

# Combigrid<sup>®</sup> reinforces flood zone access roads

At Pedwell, near Bridgwater, Somerset, juwi Renewable Energies Ltd has completed the construction of a 5.35 MW solar farm, on a 16.5 hectare site, within an area classified as a level 3 flood zone. The Redlands Farm Solar Park will deliver 5.3 GW/h of electricity per year, meeting the demand of 1,126 local homes. The project design incorporates solar panels sited on tall posts to ensure the site maintains normal levels of operation – even in times of flooding.

## CASE STUDY

Project Name:	Redlands Farm Solar Park
Date:	November 2014
Client:	juwi Renewable Energies Ltd
Product:	Combigrid <sup>®</sup> 40/40 Q1 151 GRK3

**Combigrid<sup>®</sup> reinforcement geogrids have provided the perfect single-product solution to the challenge of building access roads across a flood zone, to serve a large-scale solar energy farm.**





Essential to the project was the construction of almost 1,000 metres of unbound access roads. However, juwi's construction team were faced with the challenge of building the roads over a 5 metre deep blanket of soft, wet peat soil, with virtually no bearing capacity. Gary O'Connor, UK Construction Manager for juwi, explains: "Work to construct the 6m wide access roads depended on finding a cost effective way of improving the bearing capacity of the peat soils, without the need to excavate and replace the weak sub-soils."

NAUE Geosynthetics were brought in, and its design consultants recommended a cost-effective road design using Combigrid® 40/40 Q1 151 GRK3. Combigrid® combines all the requirements for a variety of properties in one single product. For this reason, the main area of use for Combigrid® is on weak sub-soils where, in addition to reinforcement, filter and separating properties are also required. Combigrid® is a combination of a Secugrid® geogrid with a needle-punched Secutex® non-woven geotextile separation and

filtration layer, which is firmly welded between the reinforcement bars. This unique combination delivers an extremely robust, resistant and durable geogrid. A further benefit of Combigrid® is that it is extremely quick and easy to install, thus reducing installation costs considerably.

In total, 7600m<sup>2</sup> of Combigrid® 40/40 Q1 151 GRK3 was successfully installed, using standard 4.75m wide x100 metre long rolls, to provide an immediate and long-term reinforcement, separation and filtration solution. The geogrid was installed directly onto the peat subgrade, followed by a granular fill layer of crushed stone and gravel which created a stabilised roadway to provide access for initial installation of the solar panels, and provided effective access for the long-term maintenance of the solar energy farm.

Naue Combigrid® interacts with the aggregate course and increases the shear strength and load capacity of the completed access road. The exceptional load resisting properties of Combigrid® allowed juwi to install an aggregate base layer of around 400mm thickness for access roads at Redland – saving an average of 30% when compared to volumes required when no geogrid reinforcement is used.

The resultant savings in transport and material costs, along with reduced labour and time on-site achieved by using Naue Combigrid® were a key factor in this project, and Gary O'Connor had nothing but praise for Naue, saying: "NAUE Geosynthetics provided juwi with the best designed solution to build the access roads on a difficult site and we will be specifying Naue products for other projects we have on the horizon."



### **NAUE Geosynthetics Ltd.**

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