

Klim Wind Farm

Upgrading of existing wind farm



AARSLEFF

For the client Vattenfall Vindkraft A/S, Per Aarsleff A/S has carried out the construction and piling work for the upgrading of an existing wind farm in northern Denmark. With its 22 new 3.2-MW turbines, Klim Wind Farm will be one of Denmark's largest wind farms on land and will supply energy to 64,000 households annually.

Removal of foundations

We removed the existing 35 wind turbine foundations and reused the crushed foundation material in the new road system between the 22 new wind turbines. Subbase, base course gravel and broken stones were also used for the road construction. In addition, we placed geogrid in all roads and at all sites.

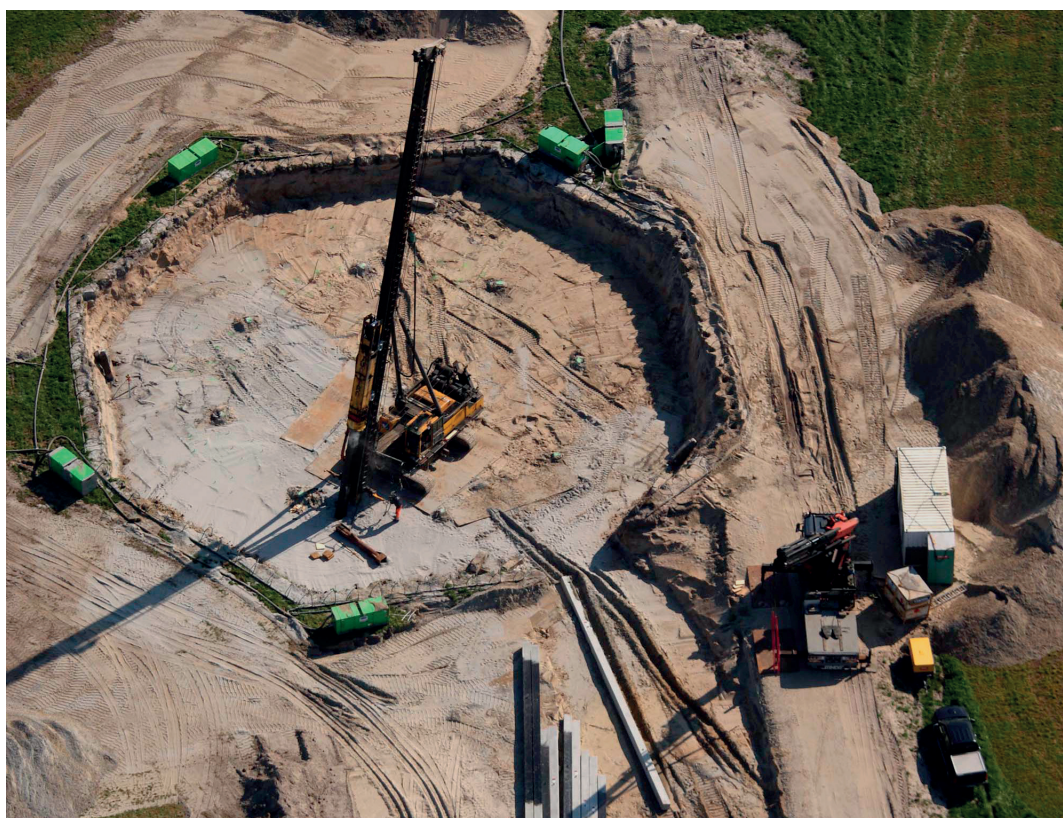
Challenging groundwater lowering

Groundwater lowering was carried out in the construction area before we started the piling work. The varying soil conditions in the area complicated the groundwater lowering pro-

cess. Together with the client's consultant, we tested different solutions and concluded that individual solutions were required for each foundation.

50 kilometres of special piles

We installed around 2,300 special piles measuring 40x40 centimetres and in lengths of 8 to 43 metres. At each wind turbine foundation, we installed eight test piles. All piles were manufactured at Aarsleff's subsidiary Centrum Pæle A/S. It was a big logistic challenge to install the piles at the right time at the individual foundations, and we had to relocate our piling rigs continuously to ensure progress.



Data

- Demolition of 35 existing wind turbine foundations
- 80,000 m³ of excavation and backfilling of topsoil and soil
- 200,000 m² placing of geogrid
- 80 well-point systems
- 50,000 m³ of subbase gravel
- 40,000 m³ of base course gravel II/ crushed concrete
- 1,400 m of DN200-DN500 mm pipelaying
- 47,600 m 40x40 reinforced concrete piles

- 22,000 m³ of concrete
- 2,500 tons of reinforcement.

Client

Vattenfall Vindkraft A/S

Type of contract

Main contract

Contractor

Per Aarsleff A/S

Consultant

Grontmij A/S

Construction period

June 2014 to May 2015
Reinstatement work in April to May 2016

Contract value

DKK 106.4 million

Contact

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