forced soil interacts with the surrounding soil. Interaction between the columns and the surrounding soil can be adopted at soft and semi-hard columns (Larsson, 2006). Since it requires a greater proportion of cement and a higher amount of mixture than in ordinary clay soils to obtain a strength development, there is also the risk that the column becomes very rigid once it hardens and therefore interacts less with the surrounding soil.

All the mixing experiments show on shear strengths that exceed 100 kPa. The spread in results between of the duplicate samples indicates a good mixing in the lab and that soil volumes had similar characteristics. The decision to proceed with three of the recipes and supplement with an unproven variant and set up a test field was basically a necessity in order to be able to move forward with the design and detailed design of the slope stabilization of the stretch.

The field tests all point to that this proven soil improvement method also seriously will be able to use in sulphide soils similar to the one that is found in the area. The shear strengths in the control soundings measured between 400 and 600 kPa indicating good strength development. It should however be cautious on these numbers when the control method is relatively rough compared with other field methods for the evaluation of shear strength.

The penetration test shows, as it been mentioned before, on a poorer strength development by depth. The soil intervals were the shear strength decreases is in the same range as the deepest soil type, soil type 3, from the mixing experiments. Soil type 3 compared to soil type 2 shows the same trend that the shear strength decreases with depth as in the field measurements. The reason for this is not easy to tell but more work is needed on the sulphide soils properties impact on the strength development.

The requirement of 100 kPa should nevertheless be regarded as fulfilled. However, they demonstrate relatively rigid columns which would mean that it is difficult to count on the interaction between the columns and the surrounding soil. The major challenge in the selection of recipes in slope stability project is to choose a recipe that you can say with certainty that it hardens while creating columns that are within the scope of soft and semi-hard column.

Both core sampling and the excavation confirm that the stabilization of the soil worked. Lime and cement mixture with the sulphide soil has created a material without cohesive properties.

For the upcoming sharp stabilization project in Keräsjoki the hope is great that the result will successful. A successful result for actions with like in this case L/C-panels would be at door opener for deep stabilization at future large infrastructure projects e.g. North Bothnia Line. The solution would be a welcome addition at stretches with settlement problems.

With more ways to build on the sulphide soil, a larger object and project specific optimization could be done. Freedom of choice will involve more technical feasible and in some cases even more economically advantageous solutions.

REFERENCES

Andersson, M. & Norrman, T. 2004. *Stabilisering av sulfidjord*, Svensk Djupstabilisering, Linköping.

Larsson, R. 2006. *Djupstabilisering med bindemedelsstabiliserade pelare och massstabilisering - En vägledning*, Svensk Djupstabilisering, Linköping.