



# BAYNOONAH TUNNEL, UAE

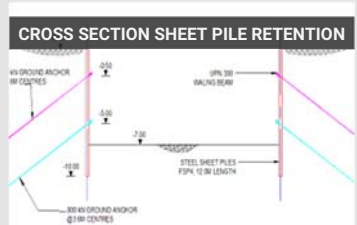
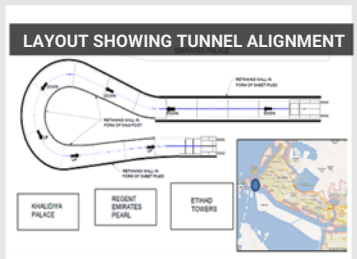
## CASE STUDY

ESC carried out the design calculations on behalf of the Main Contractor and submitted them for approval to the Client (Abu Dhabi Department of Transport) and their Consultant (Parsons). All designs were to be as per the British Standards.

The original design was to build a secant pile wall. However, ESC managed to demonstrate to the client and the consultant that a sheet pile retention system is faster, cheaper and technically sound solution. The proposed embedded steel sheet pile solution was adopted. Large parts of the retaining wall needed to be supported by one and/or two levels of ground anchors with a continuous waling beam.

Due to the sloping nature of the excavation, retaining wall conditions were constantly changing along the length of the wall. The analysis therefore had to be done incrementally, taking design cross sections for each section of the tunnel. Modeling was performed using an effective stress analysis based on BS8002, using the analysis software ReWaRD. The design of the sheet pile system was performed in accordance with the requirements of BS5950. Anchors were designed based on BS8081, which is a working load design standard.

Installation of the sheet piles was carried out by vibrating the sheet piles to required level with a vibro hammer mounted on a 50T crawler crane.



Get in Touch:

T +852 3956 1868  
E [escglobal@escpile.com](mailto:escglobal@escpile.com)  
W [www.escpile.com](http://www.escpile.com)

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