SOLAR EXPERIENCE

GREENE consulting engineers

0212- DUBE TRADE PORT 232kW PV PROJECT- SOLAR TRACK

PROJECT VALUE: R 6,7 Million

Scope

- Optimise design of PV structure's supports and combined supports.
- Optimise the design wind loads on structure as per SANS 01060: 2010.
- Investigate and optimise the use of Z shaped purlins.
- Design review of combined grouted and bolted connection between TRM pile and support.
- Evaluate and check the TRM pile for ULS bending moment.
- Design connection plate.
- Design reviews of purling bracket, splice plate (bending) and rafter supports (Z shaped profiles).
- Design and certification of structural supports.


Agrizone
King Shaka International Durban


Area A
Area D

0123 - SISHEN - CIVIL ENGINEERING SERVICES - SISHEN SOLAR ENERGY FACILITY 75MW

PROJECT VALUE: R2,Billion Rand

The project consists of constructing a 75MW solar facility and associated infrastructure.

Supporting posts were installed using fully robotic precision GPS enabled ramming machines. Due to small design tolerances the ramming equipment had to be accurate within a few millimetres.

The tracker units are easily assembled by hand, the process is labour intensive allowing local labour to acquire new skills.

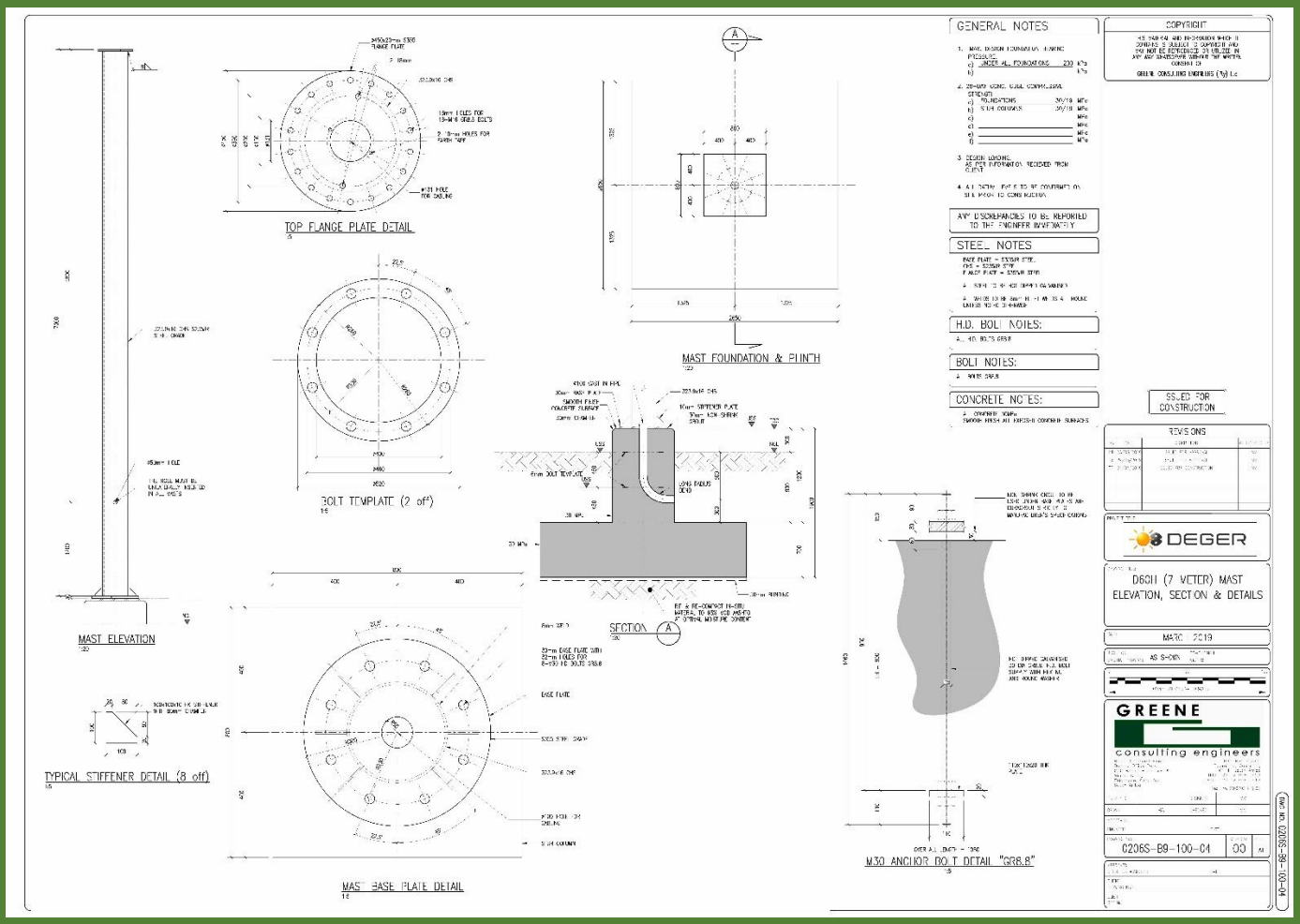
Greene Consulting Engineers was tasked to provide two highly skilled Civil/Structural engineers to ensure the required quality/cost and programme was adhered to and reported directly to Mike Turner, the project director from Aveng/E-PC.
This included but was not limited to review of construction drawings, site inspections, load tests, problem solving and risk identification, etc.

0206S - SUMMIT RENEWABLES – VARIOUS DESIGNS

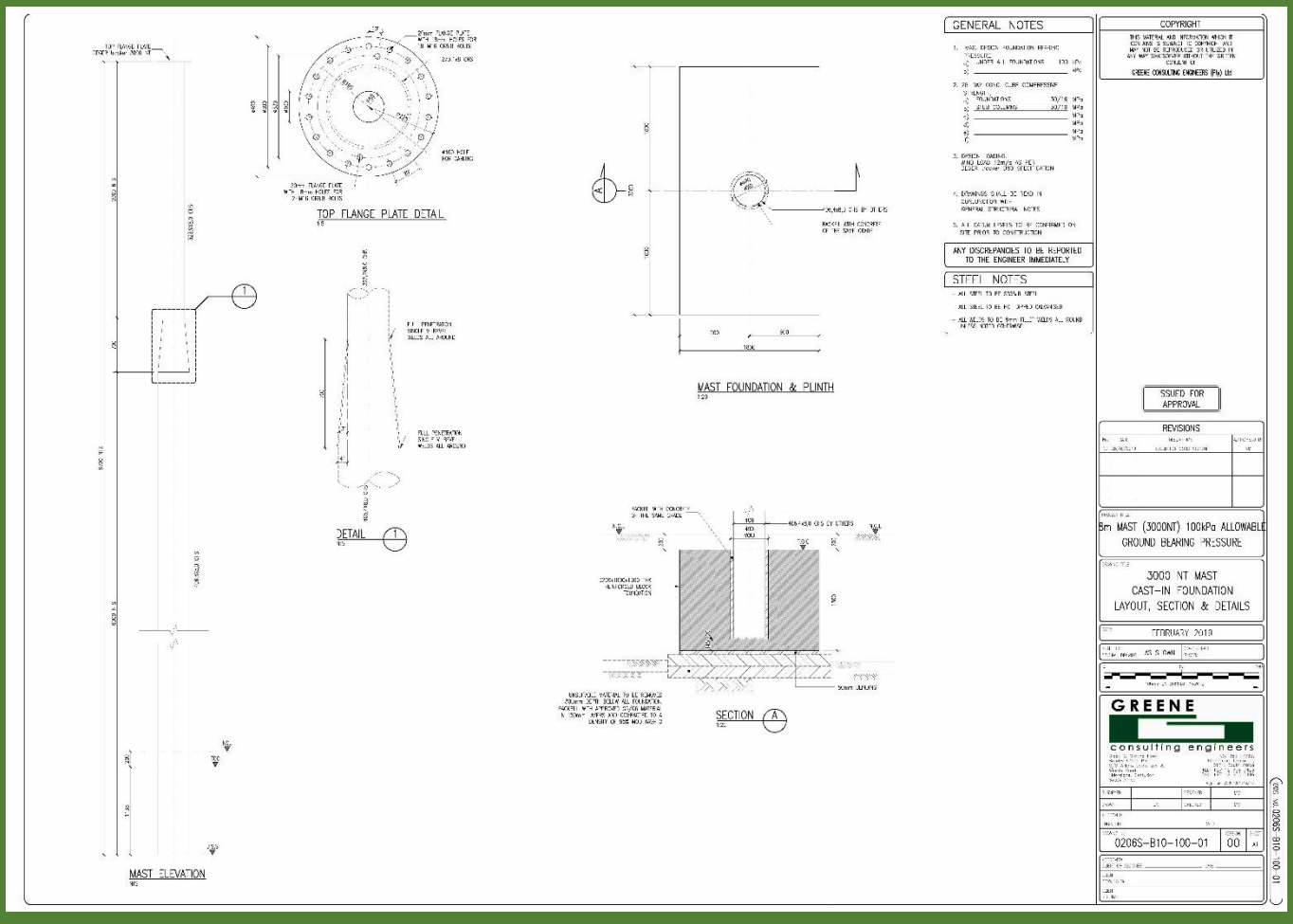
PROJECT VALUE: Range from R1m to R150m

Various projects pertaining to PV panel installations, which included optimised designs, optimised tracker post design and reconfiguration to South African Standards and available structural steel sections.

Variable and optimised foundation design to ensure cost effective installations.



Foundation and support design.
Optimising to suit local soil and wind loading conditions, certification.



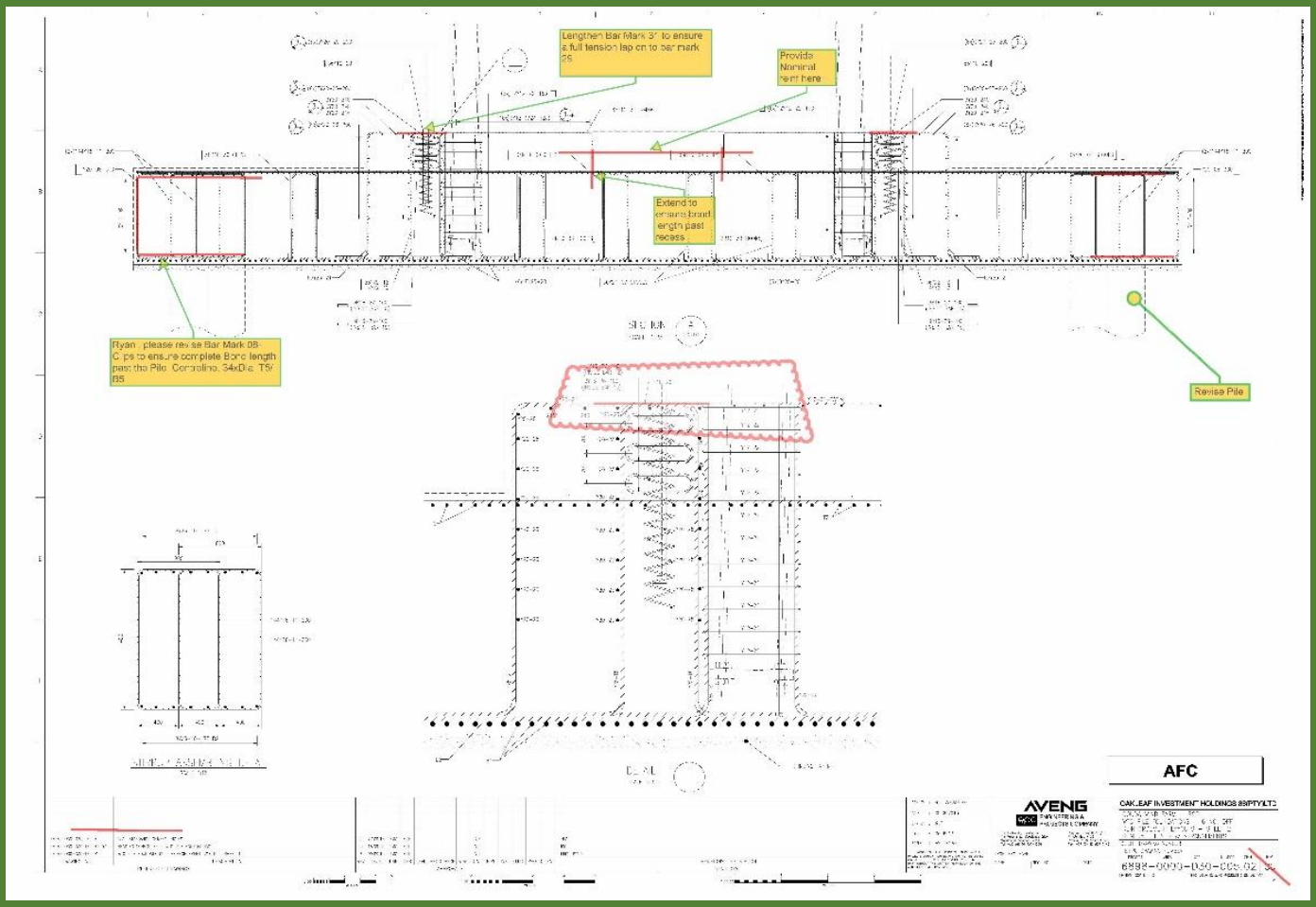
0116 - LERUMO: DREUNBERG 75MW: CIVIL & STRUCTURAL SUPERVISION SERVICES

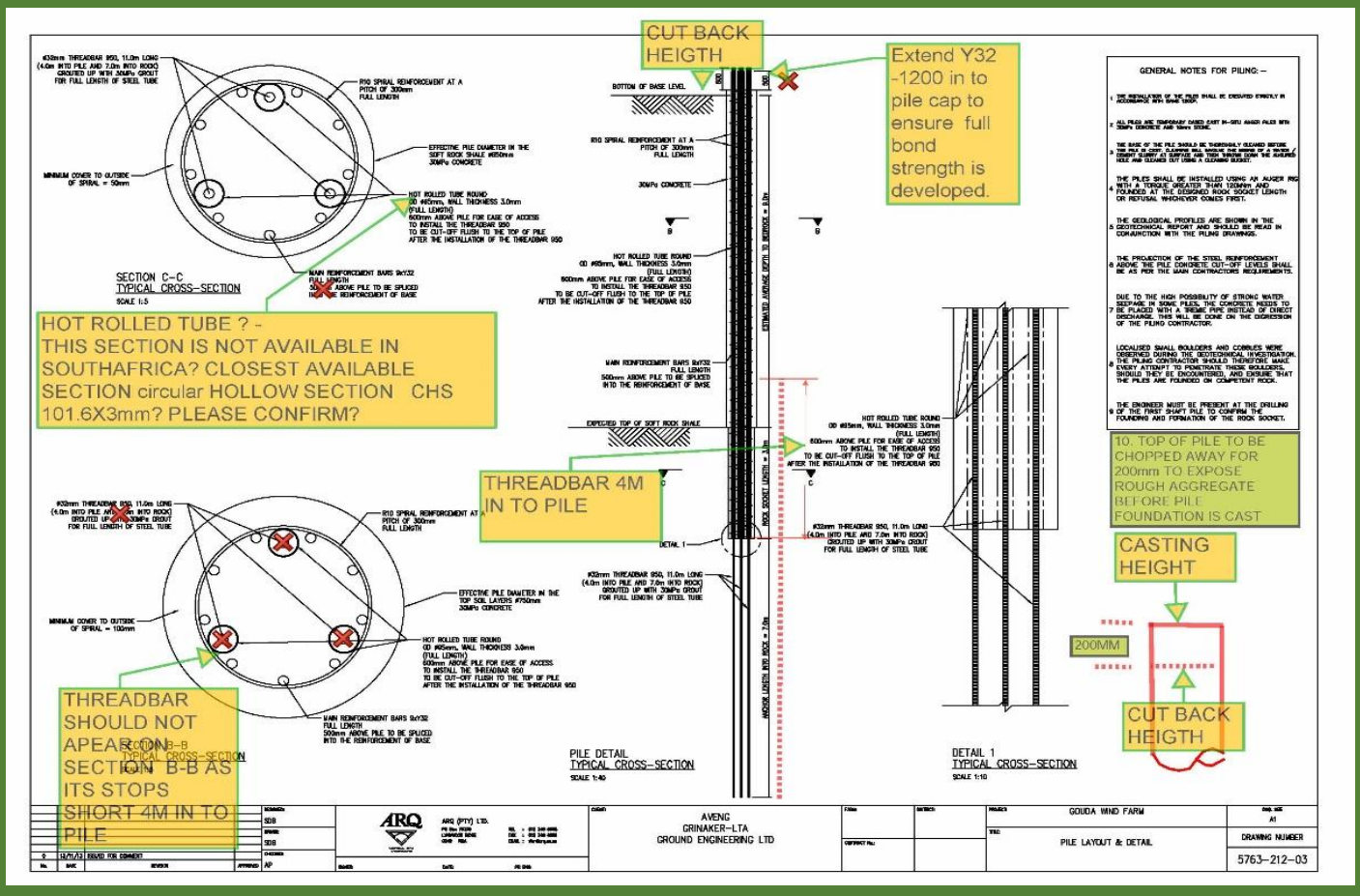
PROJECT VALUE: R1.85Billion

Site supervision for the Contour track installation “Scatec Solar”.
Greene provided Civil and Structural engineers for the quality and civil installation process.

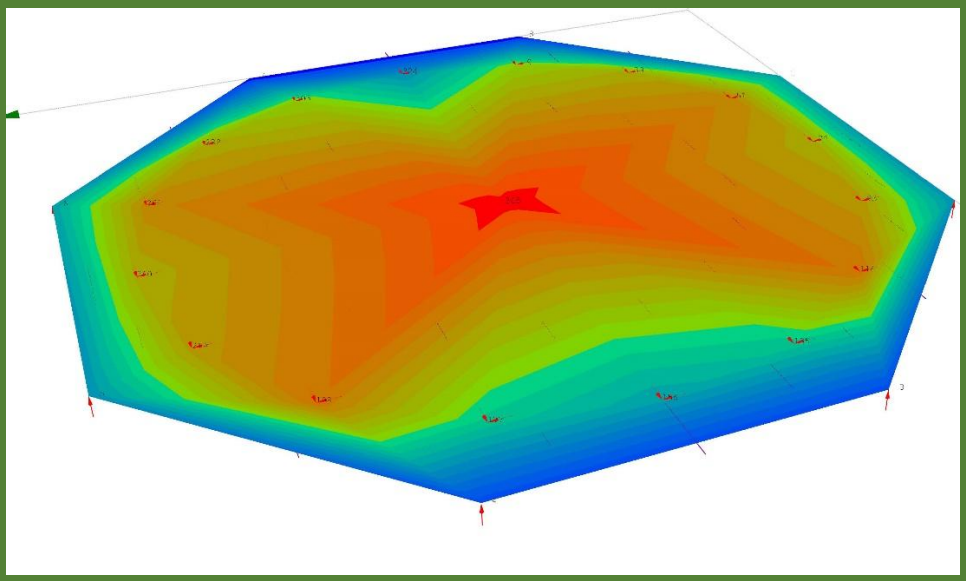
0140 - AVENG / E-PC: GOUDA – THIRD PARTY DESIGN REVIEW

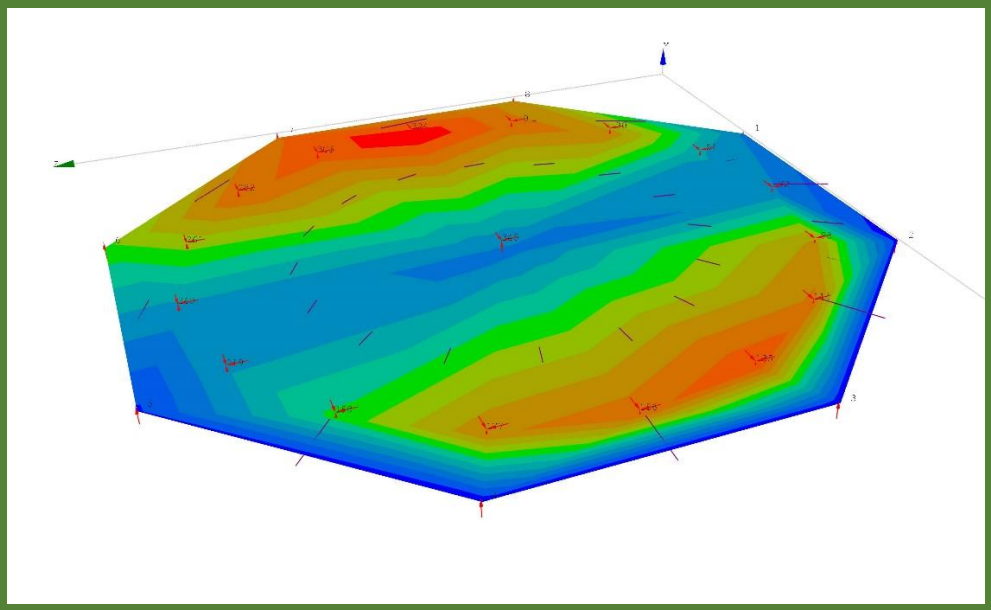
PROJECT VALUE: R800m

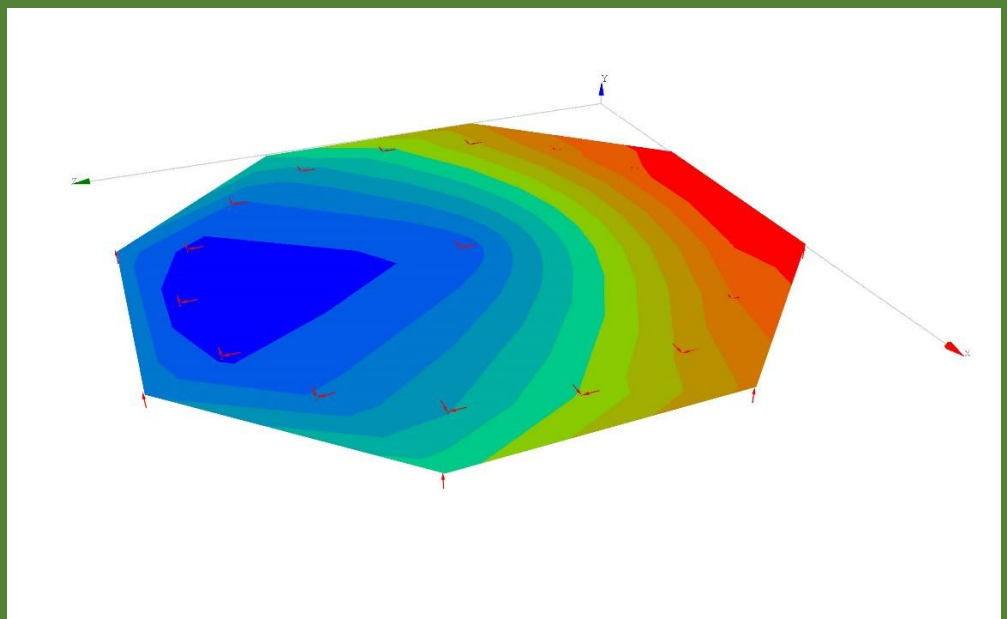




Greene Consulting Engineers conducted a complete design review on the Civil foundations for the Gouda Windfarm Wind Turbines as well as access roads and culverts.



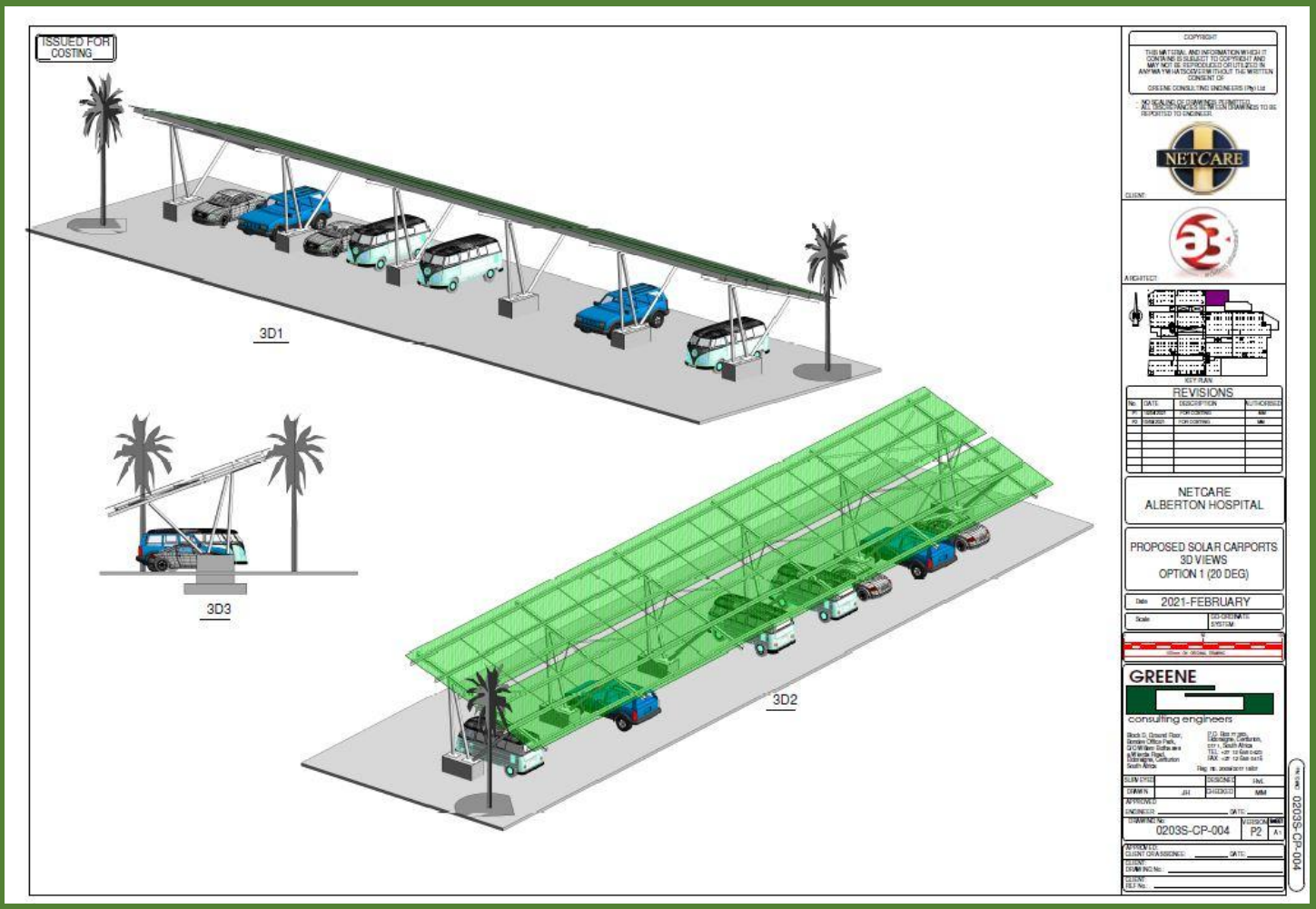




Stress analysis foundation for all load cases.

0203 – NETCARE ALBERTON HOSPITAL Elemental

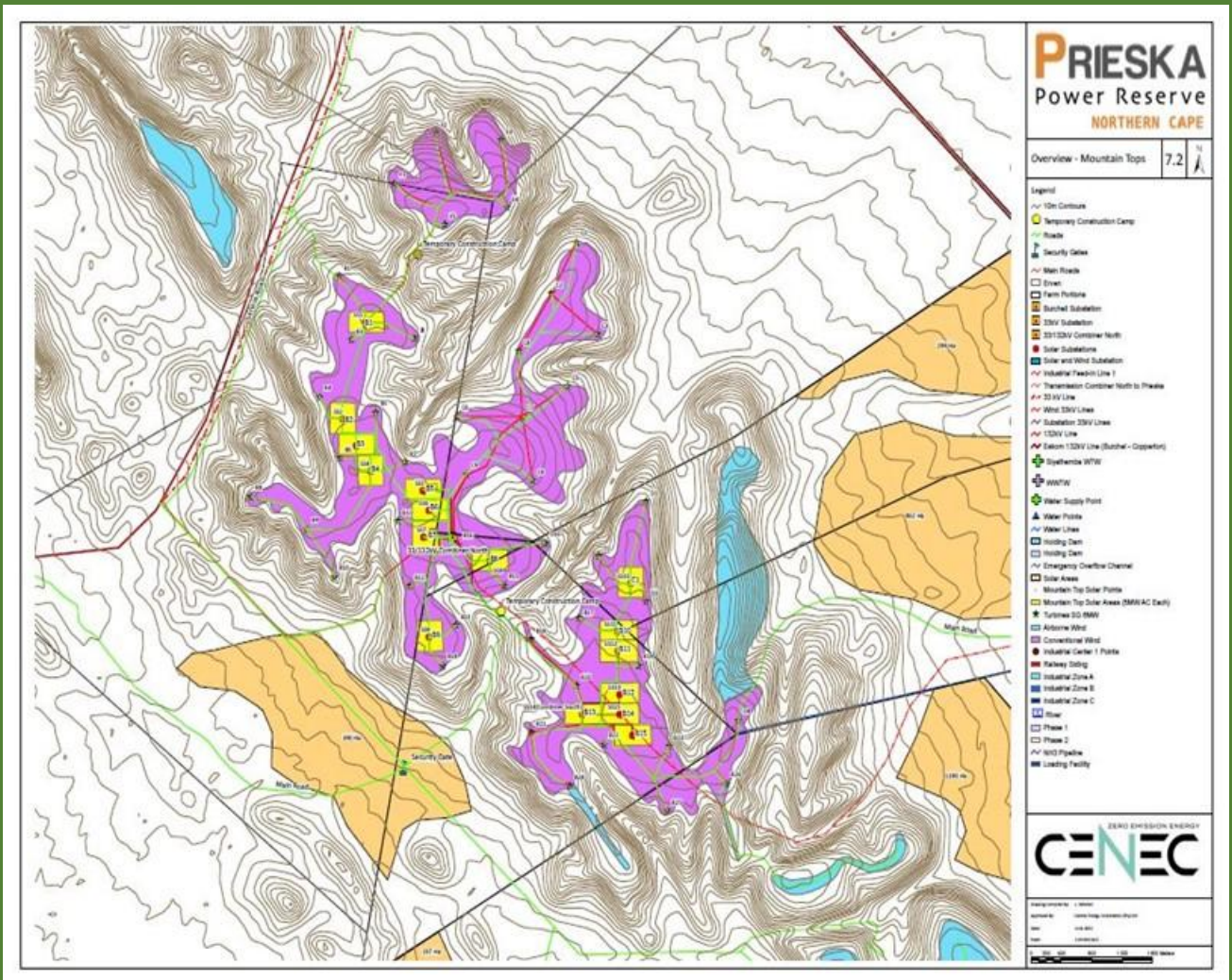
PROJECT VALUE: R80m



Netcare: Conceptual solar parking bays 7.5m spacing catering for three vehicles.

0299 - CENEC: PRIESKA POWER RESERVE

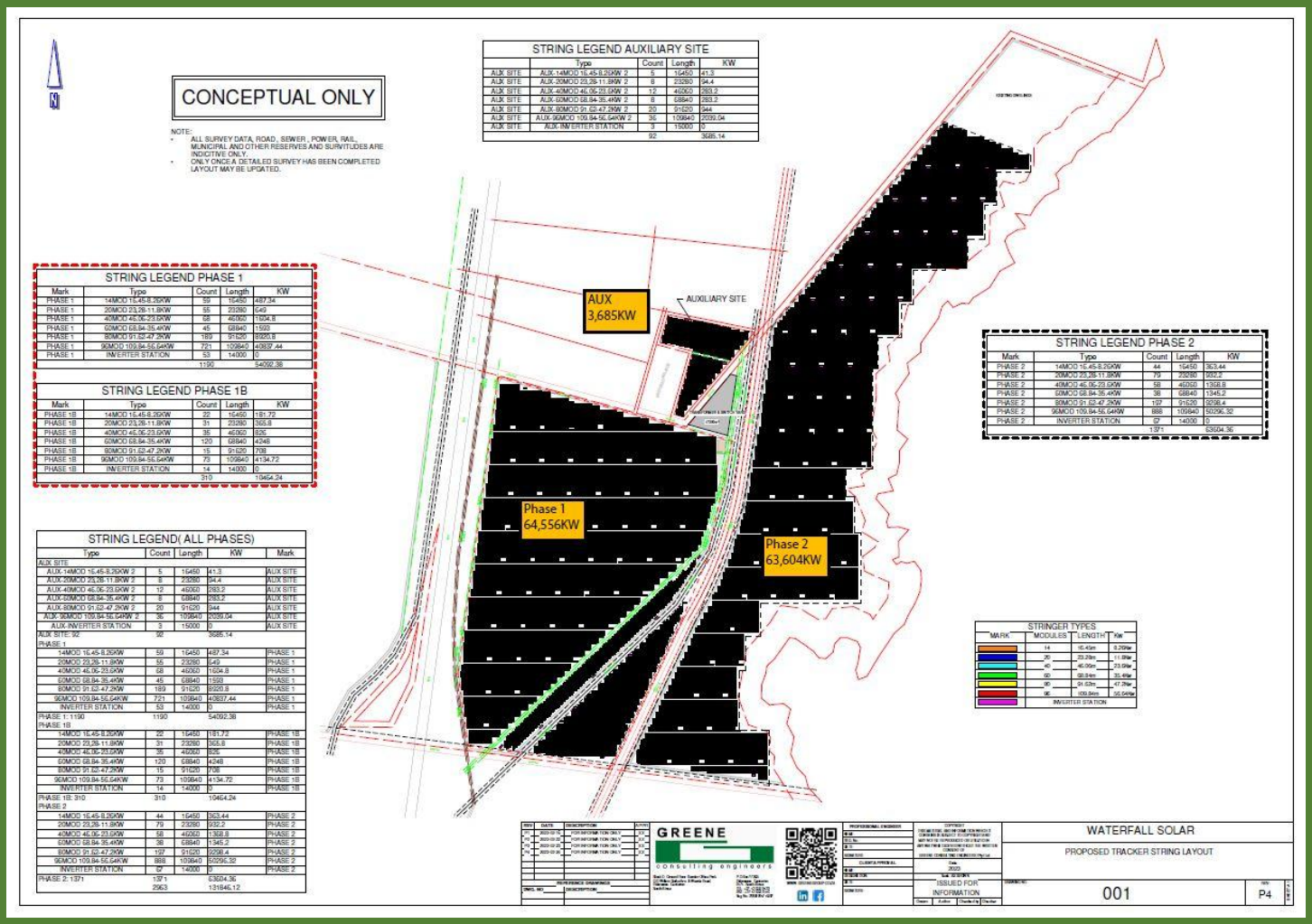
PROJECT VALUE: R50 billion (Estimated) Funding not secured



Design and implementation of the Prieska Power Reserve Solar / PV project:
Townlands Solar 1 – 60MW
Camelthorn – 60MW
Wonderpan Solar 1 – 60MW

0340 – Waterfall Agrivoltaics Project 240MW

PROJECT VALUE: R6.48 Billion



The construction of a solar energy plant for the generation of 130MW of electric power.

Production units will be constructed on Portion 6 of the Farm Waterval 150-IR, Meyerton, Gauteng. The total size of the farm is 438Ha. The buildings, in which the manufacturing units will be housed, will consist of 40 Ha and the solar energy plant will consist of 200 Ha of land.

0132 - AVENG – NORTHERN CAPE - **NEW 75MW SOLAR FARM,** SISHEN

PROJECT VALUE: R1,78 billion

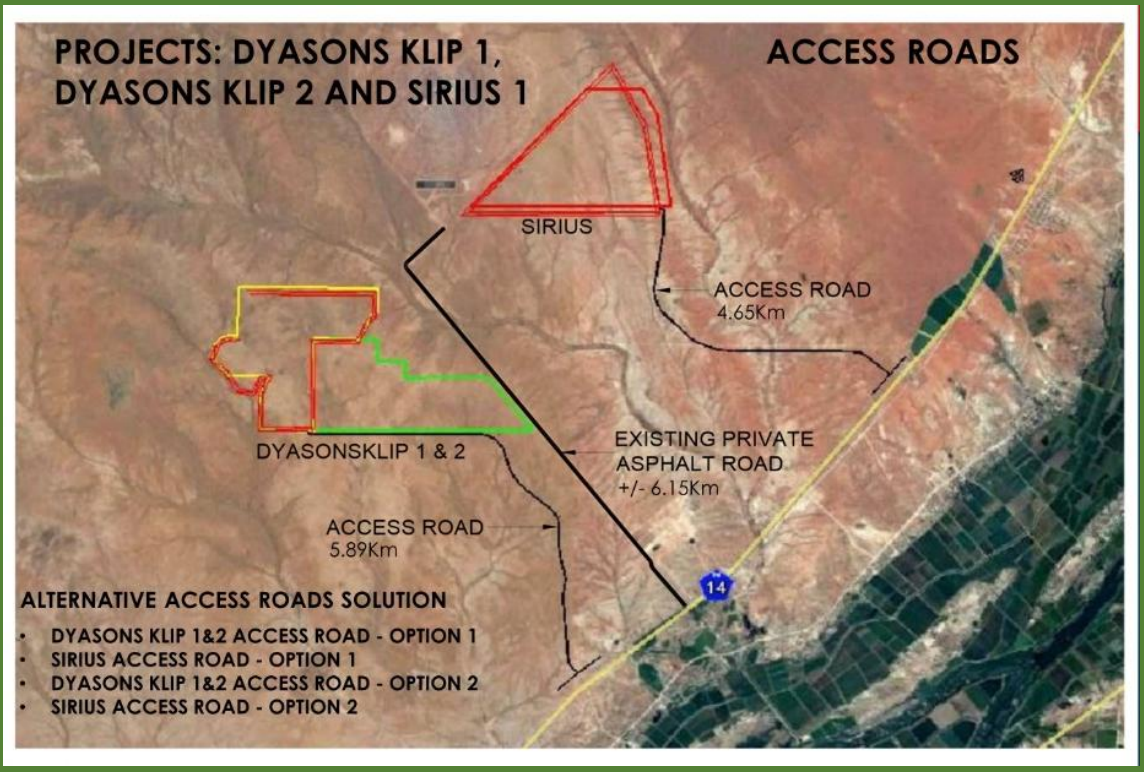
PROJECT SCOPE

- Greene assisted Aveng Engineering during the tender phase by compiling Technical Purchase Specifications, Engineering Document Requirements as well as Bills of Quantities for civil and structural works, which were distributed to various contractors for tender purposes.
- We assisted during construction by means of undertaking a multitude of quality inspections related to civil and structural works, including the internal roads network, a control building, an access-control building, a storage-and-assembly building, as well as the entire piling operation.
- We provided field assistance by means of a Civil Resident Engineer, which ensured that the project was completed safely, at the required level of quality and within the allocated time-frame.
- Apart from conducting daily quality inspections, we were responsible for managing the civil, structural and piling contractor during the construction phase.

Preassembled inverter stations were placed on rammed supports. One inverter station was placed per “power block” (39 in total).

In order to feed electricity into the existing 132kV ESKOM power line from the 75MW solar facility, a tie-in was necessary from the newly built sub-station. A multitude of civil and structural work had to be completed in time to successfully connect to the ESKOM grid within a limited time due to the pre-arranged shut-down

ACCESS ROADS

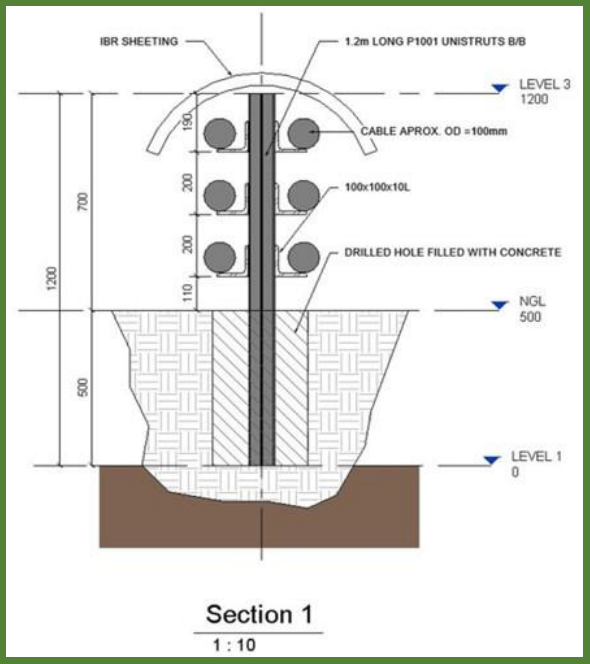


CIVIL:
Access roads
Access roads design status quo
Alternative access road option 1
Alternative access road option 2

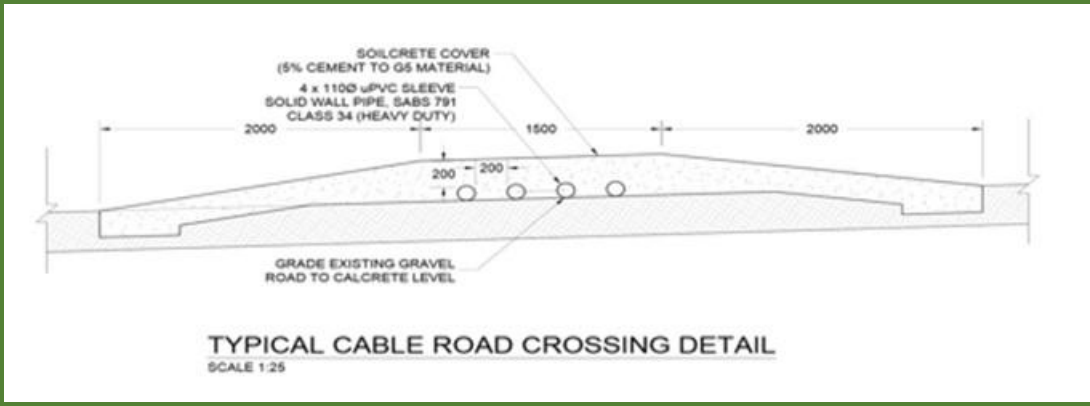
STRUCTURAL:

Above ground cabling methodology
Cable supports
Inverter and switchgear supports
Drive unit supports

ABOVE GROUND CABLING METHODOLOGY



INTERNAL ROAD CROSSING



The cables will run down from the cable supports system through heavy duty uPVC sleeves that will be protected by soilcrete along the roadway.

WEATHER STATIONS