Hafod y Rhedrwydd micro-hydro proposal.

Documentation list

Text documents

HyR proposal v13.pdf	The proposal: outline, pipe route, mode of operation.
Weir design details v3a.pdf	Detailed design of the weir and screen system
Justification for the extraction regime v5.pdf	Description of the requested flow regime. Explanation of the figures used in form WRD
Forms WRA, WRD, WRE	
HyR geomorphology survey v4.pdf	Geomorphology survey
HyR catchment photographs	Images of the landscape above the extraction point
Obstacles to fish.pdf	Some images of the stream showing the many existing impediments to fish passage.

Drawings

HyR_181006A.pdf	Location of extraction point
HyR_181006B-1.pdf	General arrangement of screens and weirs
HyR_181006C_rev1.pdf	Screen assembly - fairing widths and crest heights
HyR_181102A.pdf	Cross-section through the screens showing location relative to bedrock.
HyR_181103A.pdf	Sheet metal wall for plunge pool
HyR_181105A.pdf	Barrage overall dimensions and notch profile

Survey reports

Ecological surveys Hafod y Rhedrwydd	Ecological survey
LowFlows 530_18 Hafod y Rhedrwydd	LowFlows stream flow duration prediction.

Analysis software

Matlab_code.zip	Matlab script and function m-files

Matlab™ has been used to design the abstraction system and simulate the overall performance.

The following m-files produce the figures in the design reports.

File name	Purpose	Comment
system_plot3.m	Figures in proposal document.	Loads system7.mat created by system_perf7.m and plots power output versus mass flow rate.

run_weir_analysis.m	Weir design details	Calls script files weir_defs1.m, calc_levels.m, plot_levels1.m and barrage_stability.m These in turn use functions weirflows, draw_cbs, ogee, curve_shift, top_profile, dam_shape and min_dam_mass to do most of the calculations.
Lowflows_hry8.m	Justification for the flow regime v5.pdf + fig. 14 in Weir design details	This uses the flow duration predictions from Wallingford Hydro's "LowFlows" to predict the probability distribution for extraction rates and electrical power output.