Program Details

Article number
ggu-02-005

Operating System
Windows XP/Vista/7

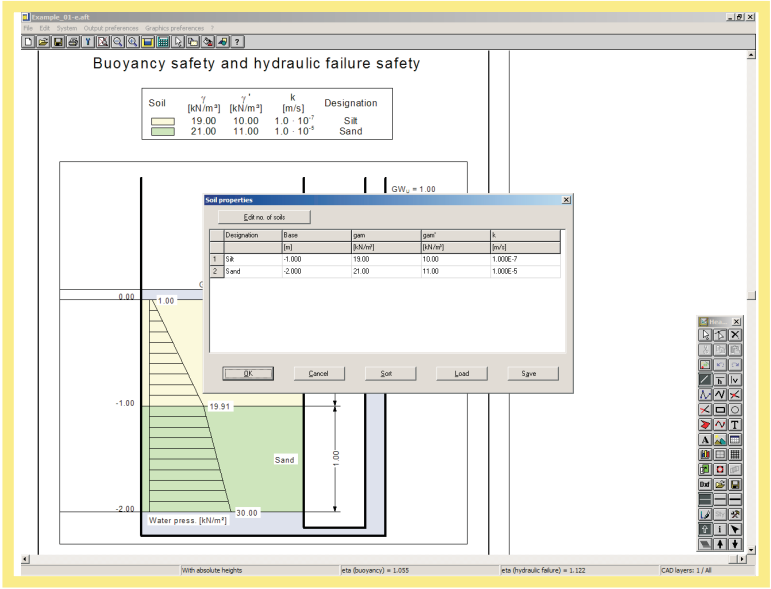
PROGRAM GGU-UPLIFT
GEOHYDRAULIC COMPUTATION

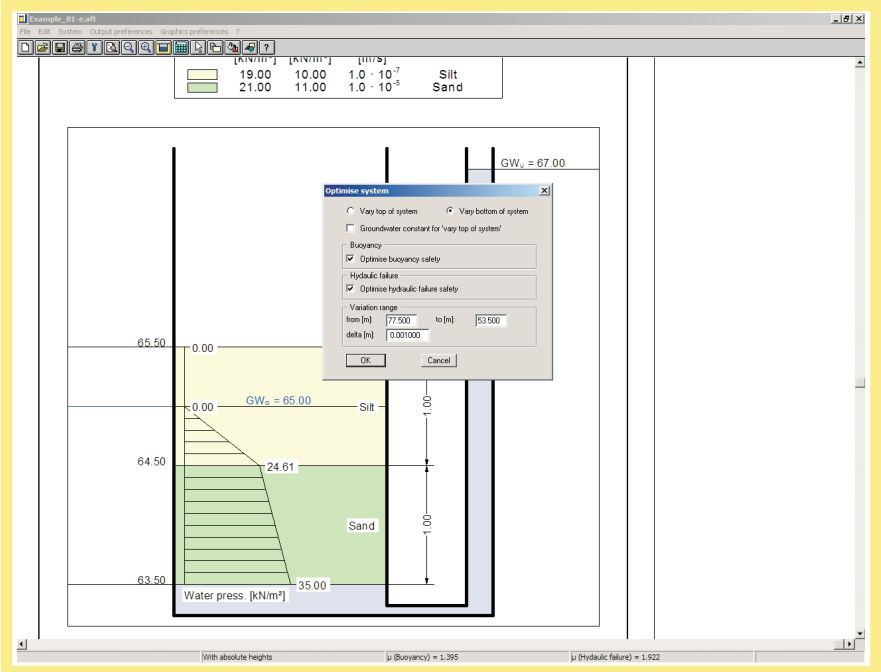
Description

GGU-UPLIFT *– Analysis of buoyancy safety and hydraulic failure safety in one-dimensional systems*

Capabilities:

- *Choice of analysis using either partial safety factors to DIN 1054:2005 or EC 7 or global safety factors (DIN 1054 old)*
- *System data using absolute heights*
- *Input of any soil strata configuration*
- *Determination of buoyancy safety and hydraulic failure safety for the defined system*
- *System optimisation (e.g. thickness of a liner layer) in terms of demanded safety factors*
- *Graphical system presentation using either pore water pressure distribution, potential course or gradient visualisation*
- *Adopted standards and partial factors can be included in the General legend*
- *Program name and version can be included in the General legend*
- *Variable, user-designed output sheet*
- *User-defined design of output sheet*
- *Print or copy screen sections, e.g. for transfer to a word processor*
- *Integrated Mini-CAD system for additional annotation of graphics*





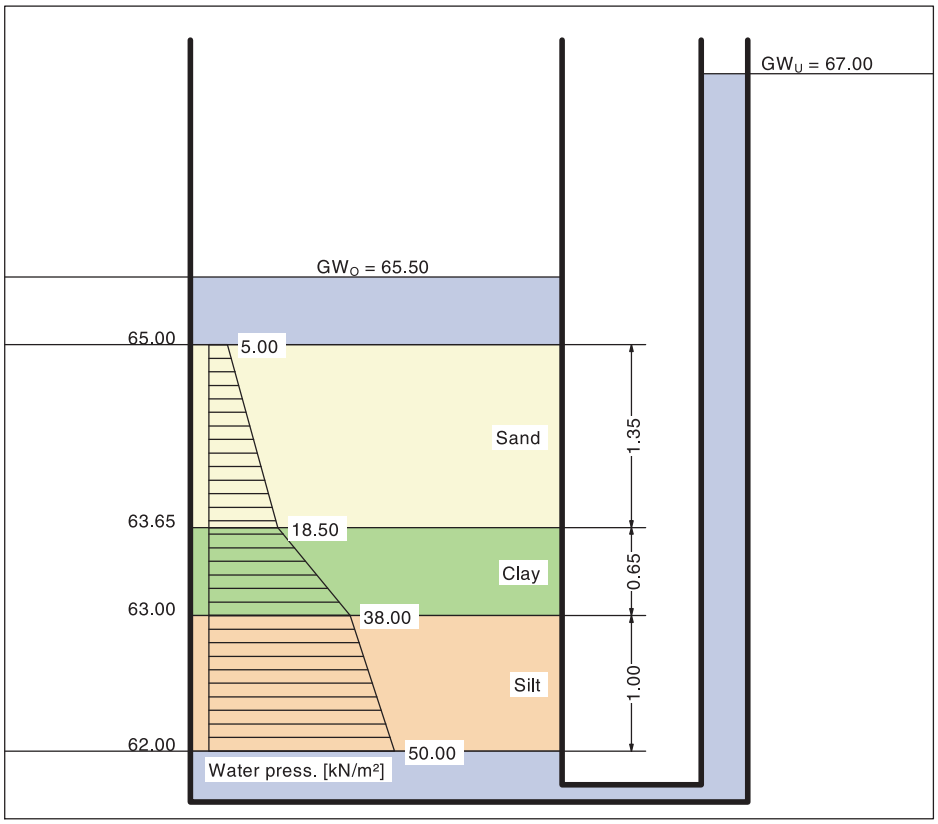
CIVILSERVE DP for Civil Engineering
Phone: +49 (0) 1802 - 2 48 45 73 · Fax: +49 (0) 5492 - 9 62 92-5 & 0800 - 2 48 45 73 · eMail: info@civilserve.com

www.ggu-software.com	GGU-UPLIFT	Report no. 11 / 2012 Annex no. 5

Buoyancy safety and hydraulic failure safety

Manual example
Partial safety factors:
$\gamma_{G,dst}$ = 1.050
$\gamma_{G,stb}$ = 0.950
γ_H = 1.350
File: Manual 1-e.aft

Soil	γ [kN/m³]	γ' [kN/m³]	k [m/s]	Designation
	19.00	10.00	$1.0 \cdot 10^{-4}$	Sand
	20.00	11.00	$1.0 \cdot 10^{-8}$	Clay
	19.00	10.00	$1.0 \cdot 10^{-7}$	Silt



Buoyancy safety
Utilisation factor μ = 0.920
at = 63.000 m
Weight = 45.650 kN/m²
$\gamma_{G,stb}$ = γ (Weight) = 0.950
PW press. = 38.000 kN/m²
$\gamma_{G,dst}$ = γ (PW press.) = 1.050
μ = 1.050 · 38.000 / (0.950 · 45.650)

Hydraulic failure safety
Utilisation factor μ = 0.895
at = 63.000 m
Weight = 20.650 kN/m²
$\gamma_{G,stb}$ = γ (Weight) = 0.950
Flow force = 13.000 kN/m²
γ_H = γ (Flow force) = 1.350
μ = 1.350 · 13.000 / (0.950 · 20.650)