



Final report on Water Framework Directive spend within the Wye and Usk River Catchments, December 2008 – April 2009

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Date: July 2009
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Fig 1. The location of the sites detailed in the document

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1. Introduction

The Wye and Usk Foundation (WUF) has conducted its operations on a catchment- wide scale since 1996 and during this time has built up knowledge of the rivers and the variety of pressures affecting them. We have developed and implemented cost effective techniques for making good degraded watercourses, remedial work in respect of water quality including acid waters; rectification of barriers to migration, and developed socio-economic mechanisms to ensure sustainability. We are a key stakeholder within the catchment and for over 12 years have been delivering actions to restore these rivers. We are therefore, well placed to assist in the delivery of outcomes for the Water Framework Directive (WFD)

Between April 2008 and March 2009 the WUF's ambitious programme of work amounted to £617,519 across ten projects. The WFD award added a further £100,000 to complete additional and complimentary works

These addition works ranged from further liming to ameliorate surface water acidification within the upper Irfon and upper Wye to restoration of degraded geomorphology across 8 km of stream and reducing Phosphate delivery to a stream failing on that parameter by supporting two improvements to farm infrastructure at one known problematic location.

2. Work completed

2. 1 Acidity correction

The Upper Irfon Water Body (WB 41910) is failing Good Ecological Status (GES) for pH (poor) and the Middle Irfon (WB 36760) is failing GES for fish apparently as a result of acid episodes. The Upper Wye (WB42330) and Tarenig (WB 42350) are also failing for pH, zinc and fish as a result of acidification.

Due to heavy coniferous afforestation of the source areas, sufficient hydrological source liming is often not possible and so calcium carbonate (limestone) was introduced into 54 locations within 1st and 2nd order water courses draining into the Irfon within the Irfon and Tywi forests and the Wye within the Tarenig forest. This will act in concert with work previously conducted under the pHish (Powys Habitat Improvement Scheme ERDF Objective 2) project in 2005, 2007 and 2008 to improve 53km of river length by raising baseline pH.



2. 2. Habitat Restoration

2.2.1 Clywedog (WB 42090 and 42070 and Maps 1.1-1.3 in Annex)

This is an important upper Wye tributary that has degraded geomorphology due to overgrazing by sheep, a history of alder coppicing and river “straightening”. It is therefore failing GES, at least partly due to the impoverished fish population.

The river was initially targeted for experimental work as part of the WHIP (Wye Habitat Improvement Project, EAGGF 5b) between 1998 and 2002. The WFD grant fund has now allowed the Foundation to complete the work started then, by coppicing remaining trees, excluding stock from the unfenced sections, pleaching in some of the woody regrowth that has occurred where stock has been excluded, all with the objective of creating ideal fish habitat. In the lower section stock were excluded by fitting 12 water-gates.

In total

- 438m was fenced
- 2,904m was coppiced
- 260m of fence at 6 locations was repaired
- 14 Water gates, 2 gates, 2 drinking places and
- 2 soft revetments completed

This ensures favourable condition of riparian habitat within 4.31km of river



2.2.2 Camddwr (WB 42130)

This tributary of the upper Ithon is provisionally failing GES for Cypermethrin

A 680m section of this stream was in a highly degraded condition due to unregulated stock access. It was identified in the survey as high risk of sheep dip entering the Camddwr, as it has been managed as a 'turn out field' adjacent to an untidy farm holding. The rest of the river is predominately in either extensive land use or fenced of via the Tir-Gofal scheme.

In total 1,200m of fencing was erected and 6 soft revetments constructed and sheep drinkers. In addition to reducing the risk of sheep dip pollution and reducing bank side sediment contributions, there will be considerable benefit to the fishery and fish population

in what was historically, an important spring salmon spawning area. The pictures were taken 2 months apart in 2009



2.2.3. Monnow Dulas (WB 36810)

This has probably been one of the most degraded locations in the Monnow catchment. A 670m section was fenced and coppiced and this resulted in rapid improvements in the riparian zone which, it is anticipated, will improve still further as the river continues to recover.

In total 1,270m of tree management was completed, 942m of double bank fencing and 3 water gates installed to create a wide buffer to allow the river to naturalise. Inclusion of this reach in a fishery marketing scheme (The Wye and Usk Passport) will ensure that these improvements are maintained through reinvestment of some of the proceeds.



2.2.4 Upper Usk (WB 39980 Map 4 in Annex)

This short (4km) WB has been classified as poor due to a failure of the fish feature. Whilst this classification is debatable, it is evident that the habitat is severely degraded as exemplified by this 1090m section (before and after photos below).

The rest of the water body section has otter sensitive habitat which prohibits use of machinery and some riparian management work under European protected species legislation was omitted from the scheme.

In total 1,441m of double bank fencing and 4 water gates were installed to exclude stock and allow the banks to re-vegetate and the channel to narrow.



2.3. Farm infrastructure improvements

Work was initially targeted within the Tippets brook (WB36630) at the request of landowners who had applied for, but failed to get grant assistance under the limited Catchment Sensitive Farming programme (none of the 39 applications submitted within the Lugg subcatchment in 2008 received support). In addition a wet weather survey conducted by WUF in 2006 has identified a further two high risk locations that requires intervention.

Having contacted 7 farmers, offers of grant assistance to reduce risk of sediment delivery were made to 4 farms where work was deemed to be beneficial, cost effective and required. These offers included 1 biobed, 4 cases of clean and dirty water separation and 1 case of grant supported riparian fencing. Whilst all were accepted only two were completed within the time line of the project. They were:

2.3.1 Tibshall

In an earlier wet weather survey of the Tippets brook this farm had been deemed to be high risk for sediment delivery. Despite the holding being over 600m from a surface water course, enriched water was observed flowing across a field and then down a road to discharge into the Tippets brook, a watercourse failing for phosphorus solely as a result of agriculture pressures.

After cold-calling the farmer, the risk was identified to be an overflowing blind ditch that acted as a catch-all for the slurry pit. The problem was exacerbated by excessive amounts of roof water flowing straight into the slurry pit as a result of a lack of guttering on a large roof area. This was resolved by making good the defective guttering. As an additional precaution, the liquor from the silage pit was separated into a catch pit.



2.3.2 Crochran

During a survey of the upper Ithon, a severely degraded section of the Llaithddu (WB 42160) failing for fish (moderate) was revealed. In this section the landowner was calving his cattle during the summer and over-wintering his sheep, as it was adjacent to the farm buildings. The result of this was a severely degraded section of river bank.

Erection of 1,620m of double bank fencing in combination with 2 soft revetments and 2 water gates has protected a 1.1km section and improved the fish habitat to the point where it should not constrain future fish populations.



(All before and after photos taken within 3 months of each other)

3. Survey

Between February and April the Upper Wye, Ithon, Irfon and Edw were extensively surveyed. The purpose of this was to provide a comprehensive baseline assessment of stream condition that can be used in future to guide and assess work to implement the WFD and outcomes. The survey which included a photo record of notable features and generic shots at kilometre intervals covered approximately 570km of river length.

We used a walk-over survey approach recording and documenting the following parameters:

1. Shading and tree species composition

- 3 shading categories, <25%, 25-90%, >90%

2. Fencing

- Good fence, fence in need of repair, no fence, No fence needed

3. Bankside erosion

- Stock access points

4. Obstructions to Migration

- Height, depth of pool below, type
-

5. Woody debris in river

- Secured/unsecured
-

6. Signs of EPS species

- Otter couches, slides, spraint or holts, hovers, bat roosts
-

7. Evidence of pollution, sewage fungus, inputs

8. Basic check for invertebrates

9. Other features of note (e.g. sheep dips, road drain discharges, evidence of sediment inputs, obviously bad farming practice on slopes, and evidence of gravel abstraction)

The following water courses were included in the survey:

Ithon

- Main stem from 2nd order to junction with Wye
- Tributaries: Camnant, Blue lins, Llaedthy, Gwenlas, Migrams, Moetre, Camddwr, Newry, Bachell and Crychell, Camlo, Llymnant, Nany, Aran, Minwood, Ffrwd

Upper Wye

- Main stem from Pant Mawr to Marteg junction
- Tributaries: Ty Mawr North, Bidno, Nant-y-Maes, Marteg, Marcheinei, Dernol, Glynlllyn, Hirnant, Estyn, Trafle, Treflyn, Cymrun, Llanwrthwl, Rhyd-y-Ceir, Elan, Marlog, Caethon,

Irfon

- Tributaries: Garth Dulas, Hafrenna, Chewfru and their tributaries

Edw

- Main stem from 2nd order to Wye
- Tributaries: Glas, Colwyn, Llaneon, Nantbrook

Uploading of this onto Map Info GIS has started with the Ithon now complete. It will be an ongoing task during the rest of the summer. Fig 2 is an example of the information now available. This will be instrumental in guiding WUF's actions and the implementation of the WFD in the coming years

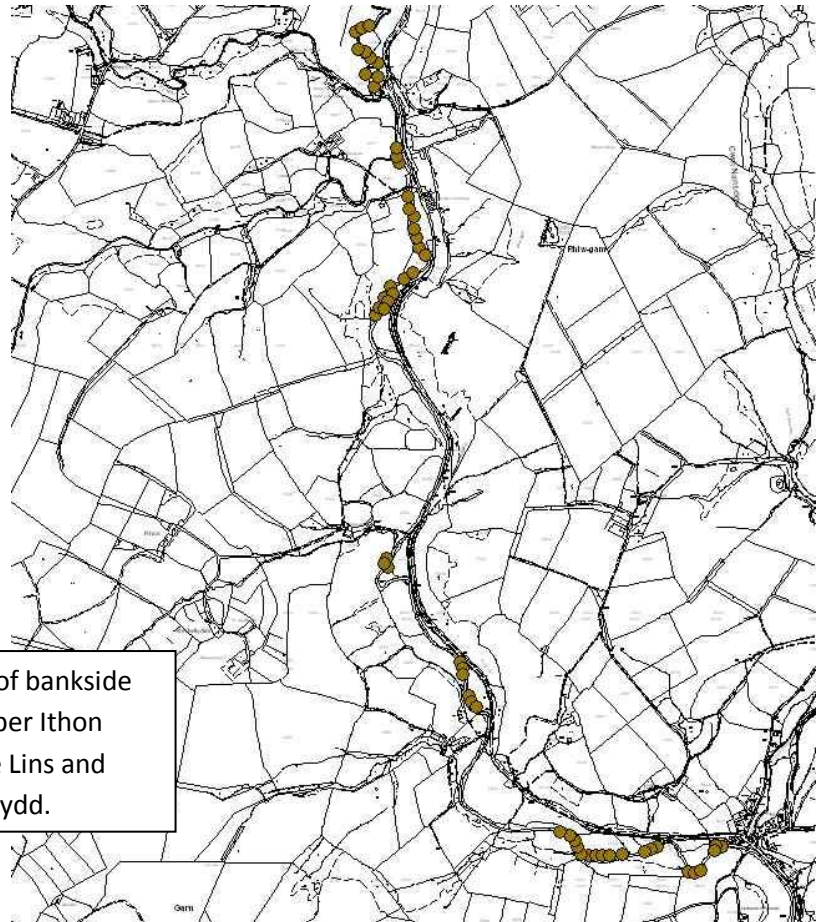


Fig 2. The extent of bankside erosion in the upper Ithon between the Blue Lins and Llanbadarn Ffrwnydd.

4. Financial information

All this information is supported by a SAGE accounting system and invoices held at the Foundation offices

4.1 Costs

The expenditure of the project is summarised in table 1 below:

Habitat	Budget	CIK	Jan	Feb	Mar	Apr	May	Cash
Equipment Hire	£49,398			£137	£632	£1,354	£191	£2,315
Protective clothing					£16	£2		£17
Motor costs			£708	£1,072	£1,064	£984	£677	£4,505
Materials			£778		£2,505	£8,383	£18,827	£30,493
Sheep drinkers							£1,929	£1,929
Contractors						£1,294	£3,914	£793
Survey	£8,500				£4,188	£2,280		£6,468
Grant assisted works	£10,663	£3,547				£2,096	£3,214	£5,310
Salaries								
Habitat staff	£36,397		£1,944	£1,756	£6,353	£5,446	£1,519	£17,018
Consenting/managing/survey upload			£2,474	£1,936	£4,786	£3,749	£4,404	£17,349
Direction and reporting		£8,500	£2,057	£1,236	£830	£1,335	£1,716	£7,174
Overheads								
Office costs	£6,542		£167	£129	£455	£620	£699	£2,070
Travel					£240	£10		£250
Total	£120,000	£3,547	£8,128	£6,266	£22,363	£30,172	£33,969	£100,899
Total spend								£104,446

4.2 Matching Contribution

It was a requirement that the WFD funds were matched by the other works being completed by the Foundation during 2007/08. Full details of all the projects can be found at <http://www.wyeuskfoundation.org/projects/index.php>

Powys Habitat Improvement Project

This period was synchronous with the final 2 quarters of this 4.5 year £2.1m EU-funded programme to restore the fish habitats of the Wye. It pioneered and proved the technique of hydrological source liming, established the Wye and Usk Passport and restored the habitat of over 50km of watercourses

Lugg and Arrow Radnor Project

As with pHish the WFD project was synchronous with the final two quarters of this £263,000 investment into enhancing the ecological status of the 12 WB's within the Welsh part off the Lugg and Arrow catchments through a project which included 18km of habitat restoration

Giving up the Weed

A 3 year programme to eradicate Japanese knotweed from the Wye and Upper Usk, and to instigate an effective control programme for Giant hogweed on the Wye. The project includes a section to investigate the effect of fencing out riparian zones and the management of invasive weeds including Himalayan balsam across the whole catchment

Riverine Aggregates Sustainability Project (RASP)

A project to determine the legal status of the damaging practice of agricultural gravel abstraction within SACs and to educate the abstractors to minimise damage.

Nat Grid Enhancement Fund

A £163,000 project to improve the habitat of 11.7km of watercourse and build 1 fish pass.

Lugg and Arrow Restoration Project (LARA)

A landfill tax project that is improving the lot for BAP species including eel and salmon within the middle Lugg and lower Arrow catchments.

Crayfish Project

Using Review of Consents under-spend a small project to control the spread off the invasive signal crayfish and improve the habitat on the Duhonw prior to restocking with the native white clawed crayfish

The expenditure of these projects and other work is summarised in table 2 below:

Quarter	2	3	4	1	Total
pHish	£33,884	£12,137	£0	£0	£46,021
L&A Radnor	£24,286	£74,822	£0	£0	£99,108
Giving up the weed	£18,785	£14,830	£13,292	£13,292	£60,199
RASP	£0	£0	£1,810	£5,310	£7,120
Nat Grid	£0	£56,600	£56,600	£56,600	£169,800
LARA	£0	£0	£0	£41,313	£41,313
Arrow weirs	£0	£0	£28,232	£0	£28,232
BBNPA Usk	£0	£0	£5,000	£5,000	£10,000
Crayfish project	£792	£792	£2,500	£2,500	£6,584
Liming	£7,964	£0	£0	£0	£7,964
Other (including repairs)	£51,567	£13,895	£40,680	£35,000	£141,142
total	£137,278	£173,076	£148,114	£159,015	£617,483

5. Summary of outputs

The outputs of the £100,000 grant are as follows:

Action	Amount
Fencing erected/repaired	5.881km
River bank coppiced	4.174km
Water gates built	23
Soft revetments completed	8
River corridor restored	7.85km
Number of streams sand limed	26
River surveyed	570km
Length of river with improved water quality	53km
Pollution risk reduction measures completed	2
Number of WB's improved	13

Finally our thanks to Environment Agency Wales and especially Mr Peter Gough in helping the Foundation to complete these improvements to the Wye and Usk.

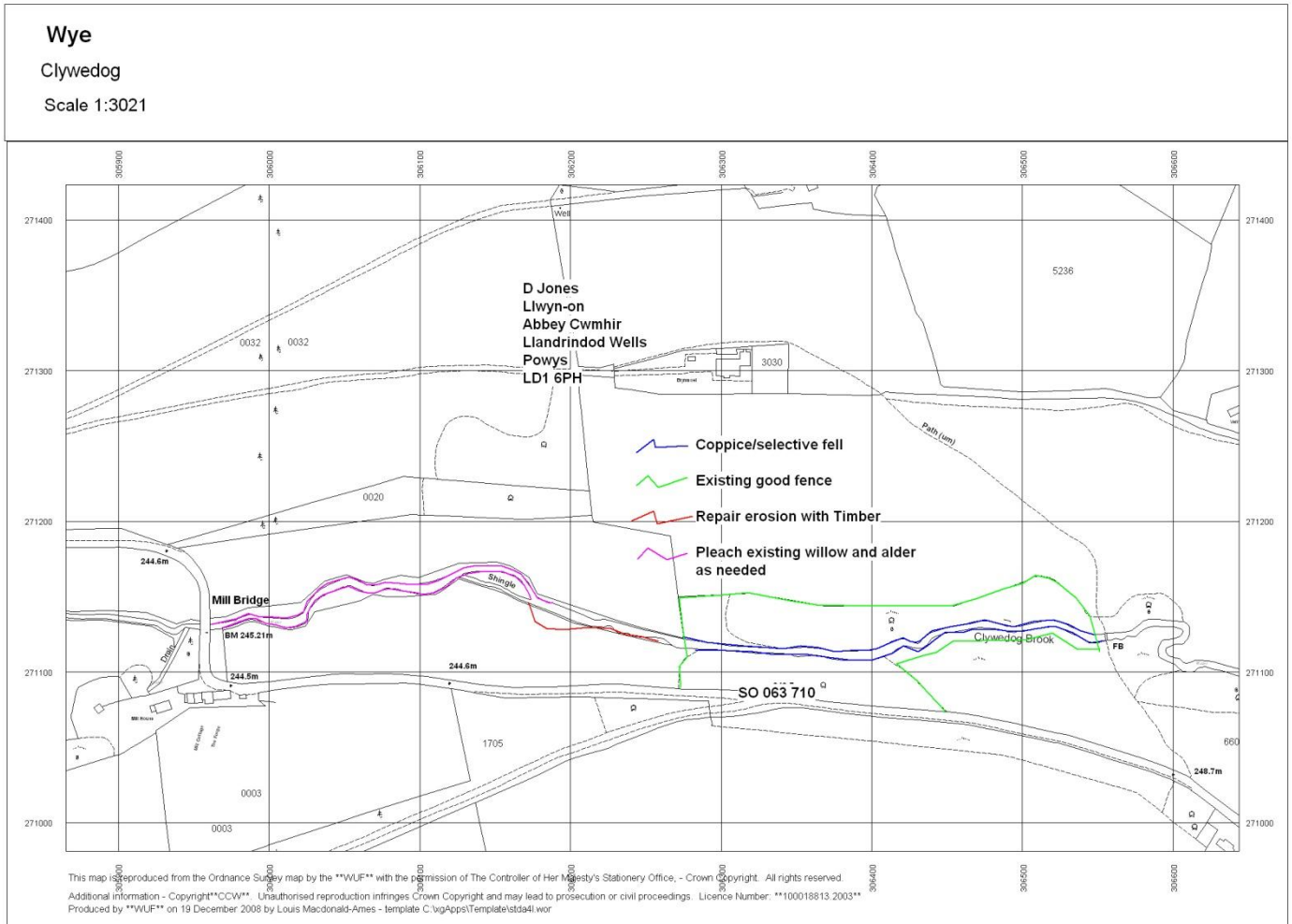
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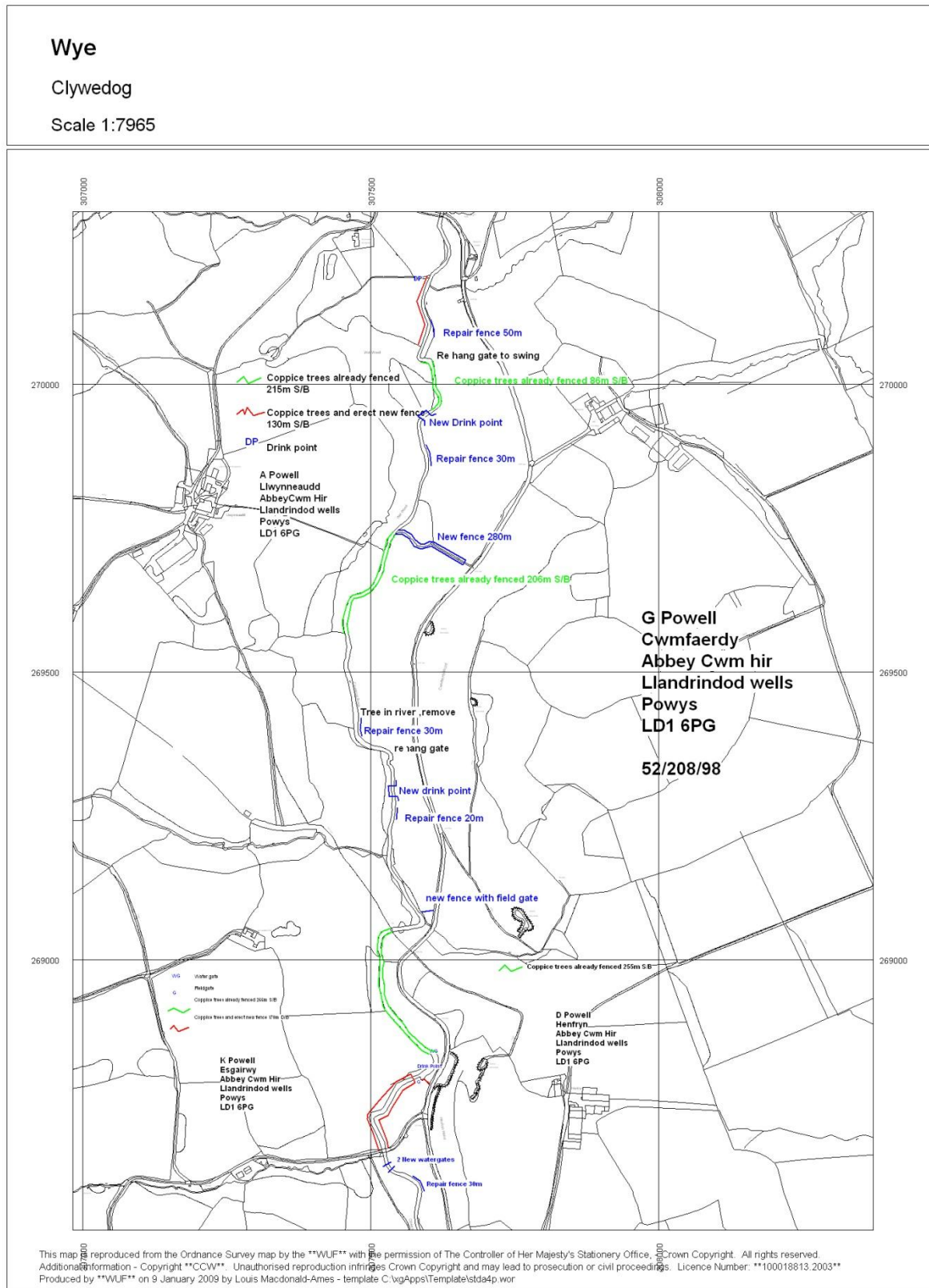
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Annex 1 – Maps of work sites

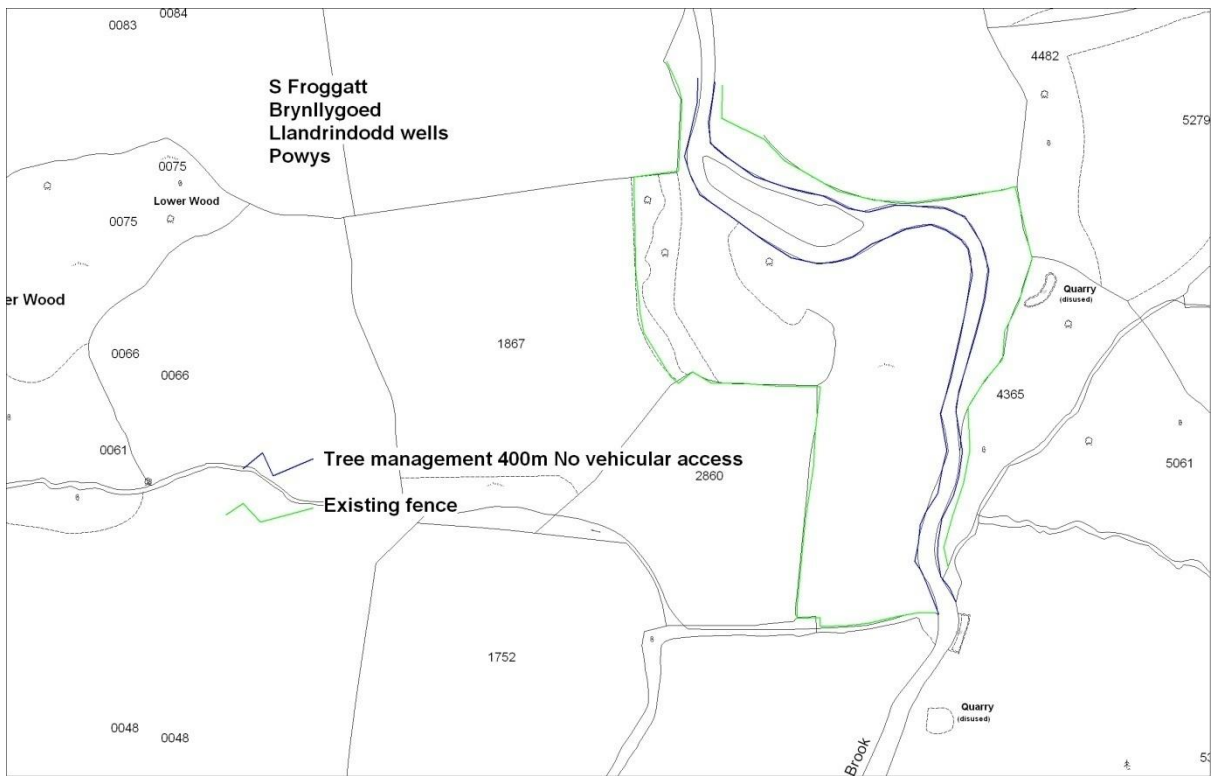
1.1 Upper Clywedog - Jones



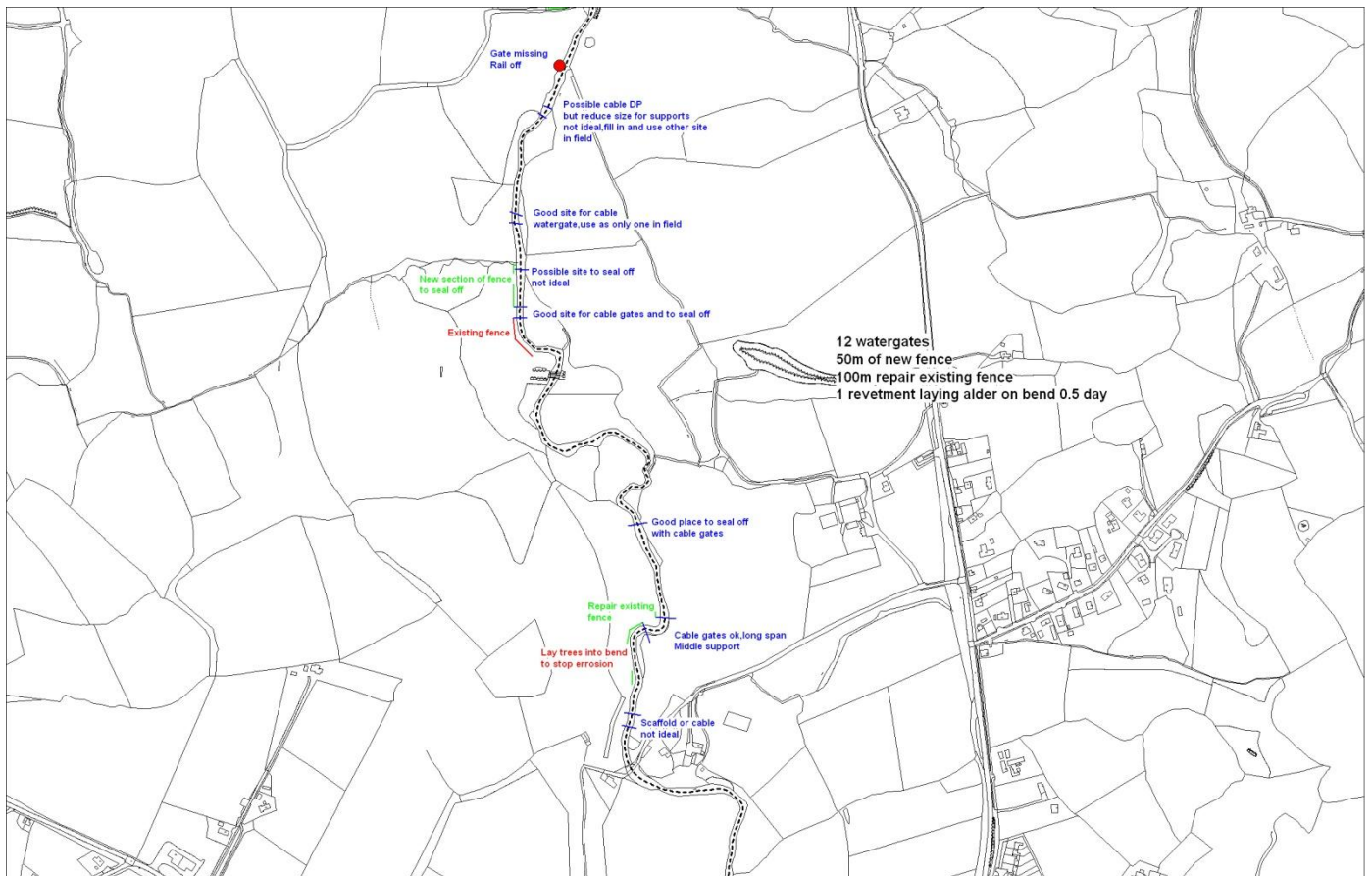
1.2 Middle Clywedog - Powell



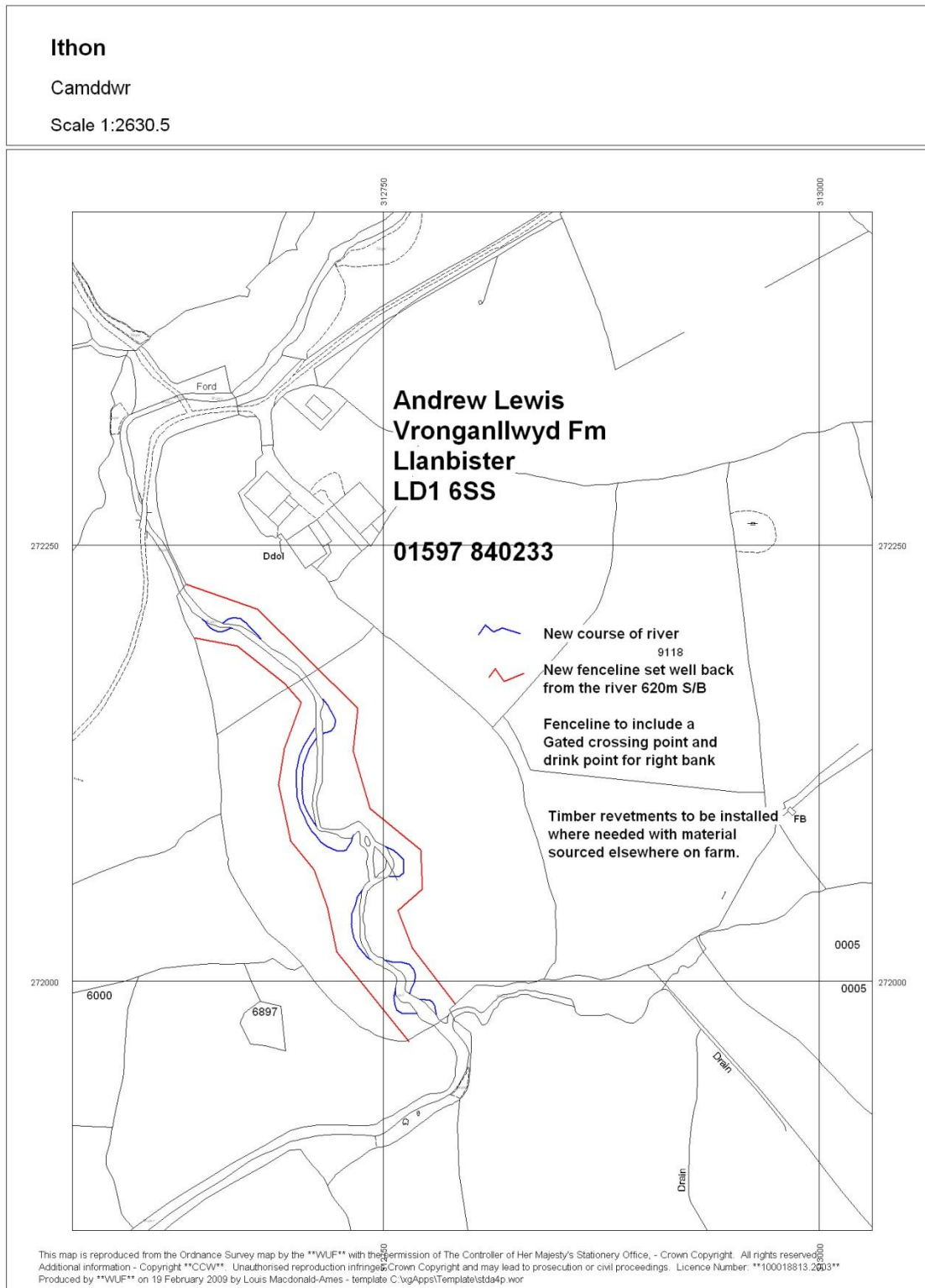
1.3 Middle Clywedog - Froggatt



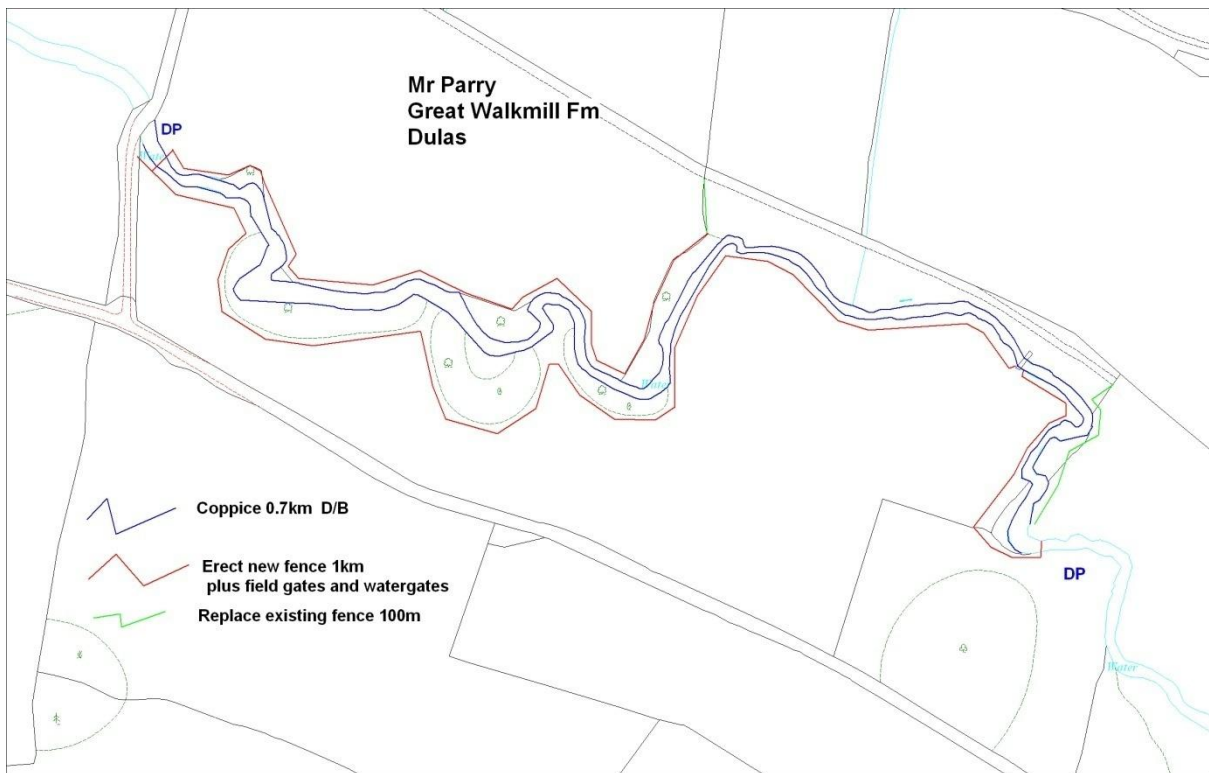
1.3 Lower Clywedog - Hughes



2. Camddwr Ithon - Lewis



3. Monnow Dulas - Parry



4. Upper Usk – Van Rees

