



Queen Elizabeth II Reservoir Tunnel Relining Thames Water

Location: Walton-on-Thames, United Kingdom

Date: 2021 - 2022

Structure: Tunnel

Length: 2000m (6562ft)

Cross-Section: 5m²

Geology: London Clay

Cost: £15K (US\$ 21K)

Client: Mott Macdonald

Owner: Thames Water



Figure 1. Tunnel shaft before works (Courtesy of Thames Water).

In-Depth Review of Structural Elements:

The Queen Elizabeth II Reservoir is located near Walton-on-Thames and managed by 'Thames Water' (Figure 2). There are two tunnels in existence which transport raw water between the reservoir and inlet and outlet shafts. The tunnels are 1060m (3477ft) and 795m (2608ft) long and have been constructed using wedge-block lining. This project considers relining the tunnels with 150mm (6") thick cast-in-situ secondary concrete lining that will help to prevent leaks. The two temporary shafts of 15m (49ft) diameter and more than 30m (98ft) deep will be constructed for work access. At the completion of tunnel relining works, the temporary shafts will be backfilled.

Gall Zeidler Consultants (GZ) have been appointed to carry out independent checking (CAT III Check) of all structural elements. This includes the check of precast reinforced concrete segmental shaft lining, the cast in-situ reinforced concrete shaft base plug, the portal in the shaft for the tunnel opening, the secondary lining, and tunnel reconstruction at shaft. Furthermore, the CAT III Check included the waterproofing system as well as the interfaces between the new secondary lining and the existing shafts.



Figure 2. Walton's Queen Elizabeth II Reservoir (Courtesy of Thames Water).