

## Extend querying power with the most user-definable CPT software available.

Define your own CPT reports extracting the right information every time across projects and sites.

### More ways to interpret data

Rich-data presentation with more than 600 customisable log, fence, graph and cross section reports.

- User-defined correlation formulas
- Preconfigured soil parameters
- Soil behaviour type correlations
- Preconfigured liquefaction correlations
- Pile axial capacity and shallow foundation settlement
- Dissipation test analysis
- Seismic cone presentation
- Choose SI (Metric), USCS (English) or configure the units to suit your needs
- Begemann Mechanical CPT
- Magnetometer cone derivations and presentation

CPT Tool 3.2 is proven third-generation software that puts you in control with code-free report definition, formula creation tools and a library of preconfigured calculations unrivalled in cone penetration testing that can be written to the database for presentation in a range of customisable reporting formats.

#### ► Multi-format file import

Import CPT data files from numerous formats and fast import into SQL Server.

#### ► Data accuracy

Adjust measured data after importation with data correction tool.

#### ► High-volume data processing

The power of multi-threaded calculation with support for Access and SQL Server database formats.

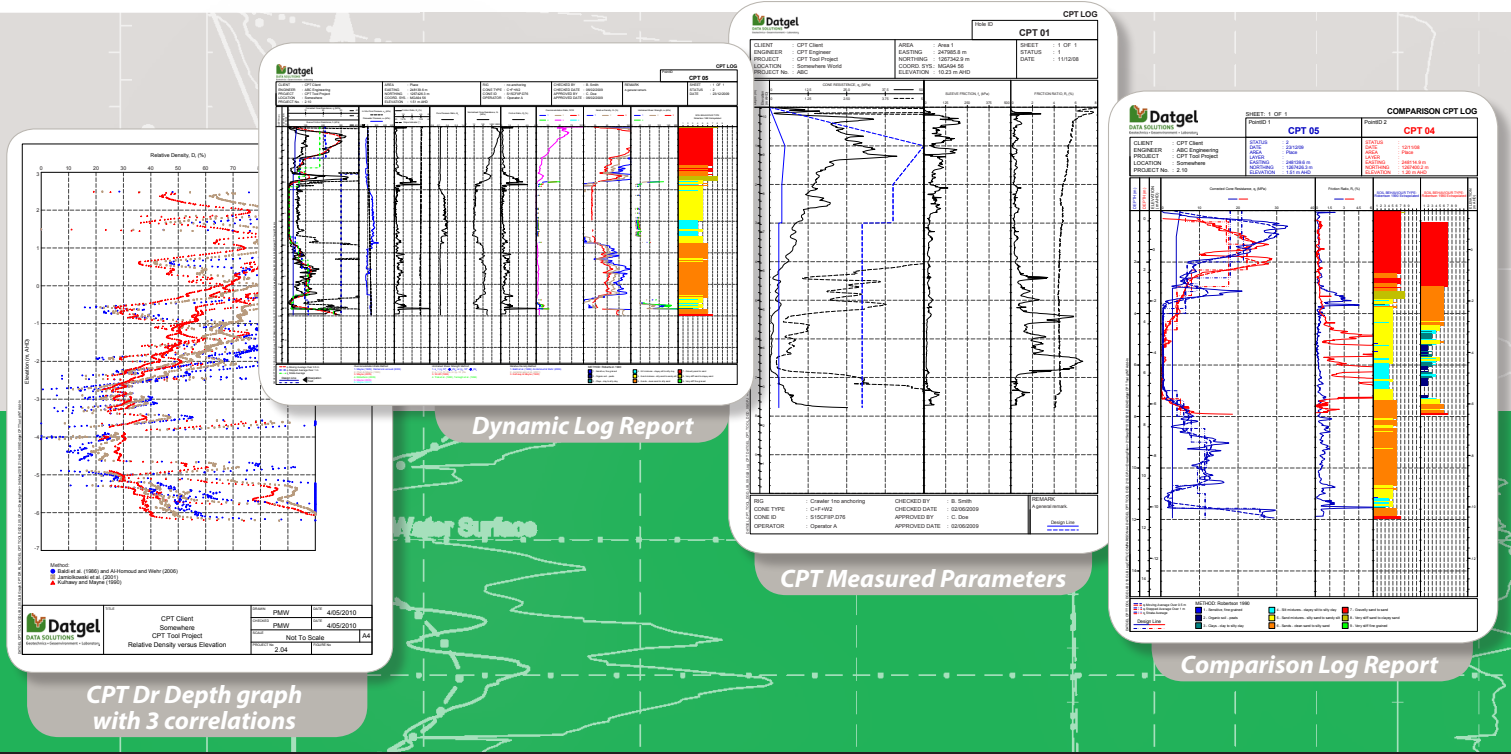
#### ► Centralised data Storage

Store all your CPT and dissipation test data securely in a single database for longevity and straightforward reuse.



Register for your  
**FREE trial** of CPT Tool 3.2  
[datgel.com/trial](http://datgel.com/trial)





CPT Dr Depth graph with 3 correlations

Dynamic Log Report

CPT Measured Parameters

Comparison Log Report

## Correlations

### User Definable Correlation Formulas

The Datgel Formula Tool is the first way for a user to write a formula in gINT Input without writing complex VBA code. Simply define the referenced fields, and write your correlation formula in a standard formula syntax.

- Reference any related field in the database
- Built in mathematical and statistical functions
- Define result format, i.e. decimal places or significant figures
- Results may be numbers or text
- Store your common formulas in the library, and project specific formulas in the project
- Data averages
- Data extrapolations

### Liquefaction Assessment

Primary references:

- Idriss & Boulanger (2008 and 2014)
- Jefferies & Been (2006)
- Robertson & Wride (1998) / NCEER
- Kayen et al. (2013)

Preconfigured correlations:

- Clean-Sand Equivalent Normalised Cone Resistance
- Cyclic Resistance Ratio, CRR
- Cyclic Stress Ratio, CSR
- Factor of Safety, FS
- Residual Shear Strength,  $S_r$
- Maximum Shear Strain
- Lateral Displacement, LD
- Post Liquefaction Volumetric Strain
- Post Liquefaction Reconsolidation Settlement, S
- Liquefaction Potential Index
- Liquefaction Severity Number

### Foundation Design

- Pile capacity to Bustamante and Gianselli / LCPC (1982)
- Shallow foundation settlement to Schmertmann (1978)

### Preconfigured correlations

- Angle of friction,  $\phi'$
- Coefficient of lateral earth pressure,  $K_0$
- Coefficient of Volume Change,  $m_v$
- Compression Index,  $C_c$
- Constrained Modulus, M
- Effective cohesion,  $c'$
- Extrapolated shear wave velocity,  $V_s$
- Fines content, FC
- Hydraulic conductivity (permeability), K
- Overconsolidation ratio, OCR
- Preconsolidation stress,  $\sigma_p'$
- $q_c$  and  $q_t$  moving average, stepped average and strata average
- Relative Density Index,  $D_r$
- Rigidity index,  $I_r$
- Sensitivity,  $S_t$
- Shear wave velocity,  $V_s$
- Small strain shear modulus,  $G_0$
- Soil behaviour type Index,  $I_c$
- SPT N60 and stepped average
- State Parameter
- Undrained Shear Strength,  $s_u$
- Unit Weight,  $\gamma$
- Young's modulus, E

## CPT Logs

A range of sophisticated log reports are included. All reports include options to:

- Control plot scales in numerous ways; either set minimum and maximum values, or have the Tool automatically find the maximum value in a PointID or Project and round up to the nearest number e.g. 5 or 10
- Easily define line and data marker types, colours and thickness from INPUT
- Control number of major divisions on log plots
- Display of design lines
- Display lines across the log identifying sea water level, seabed level, natural/original level below a reclamation
- Control number of metres per page
- Display  $q_c$  or  $q_t$  moving average, stepped average, and strata average

### Dynamic Log Reports for Analysis

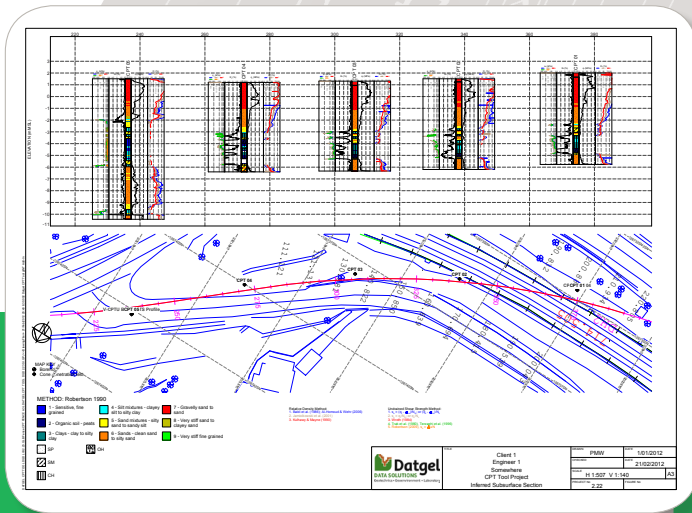
- A4, A3, Letter and 11x17 paper sizes
- At output time, select up to 10 columns to display on the logs, and optionally define the column widths

### Comparison Logs for Ground Improvement

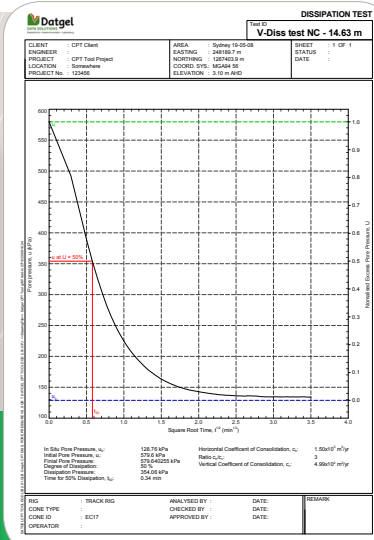
- Display two CPT PointIDs on one log report with data related by elevation
- Applicable to ground improvement and reclamation projects

### Fixed Log Reports for Mass Production

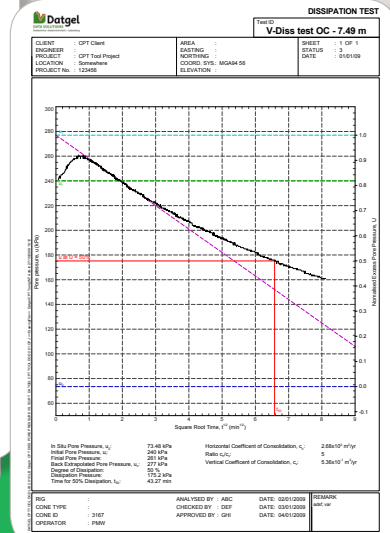
- A4, A3, Letter and 11x17 paper sizes



Fence Diagram



Normally Consolidated Test



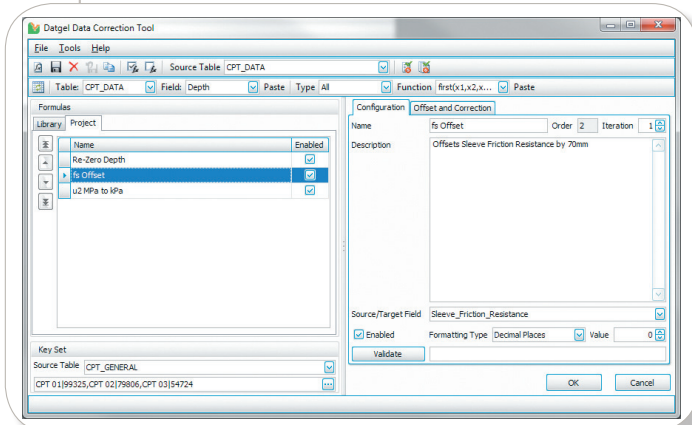
Overconsolidated Test with Back Extrapolation

## Data Correction Tool

Allows for one-off corrections of data

Example applications:

- Offset one parameter a fixed depth, e.g. offset sleeve friction for many tests in one process
- Re-zero the depth if 0 depth is not the ground surface
- Apply calibrations to a parameter defined by a formula
- Correct depth for inclination



Data Correction Tool

## Dissipation Test

Dissipation tests may be analysed using the strain path method (SPM) proposed by Houlsby and Teh 1988.

Dissipation tests carried out in overconsolidated soils maybe corrected using the square root time method, as proposed in Sully et al. 1999, and short tests may be extrapolated forward to estimate  $t_x$  (e.g.  $t_{50}$ ).

Reports can show  $q_c$  graph below  $u$  graph.

## Fence Diagram/Cross Section

Dynamic user-definable fence or cross section reports:

- Choose up to 6 parameters and correlations to display, e.g.  $q_c$ ,  $q_t$ ,  $R_f$ ,  $I_c$  plots
- Soil behaviour type coloured column
- Material graphic column
- Legend for soil behaviour type
- Legend for material graphic
- A4, A3, Letter and 11x17 paper sizes

## Additional Sensors and Instruments

- Ball Penetrometer Test presentation
- Magnetometer presentation
- Seismic cone presentation



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