

# ***1<sup>st</sup> WG 1 Meeting of CEN/TC 250/SC 7 in Vienna***

## **Report of Evolution Group EG2 “Ease of use”**

1<sup>st</sup> meeting of WG1, CEN TC 250/SC7 Oct. 2013, Vienna, Schuppener: Report of EG2 “Maintenance and ease of use”



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# *Agreed scope of work*

- Remove material readily available in text books and other NCCI documents.
- Remove repetition of principles and application rules across the two parts of EN 1997.
- Restructure the two parts with respect to ground investigations: with the provisions for planning, execution and evaluation of derived geotechnical parameters in EN 1997-2 and the evaluation of characteristic geotechnical parameters based on the derived values in EN 1997-1

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# *Proposals to SC 7 for EN 1997-1*

<b>Section 3</b>	<b>Geotechnical data</b> .....
3.1	General .....
3.2	Geotechnical investigations .....
3.3	Evaluation of geotechnical parameters .....
3.4	Ground Investigation Report .....

Section 3 *Geotechnical Data* is covered by EN 1997-2. It should therefore be deleted.

In the next version on EN 1997-1 Section 3 should contain the provisions describing the establishment of characteristic values.

# *Proposals to SC 7 for EN 1997-2*

EN 1997-2 should address the designer – not the personnel for laboratory or the field tests.

Section 2 on planning should state that the designer has to provide all input-values for the execution of field and laboratory tests. In the subsections on the different tests guidance will be given for the designer on the criteria for selection of the input values for the tests.



## ***Principles for the revision of Sections 4 and 5 of EN 1997-2***

- All paragraphs describing the tests and their execution, should be deleted. Reference to the test standard will be made.
- The subsections on the different tests should in general comprise only the two headings: “General” and “Derived values”.
- Items to be specified by the designer shall be included in “General”.



# Two-column version of Section 4 „Field tests“

## Section 4 Field tests ~~in soil and rock~~

### 4.1 General

~~(1)P When Field tests are conducted, they shall be interpreted and evaluated in conjunction with the observations obtained linked to by sampling and laboratory testing by excavating and drilling, in order to collect information on the ground stratification and to obtain geotechnical parameters or direct input for design methods (see also EN 1997-1:2004, 3.3).~~

~~NOTE Recommendations for the spacing and the depth of field tests are given in 3.?.? and in Annex B.3~~

~~(2)P Field tests shall be planned considering the following general points (see also Section 2):~~

- ~~— geology/stratification of the ground;~~
- ~~— type of structure, the possible foundation and the anticipated work during the construction;~~
- ~~— type of geotechnical parameter required;~~
- ~~— design method to be adopted.~~

*This is covered extensively in the section of planning*

~~(3) The tests or combinations thereof should be selected from the following types, contained in the Parts of EN ISO 22476 and covered in this Section:~~

## Section 4 Field tests

### 4.1 General

(1)P Field tests shall be interpreted and evaluated in conjunction with the observations obtained by sampling and laboratory testing (see also EN 1997-1:2004, 3.3).

NOTE Recommendations for the spacing and the depth of field tests are given in 3.?.? and in Annex B.3





# Two-column version of Section 4 „Field tests“

## 4.3 Cone penetration and piezocone penetration tests (CPT, CPTU)

### 4.3.1 Objectives ~~General~~

(1) The ~~objective of the~~ cone penetration test (CPT) ~~is used is~~ to ~~measure~~ determine the resistance of the ~~ground soil and soft rock~~ to the penetration of a cone and the local friction on a sleeve. Cone penetration test (CPTU) will in addition provide measurements of pore water pressure.

(2) The test results can give qualitative information on the ground profile.

### 4.2.2 Derived values

- (1) CPT and CPTU results may be used to provide e.g. the following derived values:
- relative density and angle of friction of non-cohesive soils,
  - undrained shear strength of fine-grained soils
  - soils' moduli,
  - permeability at specified depths and
  - values for the unit pile resistance.

(2) When establishing the derived values soils type, pore water pressures and the vertical stress shall be taken into account. Examples for geotechnical values derived from CPT are given in Annexes D.1, D.2, D.4, D.5, D.6 and

## 4.3 Cone penetration and piezocone penetration tests (CPT, CPTU)

### 4.3.1 General

(1) The cone penetration test (CPT) ~~is used is~~ to ~~measure~~ the resistance of the ~~ground~~ to the penetration of a cone and the local friction on a sleeve. Cone penetration test (CPTU) will in addition provide measurements of pore water pressure. The tests shall be carried out and reported in accordance with the requirements given in EN ISO 22476-1 for the electrical CPT and CPTU, or EN ISO 22476-12 for the mechanical CPT.

(2) The test results can give qualitative information on the ground profile.

### 4.2.2 Derived values

- (1) CPT and CPTU results may be used to provide e.g. the following derived values:
- relative density and angle of friction of non-cohesive soils,
  - undrained shear strength of fine-grained soils
  - soils' moduli,
  - permeability at specified depths and
  - values for the unit pile resistance.

(2) When establishing the derived values soils type, pore water pressures and the vertical stress shall be taken into account. Examples for geotechnical values derived from CPT are given in Annexes D.1, D.2, D.4, D.5, D.6 and





## ***Principles for the revision of Sections 4 and 5 of EN 1997-2***

- Tests which are applied only in one or two countries (e.g. the Weight sounding test, used in Sweden) should not be covered in EC7. Every country is free to use tests which are not covered in EN 1997-2.
- All paragraphs and annexes dealing with design should be deleted or moved to EC 7-1



# Proposals to SC 7 for EN 1997-2

Field test	Annexes of EN 1997-2 considered to be moved to EN 1997-1	To be discussed by
Cone and piezocone penetration tests	D.3 Example of a method to determine the settlement for spread foundations	EG 10 Calculation models
	D.6 Example of a correlation between compressive resistance of a single pile and cone penetration resistance	EG 7 Pile design
	D.7 Example of a method to determine the compressive resistance of a single pile	EG 7 Pile design
Pressure meter tests	E.1 Example of a method to calculate the bearing resistance of spread foundations	EG 10 Calculation models
	E.2 Example of a method to calculate the settlements for spread foundations	EG 10 Calculation models
	E.3 Example of a method to calculate the compressive resistance of a single pile	EG 7 Pile design
SPT	F.3 Example of a method to calculate the settlement of spread foundations	EG 10 Calculation models
	Annex H (Informative) Weight sounding test	To be deleted
Plate loading test	K.4 Example of a method to calculate the settlement of spread foundations in sand	EG 10 Calculation models

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## *To be discussed by SC7 in Vienna*

### **1.5.3.1**

#### **derived value**

value of a geotechnical parameter obtained from test results by theory, correlation or empiricism.

### **1.5.3.1**

#### **derived value**

value of a geotechnical parameter obtained from test results by **calculation**, theory, correlation or empiricism, **that will be used in the process of establishing characteristic values.**

