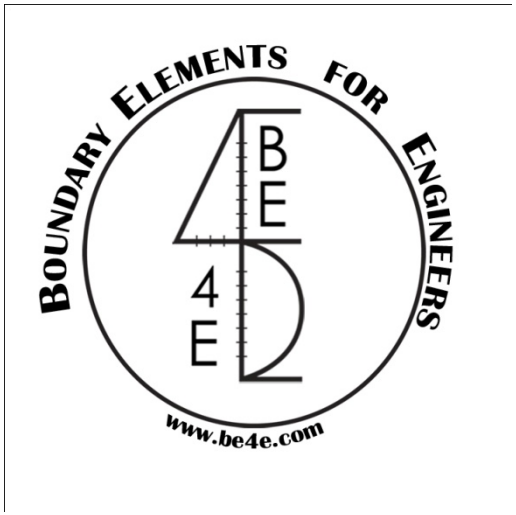
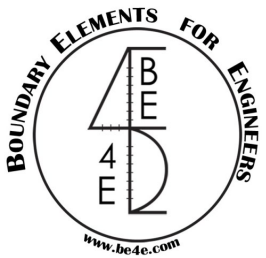


PLPAK applications

Examples: Raft on Elastic half space using the PLPAK-EHSPAK…

Direct solution, no iterations between two programs

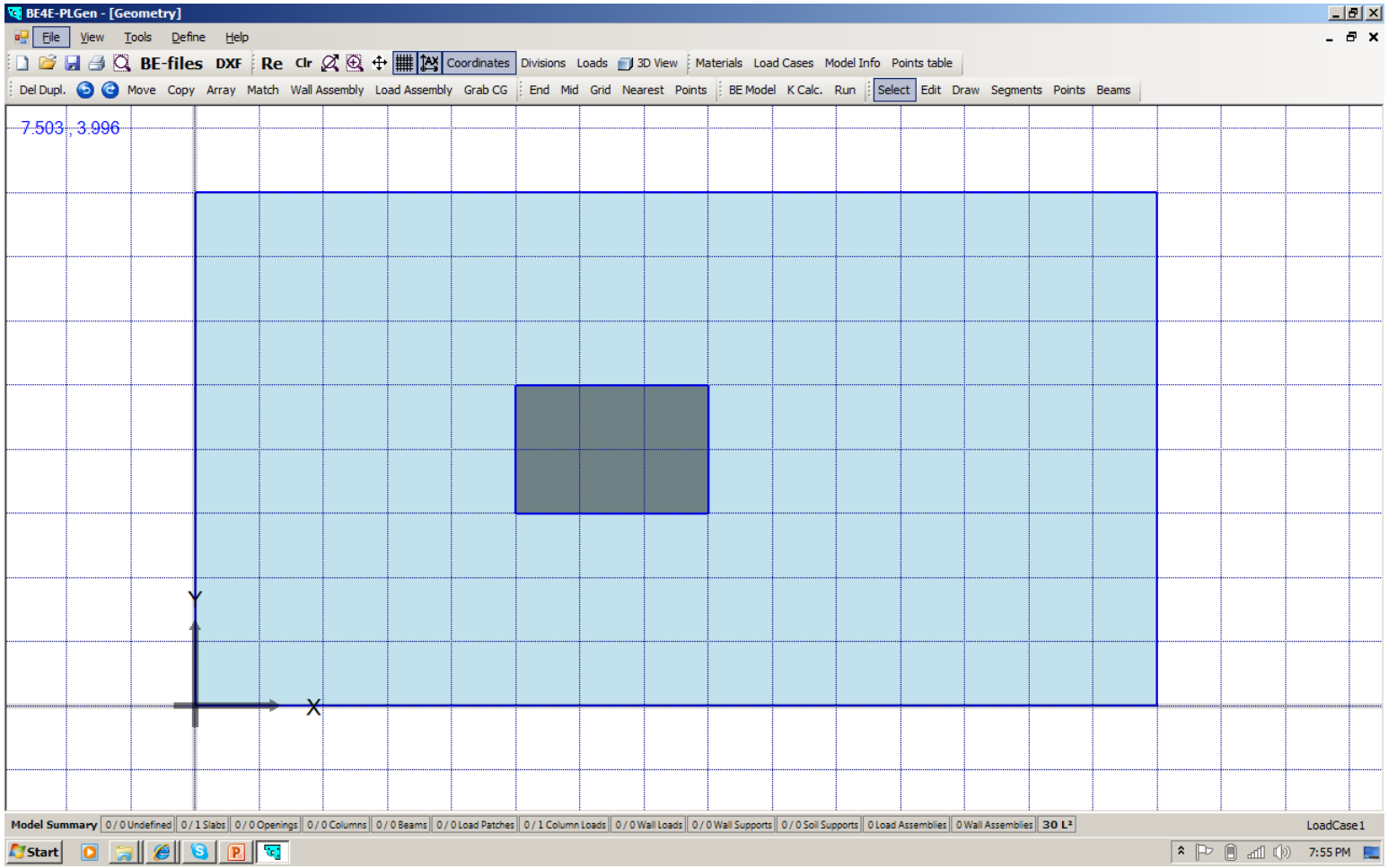


Disclaimer

Considerable time, effort and expense have gone into the development and documentation of the PLPAK™ software. The PLPAK™ software has been thoroughly tested and used. The PLPAK™ software should be used by engineers with good understanding of concrete behavior, pre-stressing and structural mechanics. The user accepts and understands that no warranty is expressed or implied by the developers or the distributors on the accuracy or the reliability of the PLPAK™ software. The user must explicitly understand the assumptions of the PLPAK™ software and must independently verify the results produced by the PLPAK™ software.

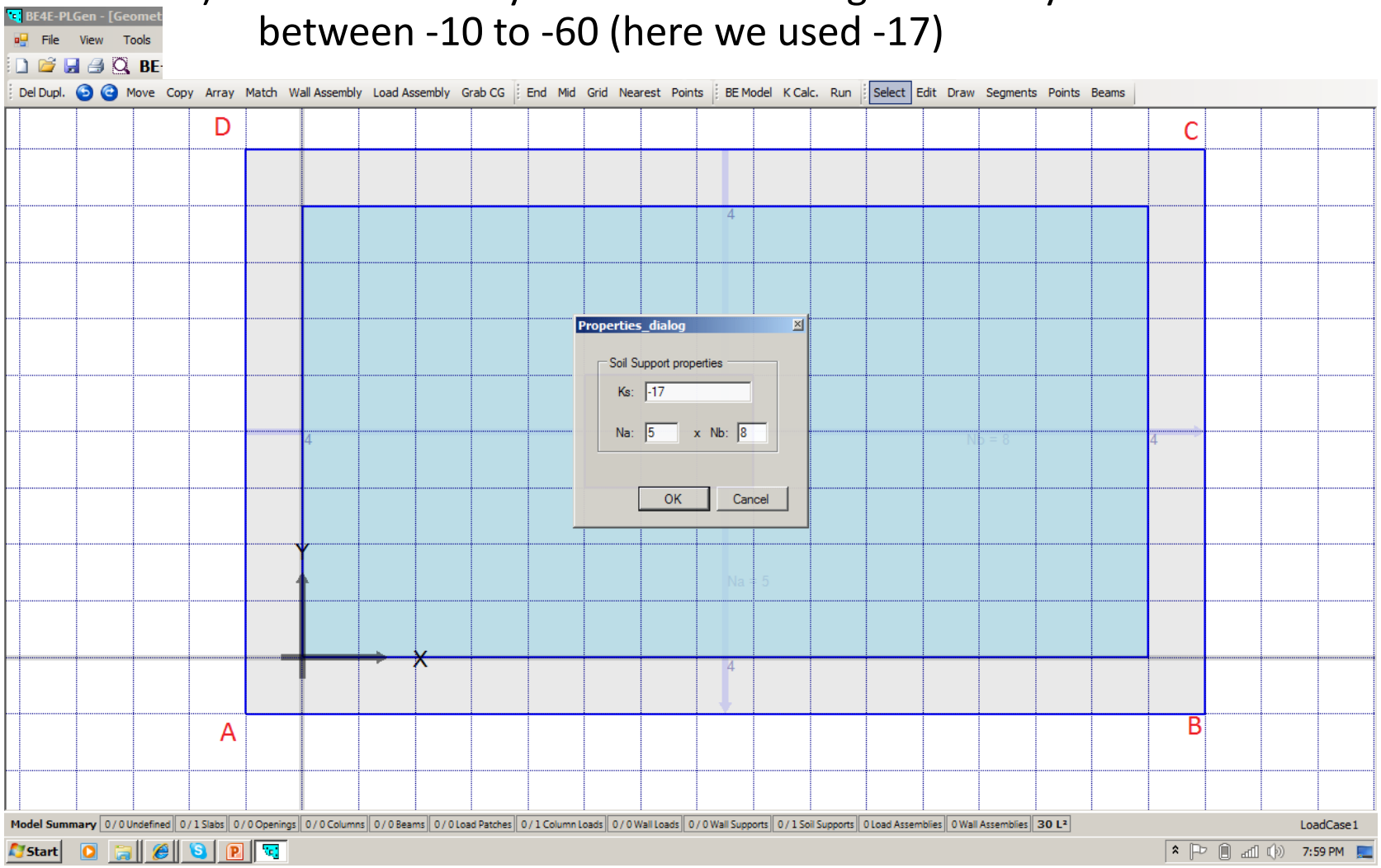
Copyright

Our problem is 7.5X4 m raft with one centered column on two layered elastic half space. The first step is to model the raft on the PLGen as shown below.

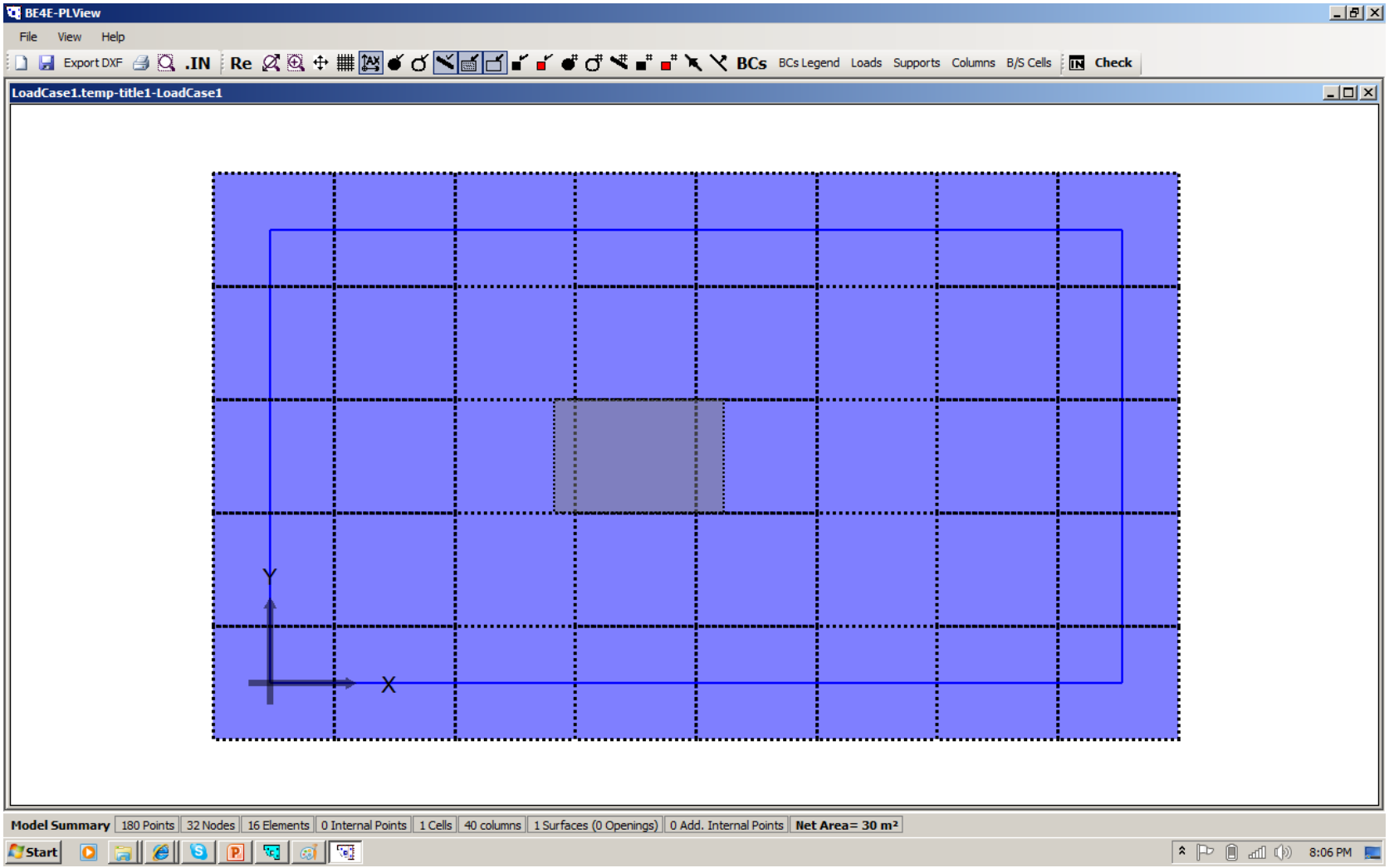


The second step is to draw a soil support around the raft; it should:

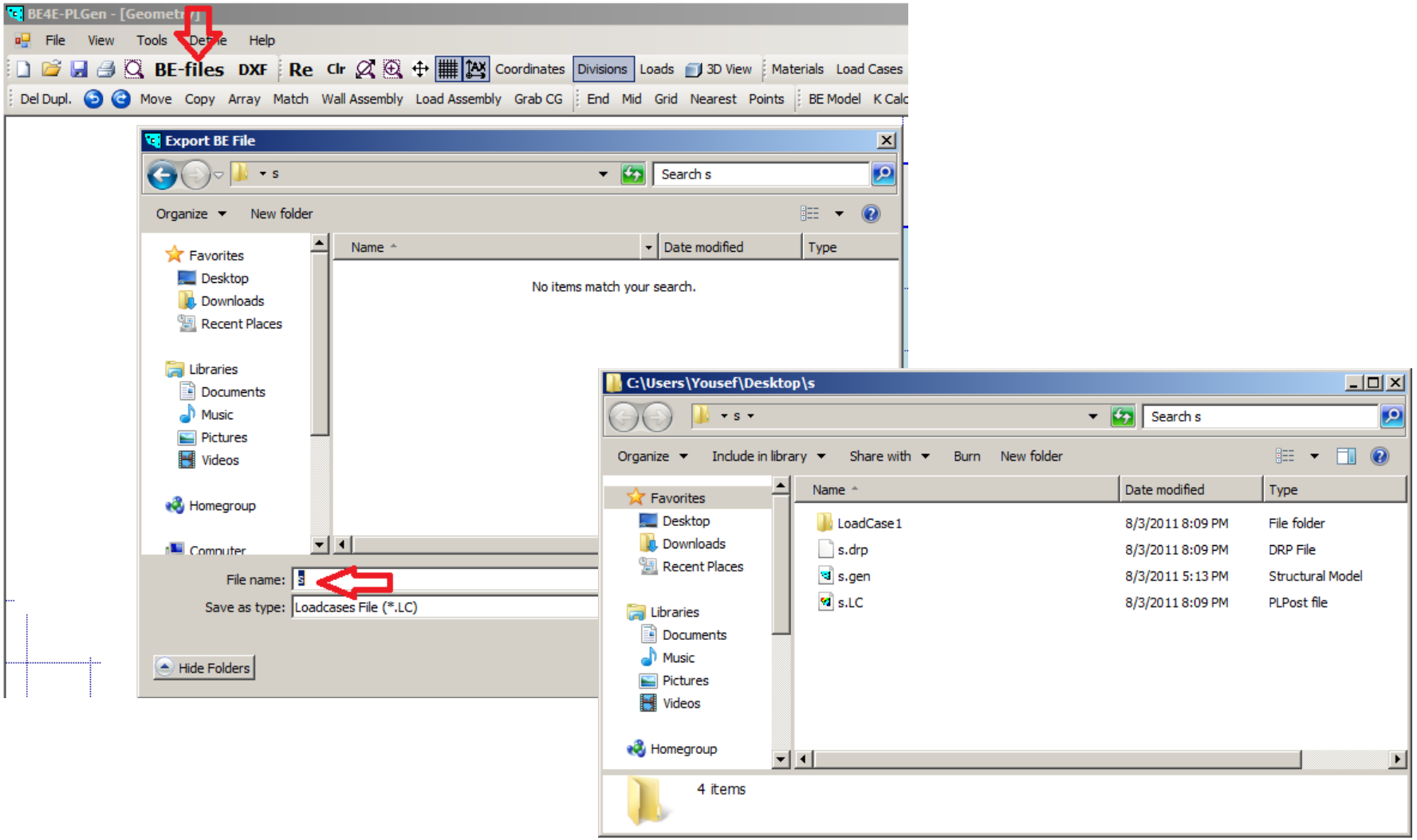
1) Contain all the raft
2) Rectangle
3) Start drawing from point A➔B ➔C ➔ D
4) Divide it to any numbers and assign Ks to any –ve value between -10 to -60 (here we used -17)



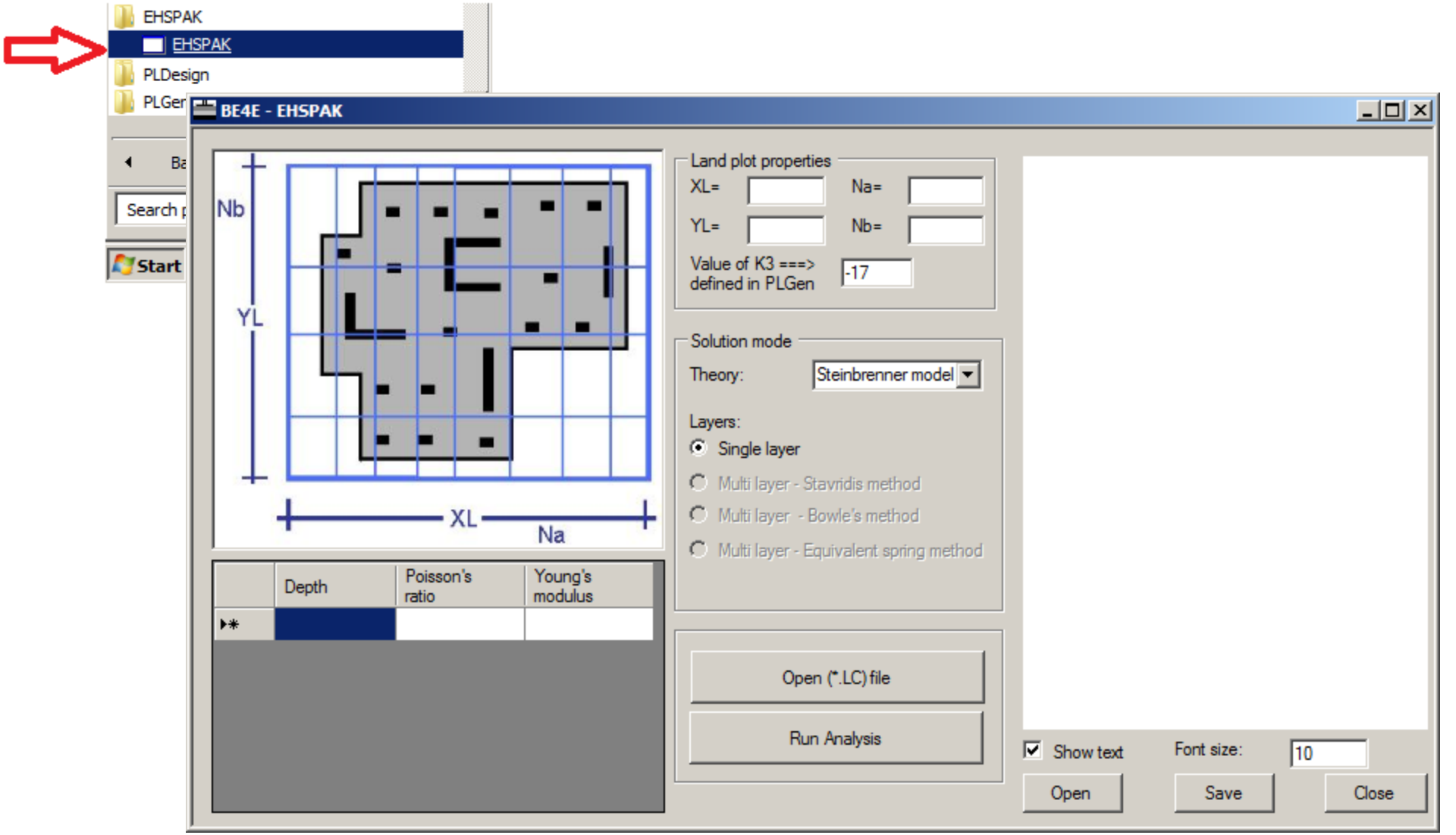
The BE model in the PLView should looks like:
(please note the blue color; as still the PLPAK recognize the soil as individual not connected supports as the case of Winkler model)



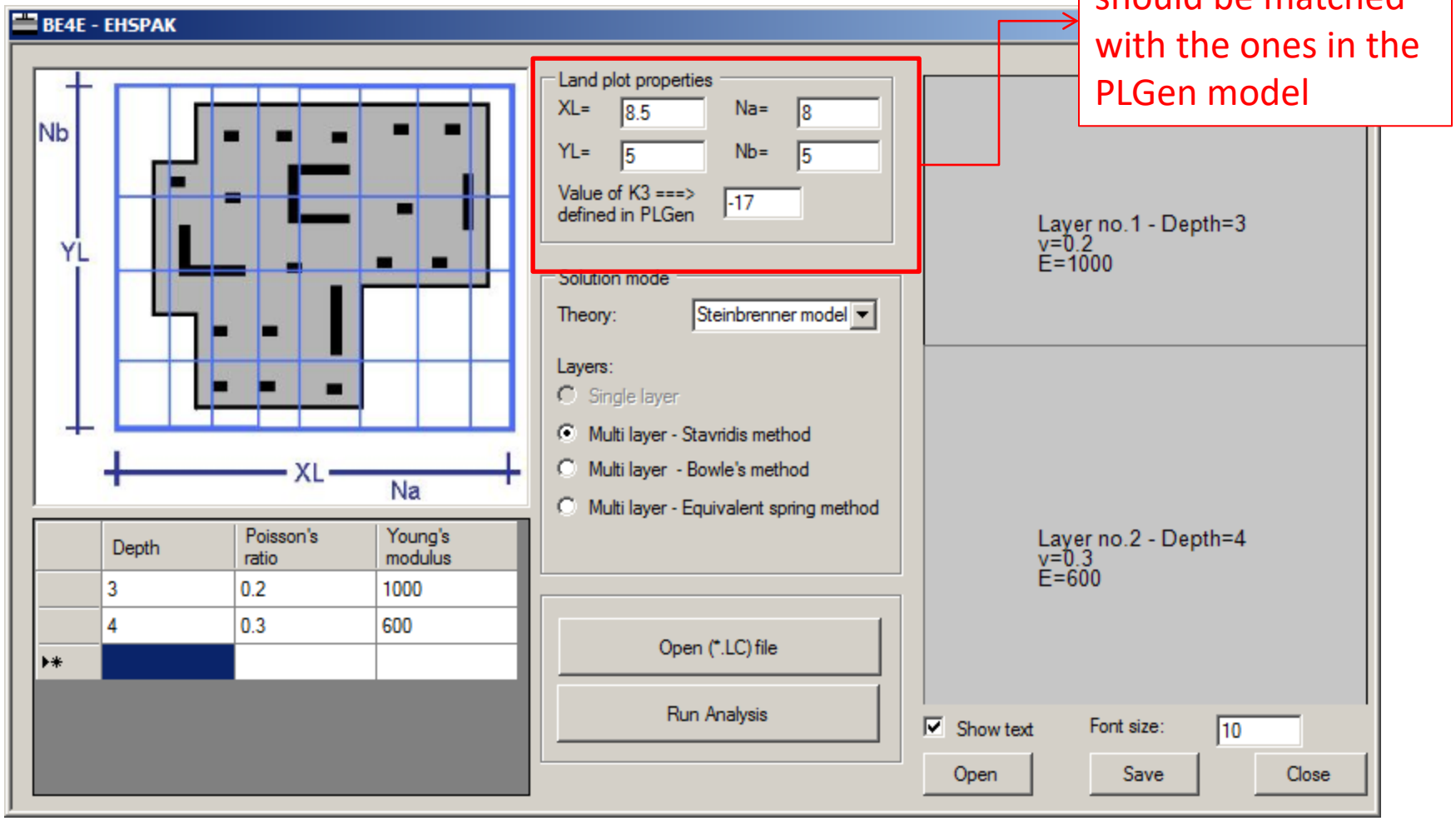
The 3rd step is: from the PLGen generate the BE-files. Save them in any folder, we will save them in folder called “s” on the desktop and we will call the problem by “s.LC” as demonstrated below:



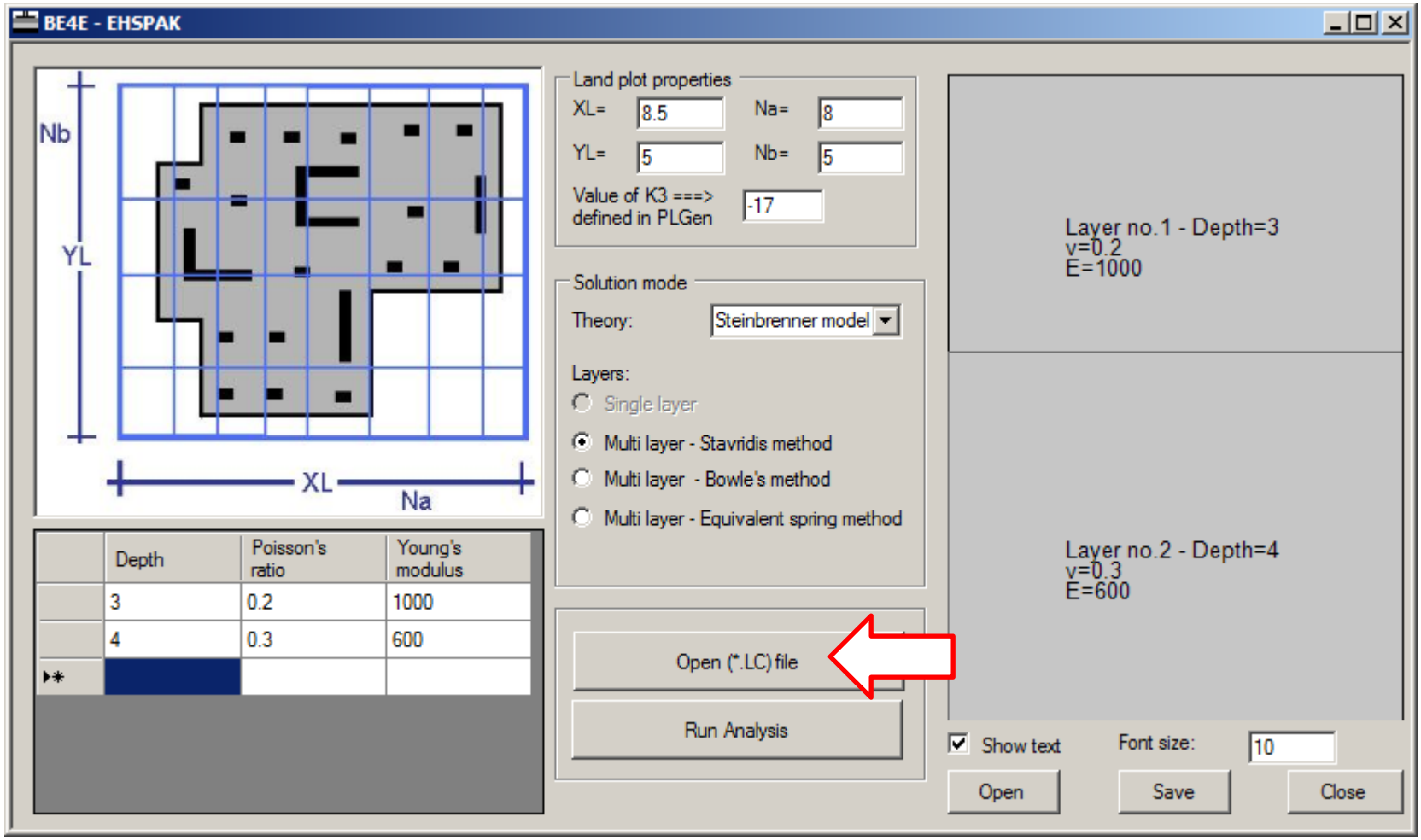
The 4th step is: to run the EHSPAK as shown:



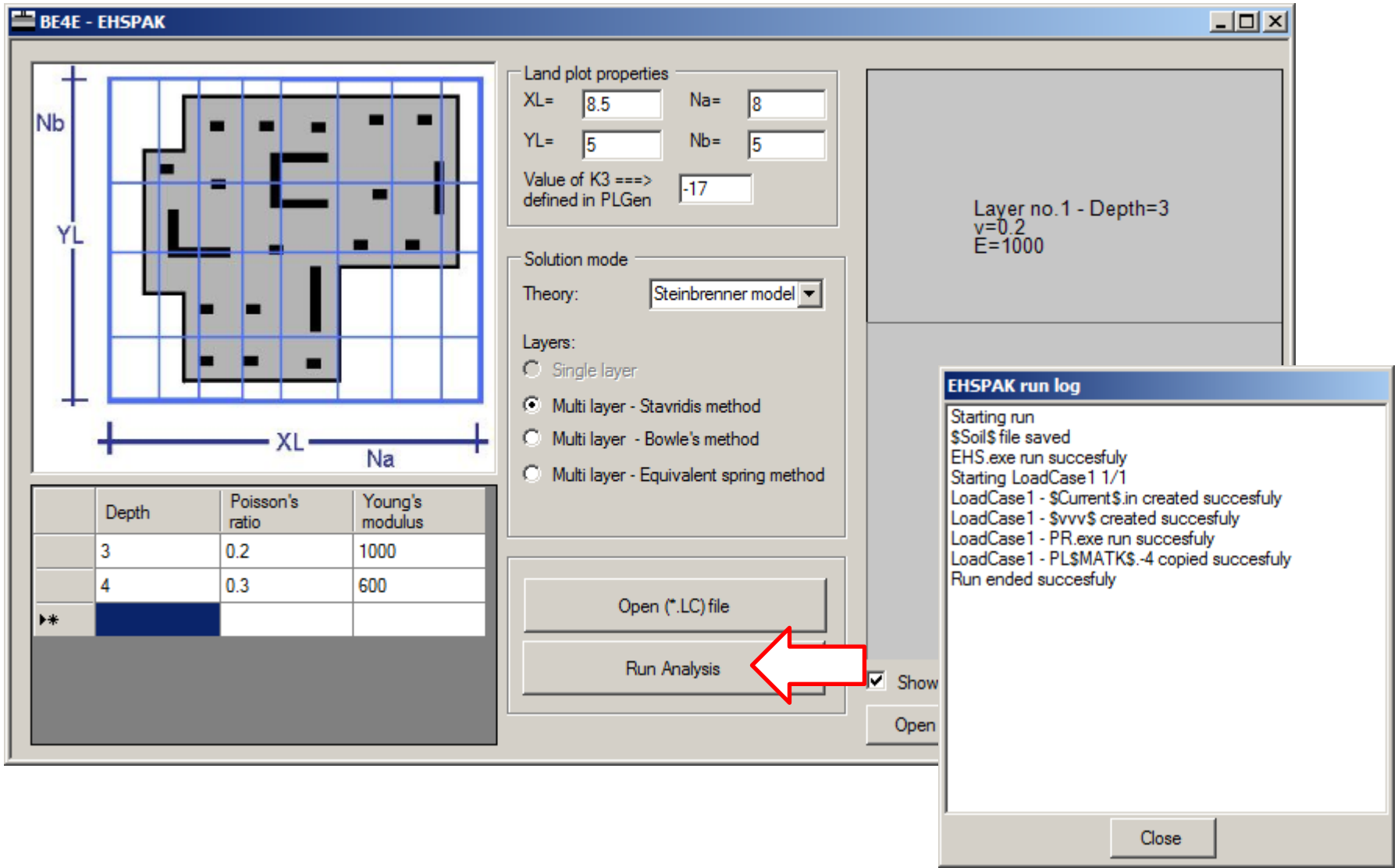
The 5th step is: Define your soil model. Please note that you can save the soil profile and reload it using the Open/Save buttons. Also you can use many soil models as shown below.



The 6th step is: once you are happy of the soil model, select the Open (*.LC) file button and load the “s.LC” of you model

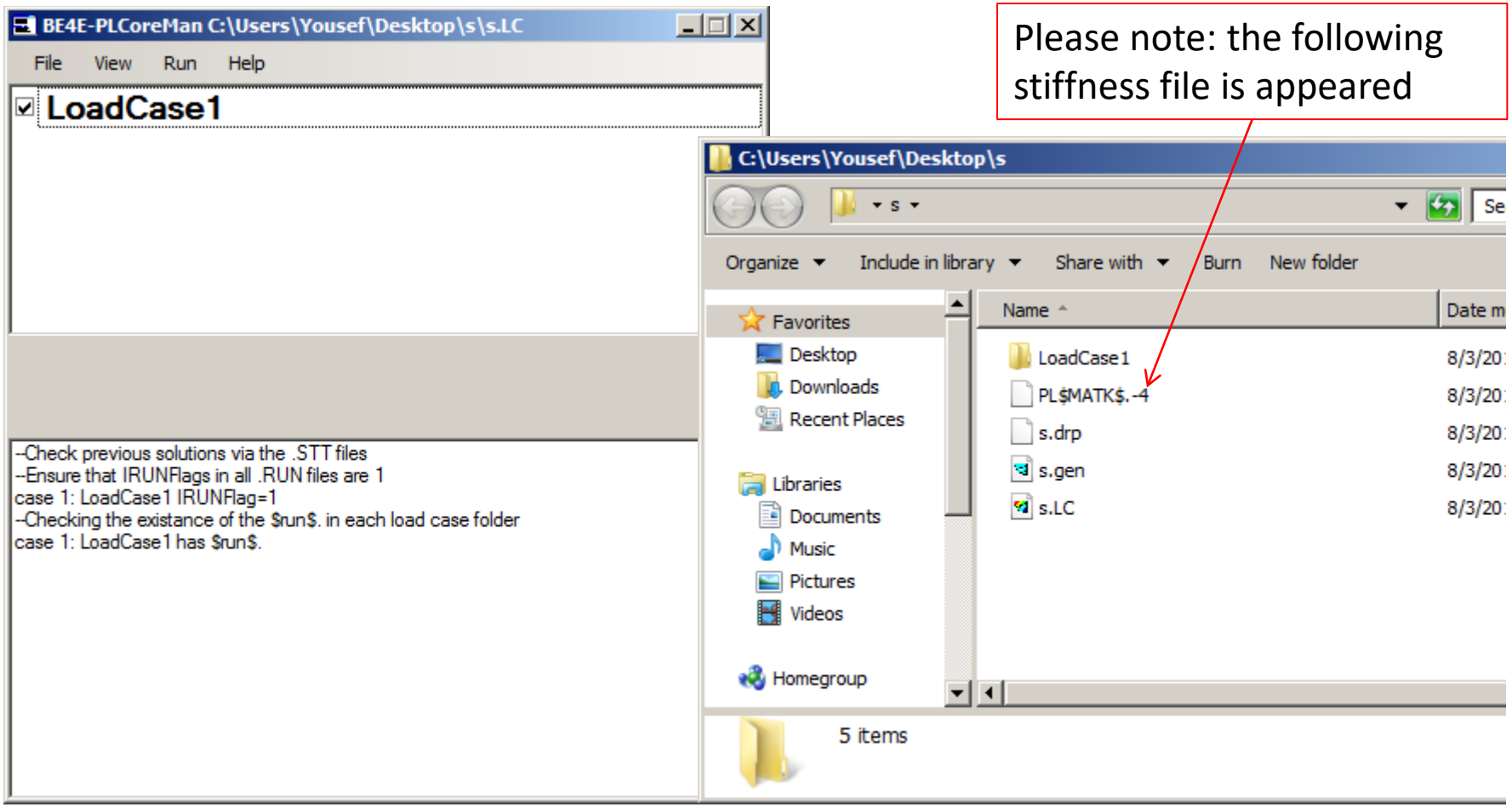


The 7th step is: select Run Analysis button, and get the log screen that tells you that “Run ended successfully”

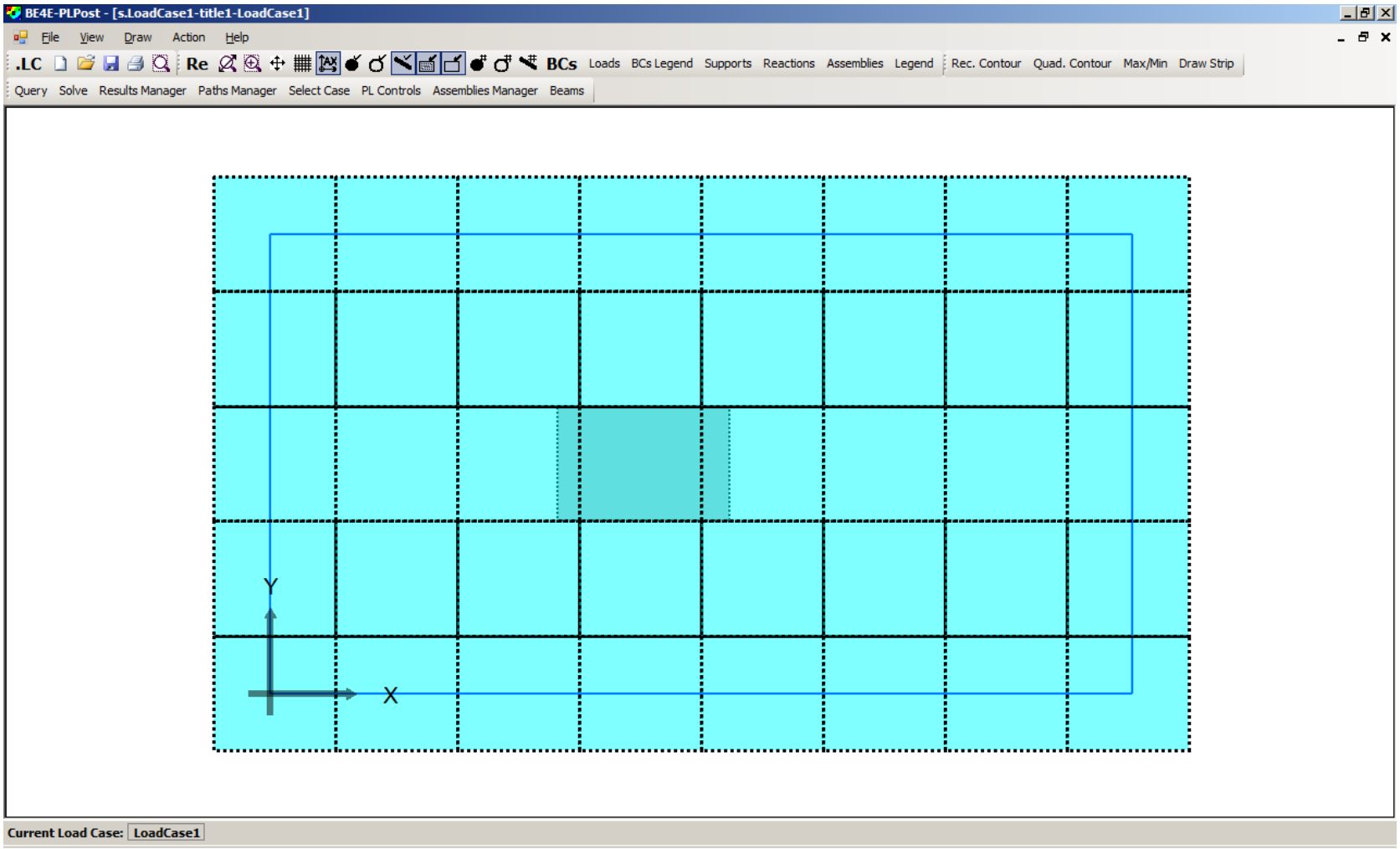


The final step is run the PLCoreMan and load the s.LC, your file is now ready to be treated as any problem solved using the PLPAK.

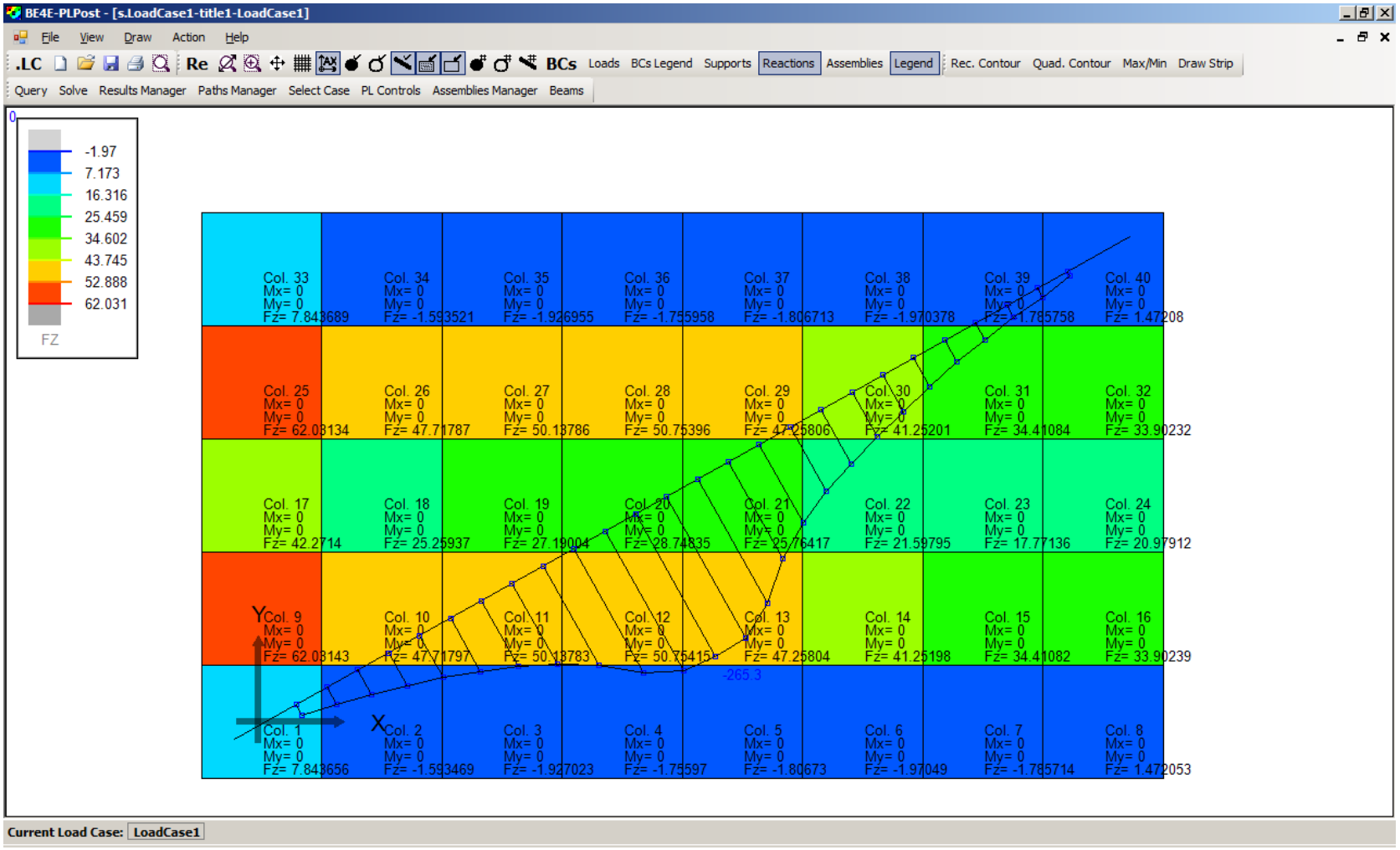
Now run your PL.EXE and see results on PLPost.



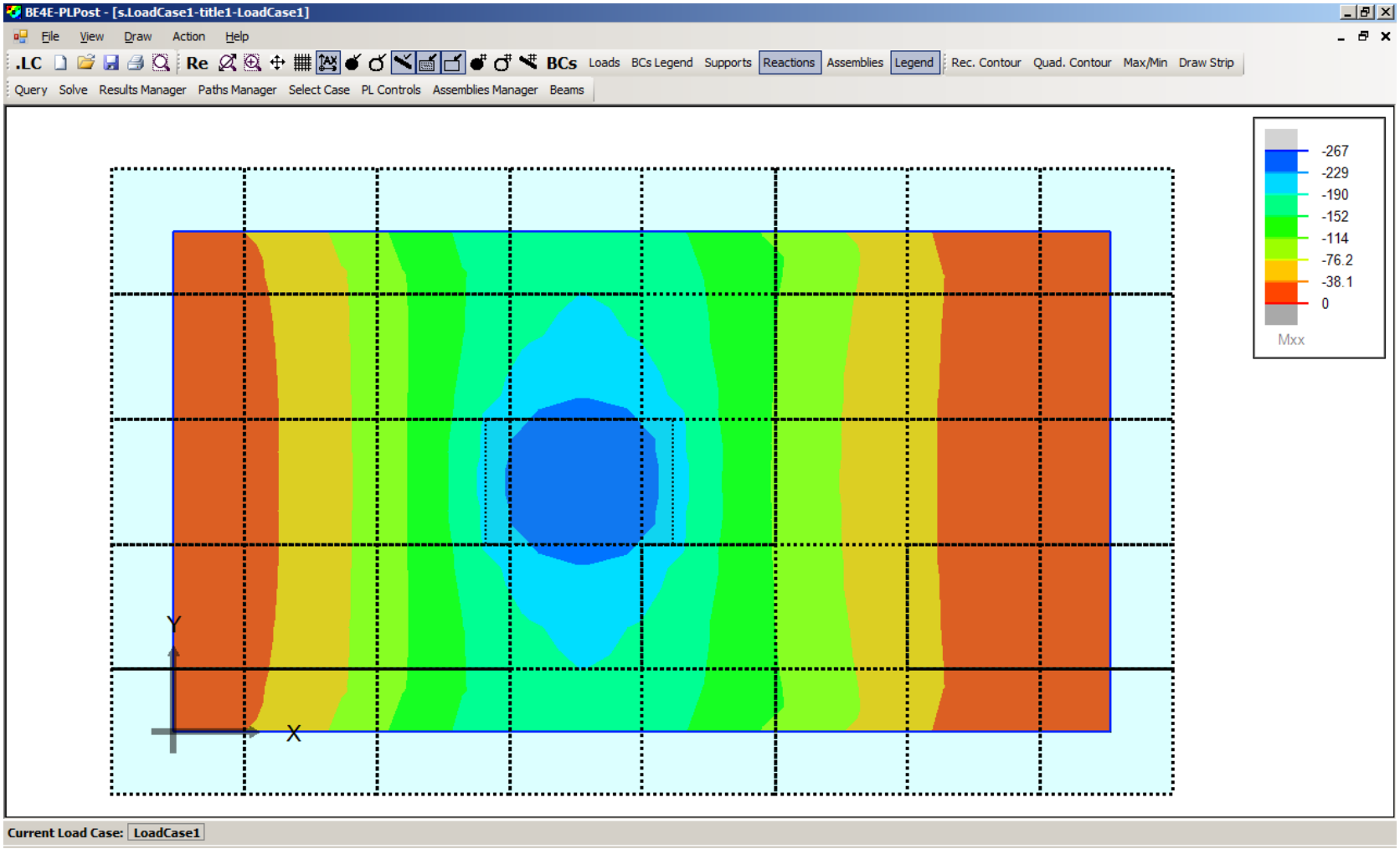
Once you loaded the PLPost you will see that the soil supports appear as beam (or stiffness) cells.



See your results in normal way.

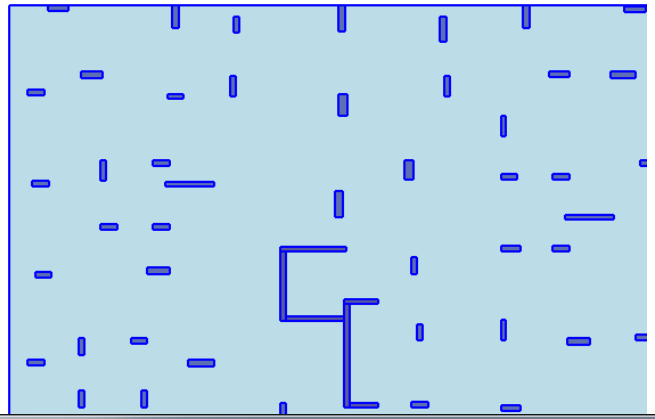


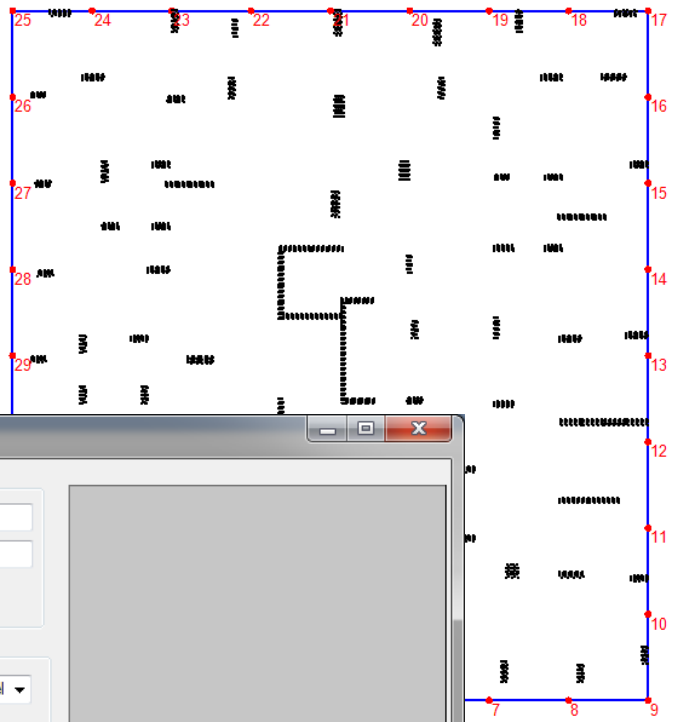
Or as contour lines



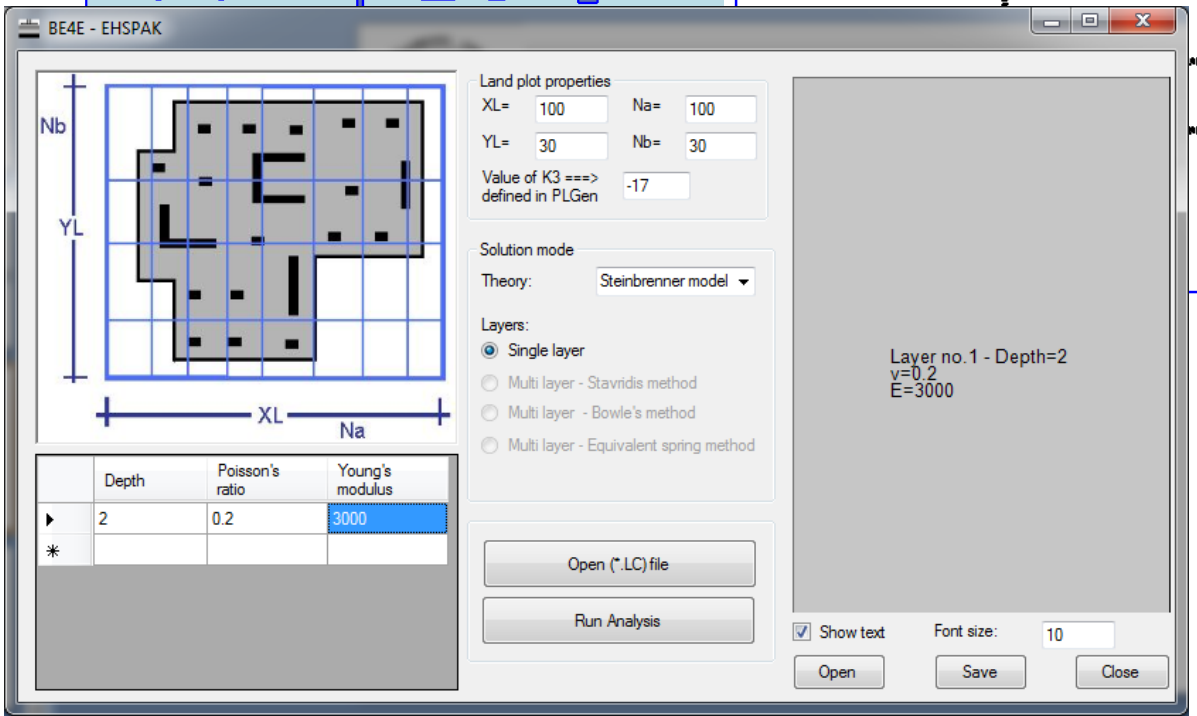
Using PLPAK – EHSPAK for practical raft in one step.

1-Create the analysis model using PLGen



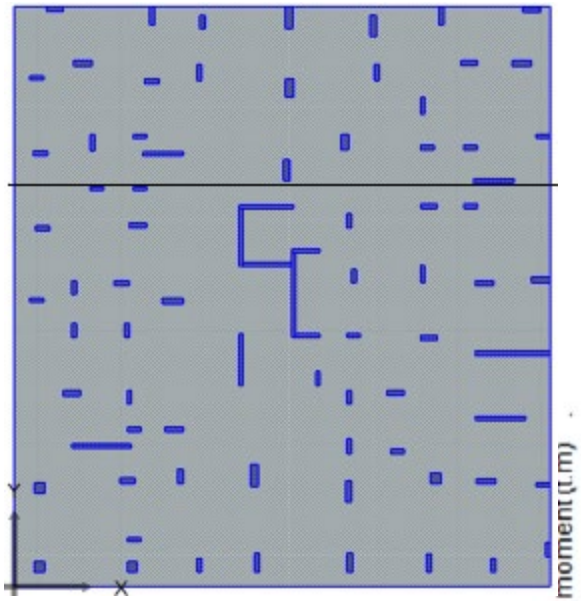


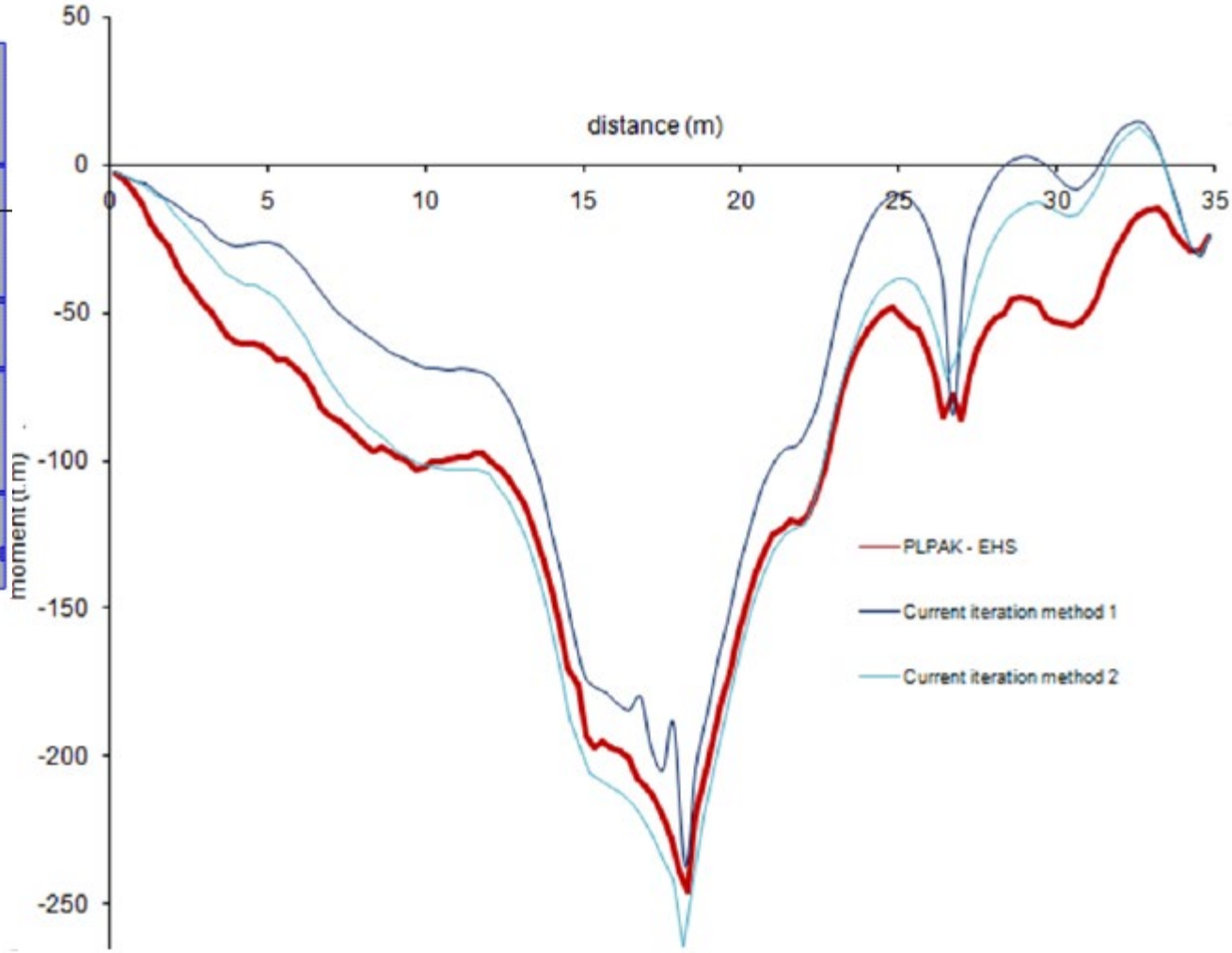
2-Check the BE model



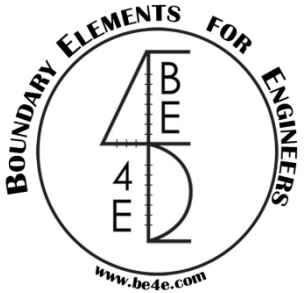
3-Use EHSPAK to input soil profile and include soil structure interaction in a single step.

PLPAK- EHSPAK results





Get the accuracy of second iteration in a single step using the PLPAK



For additional help please visit:
https://www.plpak.com

or send e-mail to:
plpak@be4e.com