

# Fronwydyr Water Supply Upgrade 16<sup>th</sup> – 19<sup>th</sup> October 2010.

The following people attended the working party:

Frank Dunning	Saturday – Tuesday
Tony Williams	Saturday – Tuesday
Bertie Aung	Saturday – Tuesday
Andy Johnson	Saturday – Monday
Quin Hollick	Saturday – Monday
Cecilia Hollick	Saturday – Monday
Steve Jeffkins	Saturday – Monday
Neil Loydon	Saturday

Thanks to Rajni Agarwal for volunteering, but unfortunately we could not provide suitable transport for her.

## **Saturday 16<sup>th</sup> October**

We inspected Afon Dudodyn and selected the most suitable site for the water pick up and route for the supply pipe. 500m of supply pipe was laid from the pool in the river to the hut.

A pick up pipe of 25m blue plastic, drilled with 80 x 4mm holes, was attached to the supply end and installed in the supply pool. We decided to make this section blue so that it would be easier to inspect for algae/blockages. The pick up is secured by stainless steel cable to a rock on the river bed and two large boulders upstream. The supply pool is about 700mm deep.

Water easily flowed to the hut and Andy measured a flow rate of 25L per minute at a pressure of 4.5bar.

The 2000L storage tank was installed on a flat rock just above the hut and a supply pipe was laid from the storage tank to the hut.

The old hot water tank was removed and installation of the new thermal store tank was started.

Some of the supply pipe from the river to the tank was buried, particularly where it crosses a right of way.

## **Sunday 17<sup>th</sup> October**

Work on the plumbing in the hot water tank cupboard was completed and the system was commissioned.

The following problems were encountered:

1. The pressure from the storage tank to the hut was poor.
2. The pumped showers starved the kitchen of water when they were operated

We decided to move the storage tank further up the hill to provide more pressure. The overflow from the tank discharges into the stream by the hut at the bottom of the waterfall. As the tank is constantly overflowing we now have a visual check that the water is flowing from the stream to the hut.

The showers continued to reduce the flow rate in the kitchen to an unacceptable level and so, after some discussion and testing, we decided that the pumped shower units should be scrapped and replaced with thermostatic mixing valves.

The rest of the day was spent finishing off the plumbing and burying pipes.

## **Monday 18<sup>th</sup> October**

The supply pipes from the storage tank to the hut were insulated with polyurethane insulation.

We installed the shower units and tested the system.

The result was:

1. The flow to the kitchen taps is 2-3 times the flow from our previous water system
2. The showers work very well
3. The showers do reduce the flow to the kitchen taps but they still have more flow than from our previous system
4. There is very little change in the shower temperature when the kitchen taps are operated.
5. After two long showers the water temperature in the kitchen was hardly reduced.

Overall the system is a vast improvement on our previous system.

All wiring and electrical supply to the showers is now obsolete and has been removed.

## **Tuesday 19<sup>th</sup> October**

The day was spent burying the supply pipe to the hut, checking the system for leaks, replacing tiles in the showers and finishing off. The only section of the hut supply pipe which is not buried is where it drops down over the crag behind the hut. This issue may have to be addressed in the future if proves to be vulnerable to freezing.

Merion Pritchard recommended that we secure the tank to the hillside as it can blow over, particularly if it is empty. We secured it with three steel stakes and webbing.

Operation of the system is much simplified. On arrival the main stopcock is turned on and on leaving it is turned off. This applies throughout the year as there is no need to drain down.

Since there is no longer any need for members or visitors to access the hot water tank cupboard we have installed a combination lock to prevent unauthorised fiddling.

Total spend on the project, including the new shower mixers, is approximately £2200 – well within our initial estimate.

## **Outstanding work**

Burying the supply pipe from the river (optional) and fixing a small leak in the left hand toilet which we overlooked. Possibly improving the insulation on the pipe crossing the crag behind the hut.

## **Conclusion**

Overall a great deal of heavy work was done by a disappointingly small number of members. Several hours of sleep were lost while we worried about some technical problems which we had to solve.

The new system is a significant improvement on our last one with better showers. Let's hope it proves to be reliable.

Thanks to all the members who attended and Merion and David Pritchard for their invaluable help and advice.

Frank