

EG4 – Numerical Methods

Report to SC7/WG1 meeting

Vienna

17-18 October 2013

by

Andrew Lees

(EG4 Convenor)

EG4 – Numerical Methods

Members

Andrew Lees	(Cyprus)	✓
Helmut Schweiger	(Austria)	✓
Kirsi Koivisto	(Finland)	
Bruno Simon	(France)	✓
Markus Herten	(Germany)	✓
Michael Kavvadas	(Greece)	Skype
Manole Serbulea	(Romania)	✓
Dan Ungureanu	(Romania)	
César Sagaseta	(Spain)	
Anders Kullingsjö	(Sweden)	
Brian Simpson	(UK)	✓
Colin Smith	(UK)	Skype

Recommendations

New clauses to cover:

- Competency of users of numerical methods software.
- Validation of software and analyses.
- Numerical methods (elasto-plastic) particularly suited to SLS.
Advice on soil stiffness.
- Summary of issues concerning numerical methods and ULS verification (pros and cons; wider issues as well as EC7-specific partial factoring issues).

Recommendations

- ULS GEO/STR verification: dual factoring approach EFA + MFA mandatory. The use of RFA to verify specific geotechnical failures will not be a requirement but could be optional.
- Structural elements: factoring structural strengths, EFA methods, carrying through variable load factors in EFA methods.

Recommendations

- Partial factor values:
 - It should be highlighted that simple application of partial factors may not necessarily obtain the intended degree of conservatism because of other effects such secondary parameters that affect the ULS (e.g. stiffness, dilatancy, in situ stresses)
 - Advanced constitutive models - factors on “soil strength”
 - Simulating undrained behaviour – factors on undrained shear strength.