



The  
University  
Of  
Sheffield.

Faculty  
Of  
Engineering.

## **Sheffield Engineering Scholarships**

### **PhD full-fees scholarship for China Scholarships Council scholars from Zhejiang University**

**Project:** *Stabilisation of Compacted Fill Using Vibrated Stone Columns*

Previous mining activities in the Yorkshire region have left a legacy of decommissioned deep open cast pits. Many of these sites have been backfilled with colliery spoil and other by-products from mineral extraction. These materials are highly varied and were typically poorly compacted with little engineering control over their placement. The behaviour of these heterogeneous fills presents great difficulties in future development /regeneration of these areas as the geotechnical behaviour is highly unpredictable. A major difficulty often encountered is wetting-induced collapse settlement that produces large volumetric changes in the soil matrix which compromised structural stability. This research project seeks to evaluate the behaviour and mechanical collapse processes of un-engineered fills in order to enhance our understanding of their performance. The project will also investigate techniques to enhance stability of the deposit and provide a platform for structural foundations. In this respect Vibrated Stone Columns are proposed for this purpose as they can be retrofitted with relative ease and are often used in soft soil deposits to enhance bearing capacity and reduce settlements.

**Supervisor:** Dr. Jonathan Black (Civil and Structural Engineering)

**Scholarship:** Sheffield Engineering scholarships cover the full cost of PhD registration fees for 3 years

**Eligibility:** Sheffield Engineering scholarships are available to students who secure a CSC scholarship. Applicants must meet the University of Sheffield English Language requirements, full details of which are available at:

[http://www.shef.ac.uk/postgraduate/info/notlive\\_dfiohmihtm.html](http://www.shef.ac.uk/postgraduate/info/notlive_dfiohmihtm.html)

**Applications:** Please send a CV together with a brief covering letter to Professor Geraint Jewell, Faculty of Engineering Director of Research and Innovation at [g.jewell@sheffield.ac.uk](mailto:g.jewell@sheffield.ac.uk) by **15<sup>th</sup> March 2009**. Include the title of the project in your covering letter and any English language test results.