NUMERICAL MODELLING OF THE BEHAVIOUR OF FACE AND FOREPOILING ROCK SUPPORT IN TUNNELLING

(Following page 65)

Smoothing of settlement dependence on variant rating by logarithmic curve \(y = -48.106 \ln(x) + 165.73; R^2 = 0.98\) demonstrated the following. The analysis results lied down naturally and rather tightly on the smoothing curve. The prescribed experiment plan covered successfully all the experiment results, which were managed to be approximated by united dependence. Slight, considered as random, deviation of points from approximating curve is the result of the above stated peculiarities of initial data and the method for their averaging.

Using the nomograph the fields for probable application of support variants under prescribed allowance for surface settlement might be evaluated quite easily. The presence of joint fields of use has made it possible to select support parameters within settlement allowable values. However it shall be taken into account that the results were obtained by averaged values of initial data. Therefore they are reasonable to be used as approximate and to be subjected to clarification in every concrete case of support designing.

IV. CONCLUSION

The investigations of stressed-strain state of the system “support – screen – massif” performed on three-dimensional models have made it possible to evaluate the effect of separate elements (screen pipe diameter, advance value, ground type) on ground massif surface settlement under tunnelling by bench and full face driving methods.

Reference