

# International Geosynthetics Society

## United Kingdom Chapter



## Soil-geosynthetic interaction: Obtaining strength parameters for design

**Professor Neil Dixon**

School of Civil and Building Engineering, Loughborough University  
([N.Dixon@lboro.ac.uk](mailto:N.Dixon@lboro.ac.uk))

Hosted by the ICE Northwest Geotechnical Group

**Wednesday 25<sup>th</sup> April 2012, 6:30 pm**

**Room H11, Renold Building, University of Manchester**

Light refreshments will be available outside the lecture theatre from 5:45 pm

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Tensar International Ltd  
Tel: +44 (0)7733 001825  
Fax: +44 (0)1254 266841  
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Fax: 01925 852260  
[richard.moss@environment-agency.gov.uk](mailto:richard.moss@environment-agency.gov.uk)

**Communications:**  
**Peter Langley**  
Fiberweb Geosynthetics Limited  
Tel: 01621 874221  
Fax: 01621 874299  
[plangley@fiberweb.com](mailto:plangley@fiberweb.com)

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Fax: 01254 266809  
[crigby@tensar.co.uk](mailto:crigby@tensar.co.uk)

**Andy Cracknell**  
Naue Geosynthetics Ltd  
Tel: 01925 810280  
Fax: 01925 810284  
[acracknell@naue.co.uk](mailto:acracknell@naue.co.uk)

### Synopsis

Knowledge of soil vs. geosynthetic and geosynthetic vs. geosynthetic interface shear behaviour is of fundamental importance to designers. This presentation will consider factors influencing measured interface shear behaviour, it will present data that quantifies variability and will detail methods for obtaining characteristic interface shear strength parameters for use in design. It is shown that the design of shear apparatus is the main reason for the large variability of measured interface strengths obtained in inter-laboratory comparison testing programs. The need to carry out repeat tests at each stress level is established. The use of global databases of measured interface strengths to inform selection of strength parameters is discouraged. A recommendation is given to use the results of repeatability testing programs to support calculation of characteristic interface strength parameters. Using the example of landfill lining design, guidance is provided on selection of strength parameters including consideration of relevant factors of safety, consequences of failure, selection of the critical interface and control of interface displacements. Examples will be presented showing the use of reliability based methods to incorporate interface strength variability, and hence uncertainty, in design of soil-geosynthetic systems.

### Biographical Details

Professor Dixon has been a university academic for over 22 years and he has 30 years of experience in geotechnical engineering research and practice. He has worked on funded projects and published over 130 referred publications in the areas of slope failure mechanisms, pore water pressure regimes in slopes, in situ measurement of soil/waste properties, slope stability assessment, instrumentation development, slope process modelling, landfill barrier design guidance and impacts of climate change studies. Professor Dixon played a leading role in the development of UK practice in waste containment system design. He is currently an elected Council Member of the International Geosynthetics Society and he is an editorial board member of the journals Geotextiles and Geomembranes, and Geosynthetics International.



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