

# What could we expect in next version of EN 1997 – Overview

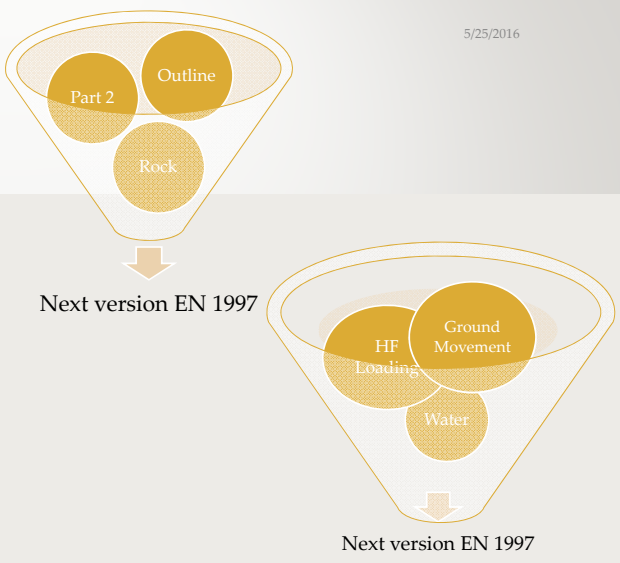
G. FRANZÉN

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Some of the ideas for next version of EN 1997

Do we agree with them?

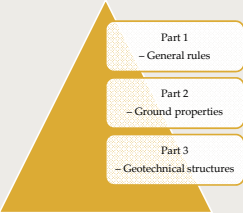


Next version EN 1997

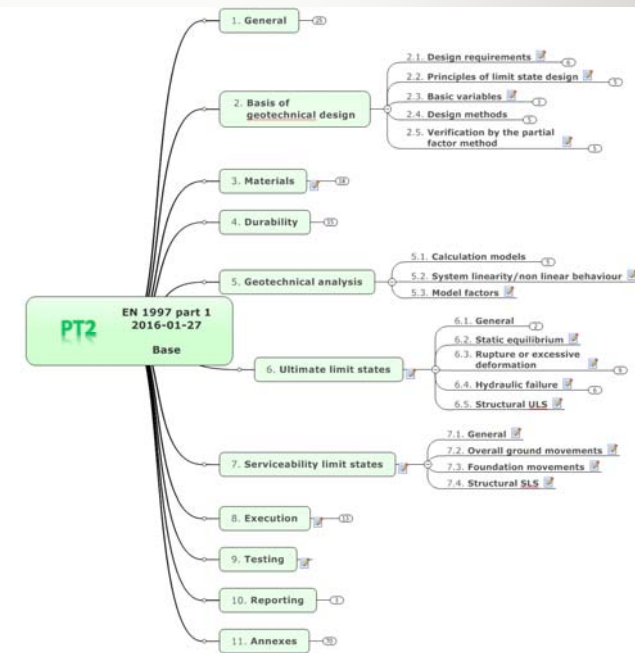
Next version EN 1997

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## Table of content Part 1 – General rules



Note:  
Same will be used for all chapters in Part 3.






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## Table of content Part 2 – today

Today's version – focus on the methods for testing

1. General
2. Planning of ground investigations
3. Soil and rock sampling and groundwater measurements
4. Field tests in soil and rock
5. Laboratory tests on soil and rock
6. Ground investigation report
- Annex A-X






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## Table of content Part 2 – Proposal

Move from method related to design related solution.

The design engineer in focus.

Focusing the content on the parameters that a design engineer needs to get from ground investigation rather than the methods used to get the data.

1. General
2. Basis of ground investigations
3. Development of the Ground model
4. Stratification and description
5. Basic physical properties
6. Density
7. Strength
8. Deformation parameters
9. Permeability
10. Ground chemistry
11. Dynamic/cyclic response
12. Ground investigation report

- Annexes

For each design parameter and method of investigation the following aspects shall be covered:



- Applicability
- Limitations
- Accuracy/precision
- Derived value
- Test specification

Based upon this, and the problem to solve, the **engineer can select appropriate methods.**

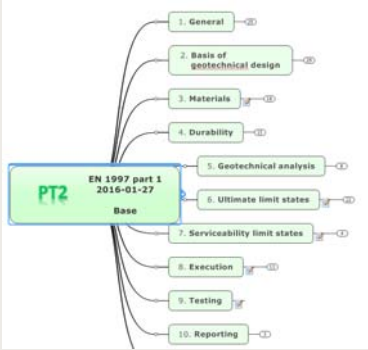
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## Table of content Part 3

Next version could include

1. General
2. Slopes, cuttings, and embankments
3. Spread foundations
4. Pile foundations
5. Ground improvement
6. Retaining structures
7. Anchors
8. Reinforced soil structures



## Rock

### On equal basis as soil



- If clauses relevant for both soil and rock, use the term Ground. Clearly state if only relevant for either soil or rock.
- Additional information will be added to sections on observational method and prescriptive measures.
- Question marks:
  - Calculation for rock (characteristic value, partial factors)
  - Ground model
  - Additional design considerations
  - Do we have a common application of observational method



## High frequency loading

- Seismic
- Machinery foundation

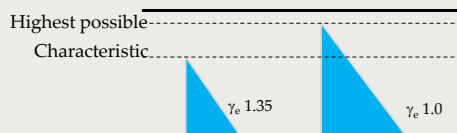


- Seismic
  - EN 1997 shall treat ground investigation
  - EN 1998 shall treat the design (however, relevant partial factors for geotechnical design in EN 1997)
  - Avoiding duplications and potential contradictions
- High Frequency loading machinery
  - List of what shall be considered in addition to static loading condition.

## Ground water



The question: Is it possible to factoring water pressure?



### First proposal under development

- Design water pressure
  - In ULS with MFA **do not** apply a partial factor  $>1$ . Use the highest possible water level instead.
  - In ULS with EFA **do** apply a partial factor  $>1$ . Use the characteristic water level
- Design hydraulic gradient
  - The characteristic value should be factored by a partial factor of X (is 2 enough?)

## Nordic common view – do we agree?



- EN 1997 part 2 should focus on the design engineer according to new proposed structure
- Rock shall be included on equal basis.
- Observational method should be treated in more detail
- It is enough to treat high frequency loading for machinery with a few clauses
- Groundwater could be factored for EFA, but not for MFA.

## Program

- 9:00 – 9:10 Welcome to the workshop
- 9:10 – 9:30 Why a new version of EN 1997? Why the Nordic countries should influence? *G. Franzén*
- 9:30 – 10:20 Retaining structures – common Nordic view. Presentation/discussion of example  
*O. Möller, T. Lännsivara, F. Oset, A. Kullingsjö*
- 10:20 – 10:40 Coffee
- 10:40 – 11:30 Pile design – common Nordic view. Presentation/discussion of example.  
*O. Möller, G. Axelsson*
- 11:30 – 12:20 Derived to characteristic to design value. Should we adjust the approach?  
*G. Franzén, L. Korkiala Tantt*
- 12:20 – 13:20 Lunch
- 13:20 – 14:10 Design combination – philosophy. *O. Möller*  
What could we expect in next version of EN 1997 – Overview *G. Franzén*
- 14:10 – 14:30 Coffee
- 14:30 – 15:20 Numerical methods – possible to have one approach? *A. Kullingsjö, K. Koivisto*
- 15:20 – 15:30 Summary *A. Eggen*
- 15:30 End of workshop