

KHOBAB WIND FARM

Northern Cape, South Africa

(Site Ecological sensitivity management and use of low-carbon concretes)

PROJECT TYPE: Bulk earthworks, access roads, concrete bases and plinths

CLIENT:

Mainstream Renewable Energy

PROJECT DURATION:

34 months

PROJECT DESCRIPTION:

Minimise environmental impact whilst constructing a wind farm in the Karoo shrub-land using predetermined sensitivity mapping as a baseline for controls.

Utilise innovative concrete mixes that can reduce the sites overall construction carbon footprint.

CONTROLS:

A range of environmental addressed included:

- Protecting and translocating threatened and endangered plant species. The plant recovery programme commenced early with identification and safe removal of plants such as:
 - *Hoodia Gordonni*,
 - *Aloinopsis Luckhoffi*,
- Main plant populations not in the direction of the construction footprint were map tagged and made no go areas.
- Intensive water management in this drought stressed area,
- Reclaiming any contaminated soil through on site bioremediation,
- Limiting the project's carbon footprint by constructing the plinths using high strength 60 MPa concrete with a design mix of 75% ground granulated corex slag in place of cement. 95% waste replacement was used in the 12 200 cubic metres of 15 MPa concrete used for the blinding beneath the bases. These initiatives reduced the wind farm's construction carbon footprint from approximately 300 kg of CO² per cubic metre to 90,7 kg of CO² per cubic metre, reducing the project's estimated overall carbon footprint by 31%.

