstream



Figure 8 – Bed substrate

6.2.2 Point 2.

Grid ref SH 71278 21683. Deprived reach of Intake 2 watercourse.



Figure 9 – Looking upstream



Figure 10 – Bed substrate

6.2.3 Point 3.

Grid ref SH 71309 21657. Deprived reach of Intake 2 watercourse close to where it joins Afon Wnin.



Figure 11 – View upstream



Figure 12 – Bed substrate

6.2.4 Point 4.

Grid ref SH 71319 21485. Approx 30m downstream of outfall. A ~4m (lower) and ~2m (upper) high falls.

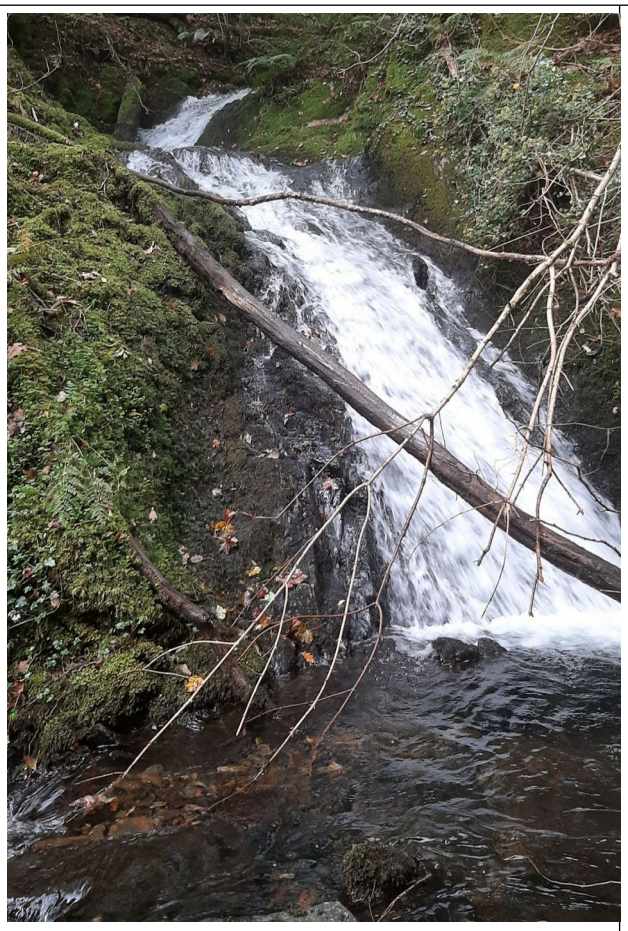


Figure 13 – View of falls from below



Figure 14 – Upper falls



Figure 15 – View downstream from bottom of falls



Figure 16 – Bed substrate at base of falls

6.2.5 Point 5.

Grid ref SH 71280 21566. Deprived reach.



Figure 17 – View upstream

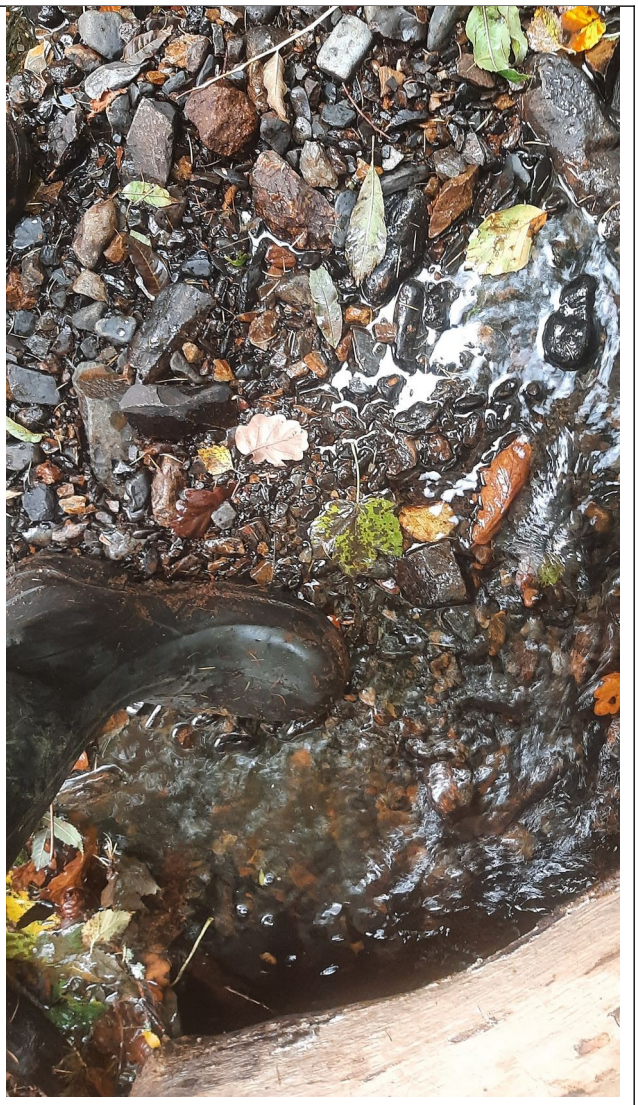


Figure 18 – Bed substrate

6.2.6 Point 6

Grid ref SH 71272 21586. High (~10m perhaps) waterfall (inaccessible) in deprived reach.



Figure 19 – View from bank



Figure 20 – View from bank

6.2.7 Point 7

Grid ref SH 71314 21652. On Afon Wnin in deprived reach. Immediately downstream of where the Intake 2 watercourse meets the Afon Wnin.



Figure 21 – View upstream



Figure 22 – Bed substrate

6.2.8 Point 8

Grid Ref SH 71366 21727. Deprived reach.



Figure 23 – 1.2m high stone wall across stream



Figure 24 – Bed substrate below wall

6.2.9 Point 9

Grid Ref SH 71311 21823. Approximately 50m upstream of Intake 1.



Figure 25 – View upstream



Figure 26 – Bed substrate