Stabilisation of railway embankments

Installing pile slab for Banedanmark on Sealand



AARSLEFF

Aarsleff has carried out extensive stabilisation of the railway embankments near the towns Ring and Remkolde between Næstved and Vordingborg for the extension of the railway section between Ringsted and the future Fehmarn Link Connection. As the ground under the embankments consisted of soft soil, a pile slab was to prevent the tracks from settling at high trains speeds.

The project was a One Company collaboration between Aarsleff's departments Ground Engineering and Construction as well as the Group's railway specialists from Aarsleff Rail A/S.

Collaboration right from the tender phase

Right from the early tender phase, Aarsleff managed to strenghten the organisation by working together across departments. Due to the challenges of the project, we focused on solutions that optimised time and logistics, especially at the start of the project.

Pile driving around the clock

595 driven piles, some of them installed in depths of 36 metres, with dimensions of 35x35 centimetres form the foundation of the stabilisation. By means of good logistics, night work and focus on collaboration, we managed to work ahead of schedule. Three tower cranes supplied the three pilir g rigs with piles, and one extra piling rig was at standby in Ring, meaning that potential breakdowns would not affect the progress of the project. In total, we installed 36 linear metres of piles in the two embankments. The project was challenged by logistics and the handling of different pile types and lengths. The client supplied the piles to the site, which stretched across an area of 1 kilometre. A custom-designed yoke allowed us to transport the piles one at a time from the warehouse to the tower crane by means of a wheel loader.

Redesigning the reinforcement structure

The slabs supporting the subgrade were cast in collaboration between Construction and Aarsleff Rail's structural department. Together with the client, we managed to change the entire reinforcement structure during the preliminary design work, allowing us to prefabricate almost everything. Using a crane for the installation of 80% of the reinforcement resulted in a less critical time schedule, and at the same time, we were able to minimise the number of heavy lifts for the colleagues on site.





Data

595 piles:

- Dimension: 35x35 cm
- Length: 19-36 metresA total of 36,000 linear
- metres

Client Banedanmark

Contractor Per Aarsleff A/S

Type of contract Main contract **Consulting engineer** Atkins A/S

Construction period March-June 2019

Contract value DKK 5-10 million

Aarsleff Ground Engineering is one of Europe's leading piling contractors, and we undertake a wide variety of piling, drilling and foundation projects in Denmark and abroad. We have offices in Poland, Sweden, Germany and the UK. Our fleet covers fully hydraulic piling and drilling rigs as well as cranes and vibrators.

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