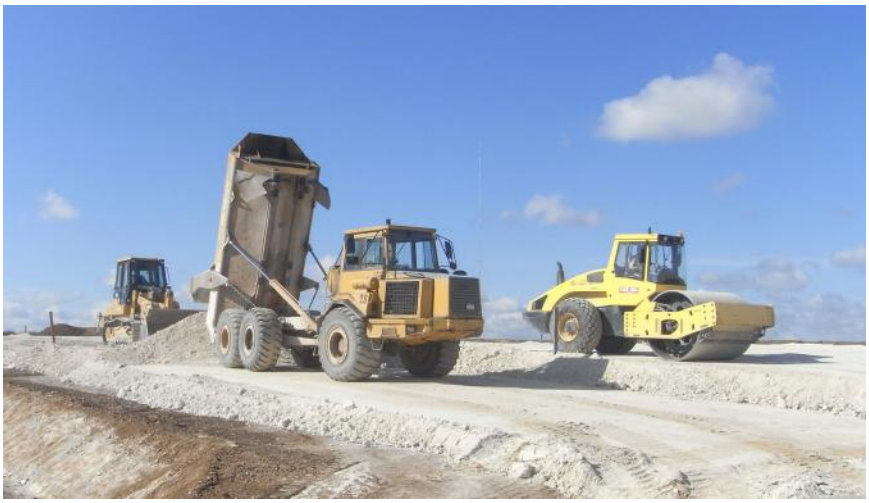
Wadlow Wind Farm, Cambridgeshire.
Civil and Ancillary Works

Project Profile

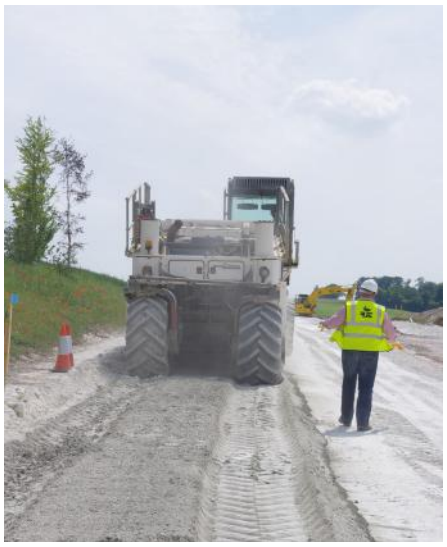
Client: Renewable Energy Systems (RES)
Designer: JNP Group
SUDS Design: McCloy Consulting
Dates:

- Civil Works—June 11 to Feb 12
- Turbine Delivery from Mar 12
- Commissioning—Oct 12

Value: £3.3m



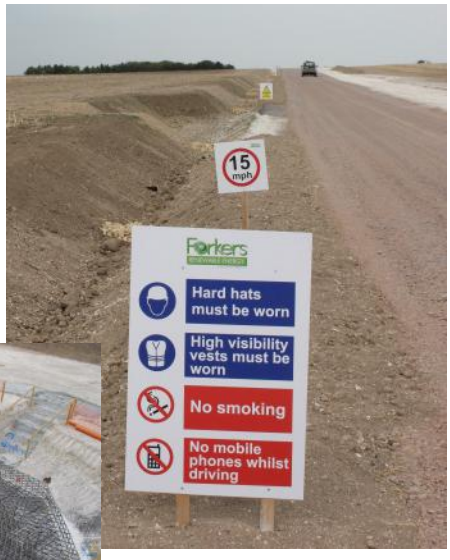
Design and Construct Civil and Infrastructure Works contract for a 13 turbine wind farm constructed in farmland between Cambridge and Newmarket. The wind turbines used on the site are Vestas 2.3 MW units.

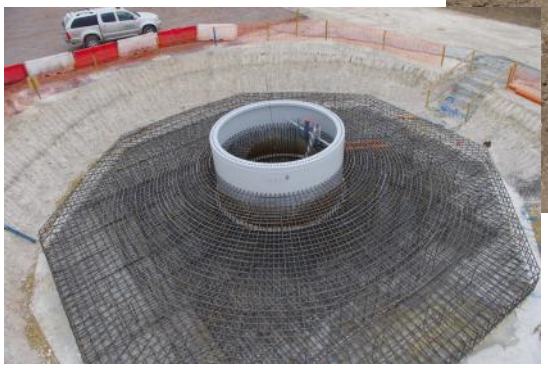


Main work included construction of;

- 8km of 5.5m wide stone finished site roads and turbine spurs
- 13nr 40m x 20m crane hard standings of which 50% of the area is surfaced with type 1 stone and 50% with Truckpave to allow a finished grassed surface
- SUDS drainage system to the whole site including swales, check dams and infiltration basins based on a soakaway principle in the chalk strata
- 13 nr 17m diameter reinforced concrete gravity foundations for the 2.3MW Vestas wind turbines. Included casting-in of the turbine insert 'can'.
- Control building and substation
- 10km of cable trenches for electrical and telecoms cables.

As part of our value engineering review of the site at tender stage we proposed the use of cement stabilisation of the chalk and glacial till soils as stone capping layer replacement for both roads and crane hard standings also satisfying frost susceptibility criteria. As well as a significant cost saving to the client, this also had significant environmental benefits - reduced the volume of surplus soils and the number of imported stone lorry movements . A site trial was carried out to validate the proposed methodology and close quality control and testing of the stabilised materials was carried out throughout the construction period. A Specialist stabilisation contractor was used for this work.





Wadlow Wind Farm, Cambridgeshire.
Civil and Ancillary Works (Cont'd)

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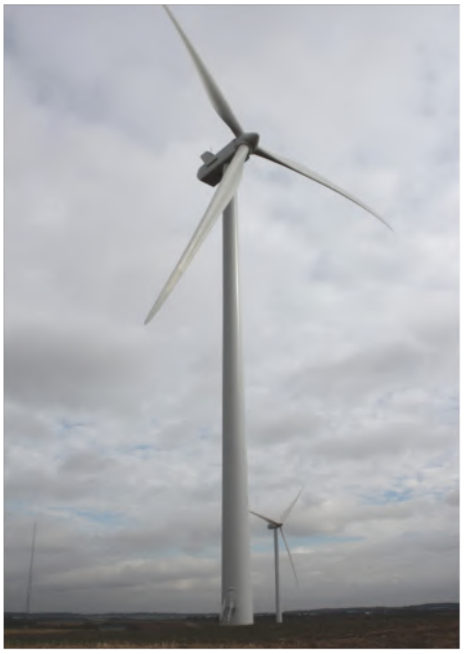
Each turbine base required 270m^3 of concrete placed in a single pour. Thermocouples were installed in the bases to monitor temperature during concrete curing.



The 20m x 6m Control Building is built over a 1.5m deep reinforced concrete substructure which provides space for the power and SCADA cables. The building is traditionally built with rendered blockwork and slated pitched roof and houses transformers, Scada room, control room, stores and welfare facilities. A 120m deep borehole water supply has also been installed to provide water for the welfare facilities in the control building which was completed by our in-house drilling teams.

The site is in a sensitive ecological and archaeological location and during road and crane pad excavations Archaeologists kept a watching brief and a number of flint and other artefacts were found.

The chalkland ecology is also being preserved with the wildflower margins to the fields being separated, stored and replaced on a new 4m wide chalk grassland strip which is being created alongside the site tracks and drainage swales. Other ecology mitigation measures include new hedgerows and tree planting.

During the contract we also worked closely with the farmer to ensure that our activities did not impinge on harvesting or other operations.