

Whitsunday Solar Farm

Whitsunday, Queensland

**Client**

RCR Tomlinson

Contract period

January 2018 – March 2018

Services Provided

Subsurface Mapping

Veris undertook innovative use of geophysical acquisition techniques to survey and identify the presence of shallow basalt bedrock over the entire 600-hectare Whitsunday Solar Farm site.

Scope

Shallow bedrock within a metre of the surface presents a significant challenge to solar farm construction. Bedrock impedes the insertion of solar panel supports via conventional piling and requires specialist drilling.

While providing surveying services to the Whitsunday Solar Farm, Veris were asked to identify the bedrock that was greatly impacting operations on the site - with over 50% of piles being refused. Existing borehole data identified the presence of bedrock, but not the actual extent.

To provide comprehensive and accurate data, the Subsurface Mapping team deployed the following approach:

- Carried out a ground sampling test using ground penetrating radar to identify underlying surface conditions - determining best geophysical approach.
- Due to the 600-hectare size of the site, and its adverse ground conditions; Veris devised an acquisition technique to measure ground conductivity using a state-of-the-art Dualem Conductivity Sensor, towed in a specially constructed cart.
- Veris calibrated collected conductivity values with existing pile refusal data to increase the accuracy of conductivity findings.

This solution allowed Veris to accurately map the extent of subsurface geology for the entire site in a matter of weeks. The geophysics team then produced accurate “heat” maps that identified areas of harder bedrock as well as softer geomorphology at target depths.

An accurate map of bedrock greatly reduces the number of rejections encountered during piling by allowing engineers to pre-plan operations. Heat maps allow engineers to devise the most efficient ground penetration methods to the mapped subsurface conditions.

This data was invaluable to the client as it allowed informed planning, resulting in significant time and costs savings, as well as drastically reducing pile refusals.