
Job Report

MyJobsite and LIPOS

A productive duo in deep foundation

LIEBHERR

Digitalisation on the construction site





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Situation

A well-known German car manufacturer is building a new prototype production facility on an area of 10,500 m². The time frame is very tight. The planned building is huge and the calculated forces are correspondingly high. The clay soil is not suitable for bearing the great weight of the building. Extensive soil improvements are necessary. Robl Spezialtiefbau GmbH is contracted for the foundation work for this project.



“The planned completion time was undercut by one week because both Liebherr piling and drilling rigs, including attachments and accessories, functioned perfectly. Using LIPOS saved us a considerable amount of time as we didn’t have to arrange additional appointments with the surveyor and we could use every working day to the full. Thanks to the software solution MyJobsite, I had the site data permanently at hand. All important parameters can be viewed in real time on a laptop, tablet or mobile phone.”

Martin Robl
CEO, Robl Spezialtiefbau GmbH

Task

In just three weeks over 900 full displacement piles must be installed as so-called vibrated cast-in-place piles. All piles have a diameter of 320 millimetres and lengths between five and eight metres in order to reach the load-bearing layer. The company Robl has two Liebherr piling and drilling rigs, types LRB 16 and LRB 18, each equipped with an LV 20 F high frequency vibrator with slim design. In addition, they have a Liebherr THS 80 D-K concrete pump at their disposal.



Solution

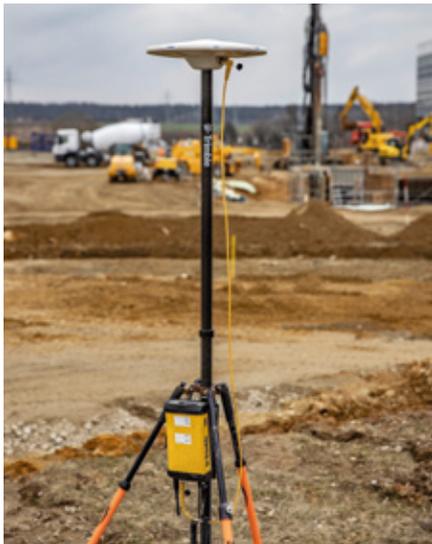
The difficulty with the soil on this building site is that the load-bearing layers are at very different depths. The upper, non-load-bearing soil of soft, slightly sandy clay merges into a load-bearing gravel layer at a depth between five and eight metres. Therefore, this project is not relying on large bored piles with a predefined length, but on a multitude of the aforementioned cast-in-place piles. Based on real-time drilling parameters in the PDE recording, the machine operator can immediately decide whether the necessary length has been reached and therefore initiate the extraction and concreting accordingly.

The LIPOS positioning system shows the machine operator where exactly the 900 piles are to be placed. Previously, a huge amount of time was spent on surveying and securing the piles. In order to avoid covering the entire foundation area with staked piles, usually only a daily output was staked. Accordingly, it was necessary to survey and secure pile positions every day. Nevertheless, the staked piles were often driven over or buried, so that some of the surveyed and marked positions were lost again. Nowadays, the 900 pile positions are transmitted to the Liebherr machine in the form of a digital drilling plan that is displayed on the monitor in the operator's cabin. Daily measuring work is a thing of the past and an overview of which piles have been completed and which have still

to be installed is always available. Approaching the position for each new pile is child's play, without having to pay attention to colour markings or stakes.

The effective machine technology, supported by digital position data that is accurate to the centimetre, makes it possible for up to 80 vibrated cast-in-place piles to be completed per day and machine. After two weeks, one week earlier than planned, the two Liebherr piling and drilling rigs are finished with the installation of the 900 piles.





Hard work generates an enormous amount of data. Recording, processing and archiving takes up a lot of time. Without standard-compliant reports and full documentation, a deep foundation company cannot prove the work performed to its client. For this purpose, the company Robl is relying on the software solution MyJobsite, which has been specially developed by Liebherr for deep foundation work. With MyJobsite, it is possible to automatically record all relevant data concerning the process, machine, jobsite, weather and positions. Furthermore, by entering an occurrence, important information can be added manually. The gathered data is prepared, analysed and stored in compliance with the highest security standards. MyJobsite keeps an eye on everything and greatly simplifies the documentation and quality control from a wide range of data sources.

Unpopular bureaucratic work is kept to a minimum and the amount of time required for it is significantly reduced. The preparation of a standard-compliant report from hundreds of protocols is completed in a few minutes and the file sizes remain manageable.

For Martin Robl, the advantages of LIPOS and MyJobsite can be summarised as follows, "Using LIPOS and MyJobsite I can provide comprehensive and quick documentation about the work completed, for example, about the surveying or parameters to be achieved. This is valid as proof of the load-bearing capacity of the piles installed, in this case the vibrated cast-in-place piles. A pile can not be forgotten and I know where, and whether they have been installed correctly. Very quickly and with only a few clicks, I can prepare all these important parameters and present them to the contractor at short notice. This is very important for our company and would not be possible without LIPOS and MyJobsite or we would no longer be awarded any public or even large projects."



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