

Boonanarring Solar Park, Brand Highway, WA



Photo sourced from library photograph of Douglas Partners solar projects

Solar panel array foundations are a critical element in the economic development of solar farms. When Boonanarring mine opted for a sustainable solar power energy solution, Douglas Partners was pleased to assist, providing solutions founded on extensive experience gained by our WA team on multiple local and interstate solar projects.

The new mine development requires construction of a solar power plant with the power generation capacity of 4 MW, within approximately 11 ha of bushland. The proposed solar power plant comprised solar panel arrays, power transmission lines, roadways and tracks, and structures for inverters, kiosk, electrical panels and switchgear.

Douglas Partners undertook an efficient geotechnical investigation of the site, comprising cone penetration tests (CPT), test pits, and electrical and thermal resistivity testing. The results of the investigation were used by Douglas Partners to provide advice and solutions on site classification, site preparation, excavations, pavement design, shallow foundations and, most significantly, pile design for the proposed panel array.

Solar panel array foundation design parameters were provided for two preferred types of piles (driven steel piles and screw piles) to suit the encountered ground conditions. The investigation indicated a layer of loose surficial sand generally 3 m thick across the site. Douglas Partners provided practical advice on site preparation to increase

the density of the loose layer, taking account of the presence of a high pressure gas main nearby. Foundation and pile design parameters were provided for several scenarios of site preparation from full depth compaction to surface rolling, allowing the client to optimise ground improvement and foundation solutions to provide the targeted cost effective outcome. Other specialised design parameters, such as modulus of subgrade reaction values, were provided for a range of typical sizes of pad, strip and slab footings for the ancillary structures to allow flexibility in the subsequent structural design of these structures by others.

Advice was also provided on acid sulphate soils and soil aggressivity, together with the results of electrical and thermal resistivity testing, giving the client with the full package of information needed to design the facility.

CLIENT Sunrise Energy Group P/L

YEAR 2018

SCOPE OF WORK

- Geotechnical investigation
- Interpretive analyses and reporting
- Foundation advice for solar panel arrays
- Advice on ground improvement
- Acid sulphate soils assessment.

“Communication between Douglas Partners and the client both before and after the field investigation was vital to the success of the project, ensuring that key issues were addressed and practical, project-specific solutions were provided”

*Paul Hutchinson
Project Manager*

