

Lancelin Wind Farms, WA



Innovative foundation system for this wind turbine in Lancelin (photo courtesy of Blair Fox Pty Ltd)

The region surrounding Lancelin which is located approximately 150 km north of Perth is dotted with wind farms providing energy into the local electricity grid. Douglas Partners worked with Blair Fox in providing advice and design parameters on an alternative pier foundation system.

Three wind farms were proposed near Lancelin in Western Australia. A geotechnical team from Douglas Partners assisted with these developments that included five wind turbines at West Hills Farm, ten wind turbines at Anderson Wind Farm and five wind turbines at Cowalla Road Wind Farm.

Douglas Partners' engineers provided advice and design parameters on an alternative pier foundation system (Patrick & Henderson Tensionless Pier) achieving project cost savings (25-30% less concrete used and 40-55% less steel used). Douglas Partners is committed to innovative renewable energy projects that respect the environment and benefit communities.

The results of the ground investigation, including borehole drilling, CPT and in situ testing, were used to provide advice and solutions on:

- Soil, rock and groundwater conditions;
- Geotechnical parameters for foundation design, including allowable bearing pressures, angle of internal friction, cohesions, static and dynamic

soil stiffness;

- Stability analysis and estimated foundation settlement;
- Construction considerations;
- Soil resistivity for each soil type and appropriate foundation systems for the proposed turbines.

Douglas Partners carried out testing in accordance with European standards to comply with the German wind turbine design that is to be used for all three farms. Douglas Partners' analysis was then provided to the USA team responsible for the design of the innovative P&H Pier system for the final design of the footings.



CLIENT Blair Fox Pty Ltd

YEAR 2010

SCOPE OF WORK

- Geotechnical Investigation
- Geotechnical Analysis
- Consultation

“Excellent communication between Douglas Partners and its client resulted in optimising the investigation programme during the field work in order to achieve cost savings to our client, while suitably achieving the project design objectives ”

Fred Verheyde - Principal

