

In late 1997 a new minewater discharge emerged in the village of Six Bells, near Abertillery in South Wales. Although the impact was initially not great, the flows increased and quality deteriorated to their current levels of 60 litres per second at 45 mg/l iron. This has caused severe pollution and discoloration to up to 10km of the Afon Ebbw Fach. The flow and location of the discharge on a steep embankment made it impractical to build a collection and pumping chamber at the outbreak point.

The Authority's consultants, International Mining Consultants (IMC), suggested a pumping borehole be sunk to hit an intersection of two pit bottom roadways. This had been successfully utilised to intersect the former Deerplay Colliery workings in Lancashire. This time, however, it meant intersecting a 3m wide roadway at a much greater depth of 217 metres. In terms of margin of error, this equates to hitting the bullseye in a game of darts.

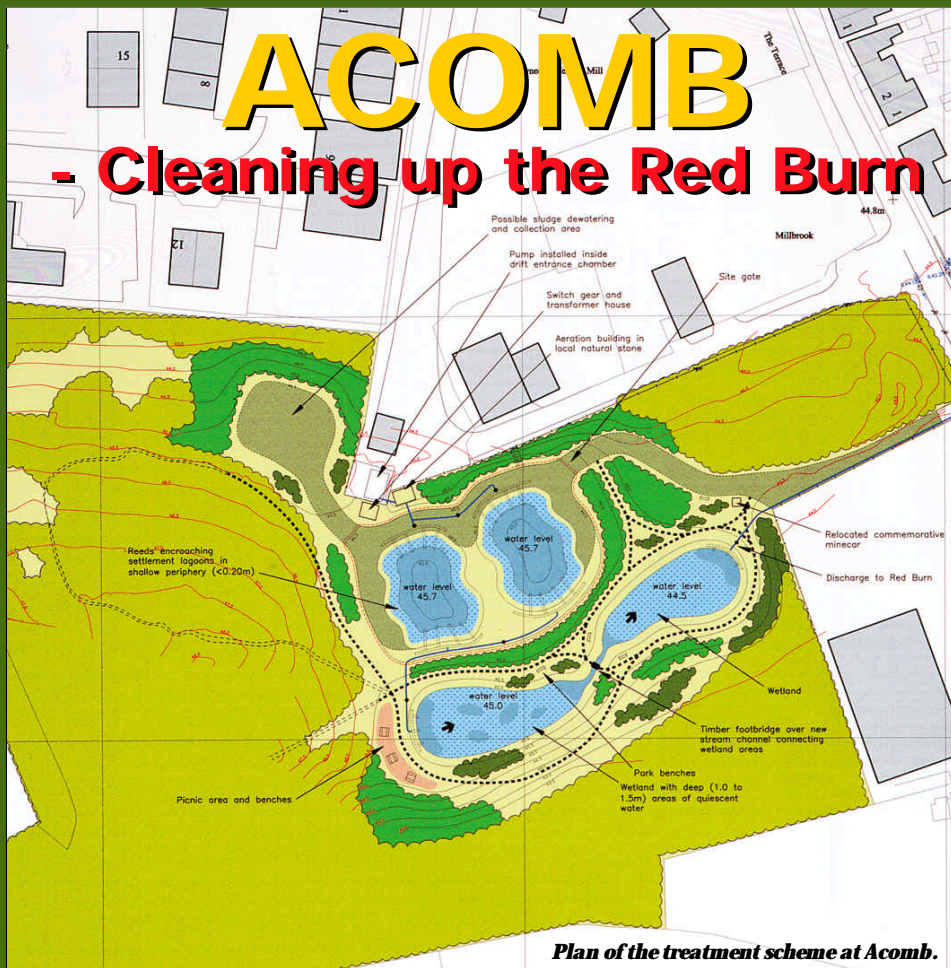
The proposal was further complicated by the fact that it was not possible to site the drill rig directly above the target and directional drilling had to be employed, the hole being deviated by 20 metres.

After reviewing the original correlation surveys and consulting the former Colliery Surveyor, the contract was let, and the 350 millimetre diameter hole successfully hit the roadway in June 2001. Water levels quickly stabilised in the hole, to a level consistent with the discharge, indicating good connectivity.

A contract for the pump and treatment installation was awarded shortly after the connection was made. Pumping will commence next year, with levels in surrounding workings being monitored to determine the extent of influence of the pump.

As well as cleaning up the river, the scheme is planned to eliminate a strong hydrogen sulphide smell which arose from the discharge, and affected nearby residents.

**Schematic diagram of the drilling scheme at Six Bells.**



**Plan of the treatment scheme at Acomb.**

## Amenity Benefits

Site works commenced in August 2001 on a £400,000 passive scheme to treat the polluting discharge from the former Acomb drift mine near Hexham, Northumberland. The discharge has been polluting the Red Burn since the late 1960's, being highly visible to the local community, as the Burn runs adjacent to the main street in Acomb village.

The scheme will consist of a pumping sump, two small aeration lagoons and a pair of aesthetically designed interconnecting reedbeds. It will be constructed on an area of land constituting part of the reclaimed spoil heap from the former colliery. The site was reclaimed by Northumberland County Council in the 1980's and has been used as a local amenity since that time. Therefore, the Authority worked closely with the Council to ensure the scheme took into account the wishes of the community. Footpaths and seating have been designed into the scheme to maintain the amenity nature of the area.

A small pumping sump and delivery pipeline will be necessary to enable the discharge to be pumped from the mine adit to the treatment site.