

Use of Formulas in Templates

Program: Stratigraphy – Logs
File: Demo_manual_51.gsg

The Stratigraphy and Laboratory programs allow you to use formulas for automatic recalculations of selected test data. The goal of this engineering manual is to show how to easily work with formulas and how to use them to modify the output protocol.

In our case, we will add a graph for the friction ratio R_f to the output report of the CPT test, which we will first calculate using already existing data. We calculate the friction ratio from the relationship:

$$R_f = \left(\frac{f_s}{q_c} \right) * 100 [\%]$$

, where q_c is cone resistance and f_s is local friction.


Assignment

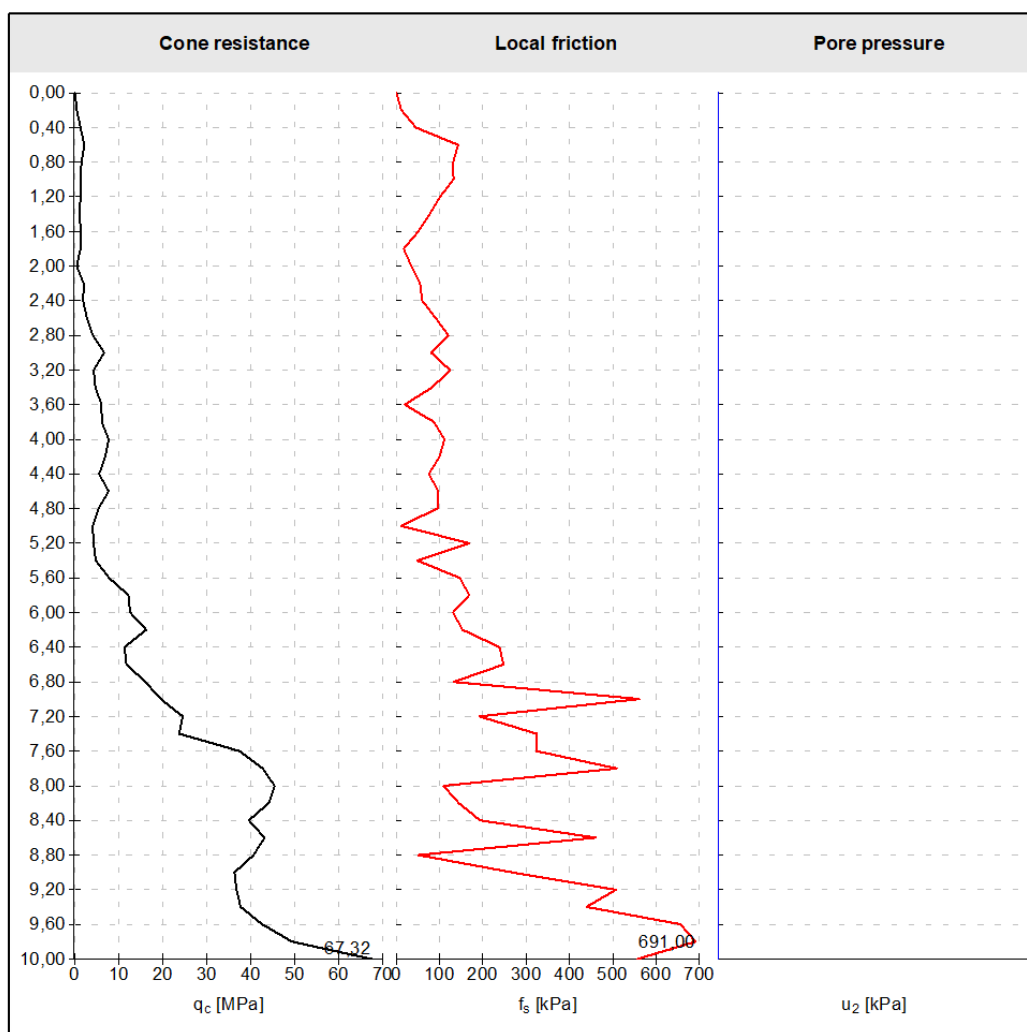
Modify the "EN-Standard" CPT template so that:

- The CPT table contained a "Friction ratio" column
- Create a formula for the new column to be calculated automatically from the entered data
- Display the friction ratio in the output log.

Modify the template with the demo file - DEMO - Templates EN.gsg, which you can find in Fine online examples. Name the newly created template set EM 51 and save it in the Template Manager for future use.

The CPT output protocol of the "EN-Standard" template set has the following form:


GEO5 Laboratoř s.r.o. Sokolovská 232, Praha 8, 18000			Cone penetration test (CPT)	CPT1
Project: Apartment building "Moonlighting" - Geological survey				
Project ID:	AA_0014 - 2019	Annex no.:	17.C	Type of test: TE2
Location:	Stará 14/78, Hradec Králové			Type of cone: $A_c = 1000 \text{ mm}^2$
Measured:	Joe Fieldman	Coordinate System: S-JTSK / Krovak / Balt after adjustment		Application class: 2
Evaluated:	Bill New	Coordinate X: 1039700,63		Acc. to standard: EN ISO 22476-1
Date of test:	10.08.2016	Coordinate Y: 745200,84		Vertical offset of the origin: 0,00 m
Scale:	1:66,7	Coordinate Z: 222,00 m		Overall depth: 10,00 m
Equipment:	PenSta A22	Filter location: u_2		GWT: 5,00 m

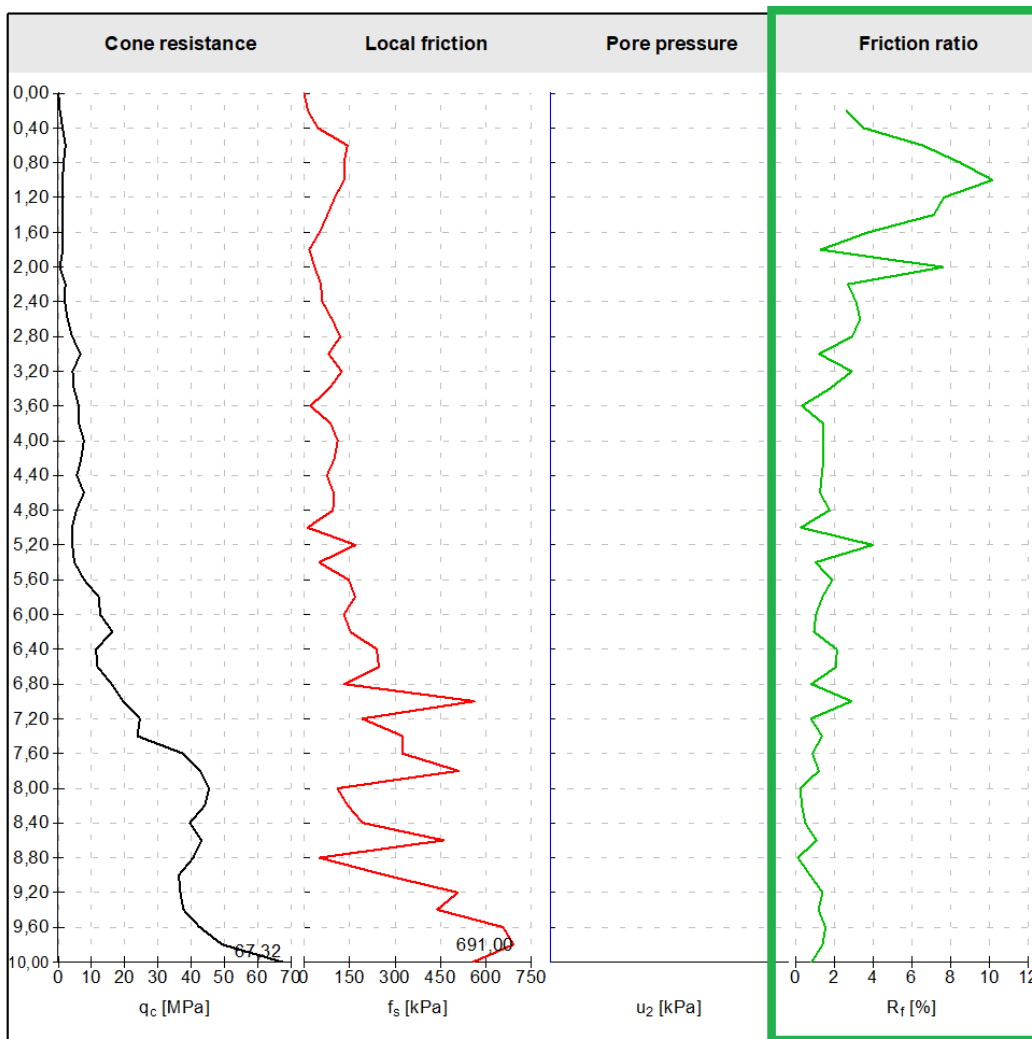


Notes:

- Sunny/ Partially cloudy/ Calm
- Raw data not modified

The required form of the protocol is this:

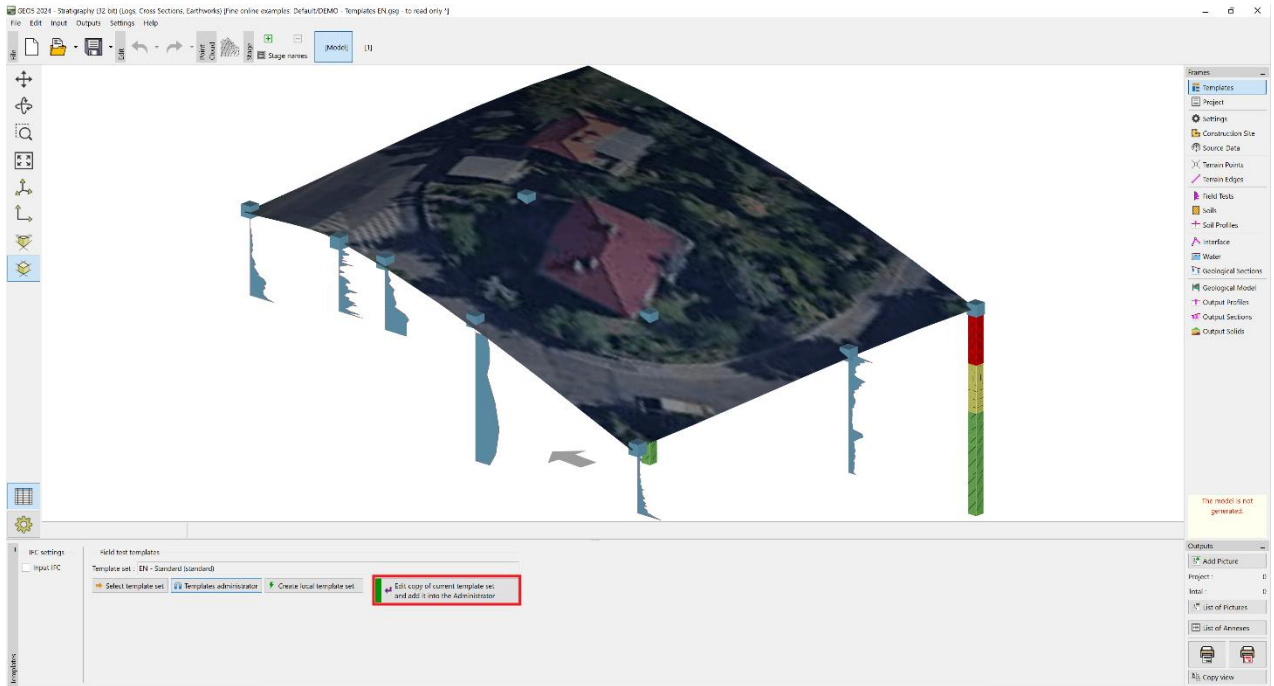
GEO5 Laboratoř s.r.o. Sokolovská 232, Praha 8, 18000			Cone penetration test (CPT)	CPT1
Project: Apartment building "Moonlighting" - Geological survey				
Project ID:	AA_0014 - 2019	Annex no.:	17.C	Type of test: TE2
Location:	Stará 14/78, Hradec Králové			Type of cone: $A_c=1000 \text{ mm}^2$
Measured:	Joe Fieldman	Coordinate System: S-JTSK / Krovak / Balt after adjustment		Application class: 2
Evaluated:	Bill New	Coordinate X: 1039700,63		Acc. to standard: EN ISO 22476-1
Date of test:	10.08.2016	Coordinate Y: 745200,84		Vertical offset of the origin: 0,00 m
Scale:	1:66,7	Coordinate Z: 222,00 m		Overall depth: 10,00 m
Equipment:	PenSta A22	Filter location: u_2		GWT: 5,00 m



Notes: - Sunny/ Partially cloudy/ Calm - Raw data not modified

Solution:

First, open the file DEMO - Templates EN.gsg, which contains the data from which we will proceed. In the Templates frame, check whether we have selected the set of templates that we want to edit - "EN-Standard" (If another set of templates is selected, choose it from the list of templates using the "Select template set" button). Press the button "Edit copy of current template set and add it into the administrator" to open the window for editing the template set.



We will name the created set of templates EM 51. After editing, the template with this name will be saved into the administrator as a user template set.

Add copy of standard template set into the administrator

Name : ▼ ✖ EN Comment :

— Templates —

No.	Name
-----	------

In the table, select the template for CPT and press “Edit”.

Add copy of standard template set into the administrator

Name: EM 51 EN Comment:

Templates

No.	Name	Capability	Comment
1	Borehole	model creation, borehole, well	
2	Well	model creation, borehole, well	
3	CPT	model creation, CPTu	
4	DPT	model creation, DPT	
5	SPT	model creation, SPT, borehole, well	
6	DMT	model creation, DMT	
7	PMT	model creation, PMT, borehole	

Buttons: Add (to the end), Insert (before 3), Edit (number 3), Remove (number 3), Move upwards (number 3), Move downwards (number 3), Edit formulas (number 3), Copy (number 3), Paste.

Project data template Common data template Field test templates outside set: Borehole Add

Add + Close Cancel

In the window “Edit template” continue with editing the item “Table CPT”.

Edit template

Name: CPT EN Comment:

Input data

No.	Name	Identifier	Type	Parameters	Conditional input	Comment
1	Test name	6	String			General / Fixed
2	Overall depth	6	Number	Symbol: d _{tot} 0.89 m 0.89 ft		Read only - automatically determined from data of field test / General / Fixed
3	Coordinate X	6	Number	0.89 m 0.89 ft		General / Fixed
4	Coordinate Y	6	Number	0.89 m 0.89 ft		General / Fixed
5	Coordinate Z	6	Number	0.89 m 0.89 ft		General / Fixed
6	Vertical offset of the origin	6	Number	Symbol: d ₀ 0.89 m 0.89 ft		General / Fixed
7	Table CPT	7	Table	Width depth		CPT / Fixed
	Depth	6	Number	Number of elements 4		
	Cone resistance	6	Number			
	Local friction	6	Number			
	Point pressure	6	Number			
8	Data - test	8	Group	Number of elements 6		
	GWT	6	Number			
	Type of test	6	String			
	Type of cone	6	String			
	Application class	6	String			
	Filter location	6	String			
	Equipment	6	String			
9	Data - Pretest	9	Group	Number of elements 7		
	Annex no.	6	String			
	Foundation	6	String			

Buttons: Add according to sample, Add (to the end), Insert (before 7), Edit (number 7), Remove (number 7), Move upwards (number 7), Move downwards (number 7), Copy (number 7), Paste, Edit formulas.

List of output protocols

No.	Name	Protocol type
1	Field test - one page	Field tests
2	Field test - two pages	Field tests
3	Field test - 150	Field tests
4	Field test - 1:100	Field tests
5	Soil profile - one page	Soil Profiles
6	Soil profile - two pages	Soil Profiles
7	Soil profile - 150	Soil Profiles
8	Soil profile - 1:100	Soil Profiles

Buttons: Add, Copy All, Paste.

List of mapping for export and import

No.	Name	Comment
1	FINE - MS4 4.0.4	
2	FINE - EN Standard	

Buttons: Add, Copy All, Paste.

Global libraries: Fine Capability: model creation, CPTu

Default columns for Geological Sections (number of columns 4): input columns

Graphical representation (number of items 3): input graphical representations

OK OK OK OK Cancel

We can see that the table is part of the global library. By default, it is not possible to edit it. Therefore, it is necessary to press the button “Allow editing”, so we can add a new item into the table.

Parameters of data type

Type : Table Table type : With depth

Name : Table CPT EN Comment : CPT / Fixed EN Identifier :

Parameters : global

No.	Name	Identifier	Type	Column	Parameters	Comment
1	Depth		Number	✓	Symbol: d 8,89 m 8,89 ft	General / Fixed
2	Cone resistance		Number	✓	Symbol: q _c 8,89 MPa 8,9 psf	CPT / Fixed
3	Local friction		Number	✓	Symbol: f _s 8,89 kPa 8,9 psf	CPT / Fixed
4	Pore pressure		Number	✓	Symbol: u ₂ 8,89 kPa 8,9 psf	only for CPT / Fixed

Ranges : global

Minimum number of rows : 0

Formula

Conditional input

Master enumeration : (unspecified) No enumerations defined for using as master.

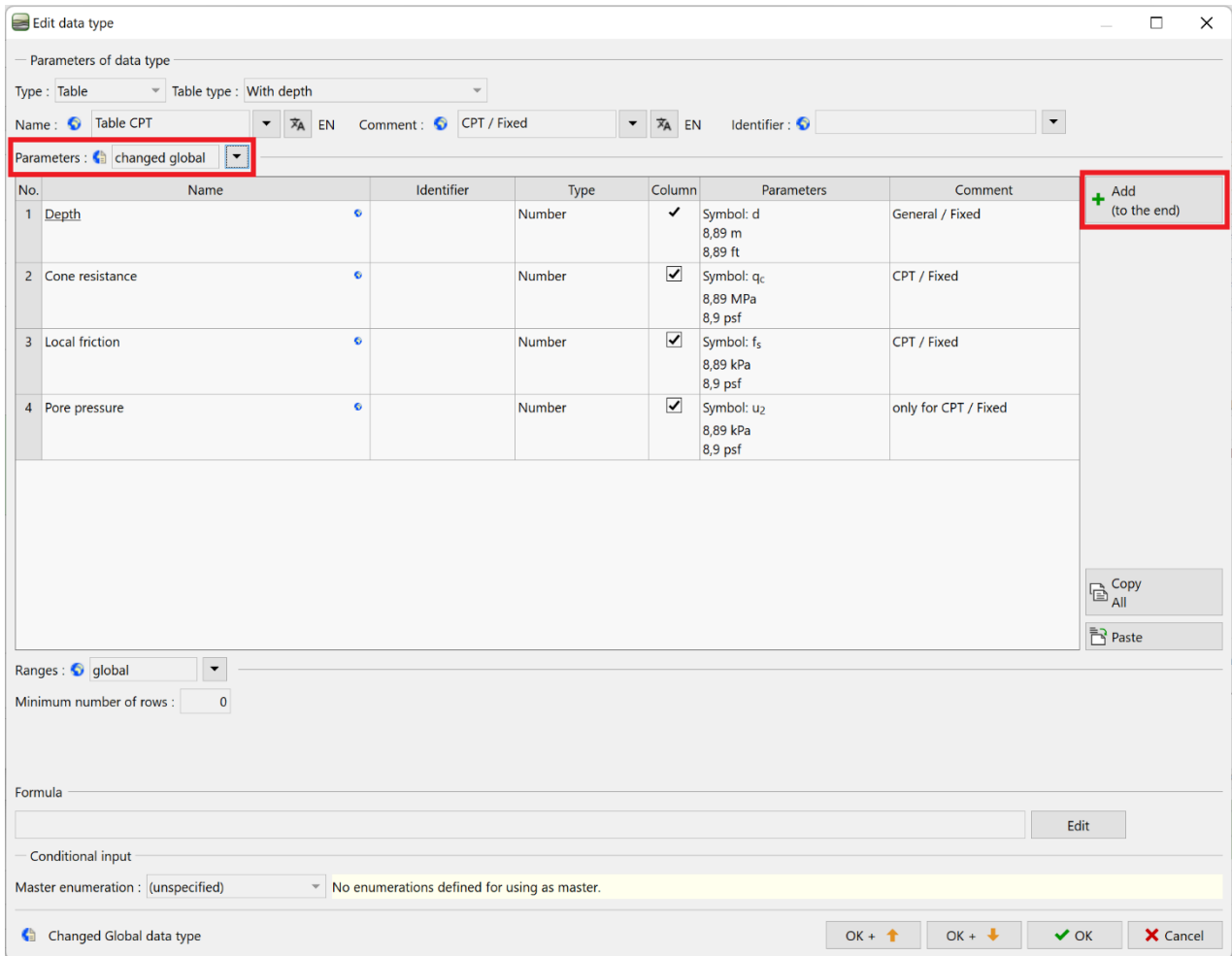
Global data type

OK + OK + OK Cancel

Note: Each data has a symbol next to the name, which corresponds with the data type.

1. **globe** - indicates that the data type was selected from the “Global Library”. The global library contains predefined data types that the user can insert into his template. The global library is selected in the bottom left corner of the dialog window.
2. **Paper sheet** - indicates that the data type was created and named by the user
3. **globe/paper sheet** - indicates that the data type was selected from the global library and subsequently modified by the user

Data type changed to “changed global” for table parameters. Now we can continue by adding a new item.



Parameters of data type

Type : Table Table type : With depth

Name : Table CPT EN Comment : CPT / Fixed EN Identifier :

Parameters : changed global

No.	Name	Identifier	Type	Column	Parameters	Comment
1	Depth		Number	✓	Symbol: d 8,89 m 8,89 ft	General / Fixed
2	Cone resistance		Number	✓	Symbol: q _c 8,89 MPa 8,9 psf	CPT / Fixed
3	Local friction		Number	✓	Symbol: f _s 8,89 kPa 8,9 psf	CPT / Fixed
4	Pore pressure		Number	✓	Symbol: u ₂ 8,89 kPa 8,9 psf	only for CPT / Fixed

Ranges : global

Minimum number of rows : 0

Formula

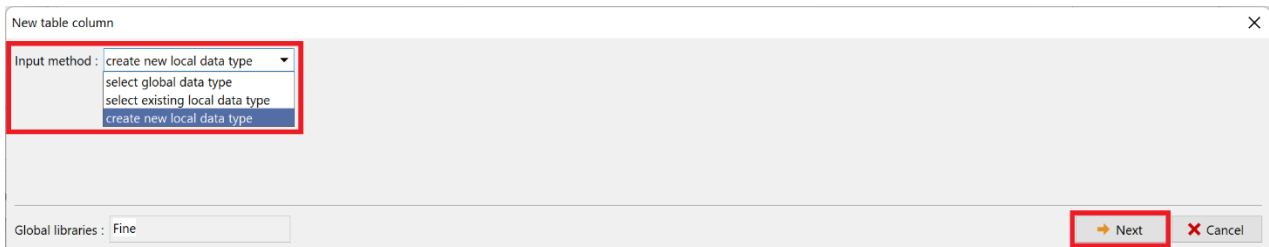
Conditional input

Master enumeration : (unspecified) No enumerations defined for using as master.

Changed Global data type

OK + OK + OK Cancel

Use the “Add” button to add a new table column. In our case, we are specifying an item that is not in the global library. So, we select “new local data type”. Confirm with the “Next” button.



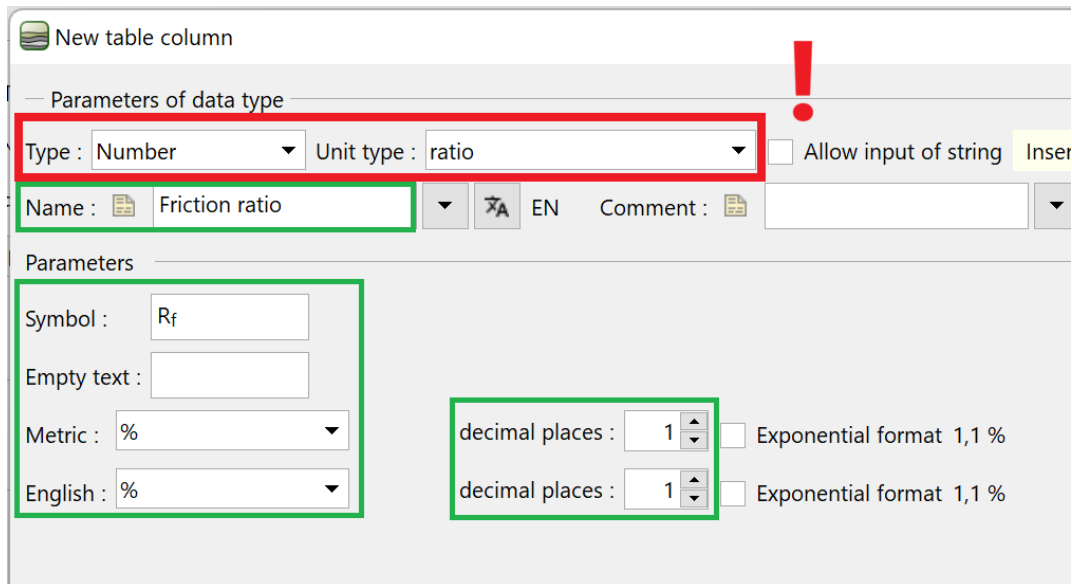
New table column

Input method : create new local data type
select global data type
select existing local data type
create new local data type

Global libraries : Fine

Next Cancel

We select the type of the data type (number) and the type of unit (ratio). **These two types must be correctly defined the first time they are entered. Later modification of these types is not possible. In case of a mistake, it is necessary to delete the created data type and enter it again.** Enter other data: name, symbol and choose metric and imperial units for the data type - in our case percents. These data can be changed at any time in the future. Confirm with the “Add” button. The dialog box will not close automatically so that we can optionally enter additional data types. It is therefore necessary to close it with the button with a cross or the “Cancel” button.



New table column

Parameters of data type

Type : Number Unit type : ratio ☐ Allow input of string Insert

Name : Friction ratio EN Comment :

Parameters

Symbol : R_f

Empty text :

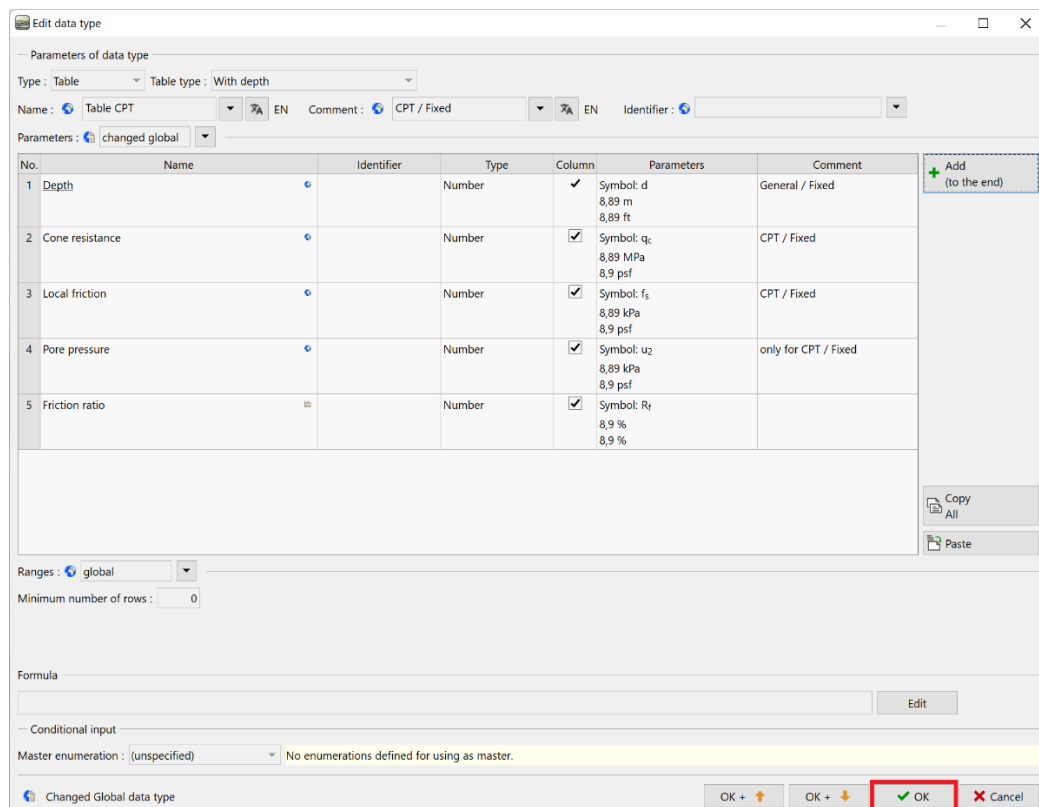
Metric : %

English : %

decimal places : 1 ☐ Exponential format 1,1 %

decimal places : 1 ☐ Exponential format 1,1 %

In the CPT table, we can now see the new data type. Now confirm the edits of the table and the CPT template using the “OK” buttons.



Edit data type

Parameters of data type

Type : Table Table type : With depth

Name : Table CPT EN Comment : CPT / Fixed Identifier : EN

Parameters : changed global

No.	Name	Identifier	Type	Column	Parameters	Comment
1	Depth		Number	✓	Symbol: d 8,89 m 8,89 ft	General / Fixed
2	Cone resistance		Number	✓	Symbol: q_c 8,89 MPa 8,9 psf	CPT / Fixed
3	Local friction		Number	✓	Symbol: f_s 8,89 kPa 8,9 psf	CPT / Fixed
4	Pore pressure		Number	✓	Symbol: u_2 8,89 kPa 8,9 psf	only for CPT / Fixed
5	Friction ratio		Number	✓	Symbol: R_f 8,9 % 8,9 %	

Copy All Paste

Ranges : global

Minimum number of rows : 0

Formula

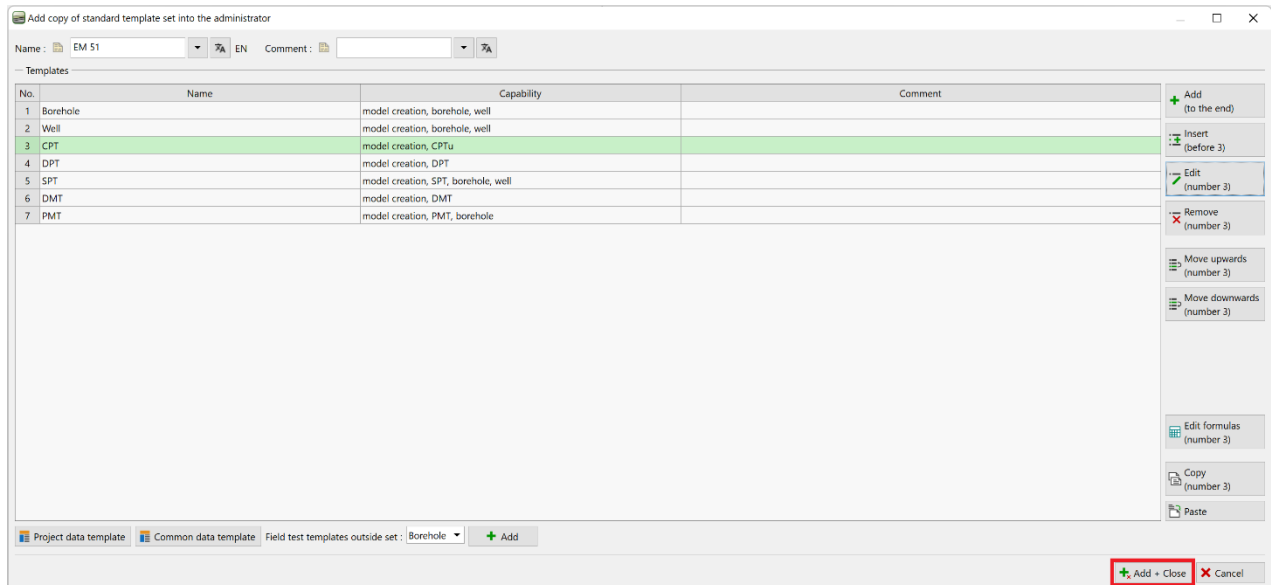
Conditional input

Master enumeration : (unspecified) No enumerations defined for using as master.

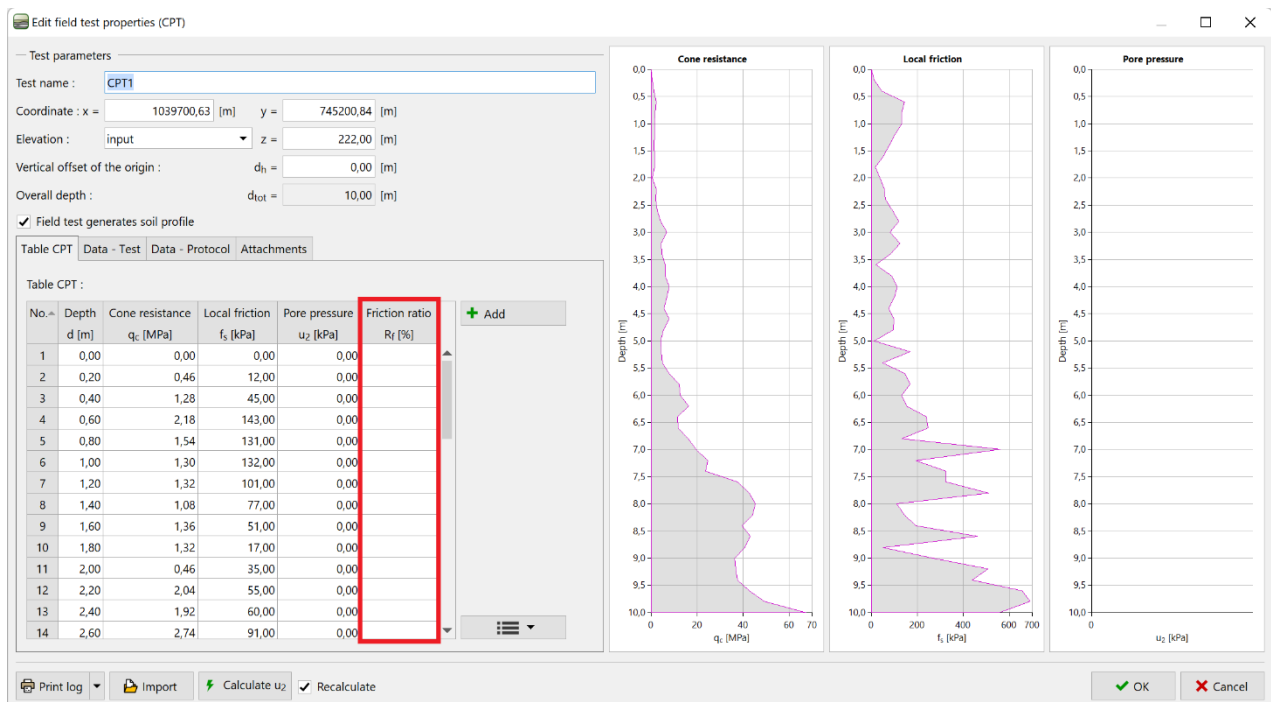
Changed Global data type

OK + OK + OK Cancel

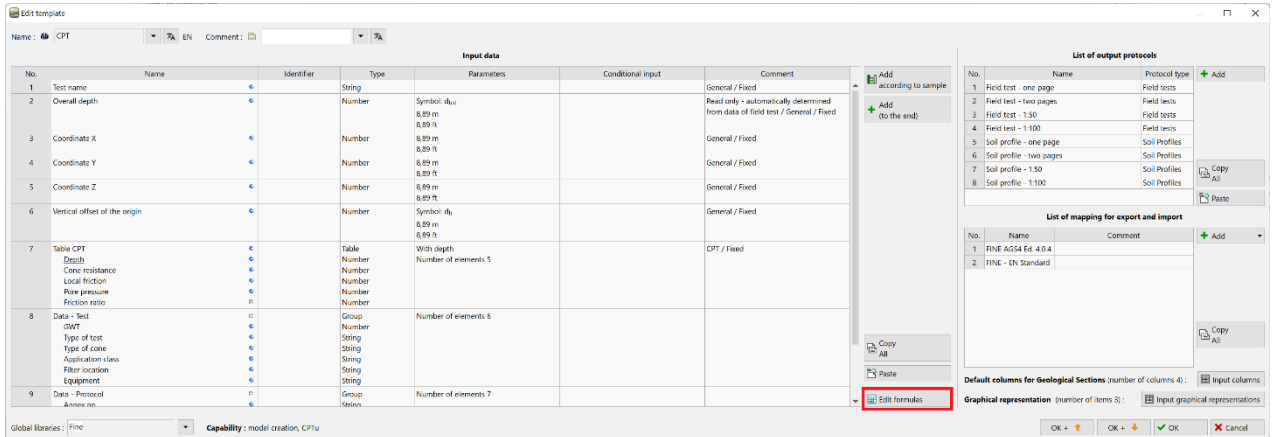
With the “Add + Close” button, confirm the modification of the template set and save the modified set under the name "EM 51" in the administrator.



In the frame “Field Tests” frame, open the “CPT1” test. In the table, you can see the newly created column that does not yet contain any data. It is now possible to enter the data into the column in the standard way. However, we want to use a formula to define the automatic recalculation of this column.



So, let's go back to editing the template for CPT and press the “Edit formulas” button.



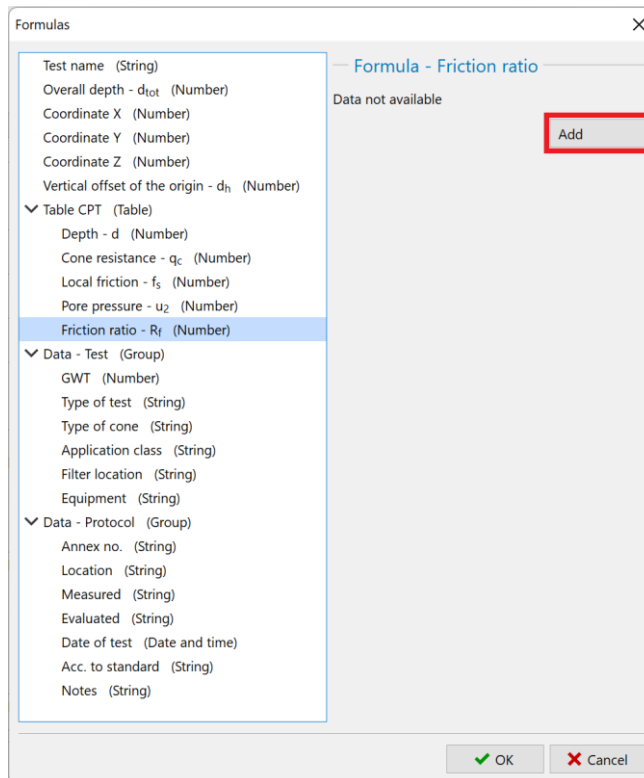
The 'Edit template' window for CPT shows a table of input data and a list of output protocols. The 'Edit formulas' button is highlighted in the bottom right corner.

No.	Name	Identifier	Type	Parameters	Conditional input	Comment
1	Test name		String			General / Fixed
2	Overall depth		Number	Symbol: d_{tot} 8.89 m 8.89 ft		Read only - automatically determined from data of Field test / General / Fixed
3	Coordinate X		Number	8.89 m 8.89 ft		General / Fixed
4	Coordinate Y		Number	8.89 m 8.89 ft		General / Fixed
5	Coordinate Z		Number	8.89 m 8.89 ft		General / Fixed
6	Vertical offset of the origin		Number	Symbol: d_h 8.89 m 8.89 ft		General / Fixed
7	Table CPT		Table	Width depth		CPT / Fixed
	Depth		Number	Number of elements 5		
	Cone resistance		Number			
	Local friction		Number			
	Pore pressure		Number			
	Friction ratio		Number			
8	Data - Test		Group	Number of elements 5		
	GWT		Number			
	Type of test		String			
	Type of cone		String			
	Application class		String			
	Filter location		String			
	Equipment		String			
9	Data - Protocol		Group	Number of elements 7		
	Annex no.		String			
	Location		String			
	Measured		String			
	Evaluated		String			
	Date of test		Date and time			
	Acc. to standard		String			
	Notes		String			

Global libraries: Fine Capability: model creation, CPTu

Buttons: OK, OK +, OK, OK, Cancel

Here we will select the created data type “Friction ratio” in the list, to which we will add the formula, and press the “Add” button.



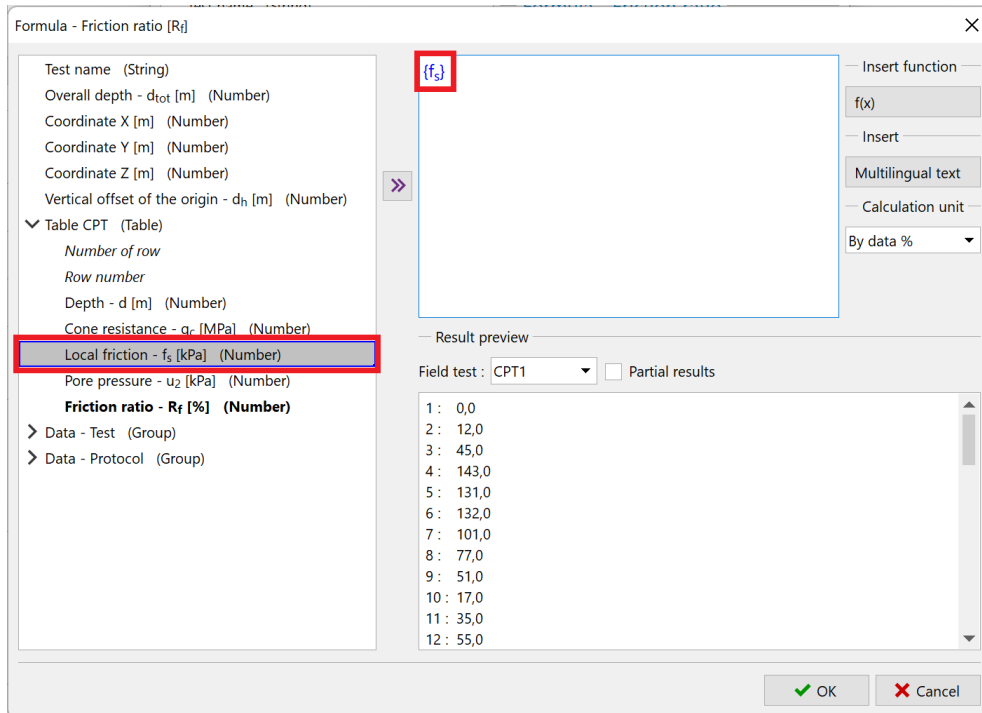
The 'Formulas' dialog box shows a list of data types. The 'Friction ratio - R_f (Number)' is selected. The 'Add' button is highlighted in the bottom right corner.

Formula - Friction ratio

Data not available

Buttons: OK, Cancel

By double-clicking in the data list, we can add data references to the formula.



Formula - Friction ratio [Rf]

Test name (String)

Overall depth - d_{tot} [m] (Number)

Coordinate X [m] (Number)

Coordinate Y [m] (Number)

Coordinate Z [m] (Number)

Vertical offset of the origin - d_h [m] (Number)

Table CPT (Table)

Number of row

Row number

Depth - d [m] (Number)

Cone resistance - q_c [MPa] (Number)

Local friction - f_s [kPa] (Number)

Pore pressure - u₂ [kPa] (Number)

Friction ratio - R_f [%] (Number)

Data - Test (Group)

Data - Protocol (Group)

Insert function

f(x)

Insert

Multilingual text

Calculation unit

By data %

Result preview

Field test : CPT1

Partial results

1 : 0,0

2 : 12,0

3 : 45,0

4 : 143,0

5 : 131,0

6 : 132,0

7 : 101,0

8 : 77,0

9 : 51,0

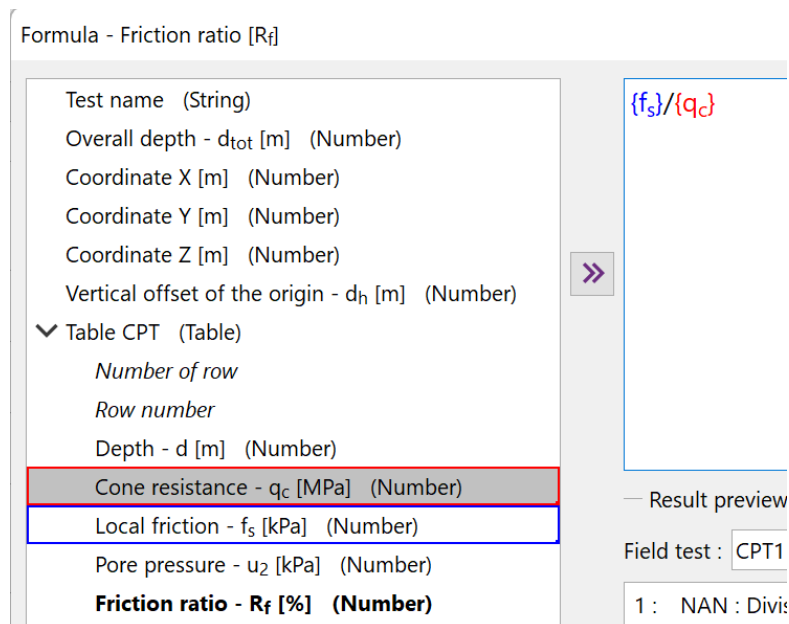
10 : 17,0

11 : 35,0

12 : 55,0

OK Cancel

Input formula: $\frac{f_s}{q_c}$



Formula - Friction ratio [Rf]

Test name (String)

Overall depth - d_{tot} [m] (Number)

Coordinate X [m] (Number)

Coordinate Y [m] (Number)

Coordinate Z [m] (Number)

Vertical offset of the origin - d_h [m] (Number)

Table CPT (Table)

Number of row

Row number

Depth - d [m] (Number)

Cone resistance - q_c [MPa] (Number)

Local friction - f_s [kPa] (Number)

Pore pressure - u₂ [kPa] (Number)

Friction ratio - R_f [%] (Number)

{fs}/{qc}

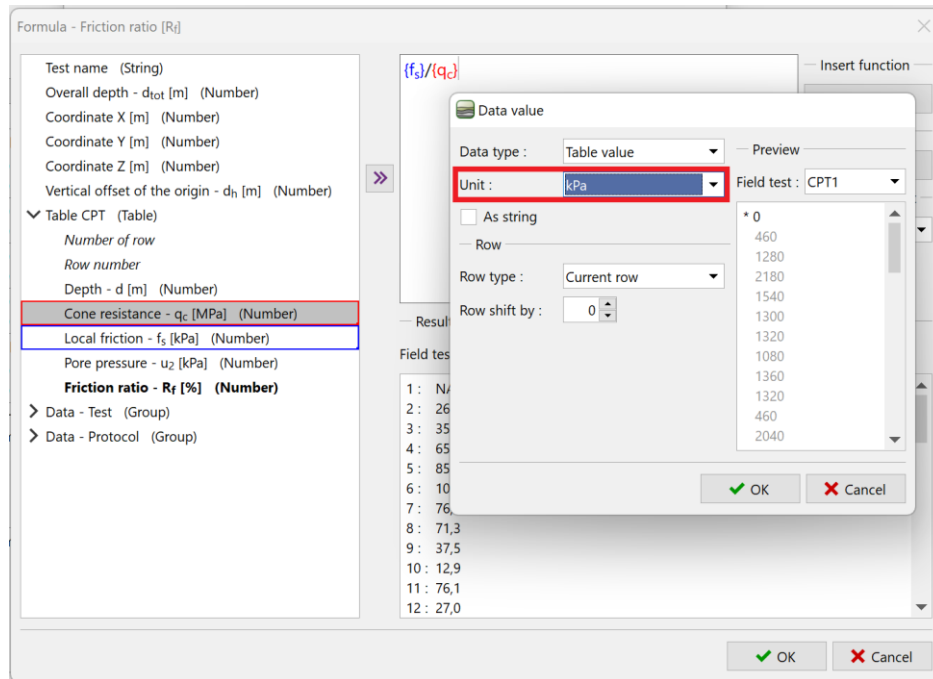
Result preview

Field test : CPT1

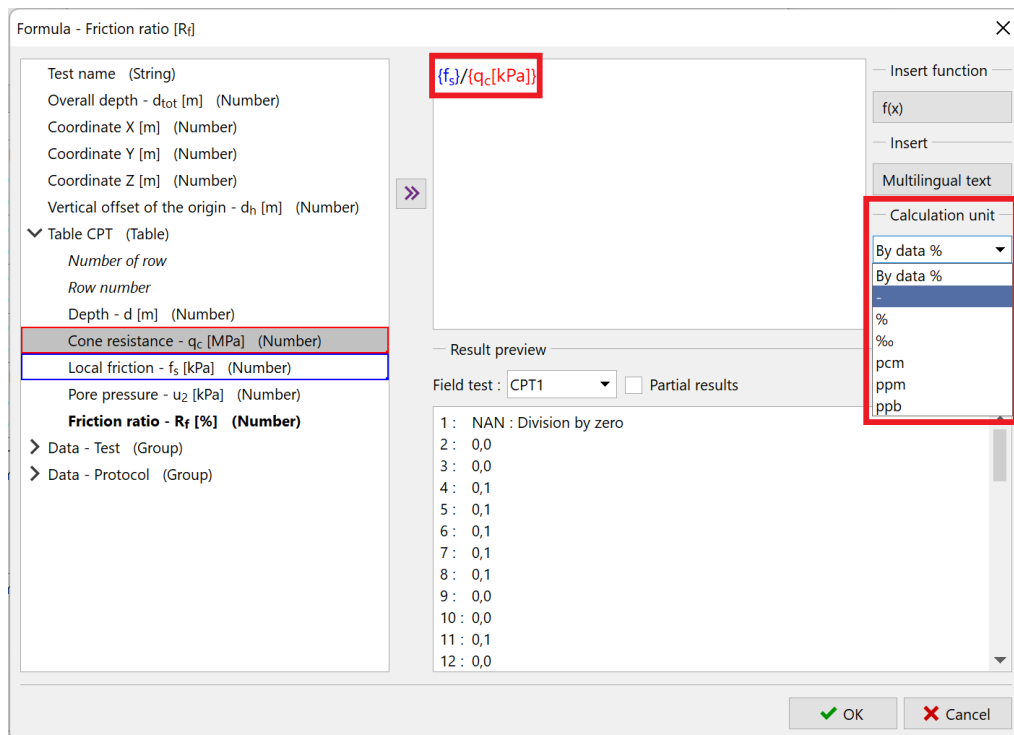
1 : NAN : Divi

Note: Common mathematical operations as well as more complex functions can be used in the calculation. Entering functions is very similar to MS Excel.

In the list, we see that while local friction has a unit of [kPa], cone resistance has a unit of [MPa]. To set the correct unit for the calculation, click on the q_c data type in the formula. This opens a dialog box in which we set the unit as [kPa]. The program then converts the unit before performing the calculation.



When defining the data type, we specified that the unit of the friction ratio is percentage [%]. However, the result of the specified formula is dimensionless. So, we need to choose the unit of the calculation result as dimensionless [-]. The program then performs the multiplication to percentages automatically. When entering more complex formulas, this function eliminates unit conversion errors.



In the lower part of the window, we can always see a preview of the calculation result. Confirm the entered formula with the “OK” button.

Formula - Friction ratio [Rf]

Test name (String)

Overall depth - d_{tot} [m] (Number)

Coordinate X [m] (Number)

Coordinate Y [m] (Number)

Coordinate Z [m] (Number)

Vertical offset of the origin - d_h [m] (Number)

Table CPT (Table)

Number of row

Row number

Depth - d [m] (Number)

Cone resistance - q_c [MPa] (Number)

Local friction - f_s [kPa] (Number)

Pore pressure - u_2 [kPa] (Number)

Friction ratio - R_f [%] (Number)

Data - Test (Group)

Data - Protocol (Group)

Insert function

f(x)

Insert

Multilingual text

Calculation unit

Result preview

Field test: CPT1 ☐ Partial results

1 : NAN : Division by zero

2 : 2,6

3 : 3,5

4 : 6,6

5 : 8,5

6 : 10,2

7 : 7,7

8 : 7,1

9 : 3,8

10 : 1,3

11 : 7,6

12 : 2,7

OK Cancel

Data, which are calculated using formulas are displayed in bold in the list.

Formulas

Test name (String)

Overall depth - d_{tot} (Number)

Coordinate X (Number)

Coordinate Y (Number)

Coordinate Z (Number)

Vertical offset of the origin - d_h (Number)

Table CPT (Table)

Depth - d (Number)

Cone resistance - q_c (Number)

Local friction - f_s (Number)

Pore pressure - u_2 (Number)

Friction ratio - R_f (Number)

Data - Test (Group)

GWT (Number)

Type of test (String)

Type of cone (String)

Application class (String)

Filter location (String)

Equipment (String)

Data - Protocol (Group)

Annex no. (String)

Location (String)

Measured (String)

Evaluated (String)

Date of test (Date and time)

Acc. to standard (String)

Notes (String)

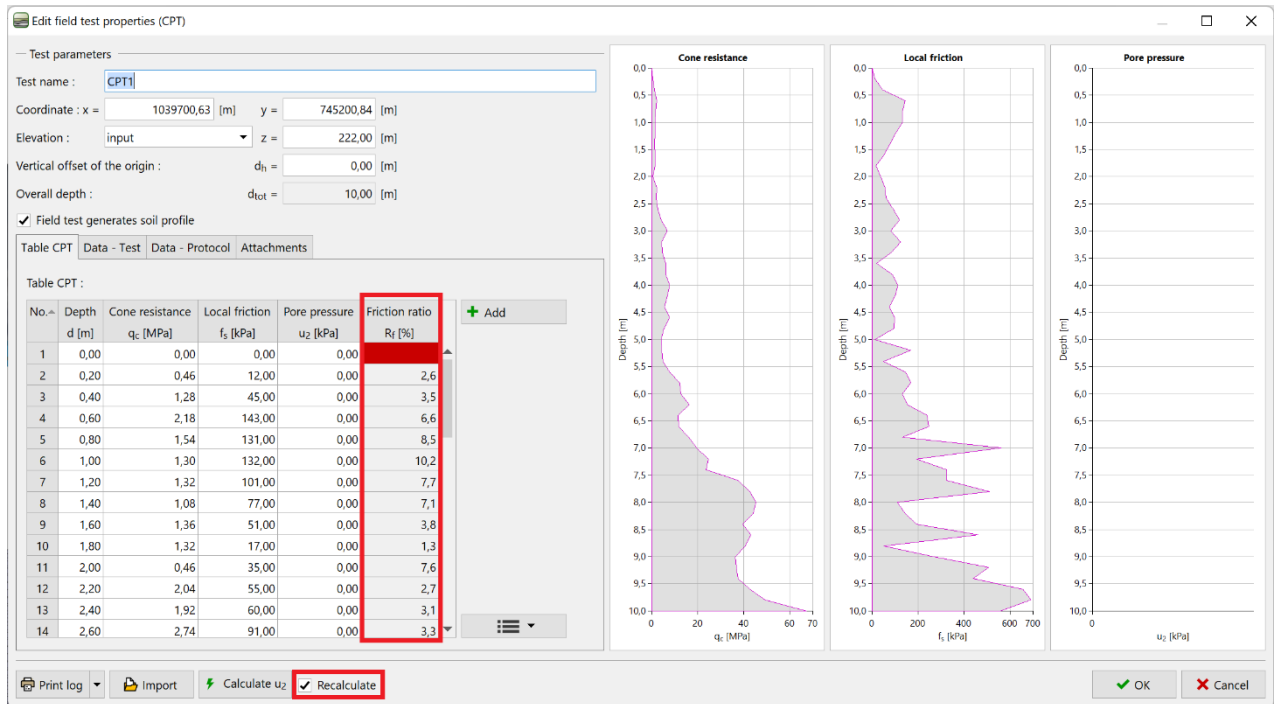
Formula - Friction ratio

f_s/q_c [kPa]

Edit

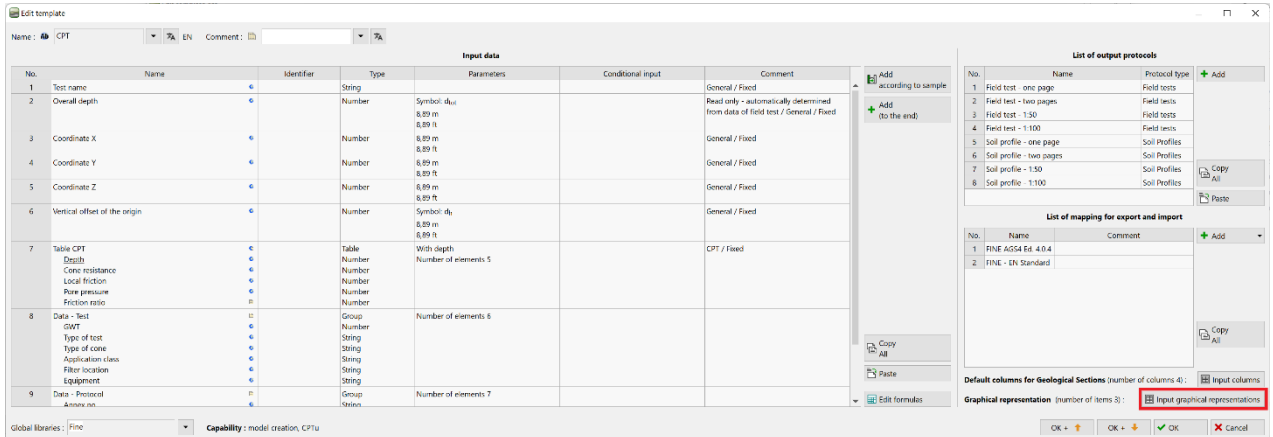
OK Cancel

If we now return to the field test input frame, we can see the automatically calculated column. Automatic recalculation can be turned on or off at the bottom of the window.



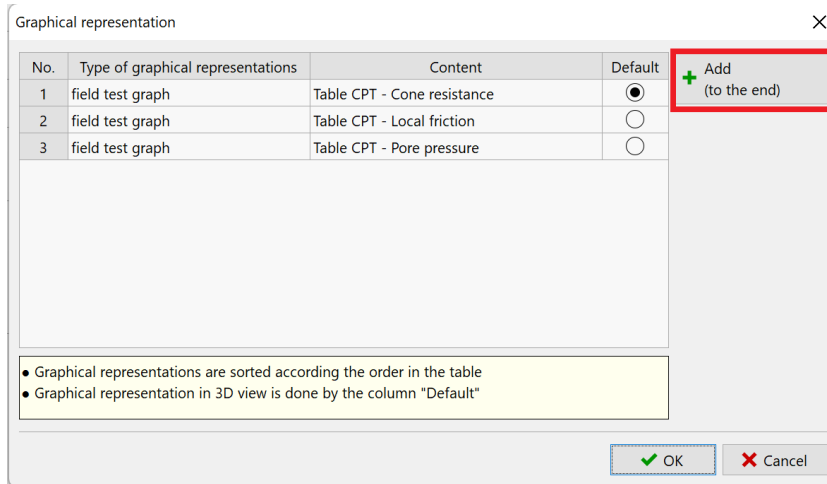
In the next phase, we will define the graphical representation of the calculated column - we add a fourth graph to the field test input window.

We will return to editing the template and press the button “Input graphical representations”.



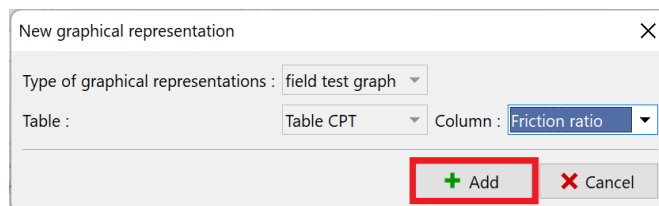
No.	Name	Identifier	Type	Parameters	Conditional input	Comment
1	Test name		String			General / Fixed
2	Overall depth		Number	Symbol: d_{ov} 8.89 m 8.89 ft		Read only - automatically determined from data of field test / General / Fixed
3	Coordinate X		Number	8.89 m 8.89 ft		General / Fixed
4	Coordinate Y		Number	8.89 m 8.89 ft		General / Fixed
5	Coordinate Z		Number	8.89 m 8.89 ft		General / Fixed
6	Vertical offset of the origin		Number	Symbol: d_v 8.89 m 8.89 ft		General / Fixed
7	Table CPT		Table	Width depth		CPT / Fixed
	Depth		Number	Number of elements 5		
	Cone resistance		Number			
	Local friction		Number			
	Pore pressure		Number			
	Friction ratio		Number			
8	Data - Test		Group	Number of elements 6		
	GVMT		Number			
	Type of test		String			
	Type of cone		String			
	Application class		String			
	Filter location		String			
	Equipment		String			
9	Data - Processed		Group	Number of elements 7		
	Accessories		String			

Here we add the newly defined column “Friction ratio” and confirm.



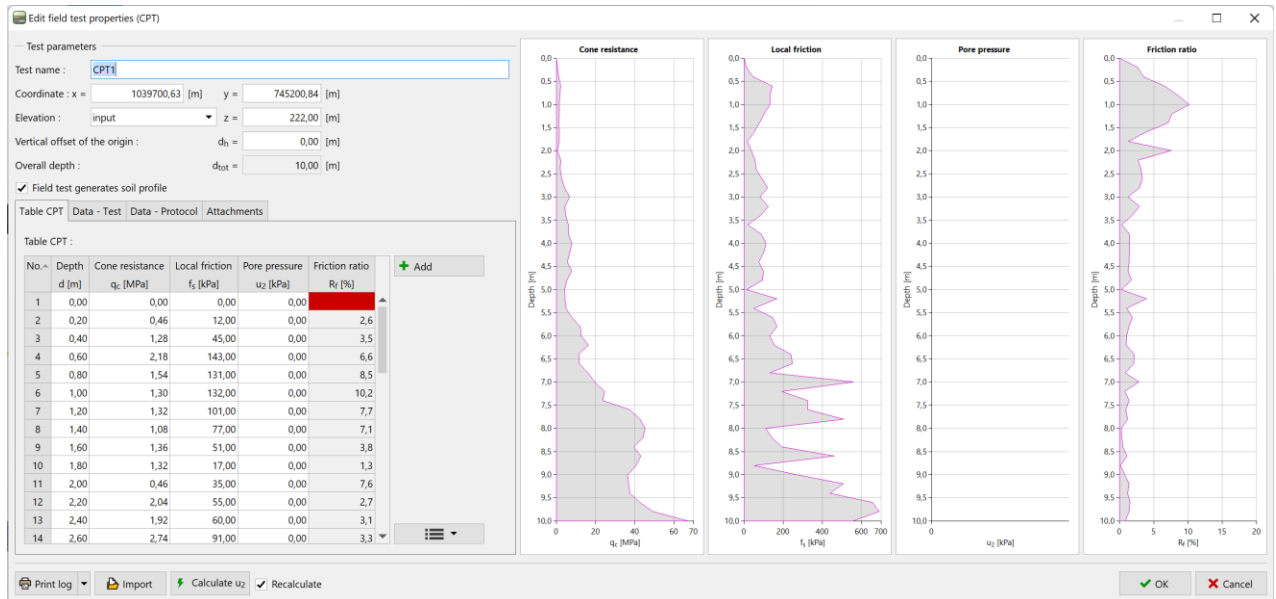
No.	Type of graphical representations	Content	Default
1	field test graph	Table CPT - Cone resistance	<input checked="" type="radio"/>
2	field test graph	Table CPT - Local friction	<input type="radio"/>
3	field test graph	Table CPT - Pore pressure	<input type="radio"/>

• Graphical representations are sorted according to the order in the table
 • Graphical representation in 3D view is done by the column "Default"



Type of graphical representations : field test graph
 Table : Table CPT Column : Friction ratio
 + Add X Cancel

After returning to the field test input window, we see the newly added graph for the calculated column.



The last change required is to add a new graph to the output log. Let's go back to editing the template, select the desired output protocol and press the "Edit" button.

Input data

No.	Name	Identifier	Type	Parameters	Conditional input	Comment
1	Test name		String		General / Fixed	
2	Overall depth		Number	Symbol: d _{tot} 8.89 m 8.89 ft	Read only - automatically determined from data of field test / General / Fixed	
3	Coordinate X		Number	8.89 m 8.89 ft	General / Fixed	
4	Coordinate Y		Number	8.89 m 8.89 ft	General / Fixed	
5	Coordinate Z		Number	8.89 m 8.89 ft	General / Fixed	
6	Vertical offset of the origin		Number	Symbol: d _h 8.89 m 8.89 ft	General / Fixed	
7	Table CPT		Table	With depth Number of elements 5	CPT / Fixed	
8	Data - Test		Group	Number of elements 6		
9	Data - Protocol		Group	Number of elements 7		

List of output protocols

No.	Name	Protocol type
1	Field test - one page	Field tests
2	Field test - two pages	Field tests
3	Field test - 1:50	Field tests
4	Field test - 1:100	Field tests
5	Soil profile - one page	Soil Profiles
6	Soil profile - two pages	Soil Profiles
7	Soil profile - 1:50	Soil Profiles
8	Soil profile - 1:100	Soil Profiles

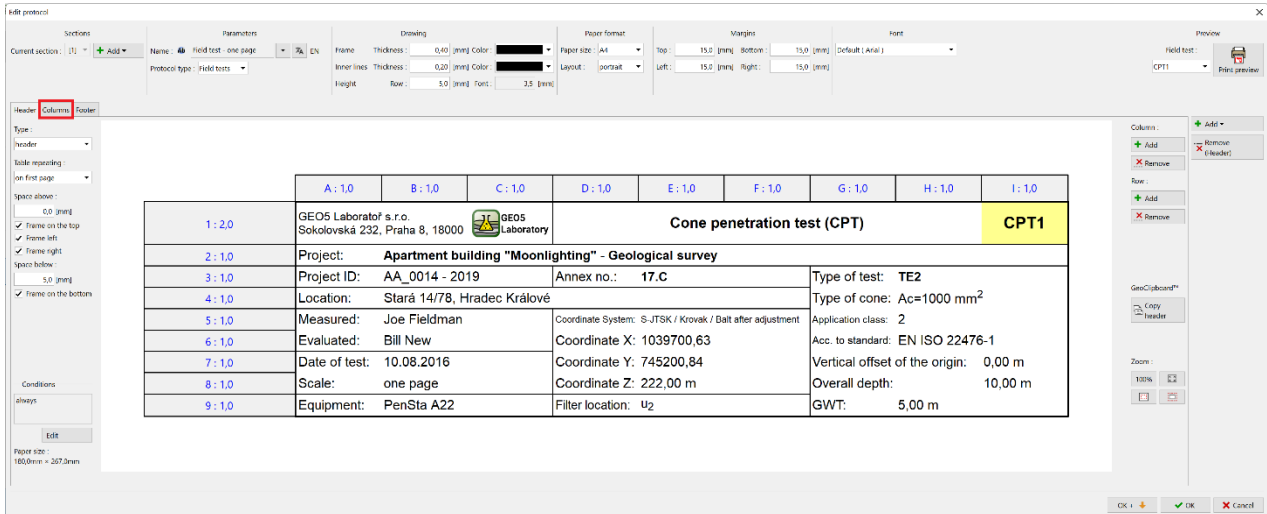
List of mapping for export and import

No.	Name	Comment
1	FINE AGS4 Ed. 4.0.4	
2	FINE - EN Standard	

Default columns for Geological Sections (number of columns: 4) ☐ Input columns

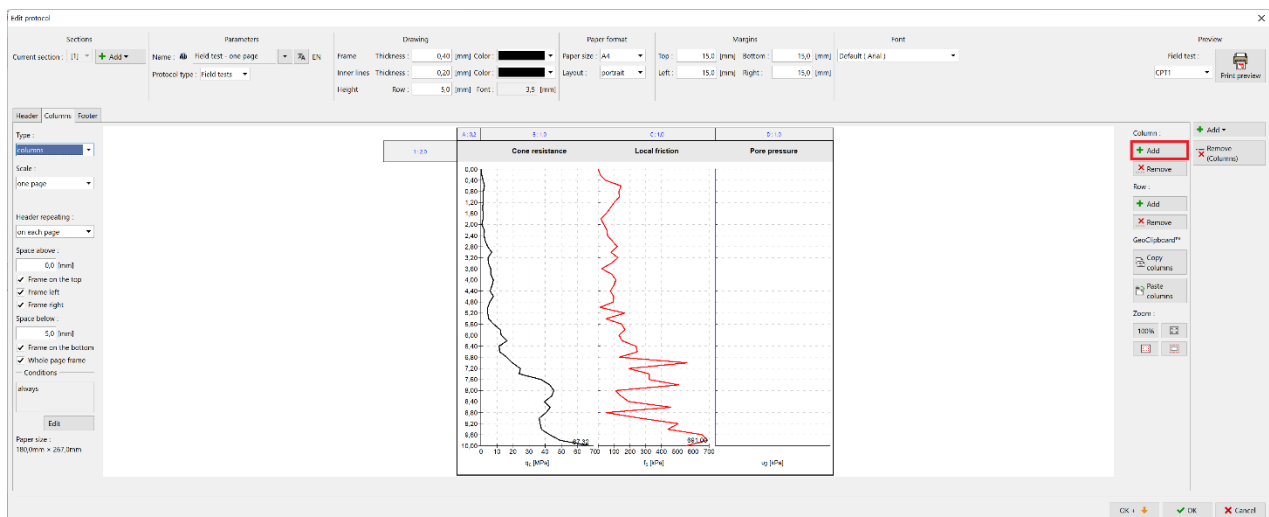
Graphical representation (number of items: 4) ☐ Input graphical representations

We will proceed to the “Columns” section, where we see the original graph.

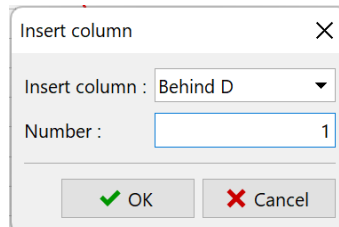


	A:1.0	B:1.0	C:1.0	D:1.0	E:1.0	F:1.0	G:1.0	H:1.0	I:1.0
1:2.0	GEO5 Laboratoř s.r.o. Sokolovská 232, Praha 8, 18000								CPT1
2:1.0	Project: Apartment building "Moonlighting" - Geological survey								
3:1.0	Project ID: AA_0014 - 2019				Annex no.: 17.C		Type of test: TE2		
4:1.0	Location: Stará 14/78, Hradec Králové				Type of cone: Ac=1000 mm ²			Application class: 2	
5:1.0	Measured: Joe Fieldman				Coordinate System: S-JTSK / Krovak / Bait after adjustment			Acc. to standard: EN ISO 22476-1	
6:1.0	Evaluated: Bill New				Coordinate X: 1039700.63			Vertical offset of the origin: 0.00 m	
7:1.0	Date of test: 10.08.2016				Coordinate Y: 745200.84			Overall depth: 10.00 m	
8:1.0	Scale: one page				Coordinate Z: 222.00 m			GWT: 5.00 m	
9:1.0	Equipment: PenSta A22				Filter location: U2				

By pressing the “Add” button, we will add a column with which we will continue to work.

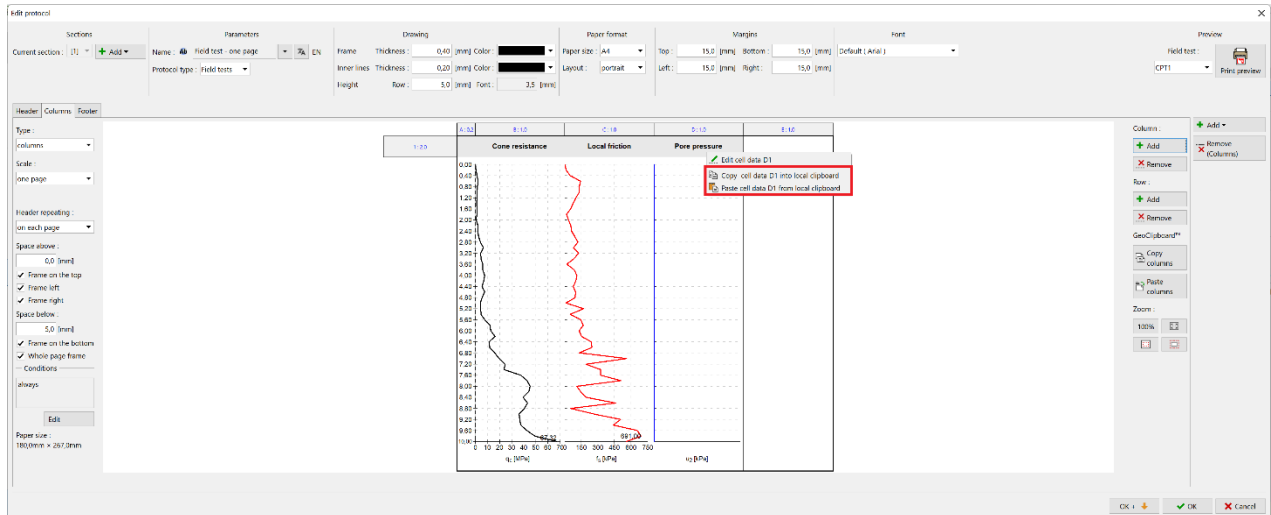


Insert one column behind the existing column D.

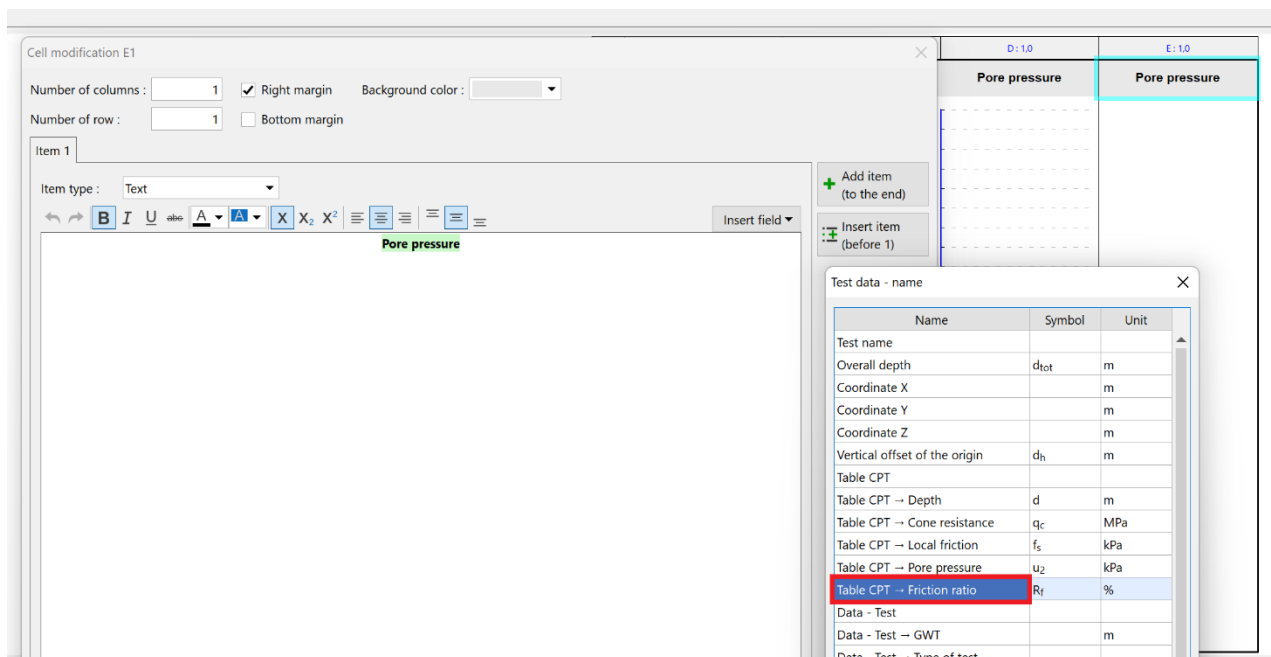


Columns contain a header and a body.

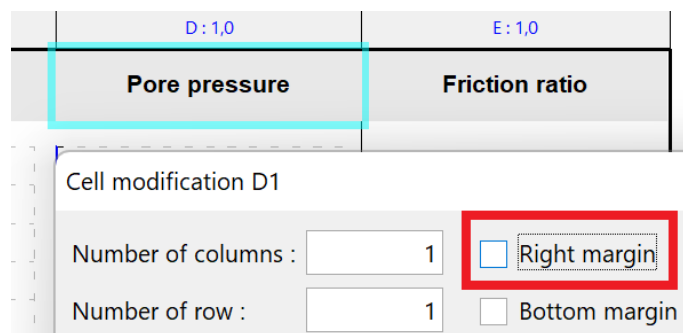
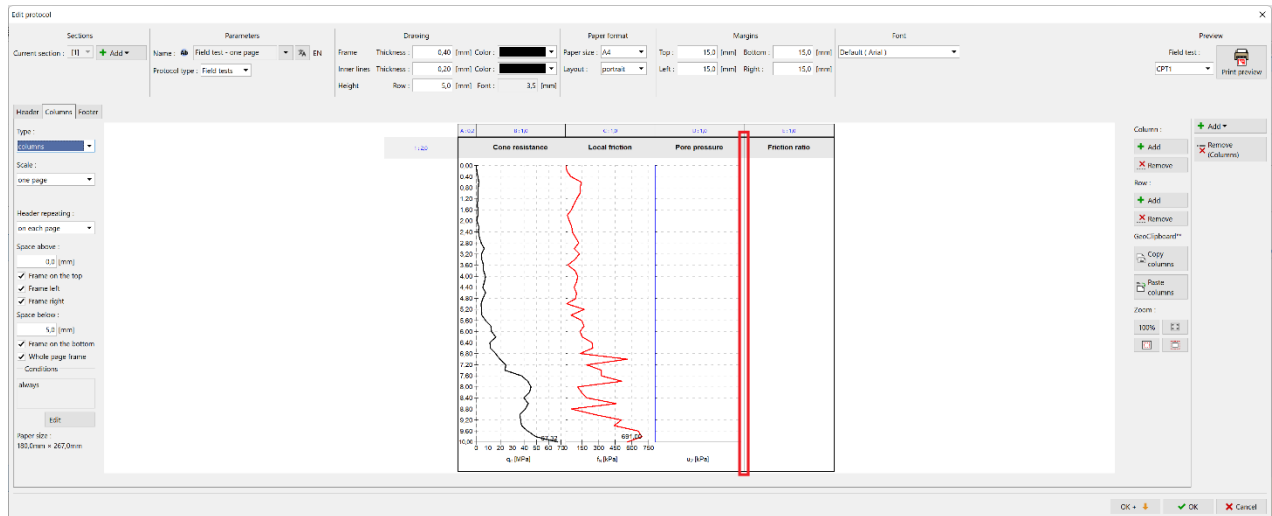
Let's start by editing the header. To save time with formatting, we can copy the cell titled “Pore pressure” and paste it into the cell in the header of the newly added column. The options for copying and pasting are displayed by pressing the right mouse button on the desired cell.



With the left mouse button in the header of column E, we open the cell editing. We click on the name “Pore pressure” and change it to “Friction ratio” by selecting from the list.

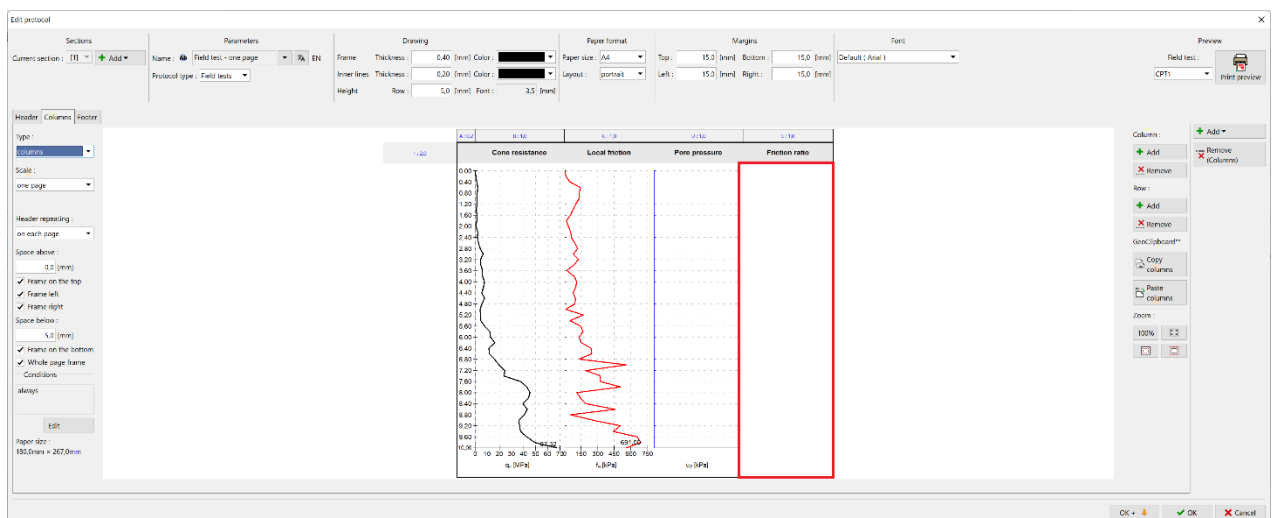


Now we have the column header correct, but we can see that there is a separator line between the original column and the new column. To remove it, open the modification of the cell titled “Pore pressure” and turn off the right margin.

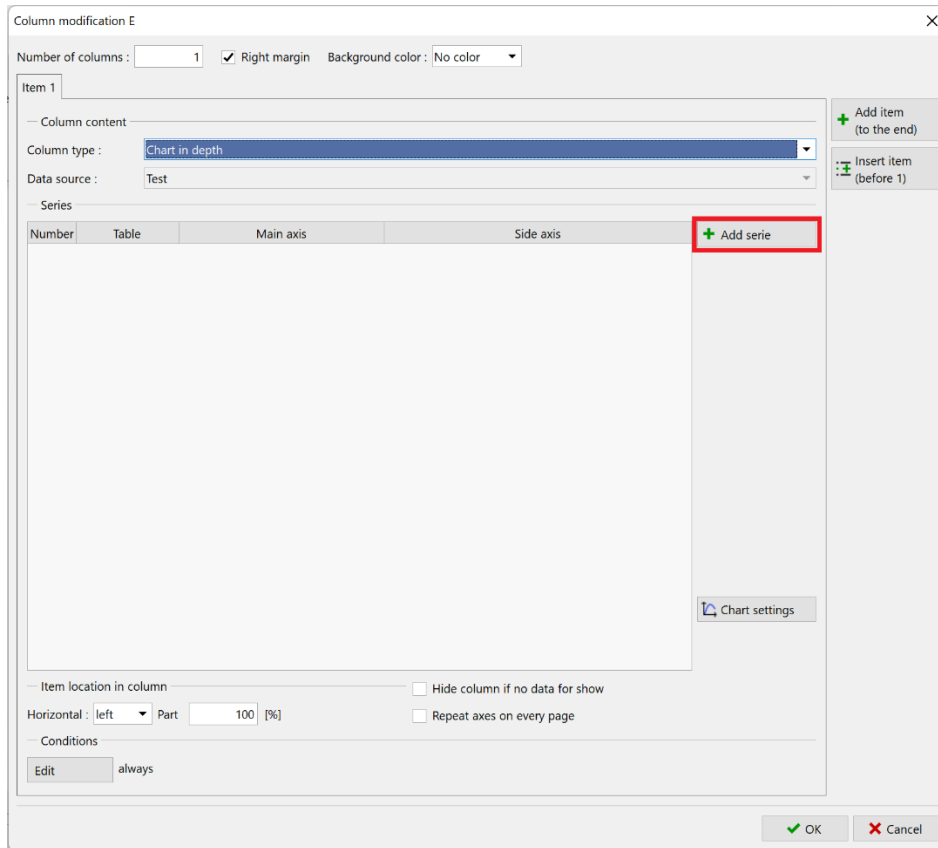


Proceed in the same way for the body with the pore pressure graph.

The last necessary modification is the actual addition of the chart to the new column. By clicking in the empty space of the column, we open its modification.



Here, select the column type as “Chart in depth” and press the “Add serie” button.



Column modification E

Number of columns : 1 ☒ Right margin Background color : No color

Item 1

Column content

Column type : Chart in depth

Data source : Test

Series

Number	Table	Main axis	Side axis	
				+ Add serie

Chart settings

Item location in column

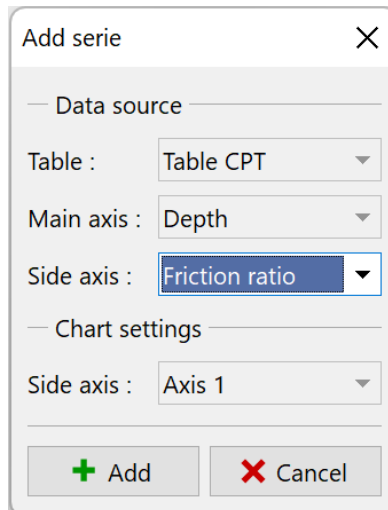
Horizontal : left Part 100 [%]

Conditions

Edit always

OK Cancel

We select the corresponding data – “Friction ratio”.



Add serie

Data source

Table : Table CPT

Main axis : Depth

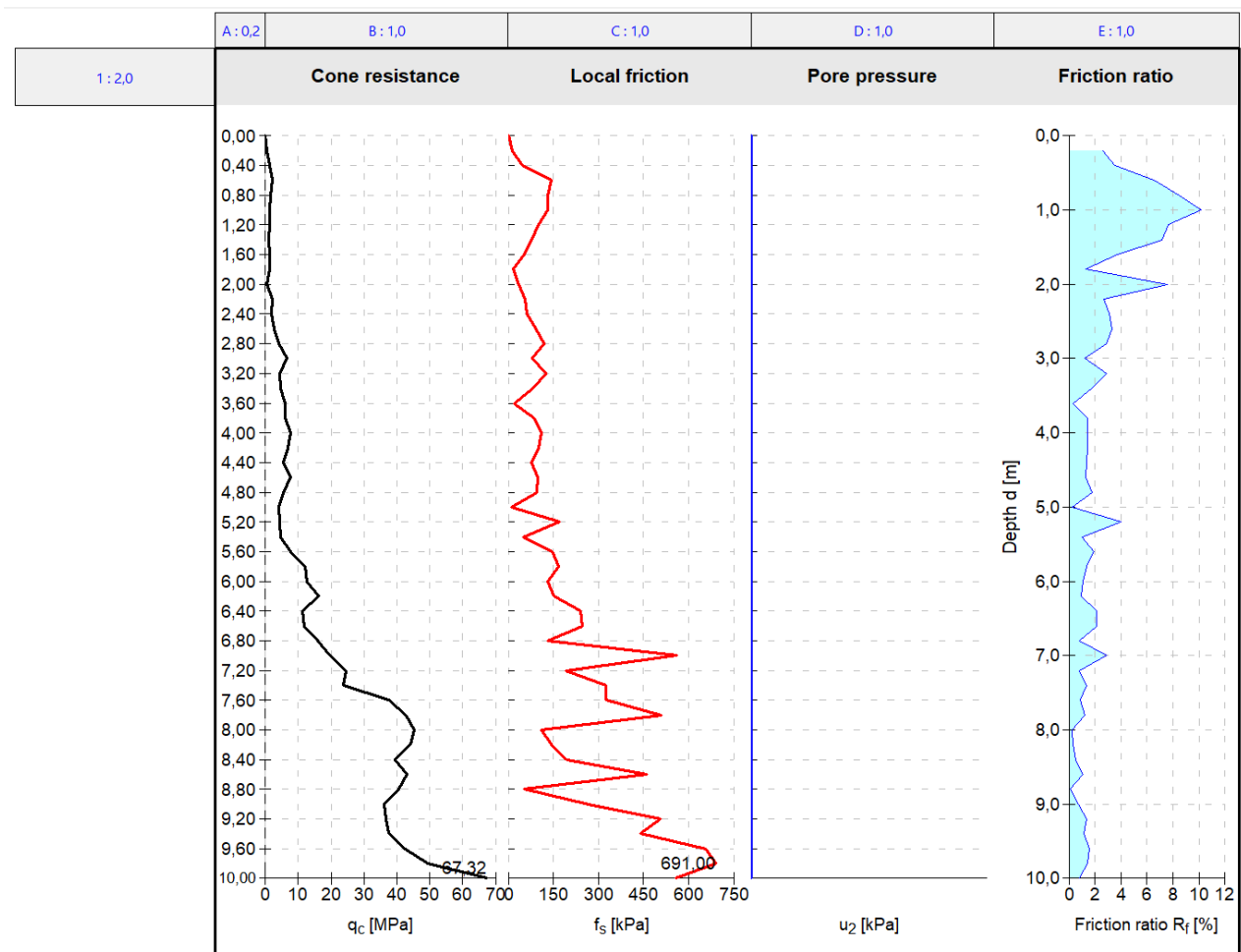
Side axis : Friction ratio

Chart settings

Side axis : Axis 1

+ Add X Cancel

Now we can see the desired graph in the column. However, we still need to adjust its visual appearance to correspond with the other graphs.



Let's start by editing the main axis (vertical). This is common to all graphs - we will not display it for the edited graph.

Column modification E

Number of columns : 1

☒ Right margin

Background color : No color

Item 1

Column content

Column type : Chart in depth

Data source : Test

Series

Number	Table	Main axis	Side axis
1	Table CPT	Depth [m]	Friction ratio [%]

+ Add serie

Edit serie 1

Delete serie 1

Edit settings of serie 1

Edit main axis settings

Edit settings of side axis

Chart settings

Edit user drawing

Item location in column

Horizontal : left

Part : 100 [%]

Hide column if no data for show

Repeat axes on every page

Conditions

Edit always

+ Add item (to the end)

+ Insert item (before 1)

OK

Cancel

Bottom : 15,0 [mm]

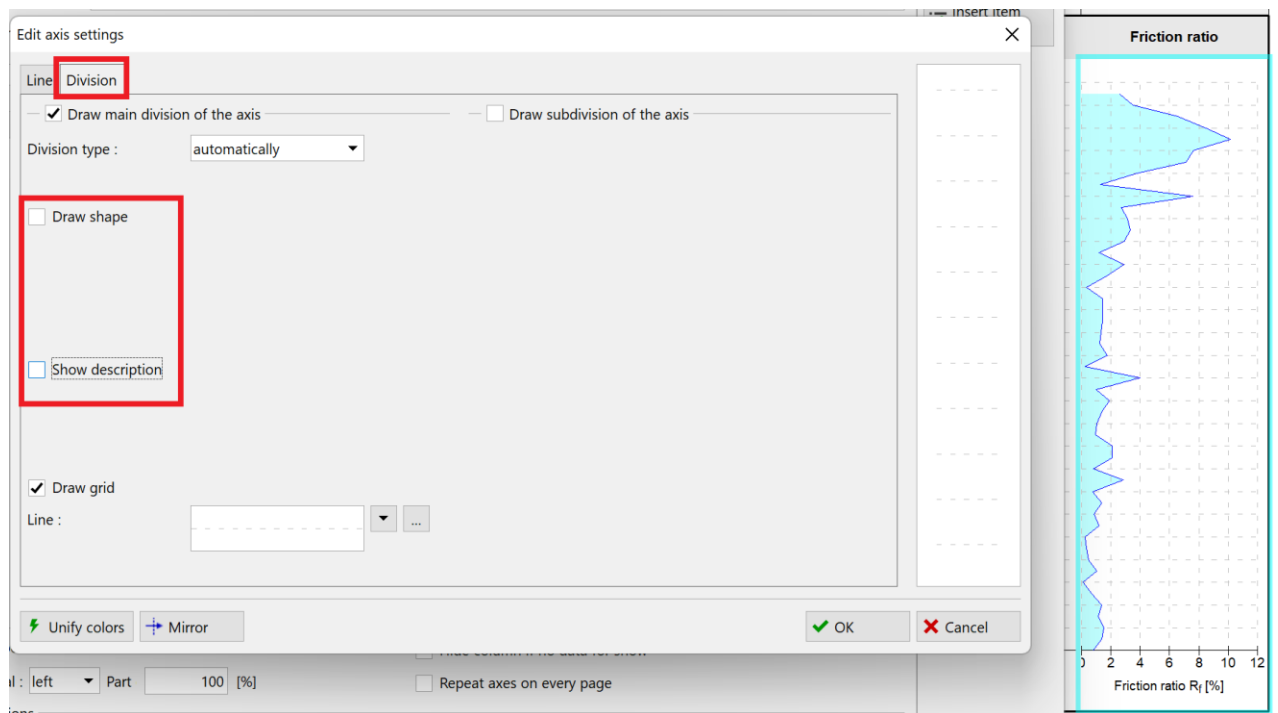
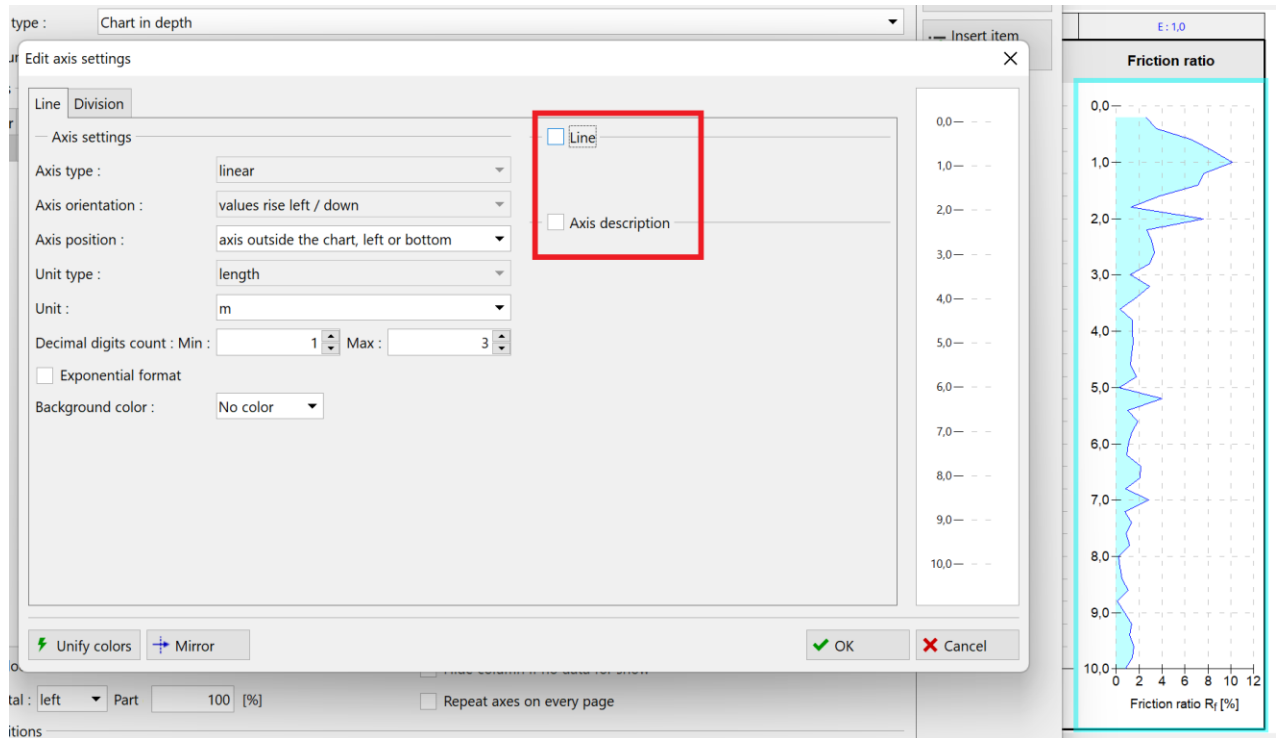
Right : 15,0 [mm]

E : 1,0

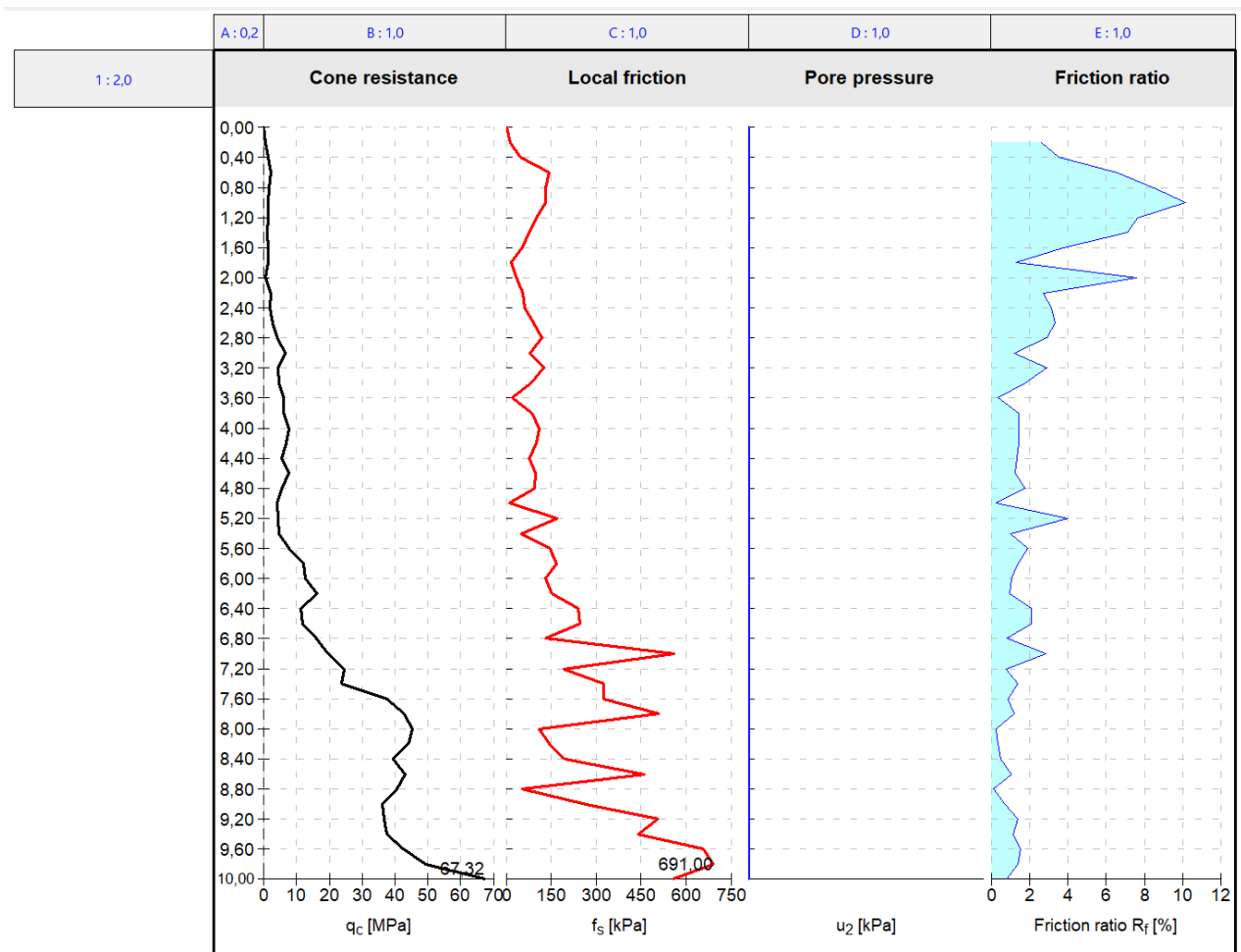
Friction ratio

22

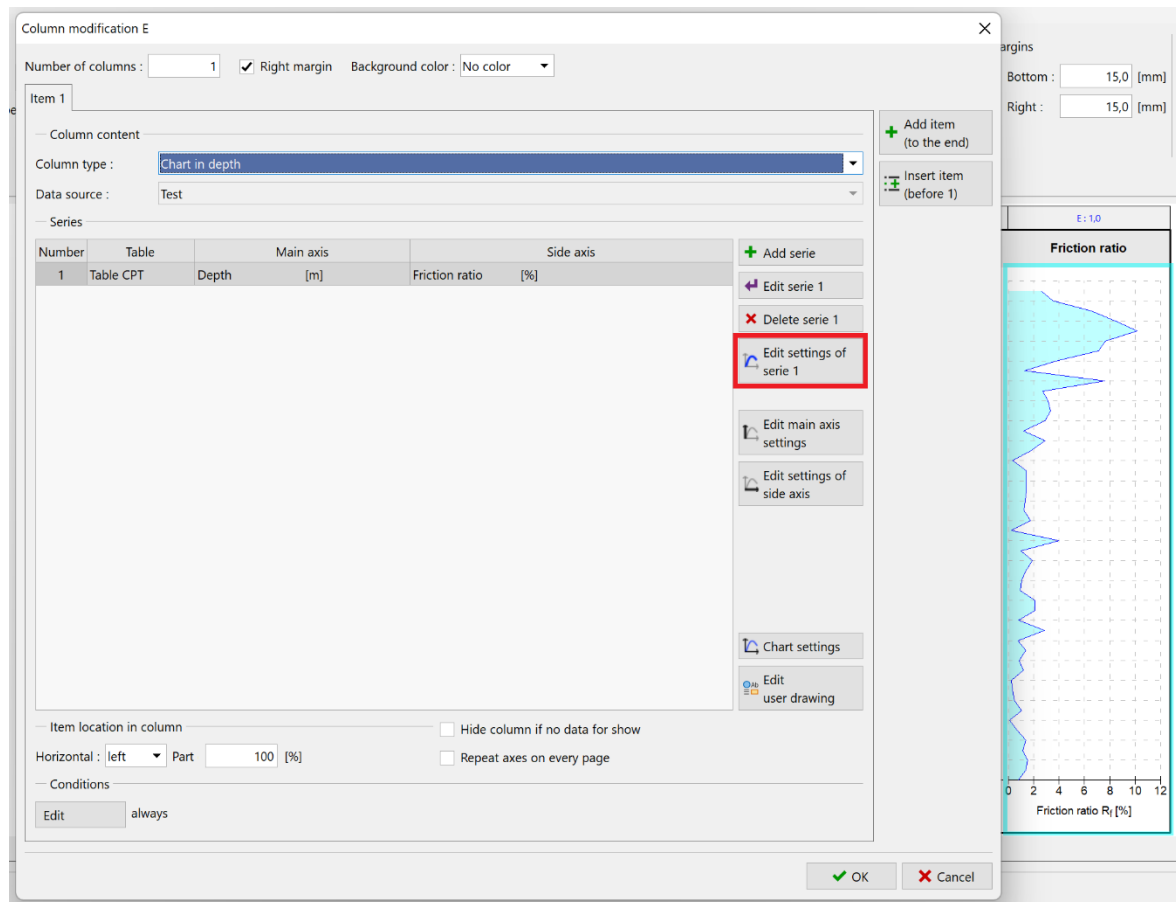
We will turn off the display of the line, the description of the axis, and in the “Division” tab, also the shape and description.



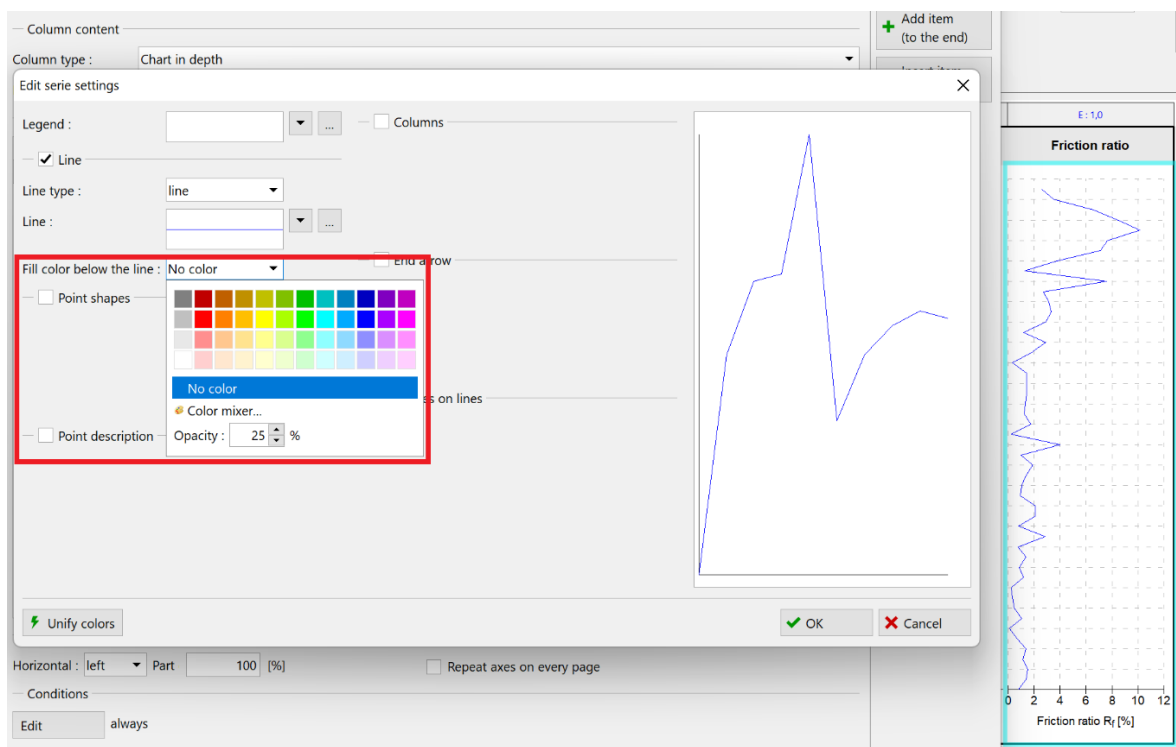
Now we will adjust the visualization of the series itself to match the other charts.



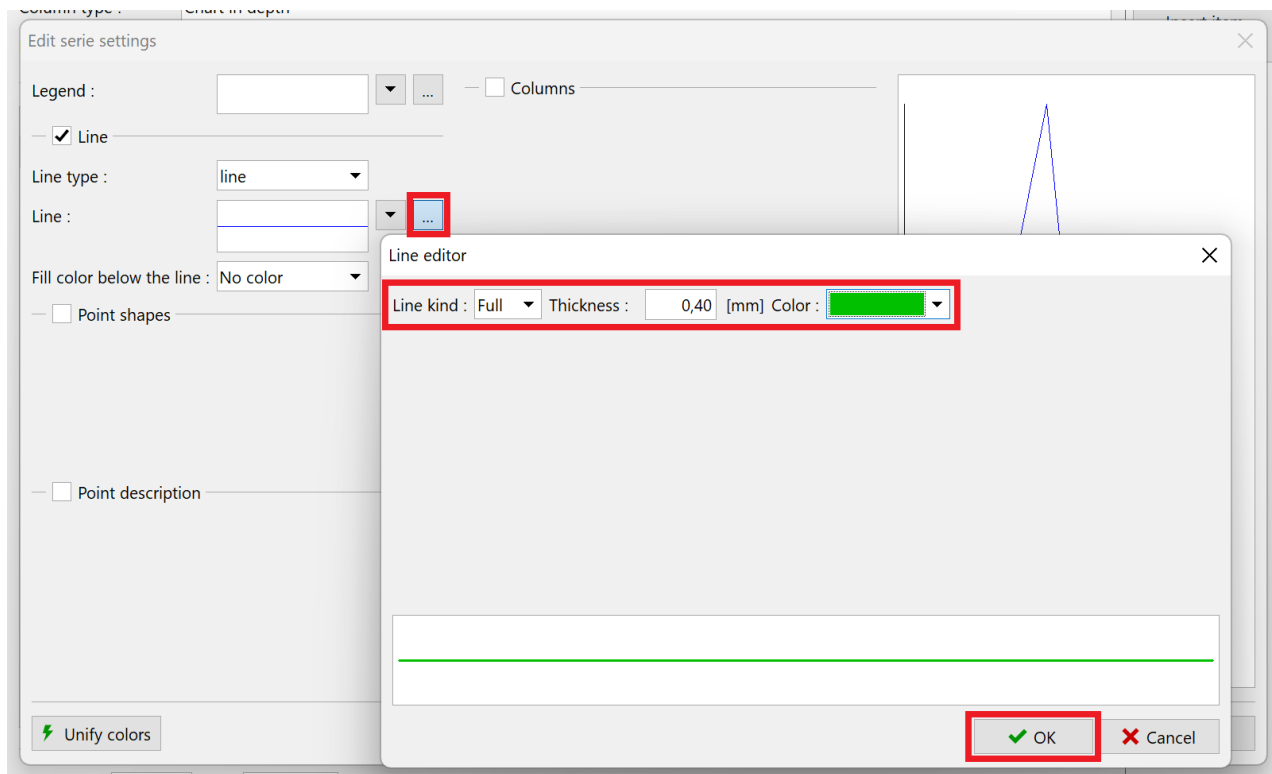
Press button “Edit settings of serie 1”.



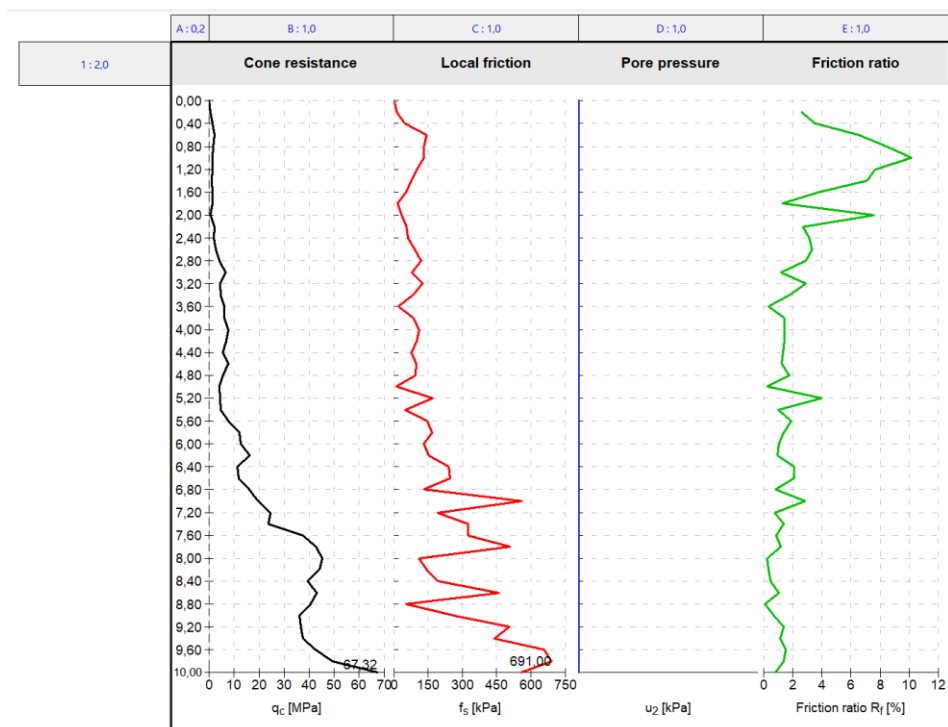
Here, we will do the necessary modifications – turn off the color fill below the line.



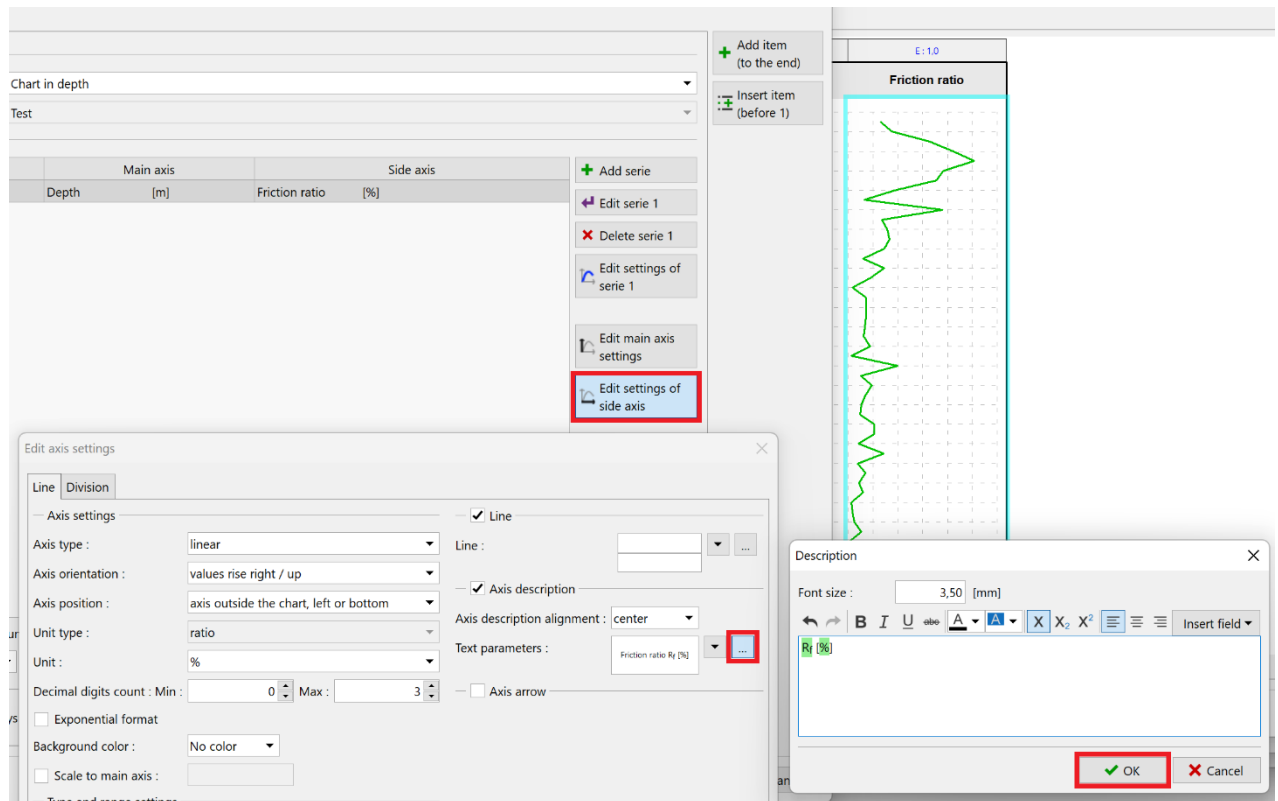
Next, by pressing the button with three dots, we will edit the line itself.
We will unify the thickness to 0.4 mm and select the green color, which is not yet used.



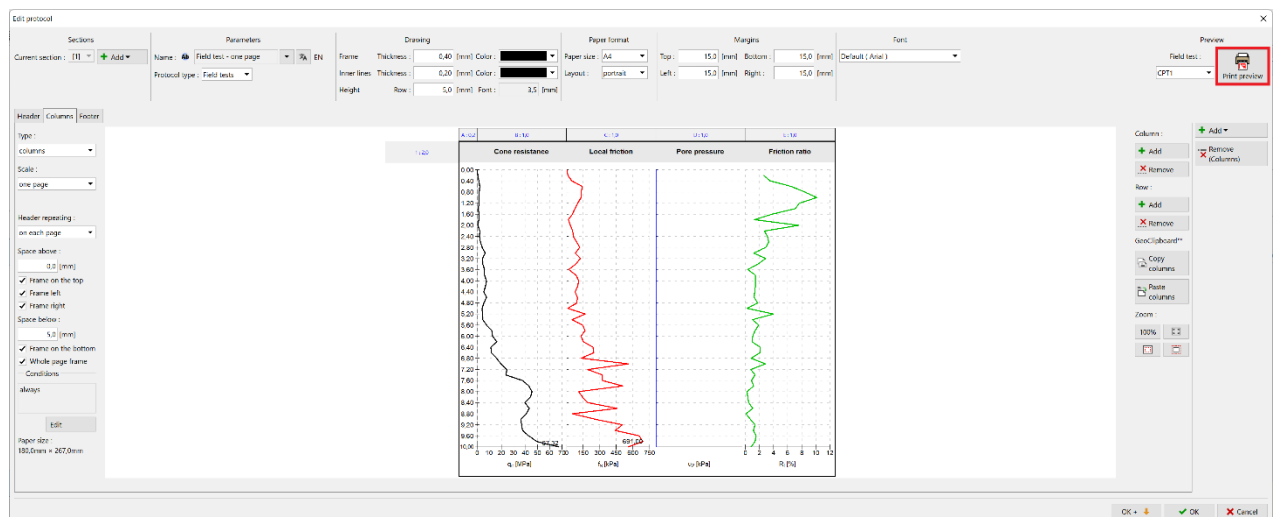
We will also adjust the description of the side axis to match the other graphs.

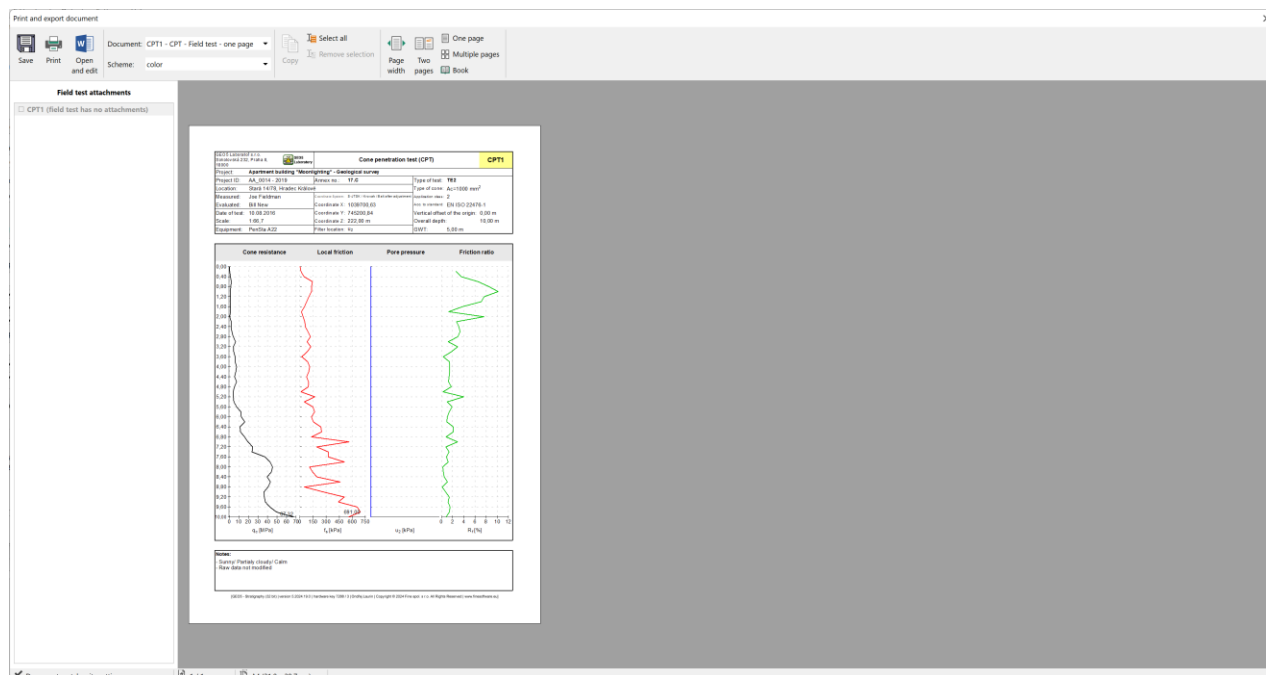


The procedure here is similar to other modifications – we open the side axis editor and modify the description of the axis so that it contains only the symbol.

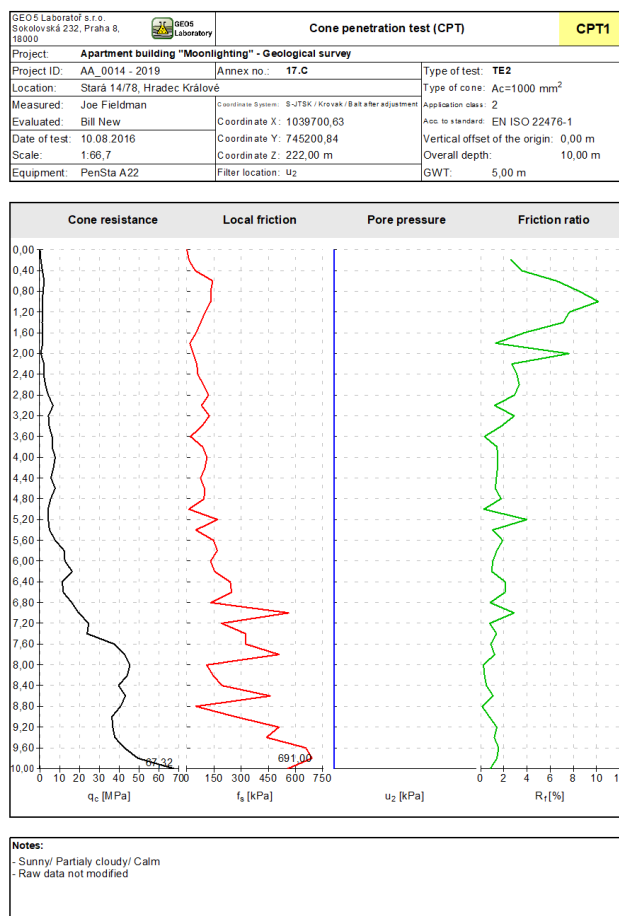


By pressing the “Print preview” button, we can check whether our log corresponds to the required assignment.

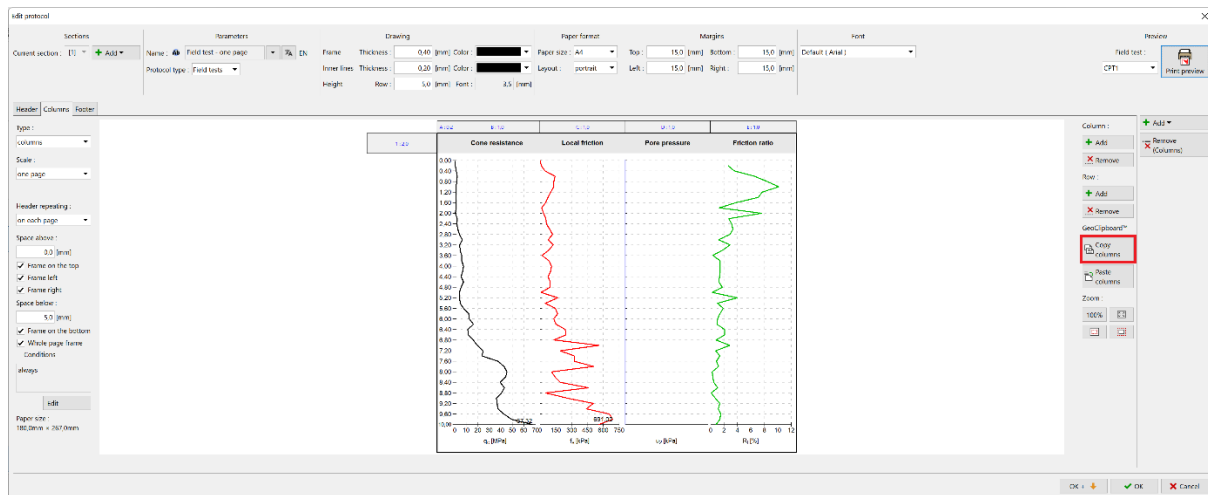




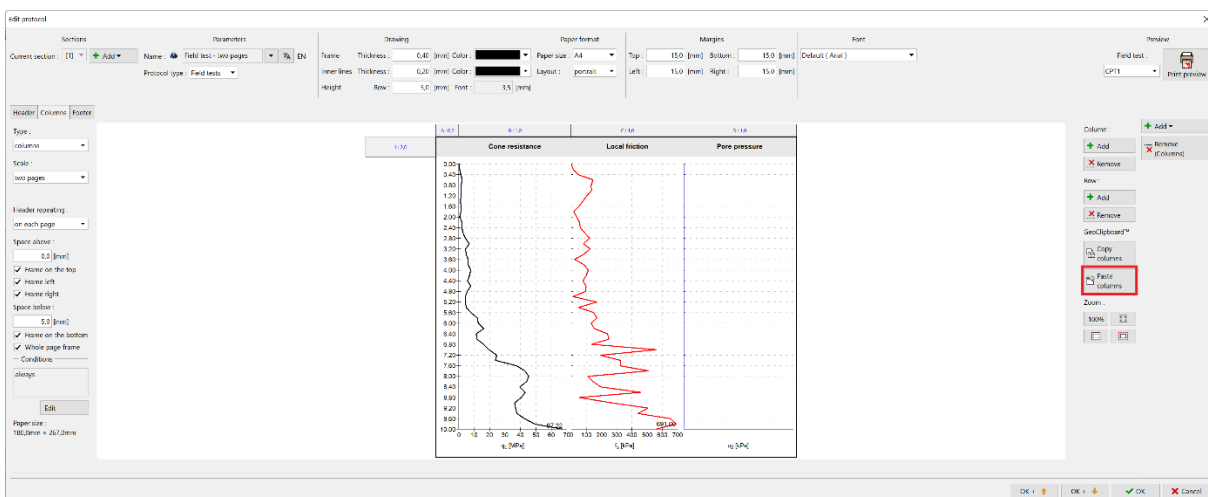
The created protocol corresponds to our assignment.



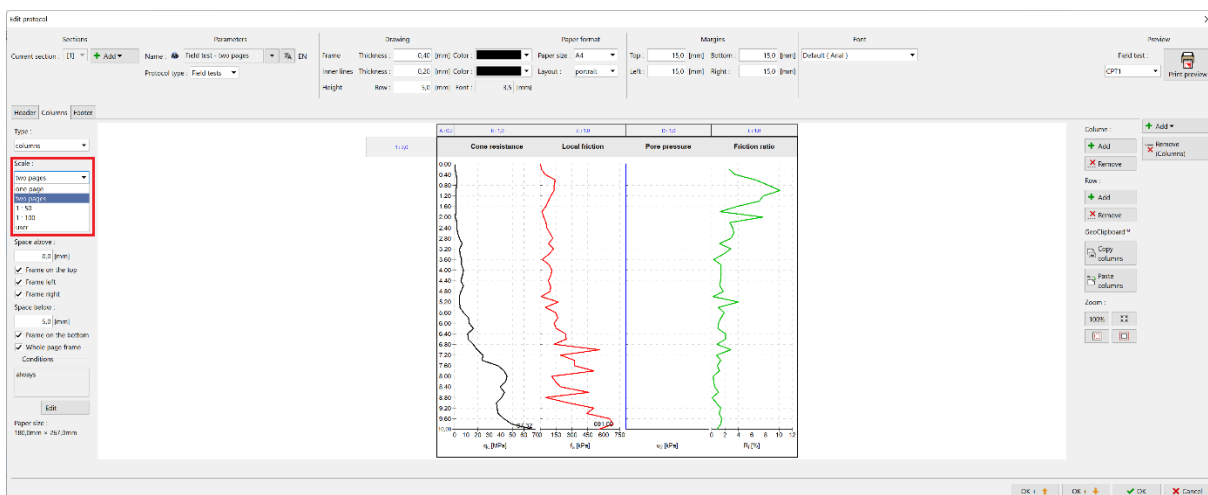
If we want to modify the graph in other protocols, it can be copied very quickly. In the edited log, click on the column tab and press “Copy columns”.



Now open the second log - in our case a two-page log and insert the columns.



Now just adjust the appropriate scale - two pages.



In this way, we can easily modify other protocols as well.

