WRIDO 4.20

USER MANUAL

ROBERT FAGES LOGICIELS

WRIDO 4.20

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Par ailleurs le progiciel **RIDO** est protégé par la loi du 3 juillet 1985 qui étend la propriété intellectuelle aux programmes informatiques.

Ce document accompagne la version 4.20 du progiciel **RIDO.**

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WRIDO Working environment – Version 4.20

General

This user manual describes only the working environment of the RIDO program.
The user guide of RIDO (RID4NOT.PDF) processes hypotheses of calculation and the organization of the data.

The number of cases managed by the RIDO software led us to choose a simplified data description language with its own words, variables, functions and expressions (numeric data or arithmetic expressions), this very language being described in the RIDO documentation.

This way, a simple problem will be described with a small amount of data and a more complex problem with more elaborated data possibly using data or results from an another problem.

Not only writing and maintaining data using a data description language with a text editor allows excellent flexibility but also needs memorizing the language.
The working environment WRIDO brings a solution to this dilemma. Even if it uses a text editor, every line can be typed using a contextual menu and its content can be controlled in an interactive way.

More, **WRIDO** can :

- Manage the graphical and text calculus data and results
- Assist you in data creation and modification
- Execute Calculus
- Show graphical results, prints and exports (“copy and paste” or “export to graphic files in different formats”)
- Analyze results, prints and exports in text or table format (“copy and paste” or “text file”)
- Optimize projects with the very fast cycle CALCULUS - GRAPHICAL RESULTS VISUALIZATION - DATA MODIFICATION – CALCULUS ... without leaving the working environment
- Backup, restore and e-mail the compressed project files (ZIP and E-Mail functions integrated into WRIDO)
- Setup a post-calculus application without leaving the working environment
- And more ...

For more efficiency under WINDOWS, WRIDO.EXE contains now the working environment and the module of calculation (formerly RIDO.EXE).

However if we wish to use only the module of calculation, in a personalized chain of treatment for example, an executable file named RIDO.EXE is supplied (it is a launcher who activates in WRIDO.EXE only the calculation part) and who, in a transparent way, behaves as the ancient RIDO.EXE

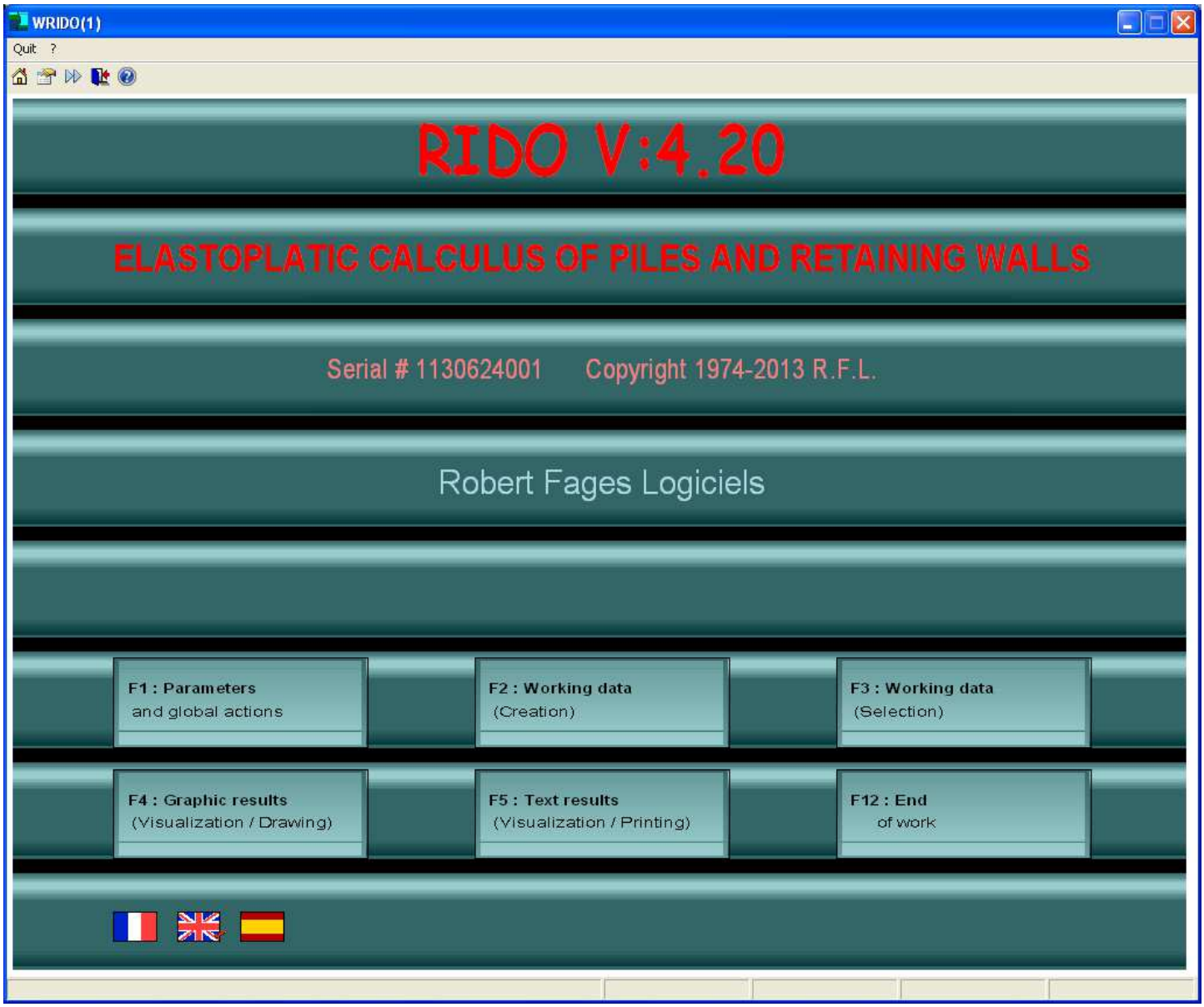
Putting in actions :

WRIDO <without argument or from a shortcut>	: entered WRIDO through the welcome window
double click on WRIDO.EXE	: idem
WRIDO <file name>	: direct to data (*.RIO file) or to visualizations (*.GRI**,***.LST files)
double click on a *.RIO file	: launching WRIDO for this file
RIDO <without argument>	: entered WRIDO through the welcome window
RIDO <***.**RIO file>	not interactive direct calculation (results in *.GRI**,** *.LST)

Thanks for their help to the translation of WRIDO in Spanish language to :

Carlos Fernandez Lillo, ACSA - Eugenio Aracil Bueso, IDOM - Javier Moreno, CEDEX
Jesús Ignacio Villalba Cuadrado, TYPSA - Joan Rovira Botey, SOCOTEC IBERIA
Manuel Julia, AEPO - Prof. Carlos Jurado, Universidad Politécnica de Madrid - Santiago Uria, SESTRA

WRIDO welcome window



Menus, toolbars, etc… usage conform to the Microsoft Windows standard. However, for clearness and efficiency reasons, first line menus usually execute immediately (in the above example : Quit and ?). So, contextual menus are so reduced to their minimum (for example in the WINDOWS standard printing box).

Clicking on the '?' of the menu will display the RIDO documentation and clicking on the '?' of the toolbar will display the WRIDO documentation.

Clicking on one of the toolbar icons will execute the following actions wherever you are in the process :

- first one (from the left side) : a direct return to this screen
- second one : Parameters (like F1 : Parameters)
- third one : Print (if the context allows it)
- fourth one : Give up without storing the context (and data being typed in the editor)

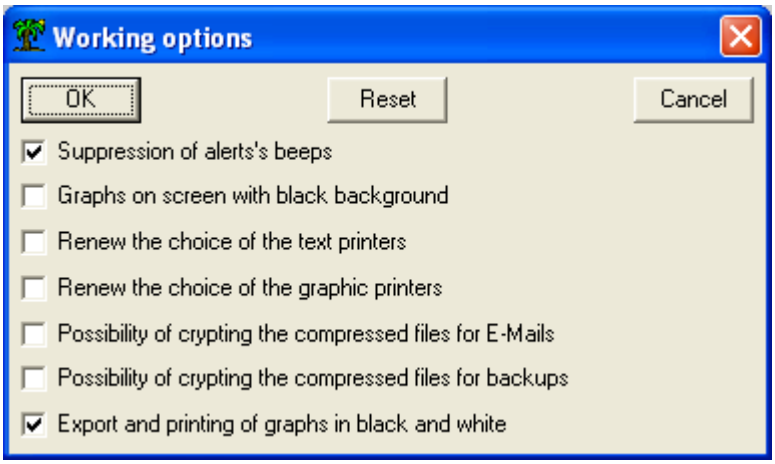
Entry points (6 boxes in the bottom of the screen) can be selected using different keys (TAB, Arrows, Enter, F1-F5, F12) or the mouse (like in a WEB browser).
It is the same for flags used for changing the language used for display or for the working environment.
Calculus results language can be changed only if the "bi-language" option of RIDO license is validated.

To guarantee the relevance and clearness of the display information (texts and graphics), the main window size cannot be modified.

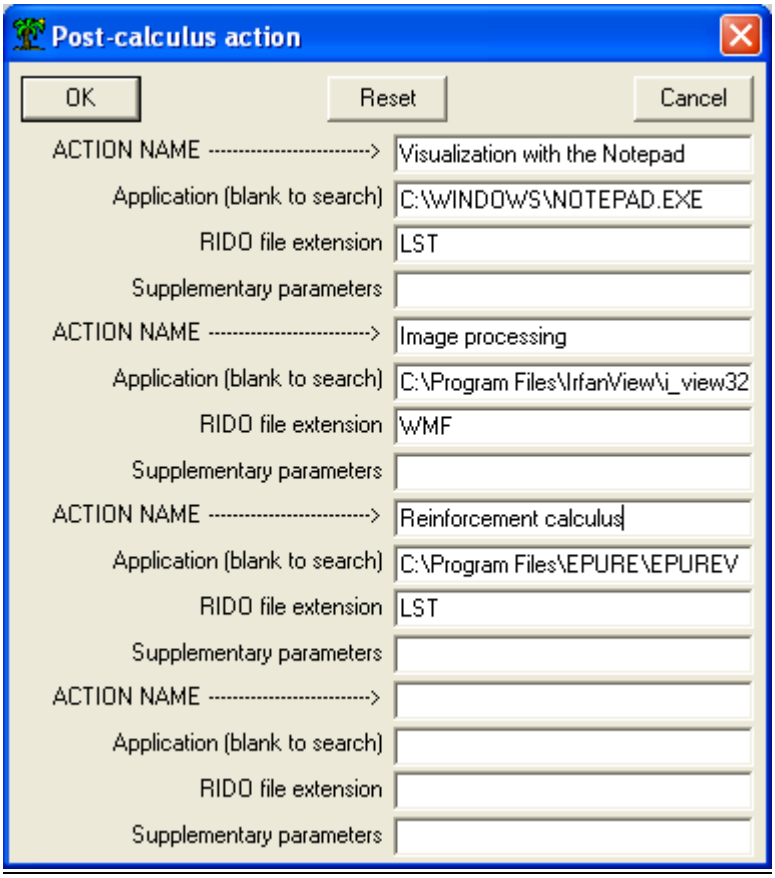
F1 : Parameters and global actions

Clicking on the E-mail or Web addresses will execute the E-Mail client or the Internet browser for this addresses.

F1 : Options : Items are clear.



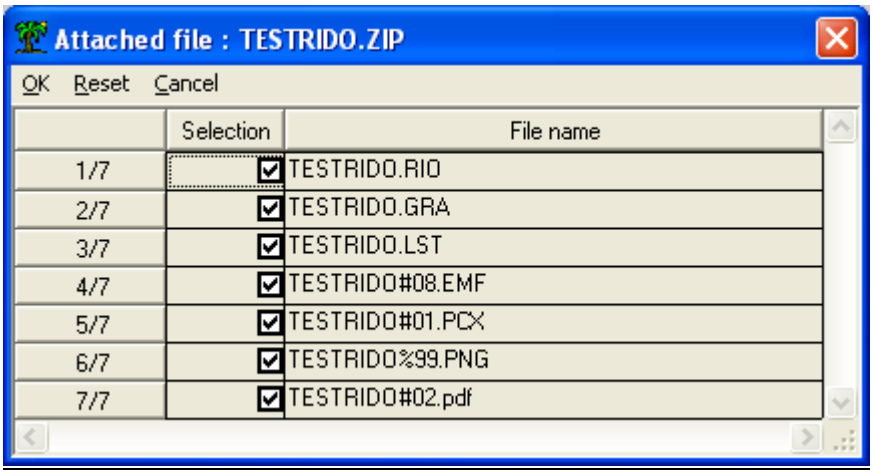
F2 : Actions after calculus



A maximum of 4 actions can be defined and named to be launched from the working environment..
(EPURE is described at http://reynald.degeorge.club.fr/GestionMembre/Accueil.html)

F3 : Send (E-Mail) one project

After having selected one study name, it is possible to select the different files to be compressed in ZIP format (with optional encryption) and e-mailed.



F4 : Backup one project

After having selected one study name, it is possible to select the different files to be backed up.

F5 : Restore one project

Get a compressed archive, uncompress it and execute automatically the actions.

F12 : Close

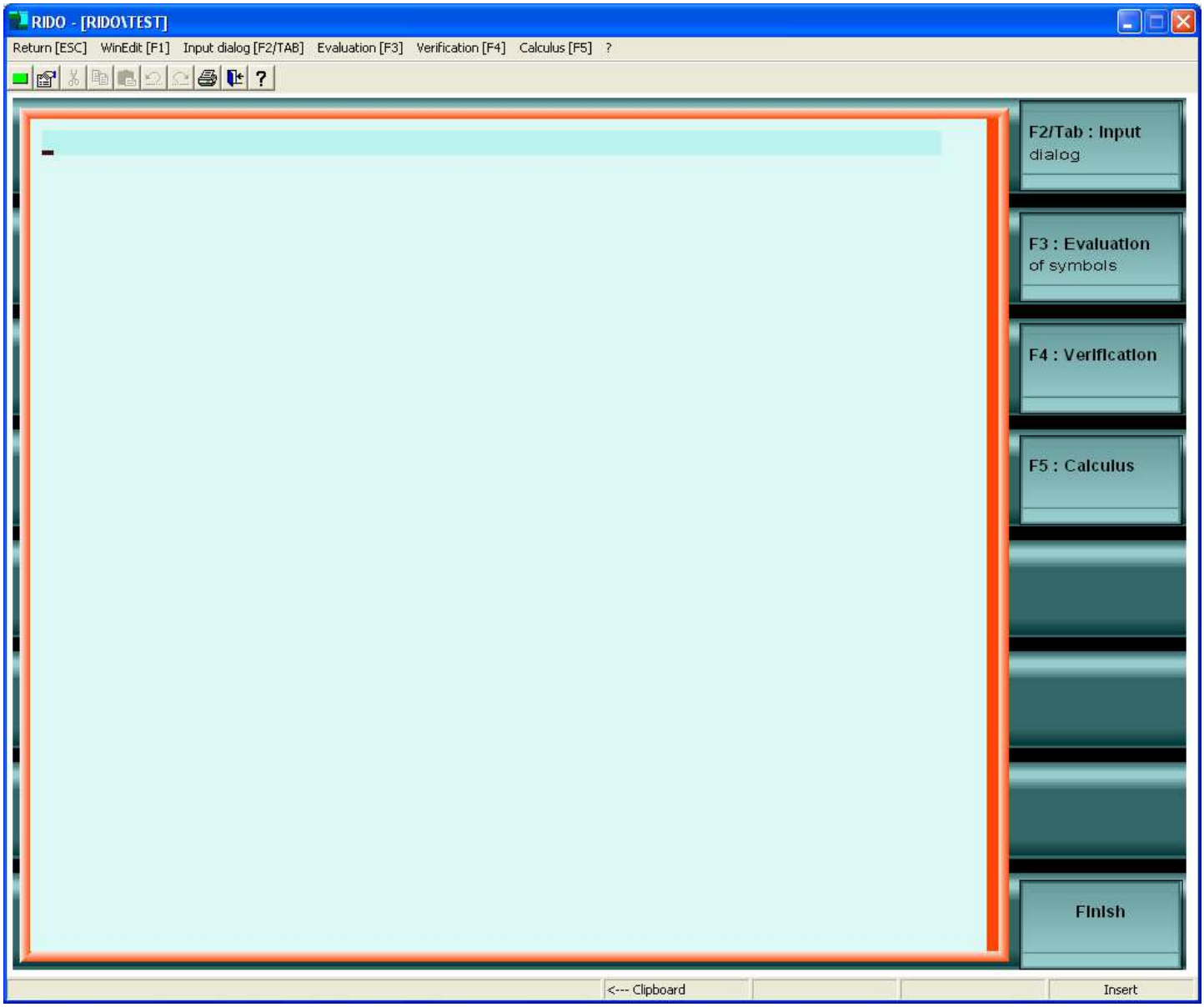
Return to the general menu.

F2 : Working data (Creation)

You have to select a file name and its directory through an automatically called standard WINDOWS file selection dialog box.

This file shouldn't exist. If it already exists, you'll be warned and, if you want so, the file and all attached result files will be erased.

In this example we chose the file TEST.RIO from the folder D:\GEOTEC\Calculus\RIDO : in the window title are only showed between [] the names of the last folder of the access path and of the data file without its extension i.e. [RIDO\TEST]



This file is empty and ready to receive new data using the contextual WRIDO editor. The WINDOWS editor with its standard functions can be preferred by selecting the **WinEdit** menu (or 'F1' key) but you'll then only work with pure text, which can be interesting for global and important modifications of the data.
To benefit the interactivity of WRIDO the return from **WinEdit** will always drive to the WRIDO editor.
This editor is contextual in the sense that, if it reacts to the syntax of the text of the data, it also processes of its semantic.

You'll notice in the **status bar** (bottom of the window) a zone which represents the clipboard content, or its beginning if it is big : this should prevent undesired paste.
The clipboard is the one of WINDOWS and can contain of the resulting text from any other applications

Data handling using the WRIDO editor

KEYS USAGE :

LEFT/RIGHT Arrows : The cursor moves from one character to an another one

Ctrl-LEFT/RIGHT Arrows : The cursor moves from one item of data to an another one
An item of data can be :
- either NUMERIC
- or an EXPRESSION (maximum 40 characters)
Please refer to the RIDO user manual for the definition of CONSTANTS, VARIABLES and FUNCTIONS

'End' key : The cursor moves to the line end/begin

UP/DOWN Arrows : The cursor moves from one line to an another one

UP/DOWN Page : The cursor moves from one page to an another one

ARROW Top-Left (Home) : The cursor moves to the text begin/end

'**Insert**' **key** : Switch mode (notification in the status bar)
- INSERTION (small cursor)
- MODIFICATION (big cursor)

'**Del**' **key** : Delete the character under the cursor

BACK SPACE key : Delete the character on the left of the cursor or concatenate with the previous line if the cursor is being at the beginning of the line (INSERTION Mode)

'**Enter**' **key** : Go to the beginning of next line with possible line cut (INSERTION Mode)

'**Ctrl-Enter**' **key** : Insert a new blank line before the current line and switch to INSERTION MOde

'**Ctrl-BACK SPACE**' **key** : Delete the current line

'**TAB**' **key** : Switch to data input dialog box or to choice MENU if the line is blank.

Ctrl-S : begin/end of selection (of a character string if on the same line or of a group of consecutives lines)
Shift-LEFT/RIGHT Arrows : selection character by character on the current line
Ctrl-L : select the current line
Ctrl-A : select the complete data
Ctrl-B : select a data block (lines of the basic data, lines of the phase operations description, lines of the global actions) containing the cursor

Ctrl-C : copy = copy the current selection to the clipboard (also see the mouse usage for selection)
Ctrl-V : paste = insert the clipboard content (if text content)
Ctrl-X : cut = copy the current selection to the clipboard and delete it
Ctrl-Z : cancel the last modifications (UNDO)
Ctrl-Y : restore one previous cancelled state (REDO)

'**F4**' **key** : Data syntax verification

'**F5**' **key** : Execute the CALCULUS

'**Esc**' **key** : END

MOUSE USAGE

The mouse can be used for accessing the **menus** and **tools bar** (buttons associated with the '**Cut**', '**Copy**', '**Paste**', '**Undo**' and '**Redo**' actions will be activated only if the actions are allowed).

The **boxes** on the right side of the screen allows to access popular functions with just one mouse click.

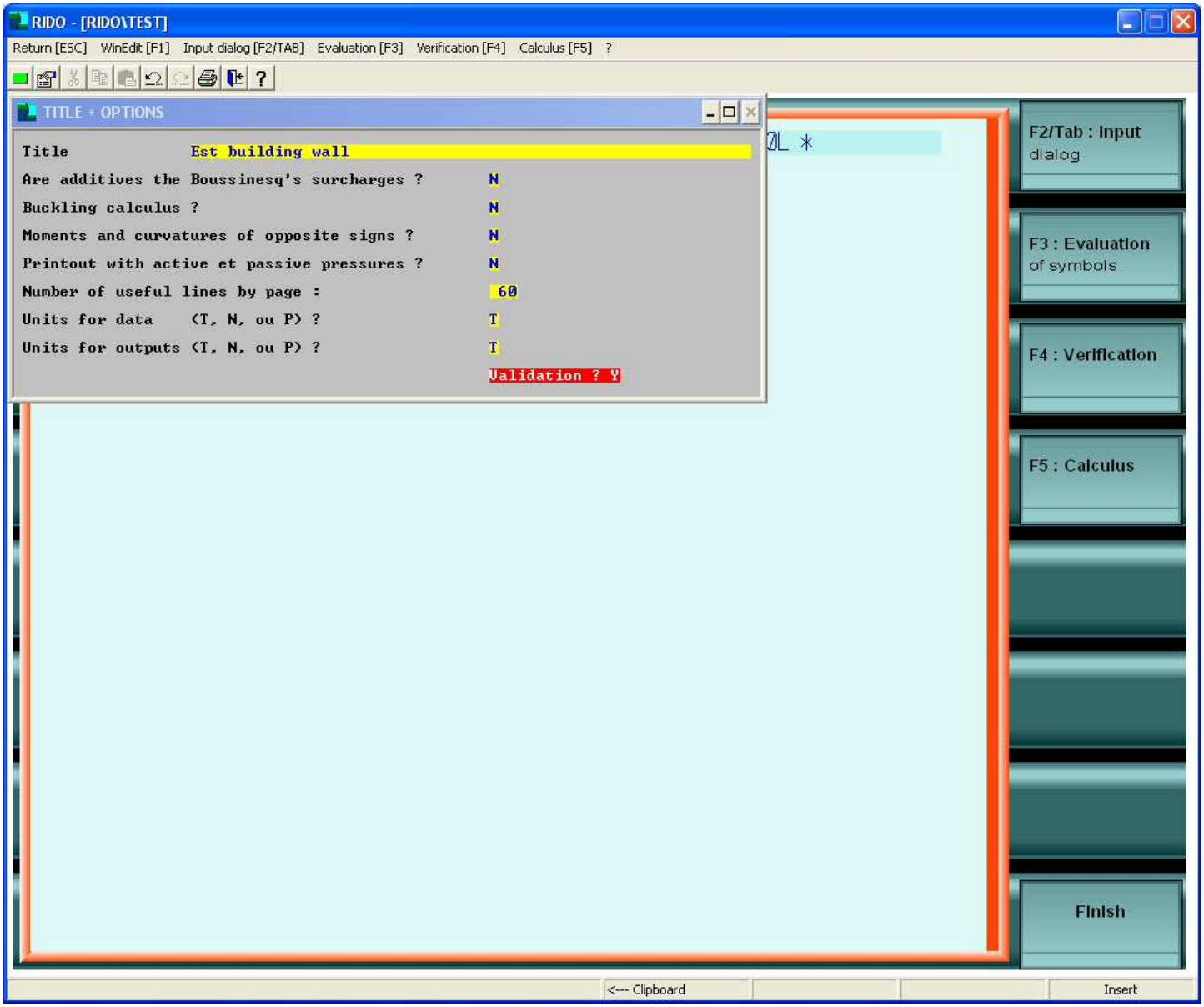
In the text, the mouse can be used in order to :

- Place the cursor with a **left click** (with selection if the mouse is **moved with the left button pressed**)
- Place the cursor and switch to the data input dialog box with a **right click** (same action as the **TAB** key or the '**Input dialog**' menu)
- Select a line with a **Ctrl-Left click**
- Begin/Finish a selection (of a character string if on the same line or of a group of consecutive lines) with a **Shift-Left click**
- Move text up by **clicking above the text zone**
- Move text down by **clicking below the text zone**
- On the **right elevator :** move text up by **clicking on the top half-part,**
  move text down by **clicking on the bottom half-part**
  (same effect with the "roll" of the mouse)

First example of input dialog :

It is possible and more speedy to input and modify directly the data in editor mode according to the user manual of RIDO. However, particularly for the first uses, it will be useful to use the input dialogs showed in the following example.

The TAB key or the right mouse button has been pressed down with the cursor on the first line.:

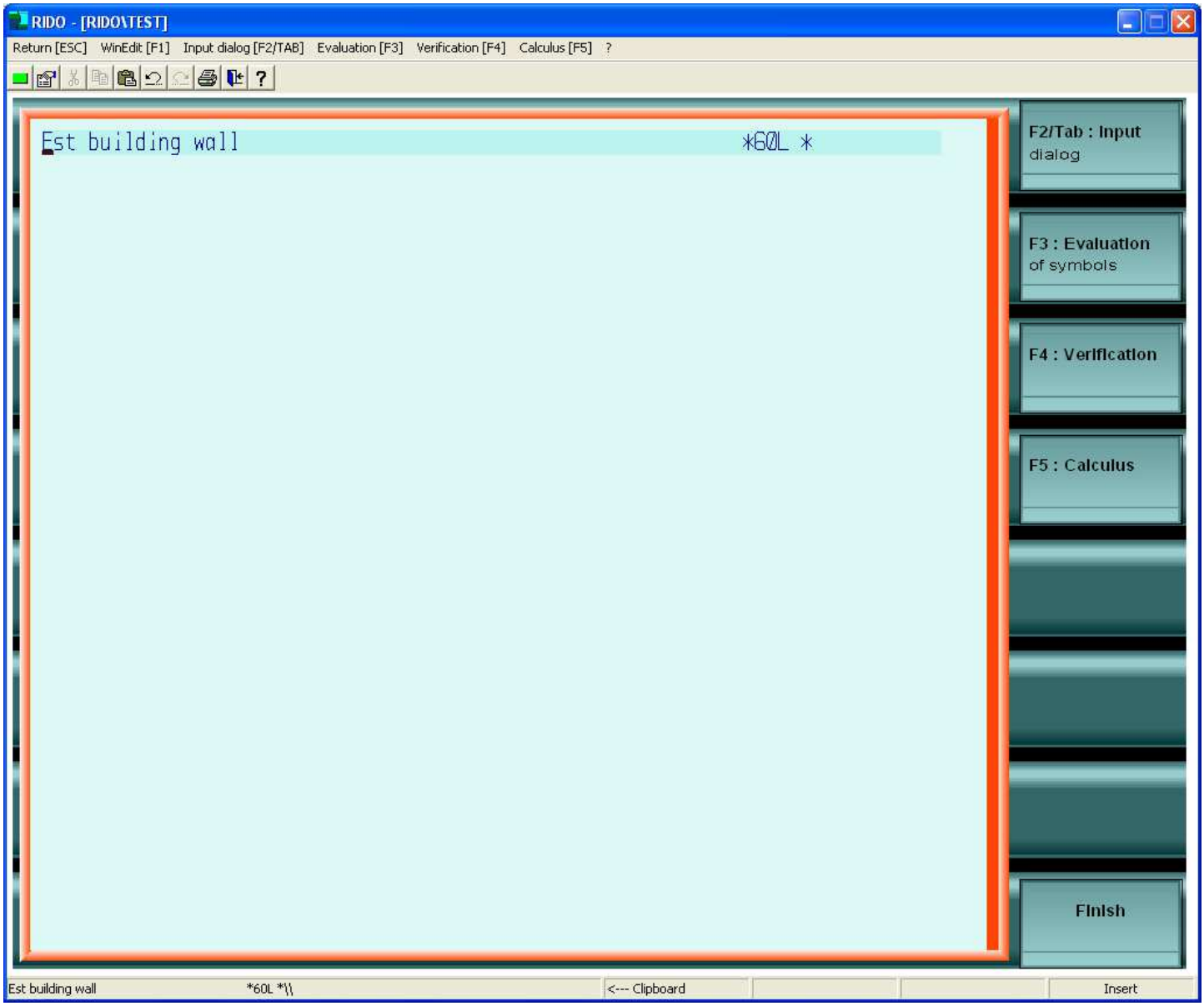


You then just have to answer the different questions (switch question using ENTER, arrows or the mouse).

To validate or not the dialog ("Validation ? Y" question highlighted in light red) you can use :

- the keyboard : '**Y**' (or 'Enter' key by default) or '**N**'.
- the mouse : '**Y**' = left click, '**N**' = right click (on the question)

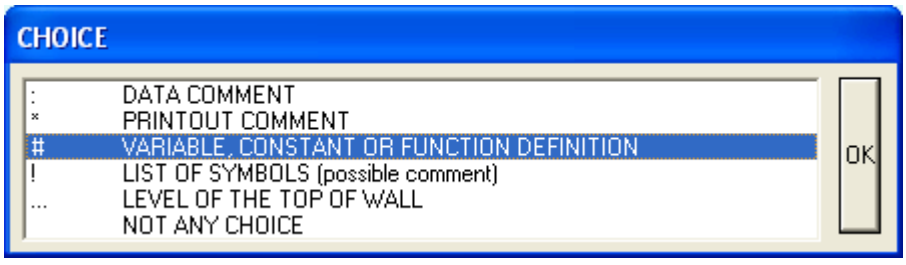
Return from the first input dialog



The first line exists but could have been typed directly because this is a mandatory title line.

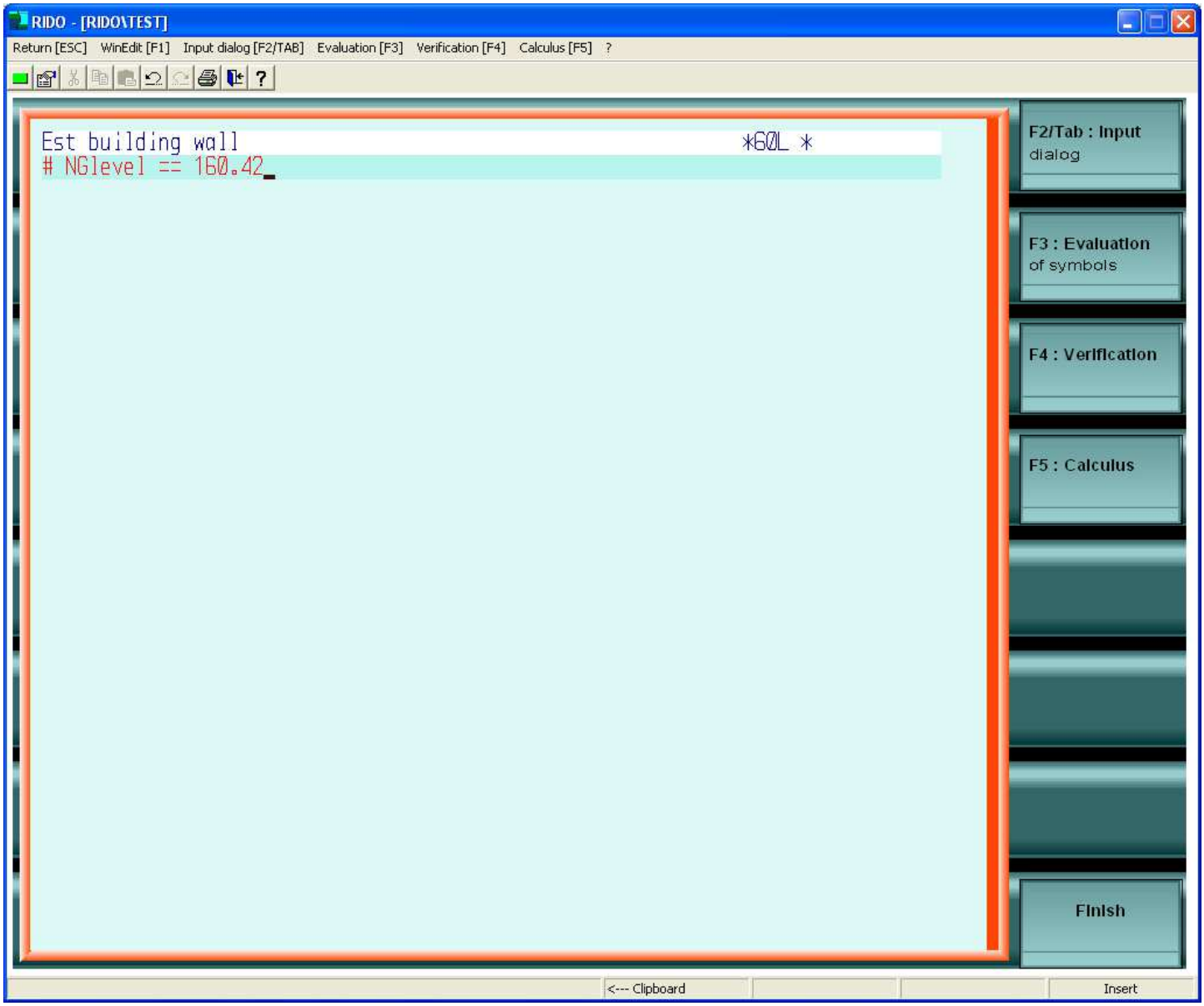
For example, this line have been selected using Ctrl-L and copied to the clipboard using Ctrl-C (\\ in the status bar means ‘end of line’)

TAB key or right click action on the second line



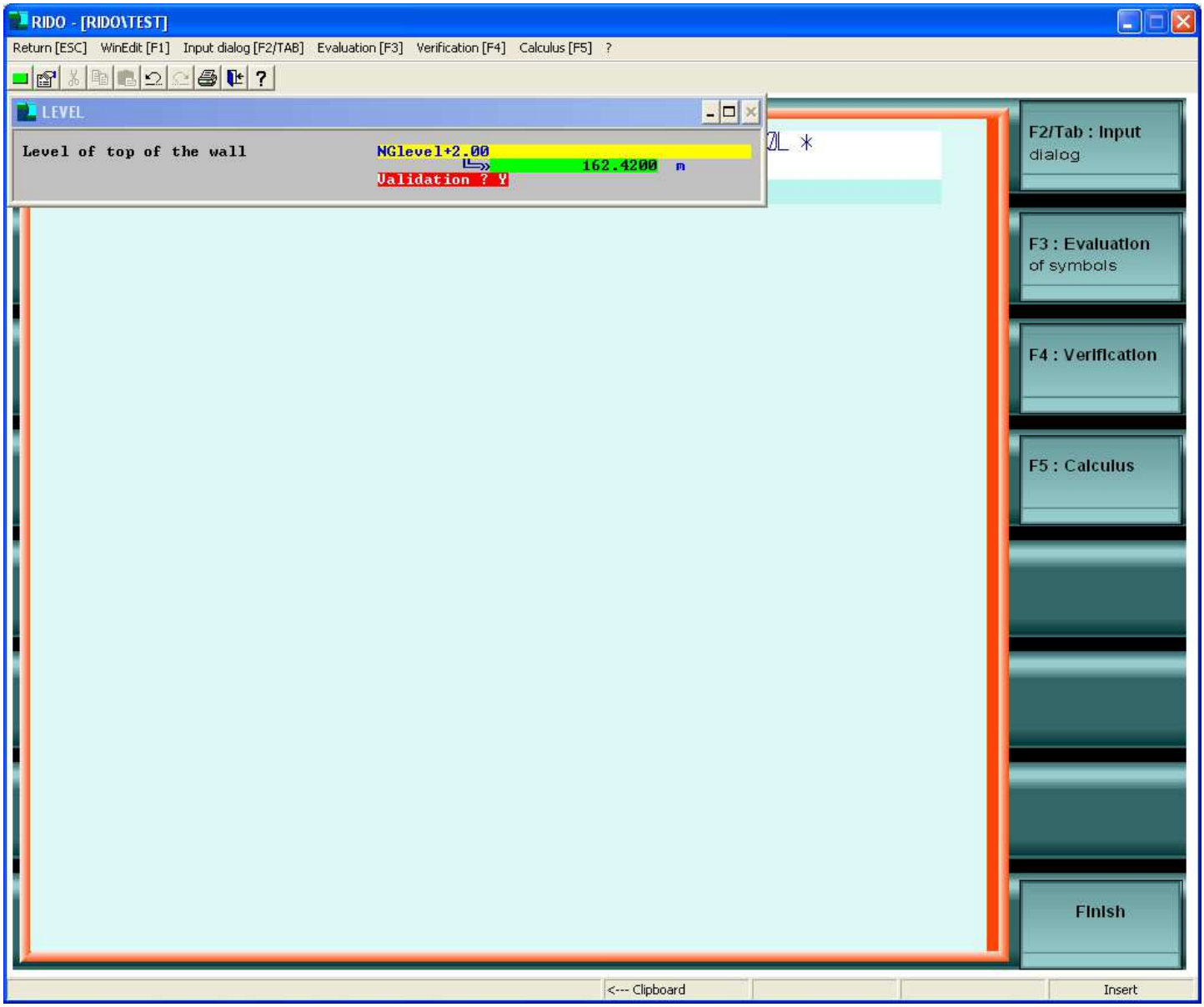
Different types of lines will now be possible.

For example, we choose to define a constant to configure (parametrize) these data.



The geographical level of the natural ground will now refer to the constant named **NGlevel** (please refer to the RIDO user manual to understand the difference between a CONSTANT and a VARIABLE) .

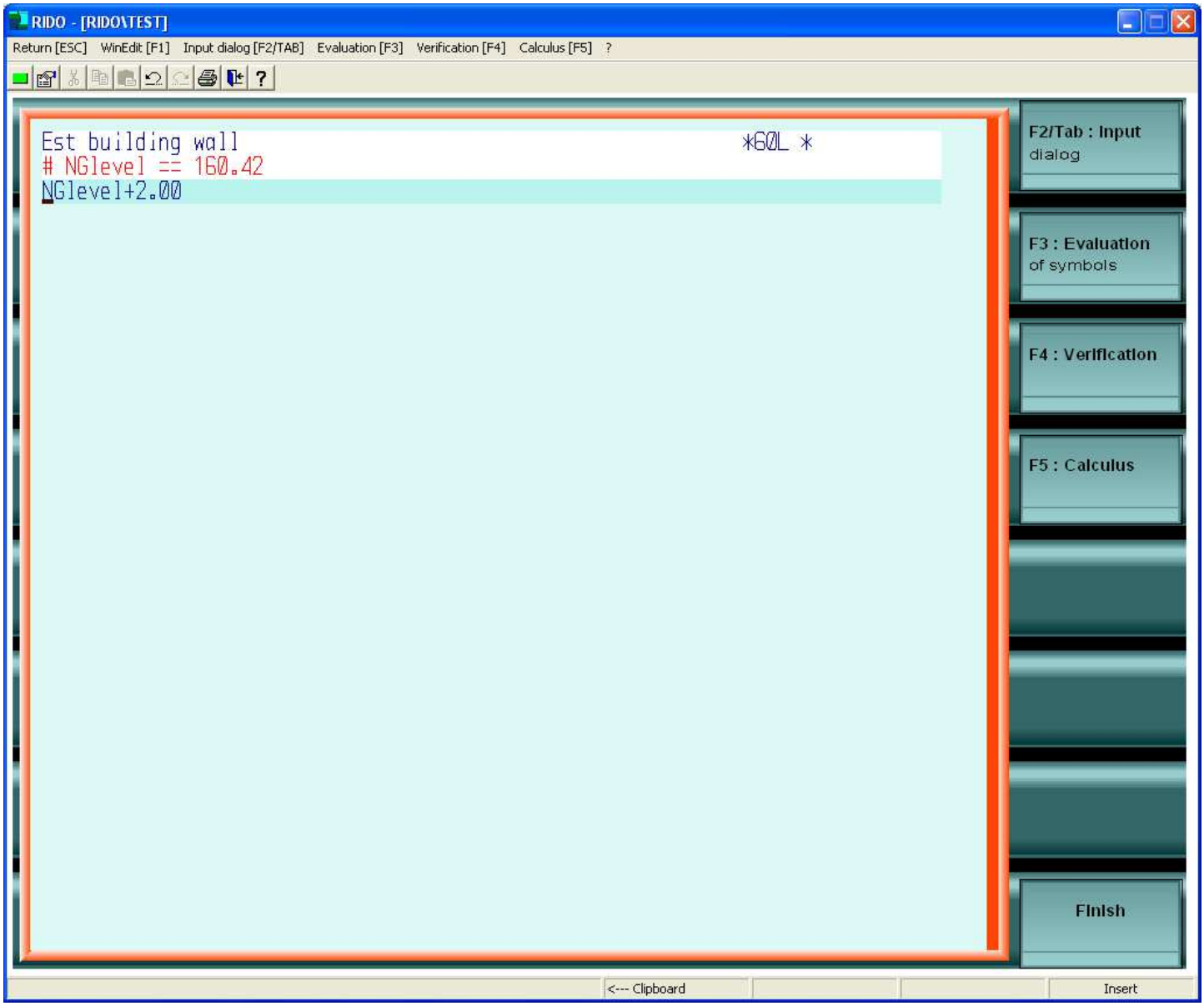
On the following blank line, the TAB key has been pressed (or the mouse right button clicked), and then "Level of top of the wall" has been selected



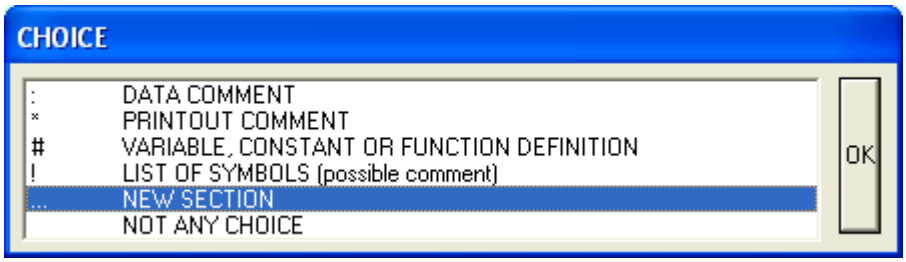
Here, after having typed the **NGlevel+2.00** expression and **Validation ? Y**, the **Evaluation ? Y** has been accepted.

This second question is debated due to the presence of a symbolic item of data and/or an expression ; this permits an immediate control of the numeric value which will be used in the calculus (displayed using a green background).

Return from the input dialog

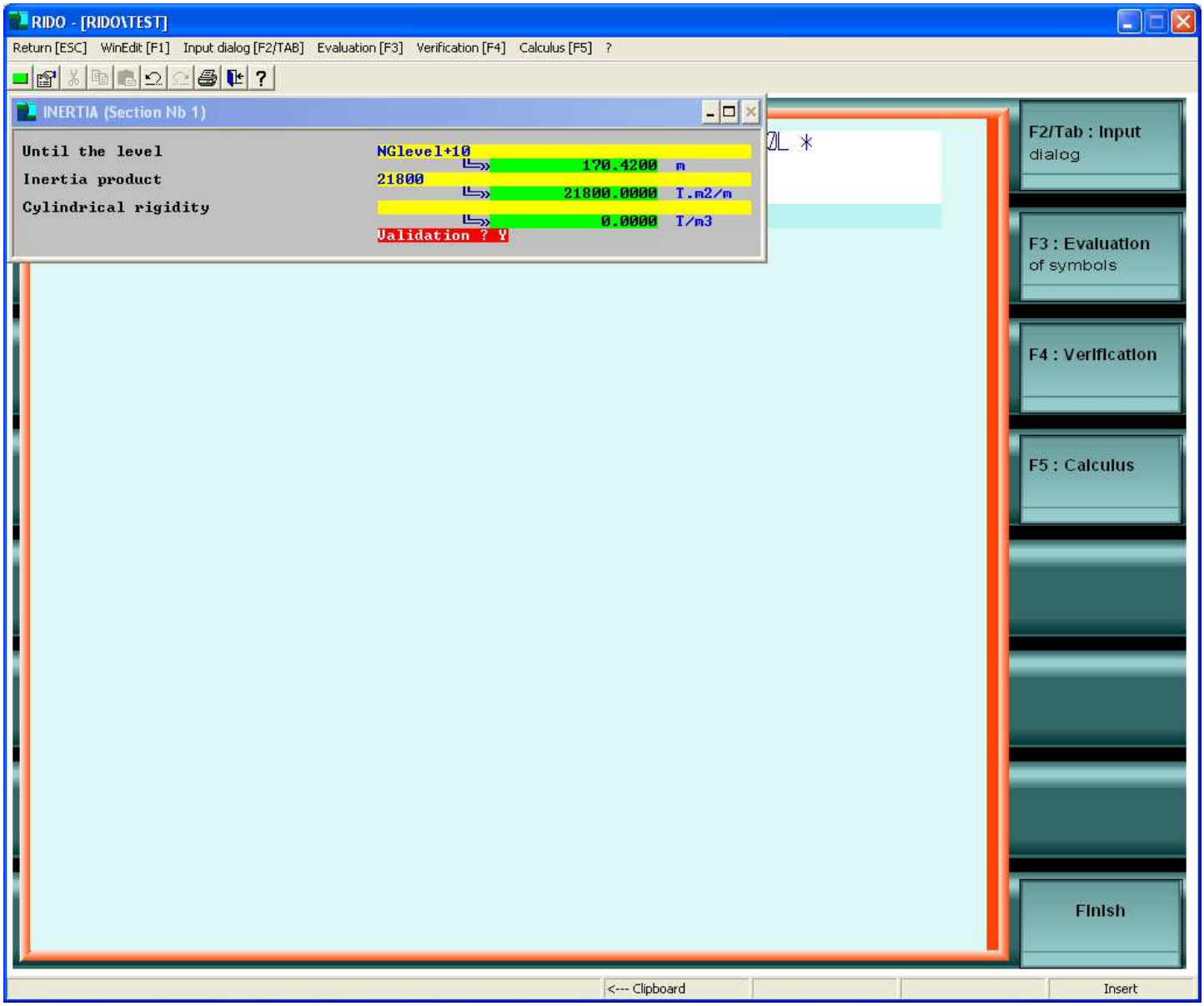


TAB key or right click action on the following blank line



The possible choices are contextual : NEW SECTION corresponds to the type of waited data.

NEW SECTION has been selected



On a 12 meters height, the inertia of this section of retaining wall will be 21800 T.m2/m

Notes :

- The clipboard can be used in the input dialogs. You don't have to select the data as the complete data zone is automatically selected.
- Press on the key = copy the item located immediately above (if it is of compatible type)

And so on …. (see the user manual RID4NOTA.PDF for the full description of data).

From the menu line it is possible to :

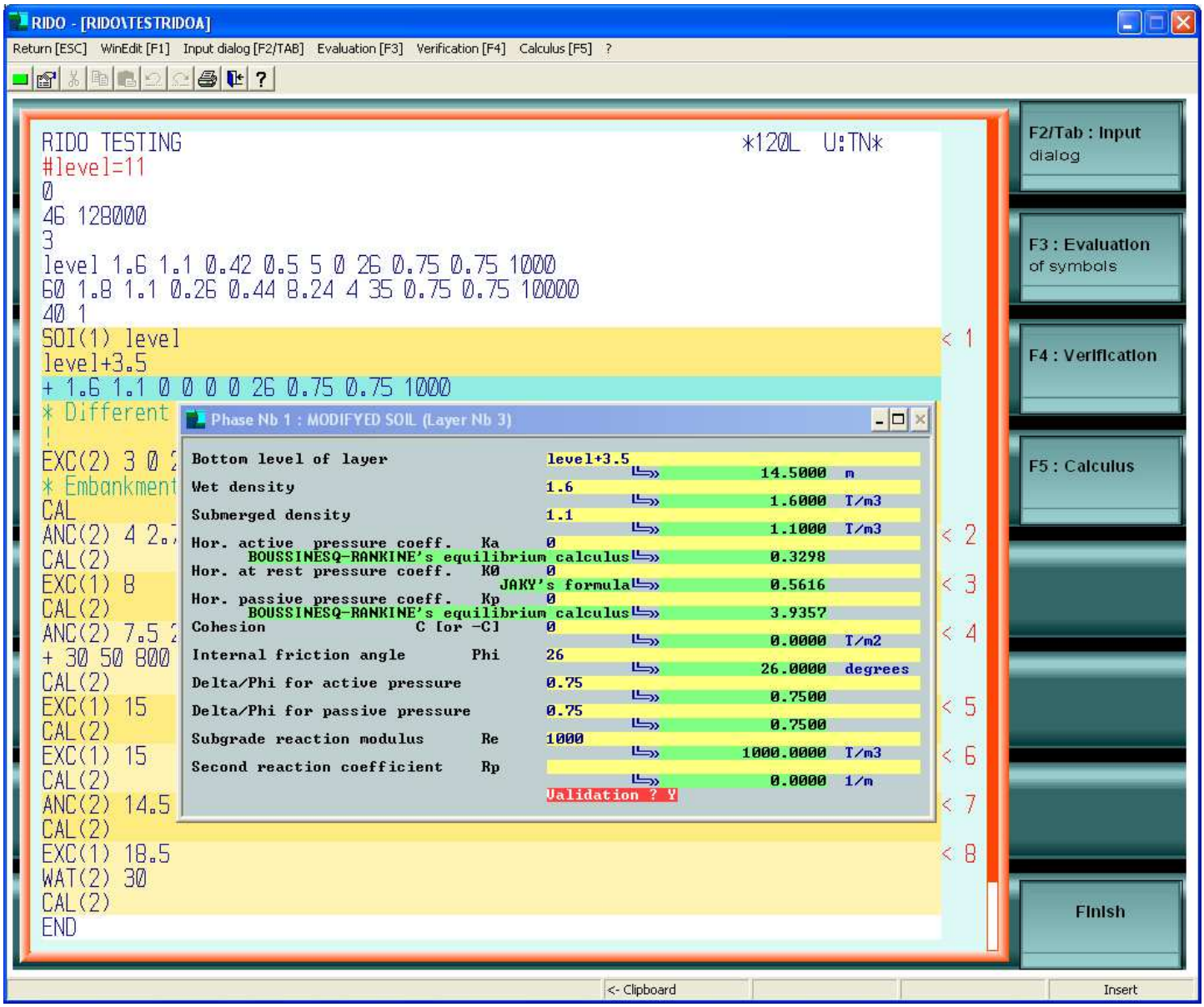
- Evaluate all the constants, variables and functions until cursor line and including it : **Evaluation [F3]**

- Check if the data conform to the describing language syntax in totality or only until cursor line and including it: **Verification [F4]** (If an error is detected, it will be signaled in a window and the cursor will be placed on the error)

- Execute a calculus (**Calculus [F5]**) and display the results using a graphical view. After that, the cursor will return to its previous position so the item of data under the cursor can be immediately modified and the calculus executed again. Obviously, the calculus will be impossible if the data are incomplete or erroneous.

F3 : Working data (Selection)

Loading existing data for possible modification and calculus.
If the “Input dialog” mode is activated (using **TAB** key or **mouse right click**) on an existing line, it will be possible to modify it as shown in the following example.

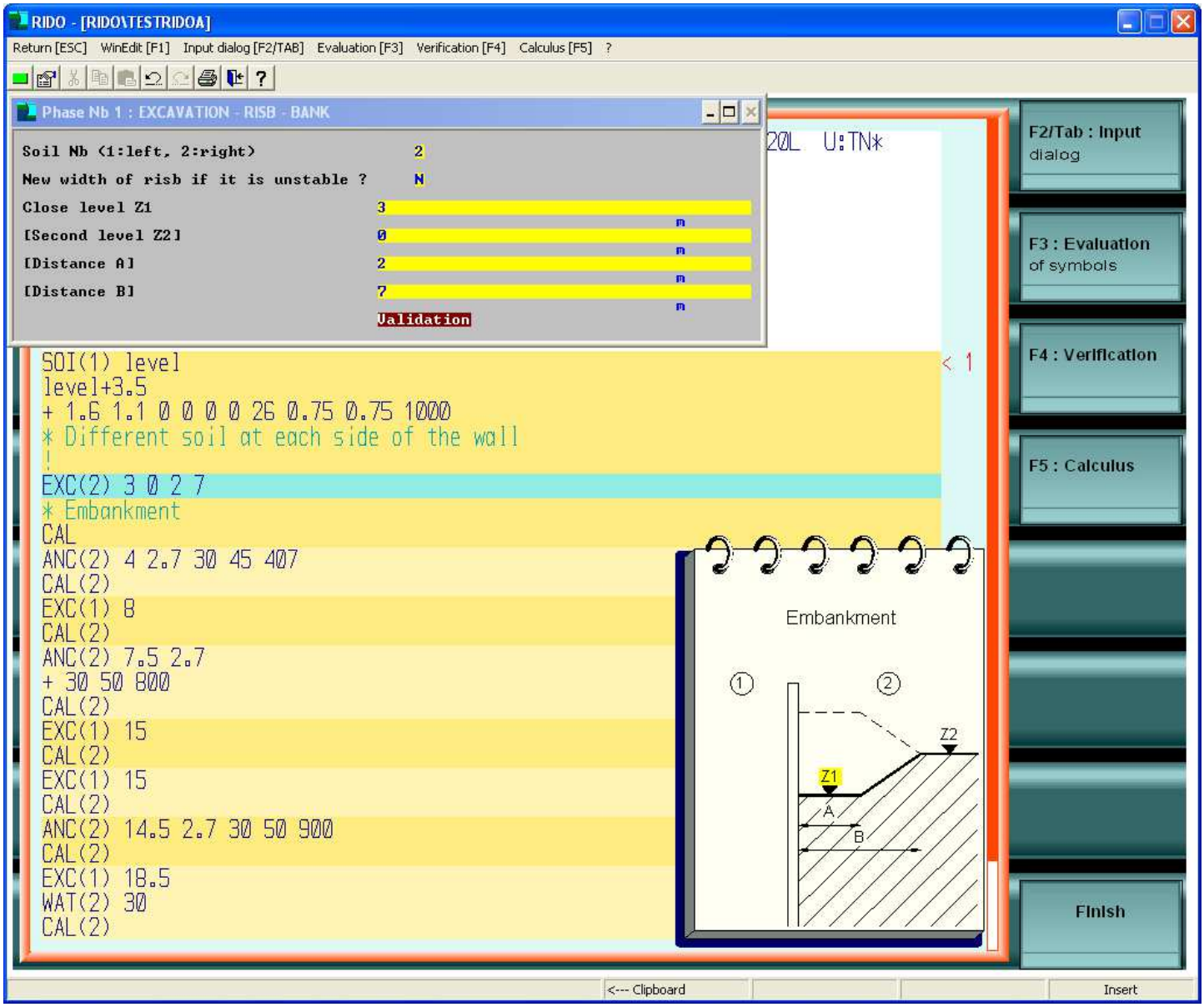


It’s important to notice that the evaluation of the coefficients Ka and Kp is done by resolving the differential equations of Boussinesq-Rankine and that the evaluation of the coefficient K0 is done by using the Jaky formula.

In the data, the logical line is divided in two physical lines (the second “physical line” begins with a “+” followed by a space).
This possibility allows to have arithmetic expressions for every data.

Relative data of the different phases are highlighted with their number displayed in red on the right.

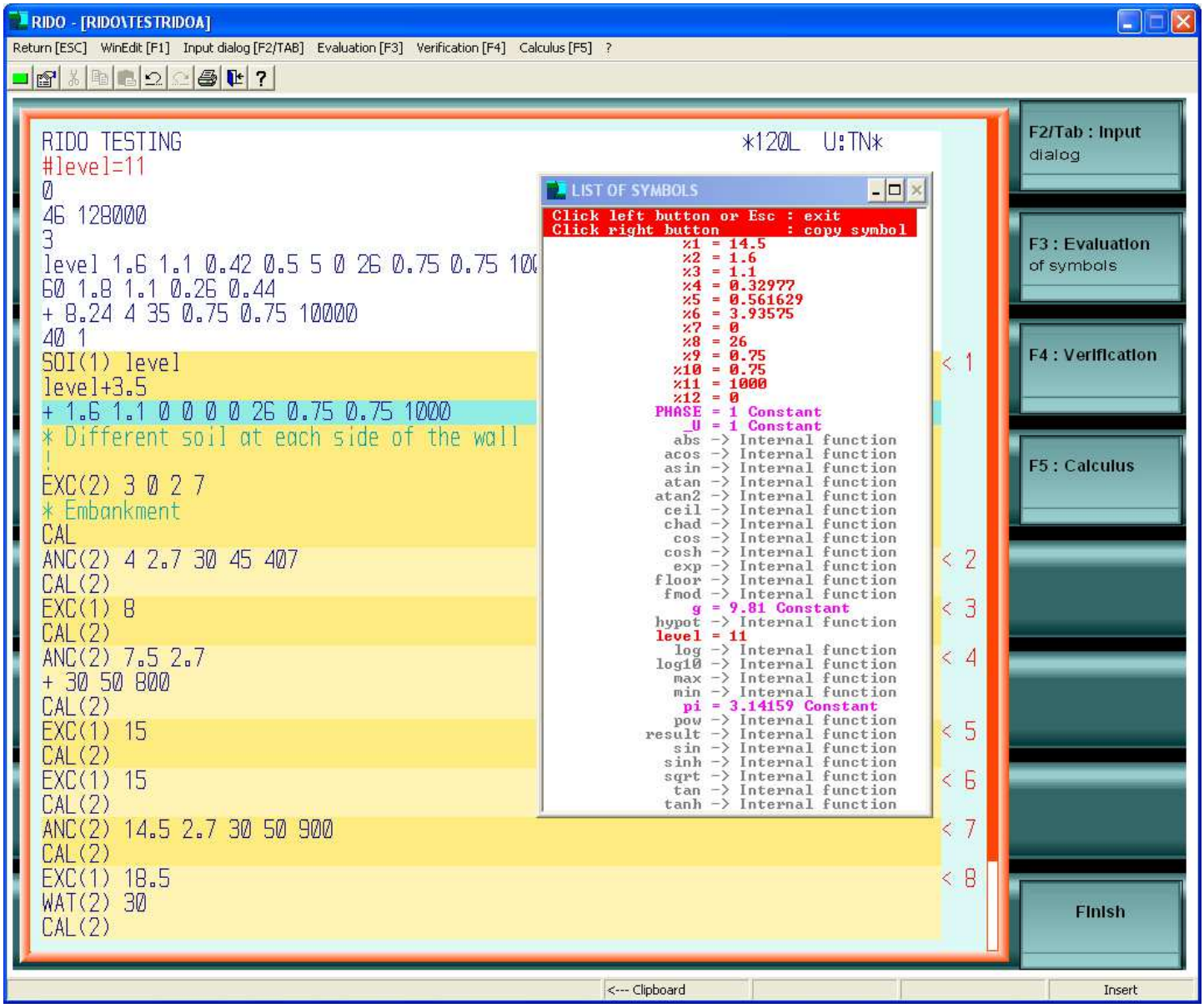
A graphical help will be available when typing data as shown below.



This is a dynamic help because the item of data being created/modified is highlighted in yellow in the drawing.

Symbols values [F3]

'Symbols' is used to name the identifiers of constants, variables and functions usable in data (please refer to the RIDO user manual).
It is possible to display their values from the cursor line by using « **Symbols values [F3]** » and optionally follow the evolution of the variables values by moving to an another line.



You'll notice the automatic variables %1, %2, %3, etc… These variables are automatically evaluated from the data located on the cursor line (%x : x^{th} data)
Her, for a soil, %4, %5, %6 which corresponds to Ka, Ko and Kp have been automatically evaluated.
If there is not cyclic reference, these variables can be used in the expressions of the current line.
For example, the internal function chad(C,Phi) is used to get the coefficient of the soil subgrade reaction module given the cohesion C and the internal friction angle Phi. The numerical data 1000 can be replaced by chad(%7,%8) and then a data redundancy will be prevented and the coherency will be guaranteed : …

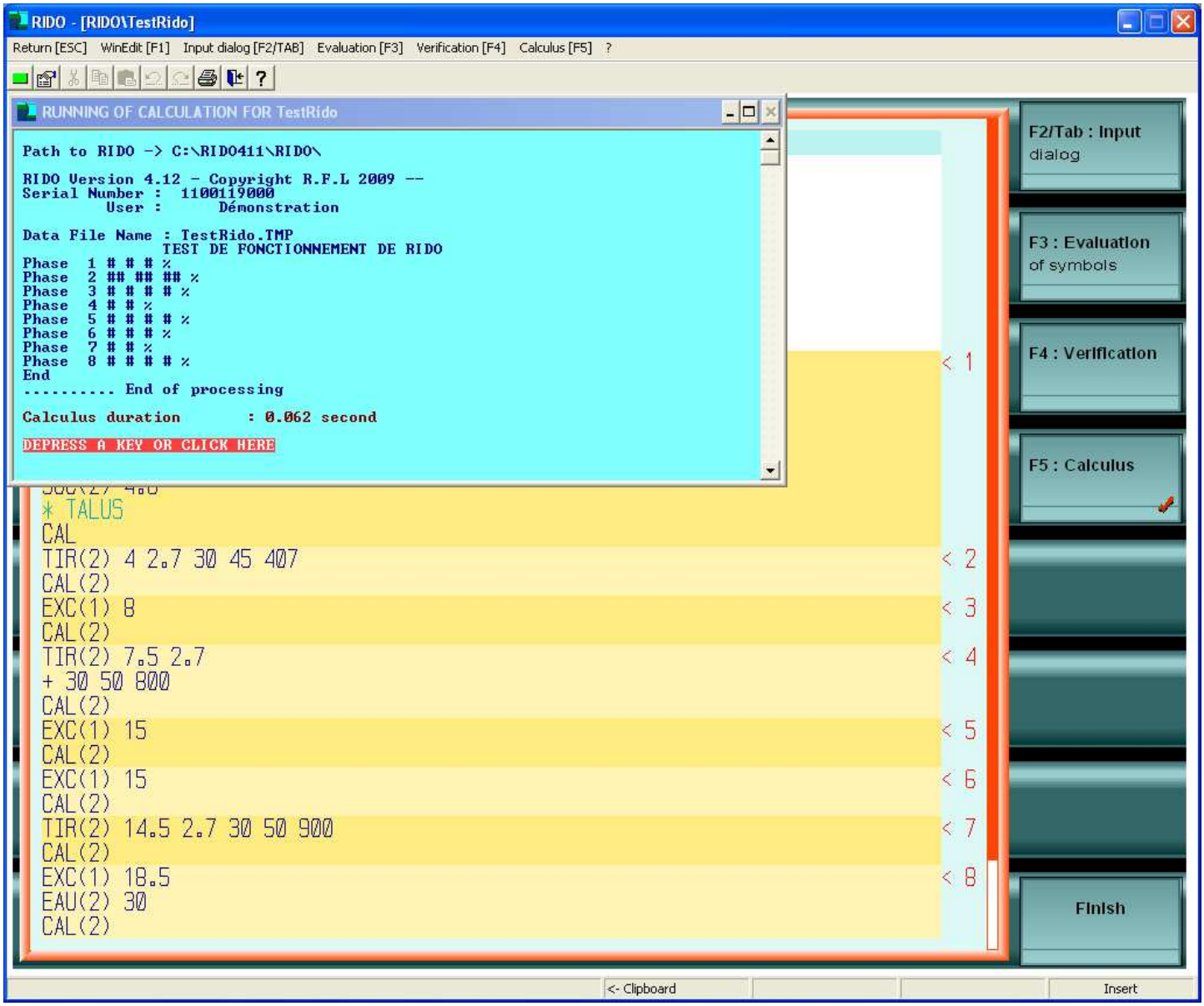
…
Level+3.5 1.6 1.1 0 0 0 0 26 0.75 0.75 chad(%7,%8)

The internal function chad(C,Phi) uses the interpolated values of the Chadeisson abacus and adapts them to the chosen units.

The value of the exportable constant _U is a reference to the units of data (1 : practical units, 2 : SI and 3 : USA)

On a line, a click on the right mouse button moves the defined symbol in this line to the clipboard : this guarantees that the symbol name will be moved without any error.

Execute the Calculus with « Calculus [F5] »



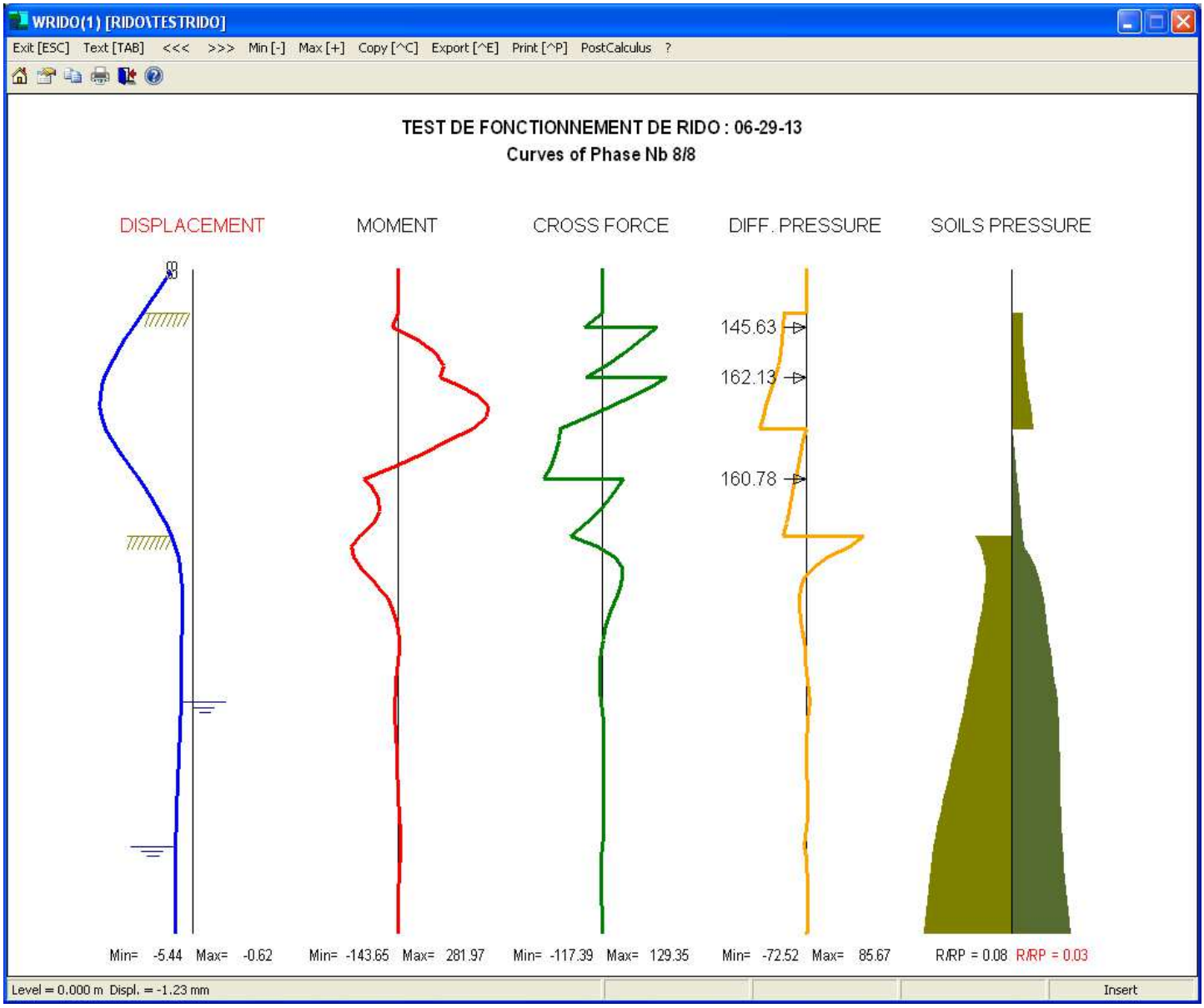
A sequential tracking of the different processing steps shows up.

For every phase, a # character is printed for every iteration linked to the non linear stability equations (soil plasticity, unilateral links, ...)
characters are placed side by side when there are rounded errors recovery sub-iterations to increase the precision. If 4 or 5 pound characters are present, the instability (either numerical or mechanical) is close. Typically numerical instability (impossibility to correctly solve the equilibrium equations) occurs when the EI products are too low and in any case these values will be technically rejected.
If the number of principal iterations is high, the mechanical instability can be close. Mechanical instability occurs when it is not possible for the soils to hold the wall.

We shall note the time of calculation and writing of the files of results of only 78 milliseconds for 8 phases of calculation: this is typical for one recent PC hardware configuration.

After validation, the next function (F4 in the main menu) is automatically executed :

F4 : Graphic results



We can here visualize the different results curves for all the phases with the same scale, and also the envelop curves.

KEYS USAGE :

LEFT/RIGHT ARROWS : The cursor moves from one curve to an another one.
UP/DOWN ARROWS : The cursor moves on the curve to the different finite elements limits of the calculus (values in the Status bar : bottom of the window)
UP/DOWN PAGE : Moves from one Phase or Envelope to an other

+ or – key : Moves the cursor to the Maximum or Minimum of the selected curve

Ctrl-C : Copy the curves static presentation to the clipboard
Ctrl-E : Export to a graphic file using a format to be chosen (WMF, EMF, PNG, ...)
The choice will be possible to copy all the graphs or only that shown
Ctrl-P : Graphical print to a printer to be chosen
The choice will be possible to print all the graphs or only that shown

TAB key : Visualize printing results on the screen

ESC key : END

MOUSE USAGE :

Click near a curve : Move the cursor to the nearest calculus point and print values

Menu :

Exit : END

Text : Visualize printing results on the screen

<<< : Previous Phase or Envelope

>>> : Next Phase or Envelope

Max : Moves the cursor to the Maximum of the selected curve

Min : Moves the cursor to the Minimum of the selected curve

Copy : Copy the curves static presentation (scales) to the clipboard

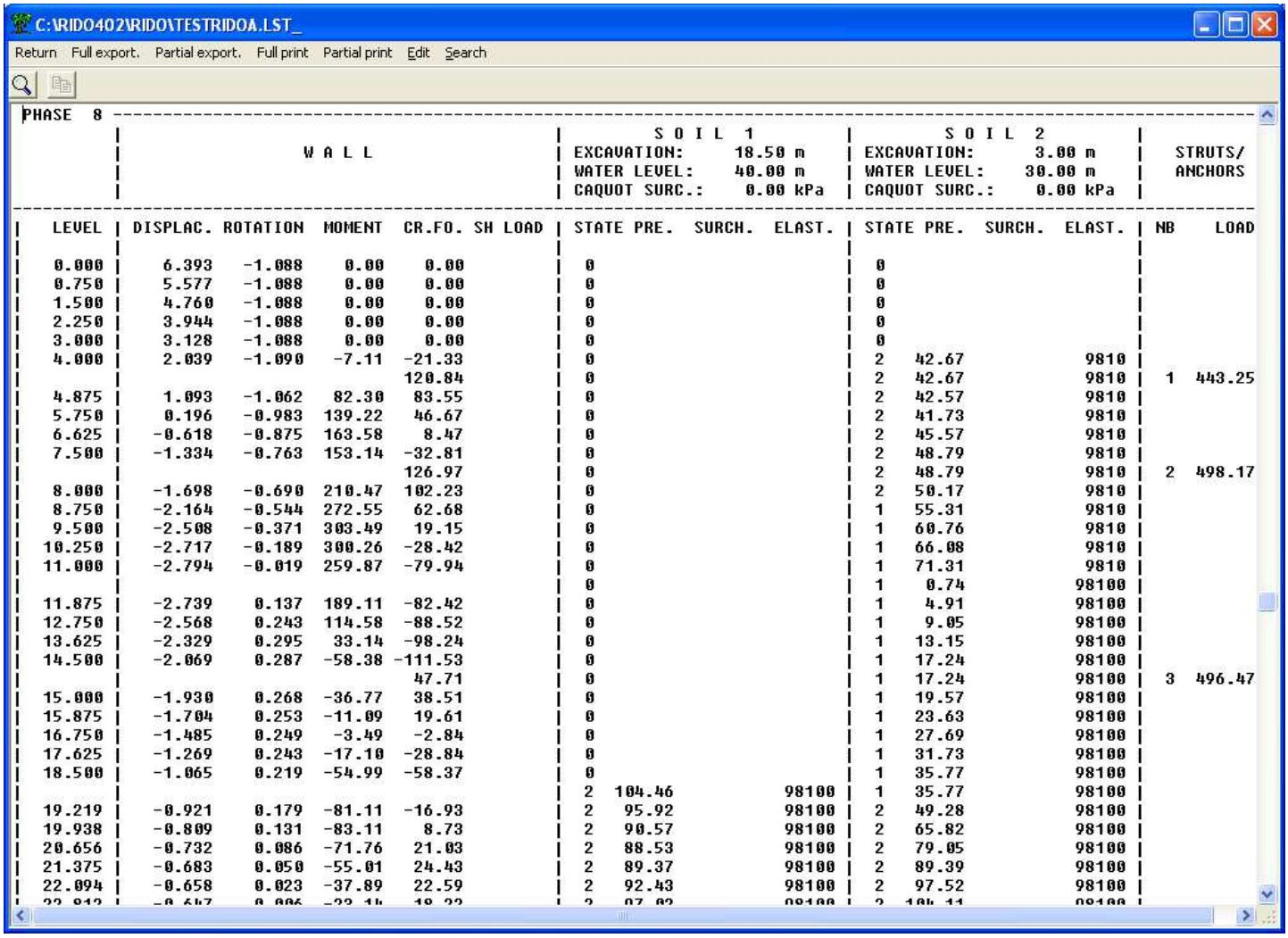
Export : Export to a graphic file using a format to be chosen (WMF, EMF, PNG, ...)
The choice will be possible to copy all the graphs or only that shown

Print : Graphical print to a printer to be chosen
The choice will be possible to print all the graphs or only that shown

PostCalculus : Choose an action between the 4 predetermined ones with calculus results transmission

Text or **TAB** can be used to go directly to the text mode results vizualisation following **F5 function** of the main menu (the cursor is positioned at the corresponding graphically showed phase)

F5 : Text results



C:\RIDO402\RIDO\TESTRIDOA.LST_

Return Full export. Partial export. Full print Partial print Edit Search

PHASE 8

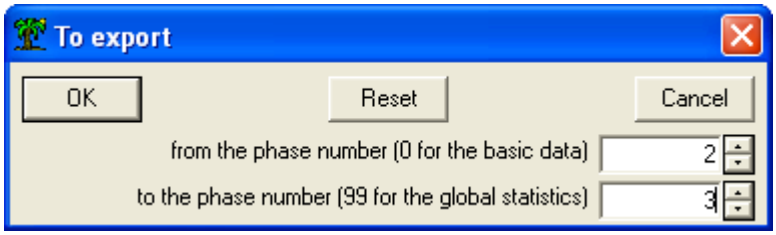
	WALL				SOIL 1 EXCAVATION: 18.50 m WATER LEVEL: 40.00 m CAQUOT SURC.: 0.00 kPa			SOIL 2 EXCAVATION: 3.00 m WATER LEVEL: 30.00 m CAQUOT SURC.: 0.00 kPa			STRUTS/ ANCHORS	
LEVEL	DISPLAC.	ROTATION	MOMENT	CR.FO.	SH LOAD	STATE	PRE. SURCH.	ELAST.	STATE	PRE. SURCH.	ELAST.	NB LOAD
0.000	6.393	-1.088	0.00	0.00		0			0			
0.750	5.577	-1.088	0.00	0.00		0			0			
1.500	4.760	-1.088	0.00	0.00		0			0			
2.250	3.944	-1.088	0.00	0.00		0			0			
3.000	3.128	-1.088	0.00	0.00		0			0			
4.000	2.039	-1.090	-7.11	-21.33		0			2	42.67	9810	
				120.84		0			2	42.67	9810	1 443.25
4.875	1.093	-1.062	82.30	83.55		0			2	42.57	9810	
5.750	0.196	-0.983	139.22	46.67		0			2	41.73	9810	
6.625	-0.618	-0.875	163.58	8.47		0			2	45.57	9810	
7.500	-1.334	-0.763	153.14	-32.81		0			2	48.79	9810	
				126.97		0			2	48.79	9810	2 498.17
8.000	-1.698	-0.690	210.47	102.23		0			2	50.17	9810	
8.750	-2.164	-0.544	272.55	62.68		0			1	55.31	9810	
9.500	-2.508	-0.371	303.49	19.15		0			1	60.76	9810	
10.250	-2.717	-0.189	300.26	-28.42		0			1	66.08	9810	
11.000	-2.794	-0.019	259.87	-79.94		0			1	71.31	9810	
						0			1	0.74	98100	
11.875	-2.739	0.137	189.11	-82.42		0			1	4.91	98100	
12.750	-2.568	0.243	114.58	-88.52		0			1	9.05	98100	
13.625	-2.329	0.295	33.14	-98.24		0			1	13.15	98100	
14.500	-2.069	0.287	-58.38	-111.53		0			1	17.24	98100	
				47.71		0			1	17.24	98100	3 496.47
15.000	-1.930	0.268	-36.77	38.51		0			1	19.57	98100	
15.875	-1.704	0.253	-11.09	19.61		0			1	23.63	98100	
16.750	-1.485	0.249	-3.49	-2.84		0			1	27.69	98100	
17.625	-1.269	0.243	-17.10	-28.84		0			1	31.73	98100	
18.500	-1.065	0.219	-54.99	-58.37		0			1	35.77	98100	
						2	104.46	98100	1	35.77	98100	
19.219	-0.921	0.179	-81.11	-16.93		2	95.92	98100	2	49.28	98100	
19.938	-0.809	0.131	-83.11	8.73		2	90.57	98100	2	65.82	98100	
20.656	-0.732	0.086	-71.76	21.03		2	88.53	98100	2	79.05	98100	
21.375	-0.683	0.050	-55.01	24.43		2	89.37	98100	2	89.39	98100	
22.094	-0.658	0.023	-37.89	22.59		2	92.43	98100	2	97.52	98100	

This text mode vizualisation conforms to the WINDOWS standard with the following distinguishing features :

MENU :

Return : END

Full export. : Full export to a text file (.txt)
Partial export. : Export the current selection to a text file (.txt)
If the selection is done using the mouse left button pressed down, this selection is exported
If not, one or several successive phases are selected using the following dialog box :



Full print : Same as “Full export.” but printing instead of exporting
Partial print : Same as “Partial export.” but printing instead of exporting

Edit : Select everything (Ctrl-A) or copy the mouse selection to the clipboard

Search : Search for characters strings or create bookmarks

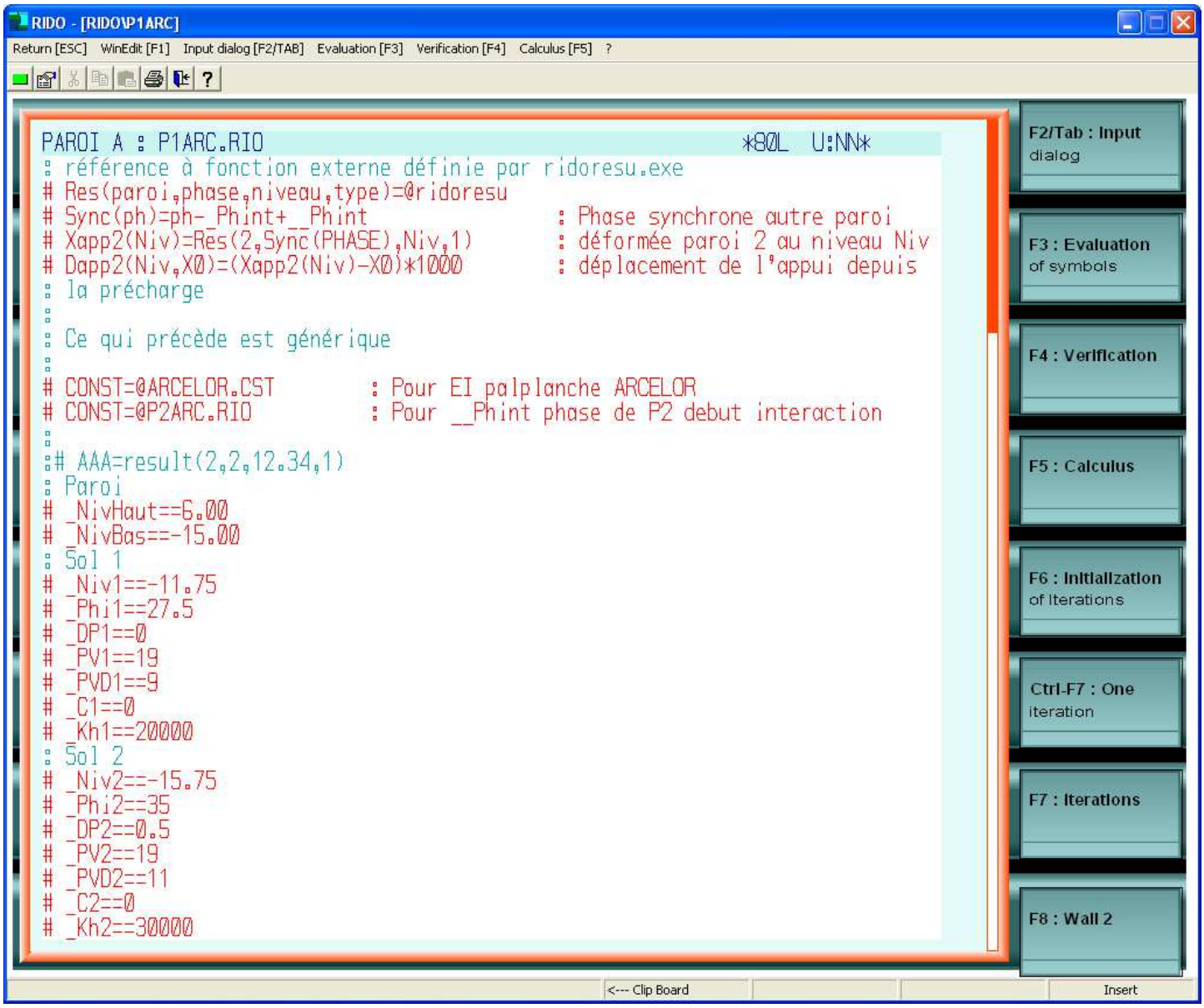
F12 : End of work

Standard way of leaving the working environment with preservation of the different processing choices for next usage.

NOTE 1 :

Although designed to use two screens in interaction for the calculus (experimental function : please contact RFL if needed), the following feature can be used to switch quickly between two sets of data and results even if the screens are totally independent.

The only thing to be done is to use data file names which begin with P1 and P2, for example P1ARC.RIO and P2ARC.RIO



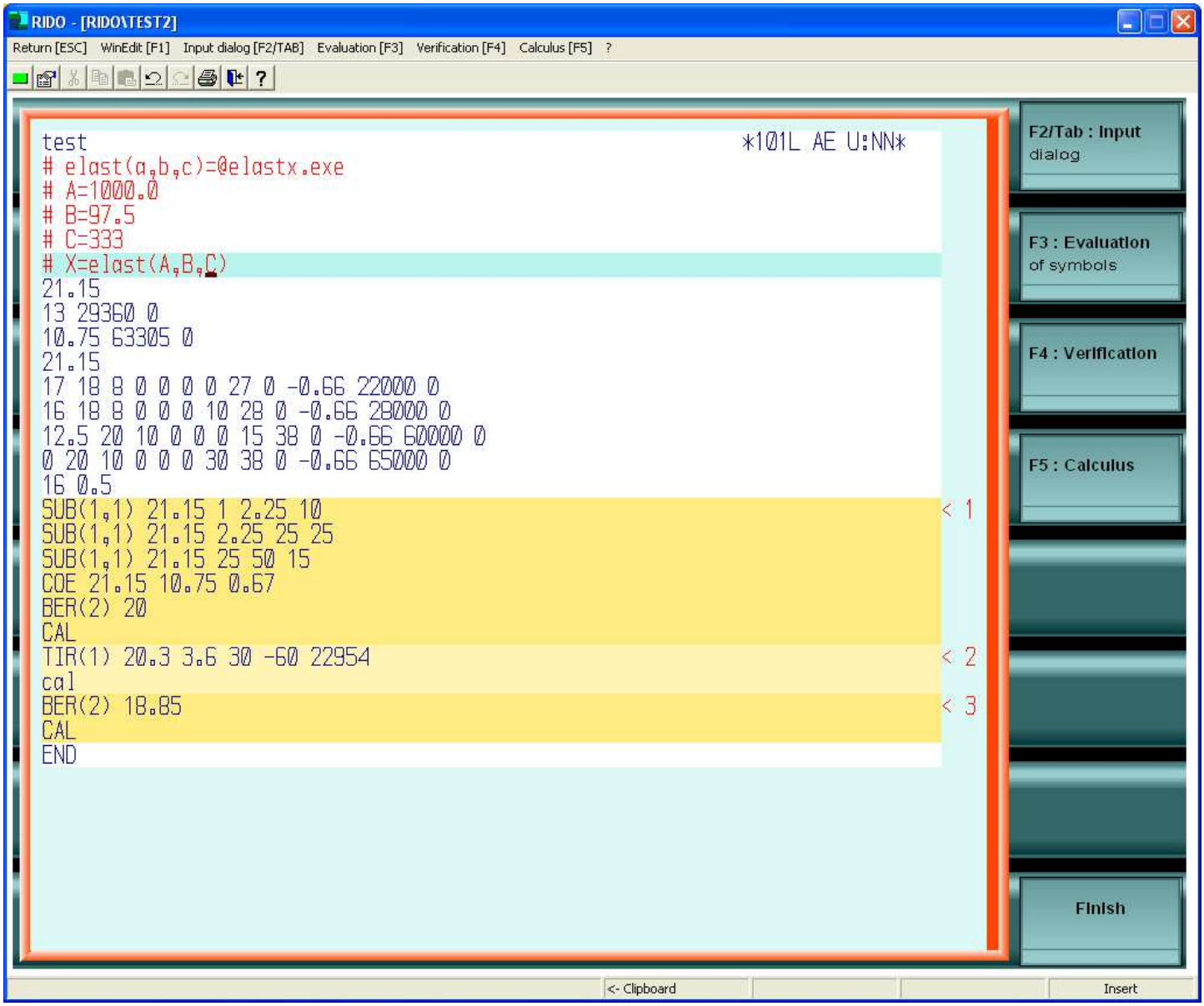
« **F8 : Wall 2** » can be used to directly access P2ARC.RIO data, from where « **F8 : Wall 1** » would be used to return. The same feature can be used during the text or graphical vizualisation of the calculus results.

From the **version 4.12.01** it is possible to launch several instances of WRIDO.EXE.
In case of conflict of access to the same data file it will be proposed to work on a copy of this last one.

NOTE 2 :

Here is a fast way of testing an external function :

By taking back the example of the function presented as example page RIDO-NOT-38 of the note RID4NOTA.PDF



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The current line being positioned on the callto the tested functionthe selection of " F3: Evaluation of symbols " will provoke the display of the variable X function of the values of A, B, C which we can modify in a interactive way.

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