

# What to Expect in Settle version 4.0

## Look out for the *Settle* v4 Beta in the Fall!

**Settle** is a 3-dimensional program for the analysis of vertical consolidation and settlement under foundations, embankments and surface loads. We've listened to your suggestions, and *Settle* v4 will come with a multitude of major new features:

- CPT soil profile data
- Output of horizontal stresses
- Updated liquefaction analysis module
- Staged material properties
- Easier editing of loads
- Improved results interpretation options

### CPT Soil Profile Data

One of the biggest additions to *Settle* v4 is CPT data interpretation.

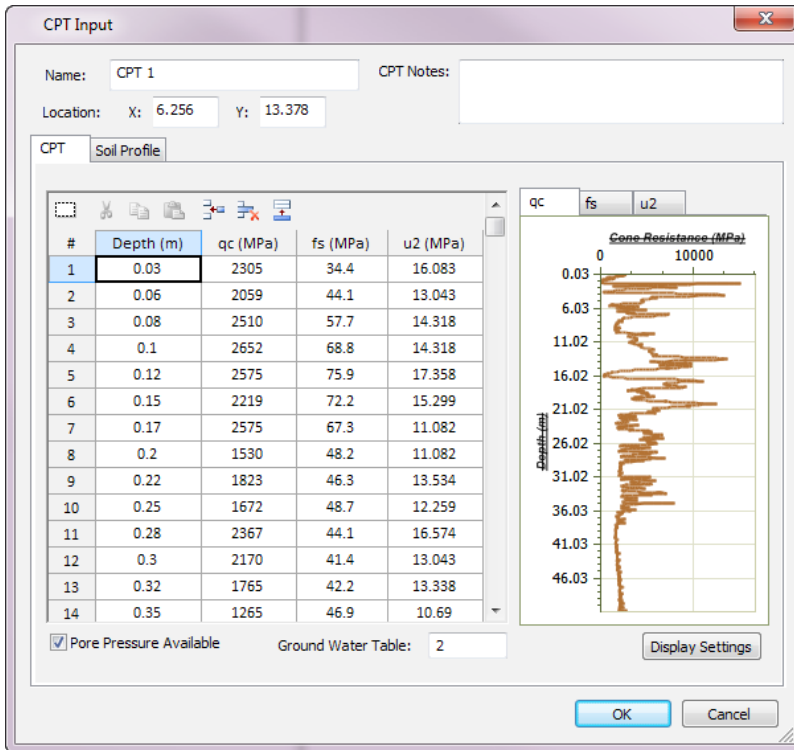
Using the CPT data input by the user, the parameters calculated include:

- Corrected cone resistance
- Friction ratio
- Soil unit weight
- Normalized cone resistance, friction ratio, and pore pressure
- Soil type index
- Fines content
- Equivalent SPT

The following CPT Classification options will be available:

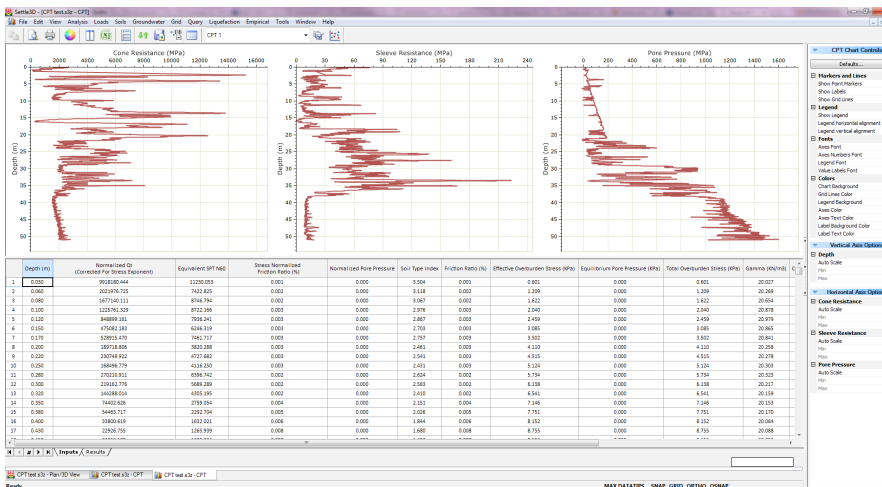
- Robertson 1986
- Robertson 1990
- Schneider 2008
- Normalized Schneider 2008

For each borehole, the user can enter both the CPT data ( $q_c$ ,  $f_s$ ,  $u_2$ ) and Soil Profile.

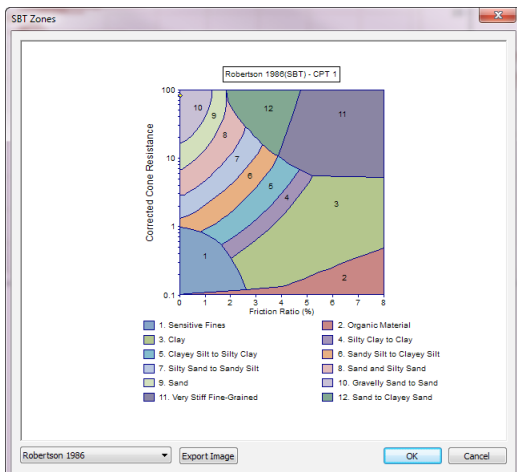


CPT borehole input data

For each set of CPT data, over 25 different parameters can be calculated. Results can be viewed graphically and in table format.



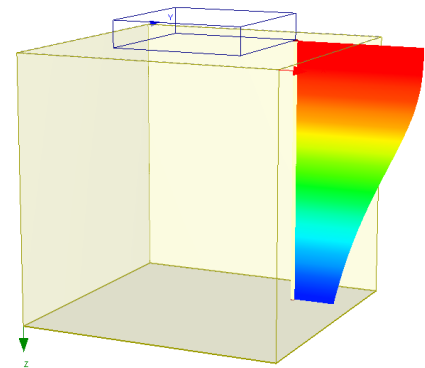
CPT input data display



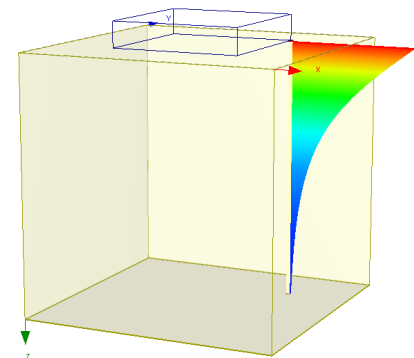
Robertson (1986) SBT Zones graph

### Output of Horizontal Stresses

Loading, effective, and total stresses are now calculated.



Loading Stress ZZ



Loading Stress XX

Initial stresses in the xx and yy directions are calculated based on the stress in the zz direction and a user-specified k<sub>0</sub>.

### Updated Liquefaction Analysis Module

In *Settle* v4, users will now be able to calculate settlement and lateral displacement for CPT and VST analyses.

In addition, for SPT analysis there is now a Pre-defined Triggering Methods option which allows users to choose between four different methods:

- Youd et al. (2001)
- Idriss and Boulanger (2008)
- Cetin et al. (2004) – Deterministic
- Cetin et al. (2004) – Probabilistic

When the Pre-defined methods option is selected, users will choose between the four methods listed above and the Depth Correction, Advanced, and Triggering Methods options will all be automatically selected and cannot be changed. If the Customized option is used, users can choose whichever methods and corrections they would like.