The Australian Research Council Centre of Excellence for Geotechnical Science and Engineering (CGSE) invites practising engineers and academics to make and submit predictions of the performance of an embankment constructed using prefabricated vertical drains on soft clay and/or the load-displacement response of a shallow foundation loaded to failure on soft clay.

Field observations and the time histories of the embankment and footing behaviour, as well as the various predictions of that behaviour, will be presented and discussed in a special Prediction Symposium to be held on 9-10 September 2016 in Newcastle, Australia.

**EXPRESSIONS OF INTEREST**

Register your interest by **30 June 2015** to:

Kirstin Dunncliff  
Centre Coordinator  
Kirstin.Dunncliff@newcastle.edu.au  
T: +61 (0)2 4921 8832

Participants will be provided with a user name and password in June 2015 which will allow access to the prediction symposium website and the available data.

**SYMPOSIUM VENUE**

Fort Scratchley  
Newcastle, Australia

**TIMETABLE**

- Expressions of interest sought: January - June 2015
- Prediction data released: June 2015
- Submission of predictions: April 2016
- Symposium: 9-10 September 2016
- Preparation of proceedings with discussion: December 2016
- Special edition of Computers and Geotechnics: March 2017
PURPOSE
The symposium is intended for education rather than competition, and its aims are to:

• Assess how data is synthesised for use in numerical analysis;
• Assess what is reasonable accuracy and variance in numerical predictions;
• Assess methods for estimating confidence in the predictions using stochastic methods or engineering judgment;
• Make long term predictions for creep settlements for follow up in several years time;
• Assess whether the level of sophistication of the analysis is important; and
• Discuss the applicability and effectiveness of the numerical methods used to make predictions.

Instructions for predictors, site investigation data, laboratory testing data, embankment construction records, drawings and written papers synthesising the data can be accessed using the following link:


As the laboratory test program has not been fully completed and written up, additional information will be uploaded as it becomes available. Registered predictors will be notified by email of any new data provided.

Papers from all participants on 9 and 10 September will be published together with a formal record of the symposium discussion in a special edition of Computers and Geotechnics in December 2016.

WHY MAKE A PREDICTION?
The proposed Prediction Symposium has been designed to provide an opportunity to improve the accuracy and reliability of numerical predictions of ground behaviour, under carefully controlled conditions, and with no commercial or reputational risk involved for the predictors.

It is hoped that the prediction symposium will attract predictors and their predictions from the ranks of practising geotechnical engineers as well as academics. While it is recognized that academics and practitioners may be motivated by different factors, they each have a stake in the quest to improve the prediction techniques and tools of our profession.

Designers typically make predictions using characteristic values of material parameters, based on limited data and constrained by limited time. When doing so, they usually appreciate that their predictions may therefore have limited accuracy. However, this does not remove the obligation to know the implications of any decisions made regarding material parameters, and the type of constitutive and numerical models that are adopted, on the degree of certainty of the predictions made. Prudent designers will appreciate the need to understand the potential variability of the model predictions from actual performance. This is desirable so that the designer can then adopt a suitable risk profile for the project, and develop suitable contingency measures to account for any performance that turns out to be better or worse than expected.

Academic researchers often wish to capture the soil behaviour as fully and accurately as possible (or at least as is practicable) in their constitutive and numerical models. Depending on the problem at hand, this may require the incorporation of rate dependency, anisotropy, soil structure and fabric and material parameters that change with state. It may also involve replicating the variability of natural materials using stochastic methods and require the development computational tools that capture large deformations with compressive strains in the order of 10% to 25%, together with the associated changes in total stress, static water pressure and material parameters.

Researchers and practitioners should each be able to improve their understanding of soil behaviour through interpretation of the differences between Class A predictions, based on the results of a ‘research grade’ in situ and laboratory testing program, and actual embankment and footing measurements.

Hopefully this opportunity for such a prediction and interpretation will inspire both academics and practitioners to ‘have a go’ and make a prediction in the interest of advancing our understanding of soil behaviour and our knowledge of which tools are best suited to predicting its response.