



## Case

# STUDY

### TENAX HM

Grace Academy  
Working Platform



**MARKET SECTOR:**  
Commercial



**LOCATION:**  
Grace Academy  
Darlaston



**CONTRACTOR:**  
Kier Moss



**ENGINEER:**  
Kier Engineering Services

## The BACKGROUND

**The Grace Academy in Darlaston is a successful school and sixth form college serving the community of both Darlaston and Walsall.**

Kier Moss were awarded a £27 million contract to build a new school on parkland adjacent to the existing site and on completion demolish the existing school buildings. The site of the new building had historically been an old colliery site dating back to the industrial revolution. Once the works were redundant the site was converted into parkland during the 1920's.

## Our Client's REQUIREMENTS

A sustainable solution for a piling mat, working Platform

**Site investigation reports determined that the ground was very poor and contaminated in areas with colliery spoil and cohesive soils.**

The cost of bulk earth works and import of suitable materials would be economically restrictive. The designers of the building decided a pile foundation solution was the most economical method.



# Our Value Engineered SOLUTION

**Using the Tenax Reinforced Soil Raft Concept, the following considerations were used to ensure a safe solution.**

Foundation Soil - We analysed two cases CBR 1% & CBR 2% Using correlations from Terzaghi, we used an undrained shear strength of  $C_u = 25 \times \text{CBR (kPa)}$  for calculations Unit Weight =  $18 \text{ kN/m}^3$

Platform Material -

Selected granular material Class 6F2 nominal maximum particle size of 125mm

Piling Rig Bearing Pressures -

BRE Load Case 1 Pressure = 103 kPa  
BRE Load Case 2 Pressure = 277 kPa

Using the above information we were able to determine that 1 layer of LBO 330 Geogrid would provide a safe working platform with 500mm 6F2 at 1% CBR & 300mm 6F2 at 2%. CBR to ensure there was no migration of fines between the formation and aggregate layer a Non-Woven Geotextile Ekotex®08 was installed.

**“The solution proposed by Geosynthetics Limited quickly highlighted a safe working platform which generated savings in both aggregate and construction time”**

**MATT STEVENS**  
Design Engineer  
Kier Construction

