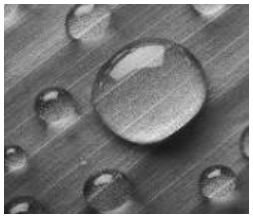

ELEMENTS ENERGY

Plas Farm Hydro Scheme

Hydromorphology Survey

February 2024
Updated May 2024

Hydropower Consultancy & Development

Document Control

Scheme Name: **Plas Farm Hydro Scheme**
Client Name: **Richard Bowen**

Elements Energy Ltd Reference: **PFH**

Elements Energy Ltd
Tel: 07717811107

Document Control			
File Name:	PFH-DOC-Hydromorphology Survey Report-B-220524-DM		
	Original Rev A	**Revision B**	**Revision C**
Prepared by:	A. Cropper	A. Cropper	
Approved by:	A. Cropper	Cropper	
Date:	280224	220524	
Status:	Approved	Approved	
Comments:			

Survey Date & Time: 23th February 2024, 11am-4pm (20 Locations)
Conducted by: Richard Bowen
Flow Conditions: Moderate/ High

Hyrdomophology Survey

Watercourse – unnamed watercourse at Plas Farm, Cilybebyll, Swansea

The hydromorphology survey was taken on the 23/02/24 between the 11:00am and 4:00pm. Twenty Locations were selected throughout the water course ranging from 500m up from the proposed intake down to the proposed outfall and one more 100m below outfall and 200m below outfall. Any further downstream was not able to be recorded due to access restrictions. For each location a grid reference was taken along with photographs of the location and were possible a photograph of the river bed sediment (all photographs include a stave or similar for scale).

The depleted Reach Gradient

The Coanda intake crest is at 214mOAD, the invert of the outfall is at 146.44mAOD. The floor level of the powerhouse is at 148m OAD.

The reach has an elevation drop of 67.56m

The length of the reach measured down the centre of the watercourse is 598m long

Therefore the gradient is 0.113 or 11%

Location 1 – SN 75877 03768

Figure 1 Downstream

Figure 2: Left Bank

Figure 1: Right Bank

Figure 4: Upstream

Figure 2: Sediment

Location 2 – SN 75778 03792

Figure 3: Downstream

Figure 4: Left Bank

Figure 5: Right Bank

Figure 6: Upstream

Figure 7: Sediment

Location 3 – SN 75680 03814

Figure 8: Downstream

Figure 9: Left Bank

Figure 13: Right Bank

Figure 10: Upstream

Figure 11: Sediment

Location 4 – SN 75587 03842

Figure 12: Downstream

Figure 13:Left Bank

Figure 14: Right Bank

Figure 15: Upstream

Figure 16: Sediment

Location 5 – SN 75511 03912

Figure 17: Downstream

Figure 18: Left Bank

Figure 19: Right Bank

Figure 20: Upstream

Figure 21: Sediment

Location 6: SN 75410 03 943 (INTAKE)

Note in lower flows a plunge pool is visible (about 400mm deep) at the bottom of the waterfall (seeing it is obscured but the whitewater in these photos due to the moderate/high flows)

Figure 22: Downstream

Figure 23: Left Bank

Figure 24: Right Bank

Figure 25: Upstream

Intake Structure Illustration Grid reference SN 75401 03942 weir crest level is 214mOAD

Figure 26: Sediment

Location 7– SN 75360 03942

Figure 27: Downstream

Figure 28: Left Bank

Figure 29: Right Bank

Figure 30: Upstream

Figure 31: Sediment

Location 8 – SN 75312 03963

Figure 32: Downstream

Figure 33: Left Bank

Figure 34: Right Bank

Figure 39: Upstream

Figure 40: Sediment

Figure 41 Point of interest, waterfall halfway between location 8 and 9

Location 9 – SN 75265 03981

Figure 42: Downstream

Figure 43: Left Bank

Figure 44: Right Bank

Figure 45: Upstream

Figure 46: Sediment

Location 10 – SN 75215 03987

Figure 47: Downstream

Figure 48: Left Bank

Figure 49: Right Bank

Figure 50: Upstream

Figure 51: Sediment

Location 11 – SN 75162 03992

Figure 52: Downstream

Figure 53: Left Bank

Figure 54: Right Bank

Figure 55: Upstream

Figure 56: Sediment

Location 12 – SN 75110 03993

Figure 57: Downstream

Figure 58: Left Bank

Figure 59: Right Bank

Figure 60: Upstream

Figure 61: Sediment

Location 13 – SN 75061 03982

Figure 62: Downstream

Figure 63: Left Bank

Figure 64: Right Bank

Figure 65: Upstream

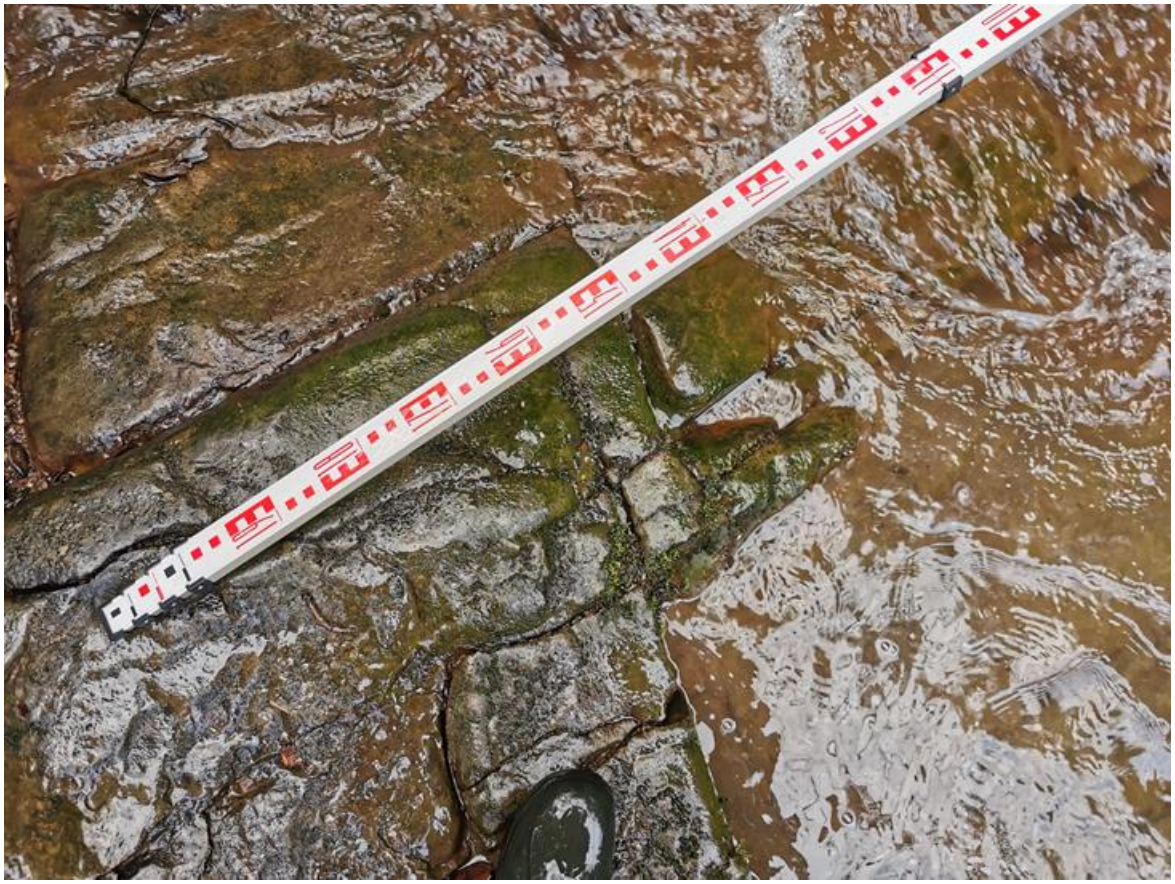

Figure 66: Sediment

Location 14 – SN 75005 03978

Figure 67: Downstream

Figure 68: Left Bank

Figure 69: Right Bank

Figure 70: Upstream

Figure 71: Sediment

Location 15 – SN 74904 03978

Figure 72: Downstream

Figure 73:Left Bank

Figure 74: Right Bank

Figure 75: Upstream

Figure 76: Sediment

Location 16 – SN 74852 03977

Figure 77: Downstream

Figure 78: Left Bank

Figure 79: Right Bank

Figure 80: Upstream

Figure 81: Sediment

Location 17 – SN 74825 03977 (Outfall Location)

Figure 82: Downstream

Figure 83: Left Bank

Figure 84: Right Bank

Figure 85: Upstream
Invert of outfall pipe is at 146.44mOAD (where ladies left boot is located in photo) (Powerhouse floor level is 148mOAD)

Figure 86: Sediment

Location 18 – SN 74749 03918

Figure 87:Downstream

Figure 88: Left Bank

Figure 89: Right Bank

Figure 90: Upstream

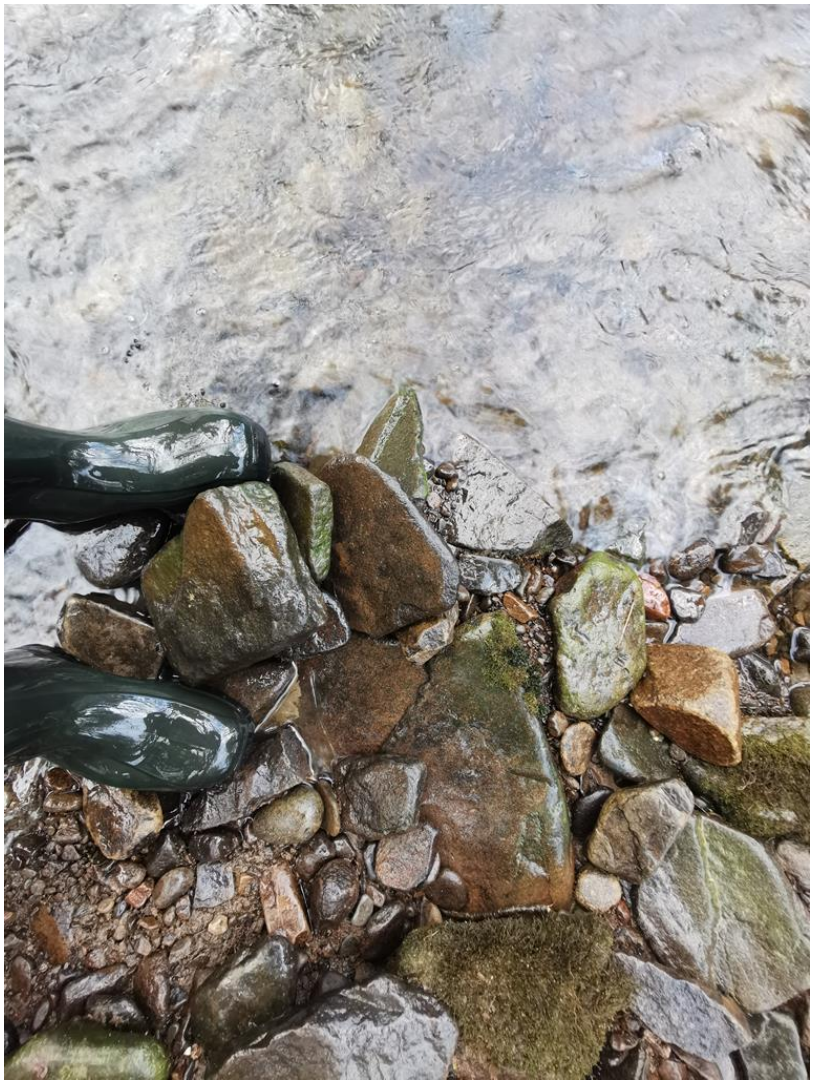

Figure 91: Sediment

Location 19 – SN 74726 03817

Figure 92: Downstream

Figure 93: Left Bank

Figure 94: Right Bank

Figure 95: Upstream

Figure 96: Sediment

Location 20 – SN 74709 03719

Figure 97: Downstream

Figure 98: Left Bank

Figure 99: Right Bank

Figure 100: Upstream

Figure 101: Sediment