

## Naturalising a Stream at Bedlinog



**Straightened and block lined channel prior to works**

Slowing the flow at Nant Llwynog; reducing flooding and erosion, whilst improving a public amenity.

Constant flooding and erosion had been causing some serious problems for Merthyr Tydfil Council who manage this old reclaimed tip site, close to the village of Bedlinog in the Taff Bargoed Valley.

The Nant Llwynog collects water from the mountains surrounding the site, the concrete lined channel, which was also straightened, brought the water through the site at high speed and in large volumes. The public footpath alongside the stream would regularly flood and sections had been washed away by the flooding.

Salix were brought in to do a full site analysis, design and implementation of a restoration scheme which would slow the flow and stop the flooding and erosion of the pathway, whilst also improving the habitat.

### Products Used

- **VMax™ C350**
- **Rock Rolls**





## Installing Rock Rolls and seeded soils in the stream bed

Salix proposed holding more of the water up at the top end of the park by desilting the large top pond and smaller middle pond, and by creating three new ponds linked to the main channel to attenuate floodwater.

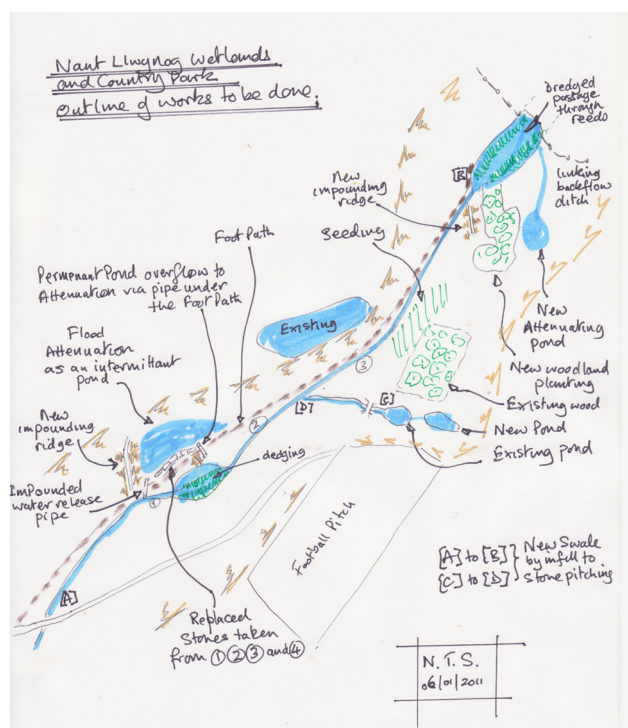
Salix also recommended reshaping the main stone lined channel to create a grass and reed lined swale.

### Pond desilting

The large pond at the top of the park that captures the catchment water had become silted up. A channel through the middle of the large top pond was desilted and its exit to the swale was raised to increase the attenuation capacity. This enlarged pond now fills up when a flood occurs and backs up via a new shallow ditch into a second newly created pond, increasing capacity at the top of the park.

A new area of wet woodland was planted next to the new attenuation pond to further enhance biodiversity and reduce runoff.

To preserve the footpath, the second existing pond was also dredged and a new pipe installed taking excess water beneath the footpath to a new attenuating pond. Water from this wetland pond can pass back into the main channel further down the hill via another underground pipe.







**Rock Roll baffles were laid across the stream bed**

## Naturalising the channel

The 430 metre length of principal drainage in a hard engineered channel was transformed into a green swale, without the potentially prohibitively costly removal of the concrete channel.

Site sourced soil was used to raise the invert. It was then seeded with native grasses and clovers and protected with an anti-erosion turf reinforcement mat.

Sections of the channel were edged with stone blocks to be re-positioned to different locations as part of the ongoing water management design.

Prior to soil filling, a series of two-metre long rock rolls were laid across the bed at one metre intervals to act as baffles, preventing the new soil bed slumping.

This stabilised soil was seeded and then protected from erosion with the same anti-erosion turf reinforcement mat as the main channel.

By focusing our efforts upstream, the need for hard engineering is completely removed by controlling the velocity of the water in the park.

This has improved public amenity and biodiversity at the same time, and reduced erosion downstream of the park.



VMax C350 turf reinforcement mat on top of seeded soils





## One year after installation

Rolf Brown, Countryside Officer for Merthyr Tydfil Country Borough Council said:

"The aim of the project was to better manage water through the park in a way that was environmentally, ecologically and visually beneficial.

"We approached Salix to devise a sustainable system that would minimise erosion in the valley improve the landscape. Environment Agency Wales – now Natural Resources Wales – favoured creating a more natural appearance to the existing engineered drainage channels, and grant monies were offered by them for reducing flash flooding impacts by slowing down water run-off by creating more ponds and wetlands, and naturalising the stream course."

"Several years on the installed system continues to prevent erosion, has 'naturalised' and is regularly visited and monitored by local residents interested in the improved biodiversity.

"The significant visual impact now makes the valley appear very natural rather than an obvious industrial reclamation site, and forms a key link between the village of Bedlinog and the Merthyr & Gelligaer Common Landscape of Special Historic Interest."

A short film can be watched here  
<http://bit.ly/NaturalisingBedlinog>