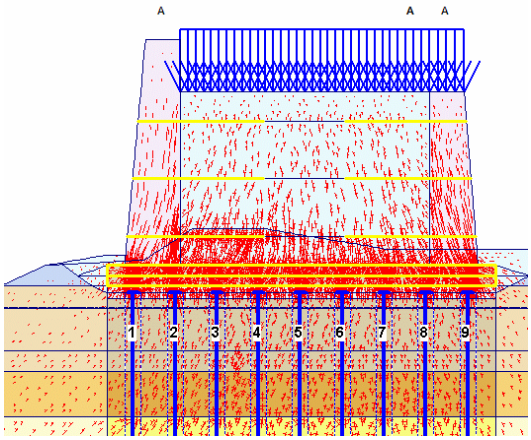
Design and execution of an integrated LTP and gabions system

Prof. dr. ir. A.E.C. van der Stoel* (CRUX Engineering BV / Royal Military Academy)
Ir. D. Vink (CRUX Engineering BV)
Ing. R.W. Ravensbergen (Dienst Stedelijke Ontwikkeling - Gemeente Almere)
Ing. M. de Hertog (Dienst Stedelijke Ontwikkeling - Gemeente Almere)

Proposed Discussion Session = 5.3

In Almere, the fasted growing city of the Netherlands, some specific problems are encountered concerning the growth of traffic and hence of noise pollution in the parts of the city adjoining the beltway. Because the space between the urban area and the beltway surrounding the city are limited, innovative solutions have been developed to diminish noise pollution within this limited space. One of these solutions is the construction of a noise barrier wall next to the 'Literatuurwijk' area.
This paper deals with the design and execution of the noise barrier. The barrier consists of an integrated system of a load transfer platform (LTP) and a gabions wall. The LTP is constructed on very soft and very heterogeneous soil, demanding specific execution measures of the High Speed Piles (HSP) and geotextile grids used for the system. Because on top of the LTP a construction of gabions was created, the situation was extra special. The gabions consist of boxes made of twisted or welded steel wire filed with stones, and are anchored by geotextiles to ensure stability. The architectonical demands require the gabions to appear nearly (visually) horizontal for a period of over 30 years, thus limiting the allowed settlements of the LTP significantly.
The chosen solution in this project was designed using different methods, amongst which are the BS8006, the EBGEO and PLAXIS 2D and 3D calculations. In this paper some specific aspects encountered during the design and execution of the works are discussed. Also the results of measurements performed on the structure will be presented.



Author's address for correspondence
Author's Name: prof. dr. ir. ing. Almer E.C. van der Stoel
Company: CRUX Engineering BV / Royal Military Academy
Street: Asterweg 20 L1
City: NL 1031 HN Amsterdam
Country: Netherlands
Tel: +31 (0)20 494.3070 Fax: +31 (0)20 494.3071
Email: vanderstoel@cruxbv.nl