



**Alan Auld**  
ENGINEERING

## Project Data Sheet - Tunnel Design - Remedial Works



The Alan Auld Group has significant experience of tunnel remedial works and re-lining projects.

These photos were taken in the Barrow Gurney Aqueduct, a 200 year old water tunnel carrying water from the Mendip hills to the city of Bristol. Site investigations had revealed major solution cavities behind the original masonry lining, as well as movement and damage to sections of tunnel which had previously been relined with concrete.

Alan Auld Group companies were initially engaged to design temporary works strapping to prevent further deterioration of the affected sections. This led into our work developing proposals and details for the remedial works required on the affected sections, including for demolition of the bulging masonry and relining of the affected areas with reinforced concrete.

Being fully conversant with both design and site tunnelling practices, the Alan Auld Group was able to further assist the main contractor by developing a safe method of working. This required the design of a moveable frame to protect the workforce during the removal of the bulging masonry.

Through the course of the works Alan Auld Group developed a shuttering lining profile to accommodate the varying geometry of the tunnel, and also designed works to enable a historic irregular shaped air shaft to be used as a man and materials entry point. This was achieved by widening the lower section of shaft and installing a segmental lining.

Asset Owner - Bristol Water  
Main Contractor - Costain Civil Engineering  
Specialist tunnelling sub-contractor - Fineturret Ltd

