

## Concrete Repair & Tunnel Strengthening Channel Tunnel Fire Damage Repair

Client  
Euro Tunnel  
Principal Contractor  
Vinci Energies / Eurovia  
Travaux Ferroviaires /  
Freyssinet Consortium  
Contract Value  
50 million Euro  
Freyssinet Value  
20 million Euro  
Work Completed  
January 2009

Following severe fire damage in September 2008, Channel Tunnel operator Eurotunnel awarded the repair contract to a consortium of Freyssinet, Eurovia Travaux Ferroviaires and Vinci Energies, that was charged with undertaking one of the most complex repairs to a tunnel that the world has ever seen, at over 1 kilometre into the Channel Tunnel.

Freyssinet was appointed to complete the civil engineering works, while ETF would be responsible for track and overhead wire restoration and Vinci Energies responsible for other equipment.

The extensive repairs included considerable amounts of hydro-demolition, using high-pressure water jets to remove concrete from various structures, which was specified as the method to remove the fire damaged concrete.

Concrete was then reinstated using sprayed concrete techniques by Freyssinet's skilled operatives, with extensive tunnel strengthening also being required.

Freyssinet carried out initial strengthening of the tunnel using 1003 rock bolts to prevent tunnel roof collapse.

After this initial phase Freyssinet employed four hydro-demolition units to extract all of the fire damaged concrete.

This initial work took a total of six weeks, followed by a period of intense activity working from a two tier scaffold. All surveying and monitoring was undertaken by the site teams.

The final phase for Freyssinet was the spraying of over 4000 tonnes of sprayed concrete in 32 days, a record for this sort of work. Further works were then completed by the consortium.

This very successful and well planned contract was completed to the satisfaction of all involved.

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