

SECURING 11m HIGH SECANT PILE WALLS AND A BASE SLAB - PROOF LOADED TO A RECORD 325kN

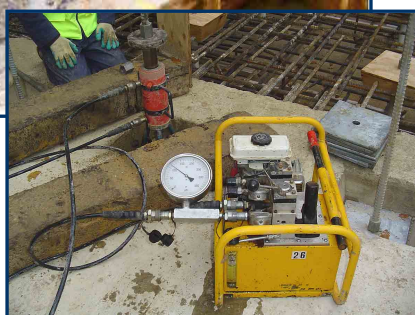
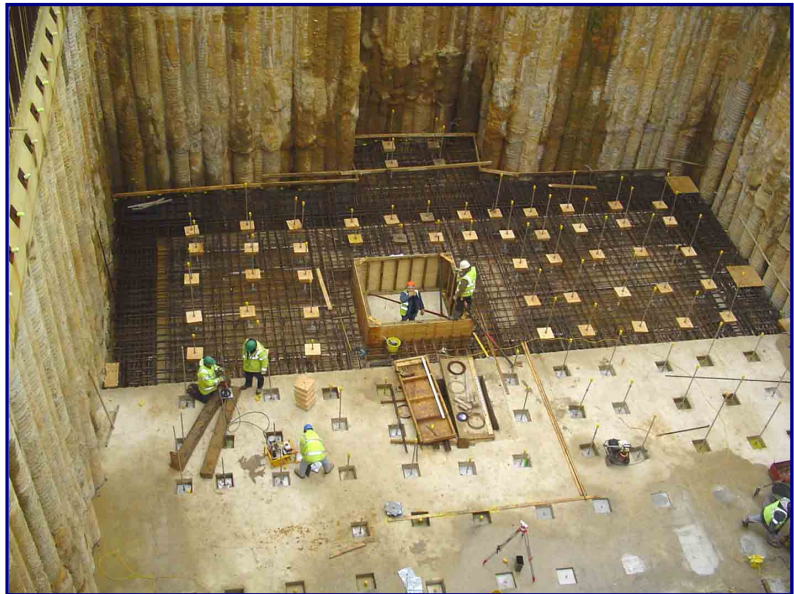
Engineers: **Pole Associates**
Client/Main Contractor/Installer: **Dome Ltd**
Project Manager/Quantity Surveyor: **F R Gainsbury**

Requirements

Due to planning restrictions, the construction of an indoor badminton court at a large private residence in Berkshire had to be primarily below ground level.

Excavations to a depth of 11m were needed to house the structure and, with the water table only 3m below ground level, it was necessary to create full height secant pile walls, to hold back the ground works, and construct a base slab to prevent the excavations from flooding.

As considerable pressure would be exerted on both the secant pile walls and the slab they all required securing to the dense cemented sands.



Installation

Project engineers, Pole Associates, specified Duckbill ground anchors because they were proven, could be rapidly installed, were cost-effective and, most importantly, could accept an immediate proof load up to 325kN – the first and only mechanical ground anchor able to do so.

Main contractor, Dome Ltd, installed a total of 287 Duckbill SR1 anchors via pre-drilled pilot holes through the walls and slab. Each anchor had a 28mm high yield bar and was installed to a depth of 6m before being load-locked and terminated with a 350mm square plate and a locking nut.

The Duckbill anchors were installed around all four walls through specially cast pile caps on the top of the concrete secant piles to restrain the walls and enable safe excavation. After pumping out the water the base slab was constructed and secured, to prevent water pressure uplift, with the anchor plates and nuts being recessed and concreted over after proof loading 300kN, some to a record 325kN, and set to a working load of 150kN.