

Erw Faethlon Micro Hydro Stage 1 Geomorphology Survey Report

Title	Erw Faethlon Micro Hydro Stage 1 Geomorphology Report	
Author	N. Bard	
Revision	Description	Issue Date
A	First Issue	16/11/2023
B	Including photo montage	18/1/2024

18/01/2024

Nick Bard Hydro Services

Nick@NBHydro.co.uk

+44 (0)7765 996 581

1 Contents

1 Contents.....	2
2 Introduction.....	3
3 Project Description.....	3
4 Methodology.....	3
5 Map of Photographs.....	4
6 Photographs.....	4

2 Introduction

IL and MA Evans wishes to develop a micro hydropower site that would abstract water from the unnamed stream that passes through the Erw Faethlon farm. This Geomorphology Photo Survey has been prepared as part of an application for Water Abstraction and Impoundment Licenses from NRW,

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 Description

Two options have been identified for the intake on the Afon Melau at grid ref SH 7894 2360. A buried pipeline would then convey the water to a turbine house located just upstream of Pont ar Felau at SH 7946 2231. From the turbine the water would return to the river via an outfall just upstream of the bridge.

3.2 Layout

The proposed intake location is at grid ref SN 63033 99339. A buried pipeline will convey the water to a turbine house located at SN 62763 98821, immediately upstream of the farm buildings where the water will be discharged back into the streamroad close to the Blaenplwyf Isaf farm buildings.

The layout is shown on drawing 'Site 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 and downstream of the deprived reach. The survey was carried out on 22nd September 2023 - a day of high flows after rain.

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 4 figure grid references are provided based on 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.

5 Map of Photographs

Please refer to attached drawing Photo Survey Location Plan.

6 Photographs

6.1 Structures

6.1.1 Intake Location (I.)

Grid reference SH 6303 9933, Staff shown at intake location.



Figure 1 - Intake site



Figure 2 - View downstream



Figure 3 - View downstream



Figure 4 - View upstream



Figure 5: Intake Photomontage

6.1.2 Turbine House and Outfall Location (TH.)

Grid ref SN 6276 9882



Figure 6 - View of outfall site



Figure 7 - View of turbine house site

6.2 Photos along River

6.2.1 Point 1.

Grid ref SN 6304 9934. Upstream of intake



Figure 8 - View of banks downstream



Figure 9 - View of watercourse



Figure 10 - View of banks



Figure 11 - View of water (no substrate visible)

6.2.2 Point 2.

In deprived reach just below fence Grid ref SN62989923



Figure 12 - View downstream



Figure 13 - View upstream



Figure 14 - View of watercourse



Figure 15 - Substrate

6.2.3 Point 3.

Grid ref SN62999920. Immediately downstream of confluence with small stream



Figure 16 - View downstream



Figure 17 - View of banks



Figure 18 - View upstream



Figure 19 - Watercourse (no substrate visible)

6.2.4 Point 4.

Grid ref SN 62949918



Figure 20 - View downstream



Figure 21 - View upstream

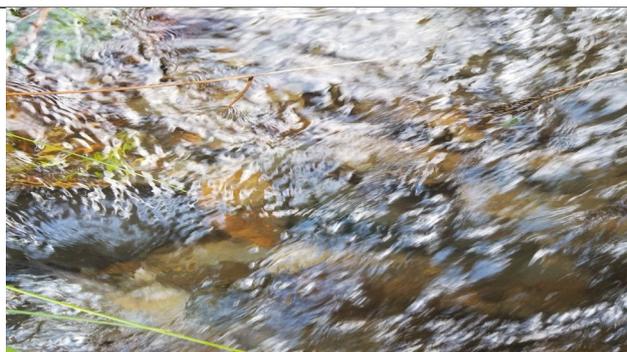


Figure 22 - Substrate

6.2.5 Point 5.

Grid ref SN 6291 9905, Immediately downstream of minor tributary



Figure 23 - View of banks



Figure 24 - View downstream



Figure 25 -View Upstream



Figure 26 - Substrate

6.2.6 Point 6

Grid ref SN6289 9903. Upstream of culvert



Figure 27 - View upstream



Figure 28 - View downstream



Figure 29 - Substrate

6.2.7 Point 7

Grid ref SN62859896. Close to pond



Figure 30 - View downstream



Figure 31 - View upstream



Figure 32 - Substrate

6.2.8 Point 8

Grid Ref SN62859897. Pond (former impoundment for old hydro scheme)



Figure 33 - Water exiting pond



Figure 34 - View of pond

6.2.9 Point 9

Grid Ref SN62799890. At culvert under track.



Figure 35 - View upstream



Figure 36 - View downstream



Figure 37 - Substrate

6.2.10 Point 10
Grid Ref. SN62789882



Figure 38 - View upstream



Figure 39 - View downstream



Figure 40 - Substrate

6.2.11 Point 11
Grid ref. SN62739875. Downstream of farm buildings



Figure 41 - View upstream



Figure 42 - Looking downstream of culvert



Figure 43 - View downstream into culvert



Figure 44 - Substrate