

Ground Anchors

Project Report



P111 - Research & Development Below Ground Tank, Floating Slab

Client: Oxford Technologies
Engineer: AKS Ward
Contractor: Greenford Limited
Supply: 15No.MR2 Stainless Steel Duckbill®
Ground Anchors
Date: Installed July 2014



Requirement

Oxford Technologies in the construction of a new site have commissioned a waterproof tank where they can test their practical solutions for remote handling equipment which are primarily designed for applications used in the Nuclear and Oil & Gas Sectors. Greenford as part of their main construction works were tasked with creating a waterproof tank 10m x 5m x 4.5m below ground level in the new industrial building. The tank is designed to be completely waterproof through the use of sacrificial piles, waterproof concrete and hydrophilic water bars. Due to the volume and depth of the tank there is a clear requirement to hold the tank down as the construction has occurred within the water table. AKS Ward could have designed a substantial concrete plug into the base of the tank that would counteract the necessary floatation effect. However, due to the sheer volume, cost and environmental impact of adding this amount of additional concrete an alternative method was sought. AKS Ward designed MR2 stainless steel anchors into the project to counteract the floatation effect. The solution was clearly a low impact change to the design. However, this change delivered a substantial saving to the construction in terms of programme, environmental impact and overall project value.



The Solution

Anchor Systems (International) Ltd (ASIL) worked with the AKS Ward to review the soils data to come up with a suitable anchoring system. After the selection criterion was established ASEL were engaged to supervise a site test. The anchor was loaded to the 20kN load required. The test was successful even with a limestone substratum evident at 1.5m below tank depth. Once the test was successfully completed ASEL supplied the required anchors. The anchors were installed and loaded prior to the concrete being poured so that each one was tested and verified as working. The concrete was then poured over the anchor with void formers for protection. Twenty eight days after slab installation the stainless steel pattress plates were installed and the slab loaded. All stainless steel protrusions were adequately caulked and waterproofed. ASEL are suppliers of specialist anchoring plant, equipment and products for pinning concrete, geogrids and geotextiles, anchoring structures and stabilising formations in the geotechnical and civil engineering arena. Please contact us to help you create your solution.



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