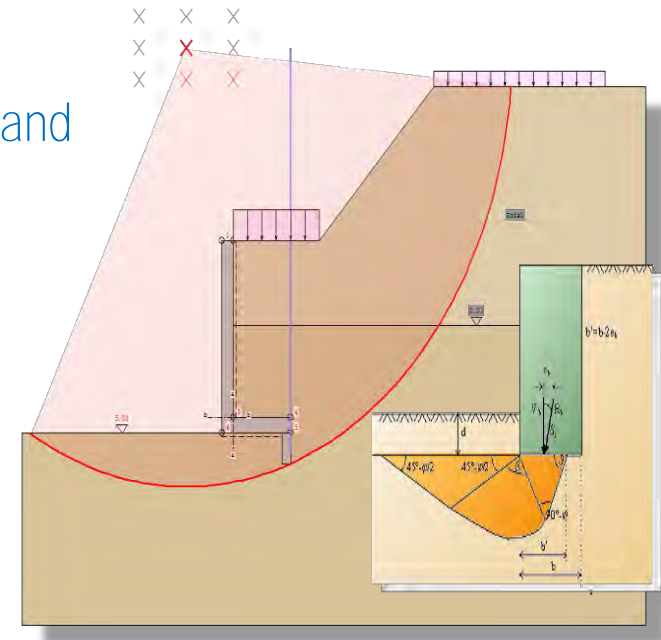
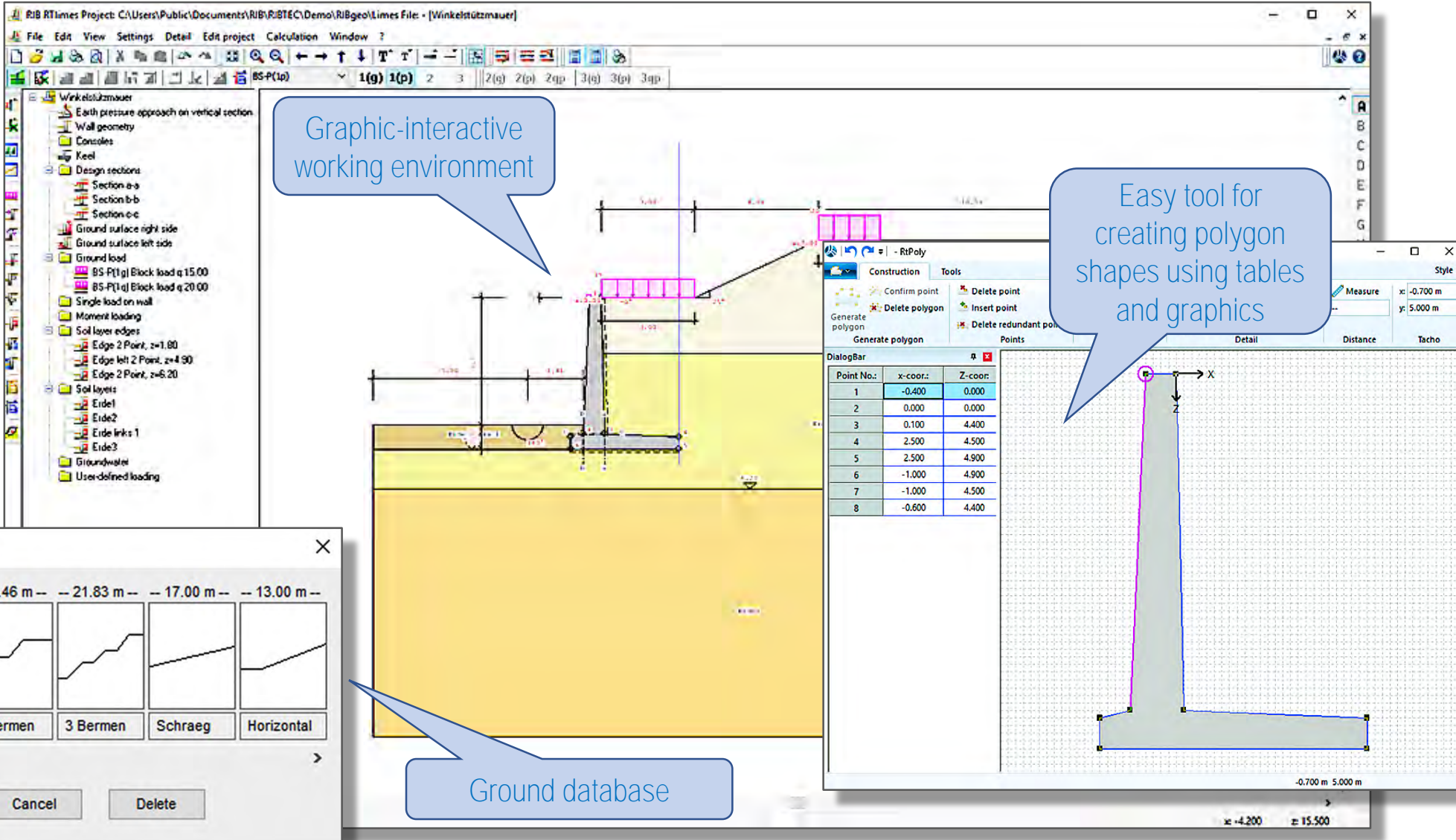


- Geotechnical design according to DIN 1054 as well as EC 7 and EN 1997-1 and national annexes for DE & AT
- Wall design according to DIN 1045, DIN 1045-1, DIN FB 102, EC2, EN 1992-1 and according to national annexes for DE, UK, AT & CZ/SK
- Classical earth pressure method or evaluation according to DIN, EC und EN or alternative evaluation according to Culmann
- Design for bearing capacity, settlement and base failure analysis
- Consideration of a wall keel in friction circle and ground failure analysis
- Reinforced concrete design in the limit state of serviceability incl. water resistant concrete
- Graphic interactive design functions with CAD interface



Wide range of capabilities



Graphic-interactive working environment

Easy tool for creating polygon shapes using tables and graphics

Ground database

Point No.:	x-coor.:	Z-coor.:
1	-0.400	0.000
2	0.000	0.000
3	0.100	4.400
4	2.500	4.500
5	2.500	4.900
6	-1.000	4.900
7	-1.000	4.500
8	-0.600	4.400

Database ground

-- 17.00 m -- -- 20.46 m -- -- 21.83 m -- -- 17.00 m -- -- 13.00 m --

1 Berme 2 Bermen 3 Bermen Schraeg Horizontal

OK Cancel Delete

Geotechnical verifications according to different standards

Friction circle and lateral buckling analysis

Dialog for input of Keel parameters

Calculation options

General | Earth pressure | Settlement/Base pressure | Sliding/Base failure | Standard | Design | ULS analysis | SLS analysis

DIN EN 1997-1

BS-P(1) BS-T(2) BS-A(3)

Actions GEO-2 (Sliding, base failure, design, bottom pressure):

permanent, general:	1.05	1.20	1.10
favorable, permanent:	1.00	1.00	1.00
permanent, earth pressure at	1.20	1.10	1.00
unfavorable, variable:	1.50	1.30	1.10
favorable, variable:	0.00	0.00	0.00

Actions GEO-3 (Slope failure):

Dead load:	1.00	1.00	1.00
unfavorable, variable:	1.30	1.20	1.00

Actions EQU (static equilibrium, overturning):

favorable, permanent:	0.90	0.90	0.95
unfavorable, permanent:	1.10	1.05	1.00
favorable, variable:	0.00	0.00	0.00
unfavorable, variable:	1.50	1.25	1.00

Resistances STR, GEO-2 (slip, base failure, design):

Passive earth pressure, base	1.40	1.30	1.20
Slip resistance:	1.10	1.10	1.10

Reinforced concrete design:

permanent, general:	1.35	1.20	1.10
permanent, earth pressure at	1.20	1.10	1.00
favorable, variable:	1.50	1.30	1.10

Geotechnical properties GEO-3 (Slope failure analysis):

tan phi':	1.25	1.15	1.10
Cohesion c':	1.25	1.15	1.10

Consequence classes (OE standard): CC 2

OK Cancel Übernehmen

Keel

Parameter:

x: 0.000 m

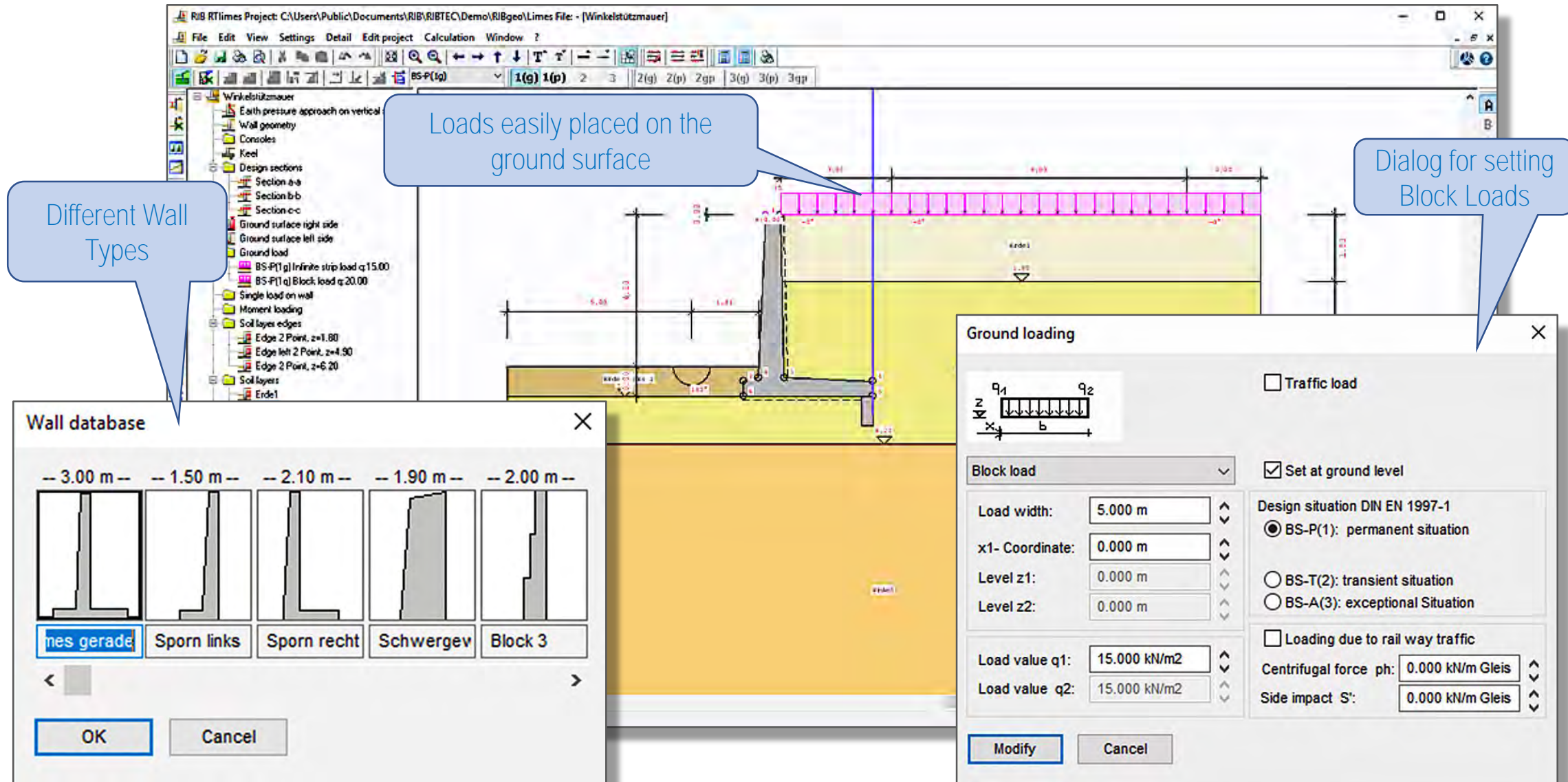
b1: 0.300 m

b2: 0.300 m

h: 0.800 m

OK Cancel

Simple system input and load definition



The screenshot displays the RIB software interface for defining a wall system. The main window shows a cross-section of a wall with various layers and dimensions. A pink horizontal bar represents a ground load applied to the top surface. Three callout boxes provide additional information:

- Different Wall Types:** A callout pointing to the 'Wall database' dialog box, which shows five different wall cross-sections: 'mes gerade', 'Sporn links', 'Sporn recht', 'Schwergew', and 'Block 3'. The 'mes gerade' option is currently selected.
- Loads easily placed on the ground surface:** A callout pointing to the pink ground load bar on the wall's top surface.
- Dialog for setting Block Loads:** A callout pointing to the 'Ground loading' dialog box, which is used to define the parameters of the ground load.

The 'Ground loading' dialog box contains the following settings:

- Traffic load
- Set at ground level
- Design situation DIN EN 1997-1:
 - BS-P(1): permanent situation
 - BS-T(2): transient situation
 - BS-A(3): exceptional Situation
- Loading due to rail way traffic
- Centrifugal force ph : 0.000 kN/m Gleis
- Side impact S' : 0.000 kN/m Gleis

The 'Ground loading' dialog also includes a diagram of a rectangular load with width b and values q_1 and q_2 . The 'Block load' dropdown is set to 'Block load'. The 'Load width' is 5.000 m, 'x1- Coordinate' is 0.000 m, 'Level z1' is 0.000 m, and 'Level z2' is 0.000 m. The 'Load value q1' and 'Load value q2' are both set to 15.000 kN/m². 'Modify' and 'Cancel' buttons are at the bottom.

RtConfig

File Export View ?

LIMES Retaining wall V:18.0 16052018
File: Winkelstützmauer
Project name: Einführung

System A

Used standards:
DIN EN 1997-1, Design: DIN EN 1992-1-1

Partial safety factor for actions and loadings:

Design situations:	BS-P(1q)	BS-T(2)	BS-A(3)
STR/GEO-2: Verification for the nominal limit states:			
permanent, general:	1.35	1.20	1.10
unfavorable variable:	1.50	1.30	1.10
permanent, earth pressure at rest:	1.20	1.10	1.00
EQU: Proof of equilibrium			
favorable, permanent:	0.90	0.90	0.95

Calculation options

General Earth pressure Settlement/Base pressure Sliding/Base failure Standard Design ULS analysis SLS analysis

Type of earth pressure calculation:

- Earth pressure computation acc. to Culmann
- Active earth pressure
- Earth pressure at rest
- Increased active earth pressure

Fraction of earth pressure at rest: 30 %

Consideration of cohesion:

- Classical approach
- According to DIN 4085

min Kah at cohesion: 0.200 Increase of minKah for slope

Set neg. earth press. rates to zero

Area loads:

- Iterative load calculation

Number of iterations: 10

Earth resistance:

Earth resistance considered in: 30 %

Angle of wall friction approach:

For the earth pressure at slip lines:

- Equal to phi
- User-defined value

User-defined Delta: 0 °

For earth pressure at a vertical section:

- Equal to ground slope
- User-defined value

User-defined Delta: 20 °

Earth pressure at rest:

- Calculation according to Weissenbach
- Conc.factor n=3 (Fröhlich) n=4

Calculation of the coefficient:

- acc. to Simmer DIN 4085-100
- acc. to Siedeck acc. to Wemer

Compaction earth pressure

- Compaction earth pressure

Soiling width: 2.00 m

Earth pressure: 25.00 kN/m²

OK Cancel Übernehmen

Different calculation options

Table and Graphical Results

Verifiable result list with graphics

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Characteristical horizontal rate of the earth pressure (not redistributed):

Consider the earth resistance with 30%:

z=Koo [m]	eh [kN/m ²]
4.100	0.000
4.900	31.338
4.900	20.069
4.900	0.000
5.700	41.253
5.700	0.000

BS-P(1g):

z=Koo [m]	eh [kN/m ²]
0.000	0.000
0.000	4.122
0.595	7.137
0.866	9.254
0.866	5.222
1.800	12.926
1.800	19.607
2.791	26.025
4.900	38.314
4.900	0.000
4.900	38.314
5.700	42.974
5.700	0.000

BS-P(1g):

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Clear graphical representation of the earth pressure

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Minimum reinforcement: Individual cranes
 Calculated crack width: 0.20 mm
 Limiting diameter top: 16.00 mm
 Limiting diameter bottom: 16.00 mm

Material coefficients:

	permanent/transient	Accidental	Coefficient at
Concrete	1.50	1.20	0.88
Reinforcement	1.15	1.00	

BS BS-P(1g), BS-P(1g), Stresses act

Design sections: relating to 1m wall width

No.	Position	mm [m]	mm [m]	d [cm]
a-a	Floor level	0.10	4.65	80.00
b-b	Floor level	-0.60	4.65	80.00

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Schematic representation of the system

Figures illustrating the forces acting in the designed sections

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LIMES Retaining wall V:15.0 16052018
 File: Winkelstützmauer
 Project name:
 Einführung

Design standards:
 DIN EN 1997-1, Design: DIN EN 1992-1-1

Partial safety factor for actions and loadings:

Design situations:	BS-P(1g)	BS-P(2)	BS-A(3)
STR/GEO-1: Verification for the nominal limit states:			
permanent, general:	1.35	1.20	1.10
unfavorable, variable:	1.50	1.35	1.10
permanent, earth pressure at rest:	1.20	1.10	1.00
EQU: Proof of equilibrium			
favorable, permanent:	0.90	0.90	0.88
unfavorable, permanent:	1.10	1.08	1.00
favorable, variable:	0.00	0.00	0.00
unfavorable, variable:	1.50	1.25	1.00
GEO-2: Serviceability (Slip circle)			
Dead load:	1.00	1.00	1.00
unfavorable, variable:	1.20	1.20	1.00
STR, GEO-2: Resistances (slip, base failure, design)			
Earth resistance:	1.40	1.30	1.20
Slip resistance:	1.10	1.10	1.10

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