

LOTOS Refinery 10+ Programme

Gdańsk

The largest European petrochemical investment, the LOTOS Refinery's 10+ Programme, required the design and execution of geotechnical works for several dozen new facilities and installations in the difficult ground conditions of the Vistula delta, which Keller was entrusted with.



The project

The 10+ programme modernised the Gdansk refinery and increased its processing capacity to over 10 million tonnes of oil per year. The new facilities and installations were implemented by foreign and Polish specialist companies, such as: Technip, KTI, Lurgi, Fluor, Hochtief, Mostostal, Przembud, LOTOS, subcontracted by Keller Polska.

The challenge

The challenge were the difficult soil conditions characterised by the presence of 2 to 4 layers of compressible organic soils in the subsoil to a depth of over 20 m, as well as high loads and technical requirements for some objects (e.g. chimneys, towers, tanks). The works were carried out in the direct vicinity of the existing facilities and installations with very high requirements of HSE. Another challenge was the design and execution of works in cooperation with many foreign partners implementing particular elements of the investment.

The solution

On the basis of a dozen or so executive and technological projects developed by Keller, we have produced a total of about 2000 CFA, VIBREX and MESI piles with diameters ranging from 20 cm to 80 cm, with lengths ranging from 15 to 26 m and a total length of about 40 km. For the foundation of tanks and parts of buildings we also made 3340 KSS gravel columns with a total length of over 26 km. During the works, the existing installations were monitored, load tests and pile tests were carried out (e.g. Cross-hole Sonic Logging).

Project facts

Owner(s)

Lotos Group

Keller business unit(s)

Keller Polska

Main contractor(s)

KTI, Technip, Fluor, Lurgi, Hochtief, Mostostal, Przembud, Allcon, Lotos

Solutions

Bearing capacity / settlement control
Heavy foundations

Markets

Industrial

Techniques

CFA piles (auger cast)
Micropiles
Vibro stone and concrete columns