



This Summary Report is not required in terms of legislation but is intended to provide the competent authority with a short summary of the project and project impacts, supplemented by other pertinent information not necessarily presented in the prescribed Draft Basic Assessment Report.

## Summary Report

### 1 Introduction

AF-Rom Energy (Pty) Ltd proposes to develop a 75 MW Solar Facility in the Inxuba Yethemba Local Municipality, in the Eastern Cape. The proposed development will be located on Portion 1 of Farm Het Fortuin No. 66, approximately 30 km north-west of Cradock, adjacent to the exiting Dobbin substation (see Figure 5).

In terms of the National Environmental Management Act 107 of 1998 (NEMA), as amended, and the Environmental Impact Assessment (EIA) Regulations, 2010, an environmental assessment process must be undertaken for certain listed activities. The main activity associated with the Facility is listed under GNR 545 of 18 June 2010 and as such requires a full Scoping and Environmental Impact Assessment (S&EIA). However an application was submitted, in terms of Section 20(4) of Government Gazette No. 543, to conduct a Basic Assessment process instead of a S&EIA.

SRK Consulting has been appointed by AF-Rom Energy (Pty) Ltd, as the independent consultants to assess the environmental impacts in terms of NEMA, as amended, and the EIA Regulations, 2010, for the proposed 75 MW Dobbin Solar Facility.

### 2 Purpose and Structure of the Basic Assessment Report

The NEMA EIA Regulations were promulgated to put into practice the environmental management principles espoused in the Act. This Basic Assessment Report (BAR) provides the competent authority, the Department of Environmental Affairs (DEA) with all relevant information about the proposed activity, as well as an assessment of the potential impacts in order to inform the decision as to whether the activity should be approved and, if so, under what conditions. The BAR comprises three sections, two of which – Sections 2 and 3 – are mandatory in terms of the requirements for a Basic Assessment. The remaining sections are intended to provide

additional contextual information in support of the application<sup>1</sup>.

The report contains the following sections:

#### Section 1: Summary Report

Section 1 provides an introduction to the project, describes the approach to the Basic Assessment process and provides a description of the activity and the proposed concept alternatives considered. It also describes the public consultation process undertaken during the process, the key findings and recommendations and the way forward. In effect this section provides a summary of key elements of the Basic Assessment.

#### Section 2 DEA Basic Assessment Application Form

Section 2 of the report contains the completed Basic Assessment Application form, as prescribed by the Department of Environmental Affairs (DEA), which is submitted as the formal application for environmental authorisation under the NEMA EIA regulations.

#### Section 3 DEA Draft BAR Form

Section 3 contains the completed Draft BAR form, as prescribed by DEA, submitted in support of application for environmental authorisation of the activity under the NEMA EIA regulations. Section 3 also contains the Appendices as required by the DEA BAR.

### 3 Approach to the Basic Assessment

The EIA Regulations list activities which require that an environmental assessment process be followed prior to their commencement. The proponent must obtain authorisation for the proposed activity from the designated competent authority, which in this case is the national Department of Environmental Affairs (DEA).

The main activity associated with the construction of the proposed development listed under GNR 545 of 18 June

<sup>1</sup> Note that the full report is a collation of sections and not a sequential compilation of report chapters.

2010 as requiring a full Scoping and Environmental Impact Assessment (S&EIA) is described as follows:

*1) The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more*

However an application was submitted, in terms of Section 20(4) of Government Gazette No. 543, to conduct a Basic Assessment process instead of a S&EIA.

The first step in the process is the submission of a Basic Assessment Application Form for the proposed activity. This was submitted to DEA 25<sup>th</sup> of January 2012.

The second step entails the assessment of the activity and the production of a BAR and Draft Environmental Management Programme (see Section 3) for public comment. Issues and concerns raised by the public will inform the Final BAR which, together with the prescribed Comments and Responses Report, will be submitted to DEA for a decision.

A typical Basic Assessment process is depicted in figure 1.

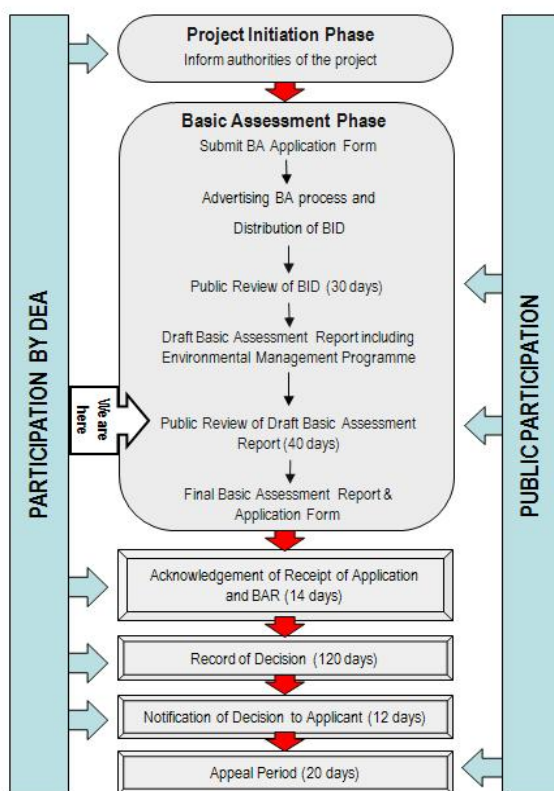


Figure 1: Typical Basic Assessment Process

## 4 Prescribed Requirements for the Basic Assessment

The BAR provides information about the proposed activity, a description of the affected environment (including ecological, land use and socio-economic aspects), a description of the process undertaken in order to consult the public on the activity, as well as a Basic Assessment of the potential impacts of the activity on the receiving environment.

Several appendices to the BAR are required as supporting documentation. These include:

- A Comments and Responses Report from the public consultation process (Appendix E); and
- Data such as a locality plan, site plans (Appendix A) and photographs (Appendix B).

This information is contained in Section 3 of this report.

## 5 Site Location and Surroundings

The proposed development is situated on Portion 1 of Farm Het Fortuin No. 66, located approximately 30 km north-west of Cradock, Inxuba Yethemba Local Municipality, in the Eastern Cape.

An area of 400 hectares has been leased by Af-Rom Energy, however the actual footprint of the development is anticipated to be less than 250 hectares. The footprint of the Facility will be determined based on environmental and technical constraints as identified in the EIA process.

The property is currently used for sheep farming. Access to the site will be via an existing gravel road that turns off the N10, which may need to be rehabilitated/upgraded

## 6 The Proposed Development

Associated infrastructure required for the proposed solar facility includes round galvanised steel frames upon which panels (with the solar photovoltaic modules) are to be attached to (see Figure 4). The proposed solar facility will be constructed in sections, with a certain number of rows of solar panels per section, each row placed a distance apart (see typical section in Figure 2 and isometric view of a solar panel in Figure 3). Clusters of panels will be connected by underground cables to inverter substations.

Underground power lines (of a medium voltage) will be installed from inverter substations to a central collector/ step-up substation. The step-up substation will be an outdoor substation with transformers to step up the medium voltage (either 22kV or 33kV) to High Voltage (HV) 132kV. A new 132kV overhead line (less than 1km in length) will be constructed and will run from the step-up substation to the Brakpoort Eskom Substation (attached to the existing Beaufort West to De Aar electric rail line.) which connects into the Eskom grid.

Proposed ancillary infrastructure includes an office, a control room for operation and maintenance personnel and equipment storage, ablution facilities for staff (with an effluent system consisting of septic tanks for solid management), and 3 m high mesh fencing and security lighting (motion detecting spotlights) to be placed around the boundary of the site, for security purposes. A firebreak around the perimeter of the site is also required.

It is anticipated that application in terms of the Department of Energy's REFIT programme will be made in the third round bidding on 20 August 2012. The construction phase is then expected to start within 1 year of this date, and take one year to complete. The operational phase is expected to have a

lifespan of approximately 25 years after which the facility would either be decommissioned or refurbished for an additional 25 year operating period. It is expected that maintenance activities during the operational phase will include inter alia, replacement and washing of the PV panels (using water obtained from existing facility boreholes or reservoirs).

A total of roughly 400 workers will be required for the construction phase and roughly 45 permanent staff will be employed for the operational phase. The following table breaks down the labour requirements for the construction phase:

Type of labour	Number of labourers	Local/non-local
Unskilled labour	165 - 220	100 % employed from local community
Semi-skilled labour	68 - 90	80 -90 % employed from the local community
Skilled labour	Mechanics: 30 - 40	75 – 80% employed from local community
	Electricians: 8 -10	50 % employed from the local community
	Engineers: 15 -20	100 % non- local

Labourers from local communities will be self accommodated. Skilled labour (30-35 labourers) will be housed in local guesthouses and/ or rental accommodation. Semi-skilled labour will need temporary housing (20 labourers) would be housed either in local accommodation, or the construction company would negotiate temporary facilities with the local municipality for construction of a construction camp, usually prefabricated housing.

The following table breaks down the labour requirements for the operation phase.

Type of labour	Number of labourers	Local/non-local
Semi-skilled	Security guards: 17	Local
Skilled	Security shift supervisors: 2	Local
Skilled	Security manager: 1	Non-local
Unskilled	Cleaning staff: 17	Local
Semi-skilled	Cleaning management: 1	Non-local
Skilled	Electricians: 2	Non-local
Skilled	Management: 5	Non-local

It is anticipated that no staff will be accommodated on site, but rather will commute to the site.

The main physical activities that will take place during each of the phases of the development are summarised as follows:

#### Construction phase (10 -12 months):

The following activities will take place during the construction phase:

- Conducting of surveys prior to construction (typically a geotechnical survey, a site topographical survey etc.);
- Clearing of vegetation in selected areas (e.g. for roads and substations) and possible removal of topsoil that will be stock piled and backfilled/ spread on site after construction;
- Construction of internal access roads as well as rehabilitation/upgrading of access road from the nearest provincial road;
- Transportation of equipment – most of the equipment could be transported in modules and would not need special arrangements except for the transformers may be classified as abnormal loads;
- Construction of camp and temporary equipment lay down areas – equipment will be temporarily stored in the lay down area before installation;
- Installation of PV panels, which entails the drilling of holes into the ground in order to install round galvanised steel posts upon which modular frames (with the solar photovoltaic panels) are to be attached to;
- Installation of a security fence around the boundary of the site. The area to be fenced is expected to be between 150 and 250 ha;
- Construction of inverter substations;
- Construction of a step-up substation. The substation will have transformers to step up the medium voltage (either 22 kV or 33 kV) to high voltage (HV) 132 kV. Switchgear and metering equipment will also be established in the substation;
- Installation of internal medium voltage (MV) underground power lines from the inverter substations to a central collector/ step-up substation;
- Construction of a 132 kV overhead power line. An overhead power line of approximately 1 km (length to be confirmed) will run from the step-up substation to the Eskom Substation (attached to the Cradock to De Aar electric rail line); a
- Construction of Control room for the operation, maintenance personnel and equipment storage; and
- Site rehabilitation.

#### Operation and Maintenance Phase (± 25 years):

The following activities will take place during the operation and maintenance phase:

- Cleaning of panels – Staff will be on site to clean PV panels four times a year (in 90 day cycles);
- Security staff will be permanently on site; and

- Control/ maintenance staff will be on site as required.

#### Decommissioning Phase:

The following activities will take place during the decommissioning phase:

- Site preparation – a laydown area will be required when disassembling the equipment. Suitability of all roads should be assessed; and
- Disassembling and removal of equipment.

## 7 Public Consultation Process

A public participation process aimed at allowing the public to participate and to be involved in the environmental process, and is described in Appendix E of the BAR (Section 3). The public participation process to date included the following:

- Newspaper advertisement of the BA process (Die Burger and Die Cradock Koerant);
- Circulation of a Background Information Document (BID) to neighbouring landowners and relevant stakeholders;
- Onsite posters; and
- First public commenting period (13 February – 10 March 2012).

To date, a few concerns have been raised by Interested and Affected Parties (IAPs) and are outlined in the comments and response report attached to Appendix E of the BAR.

## 8 Assessment of Potential Environmental Impacts

A number of potential impacts of the proposed development were identified by the project team. No additional specialist studies were undertaken as part of the environmental assessment as these could be sufficiently assessed by the environmental assessment practitioner.

Potential impacts were assessed using SRK's impact assessment methodology. The **significance** of an impact is defined and assessed as a combination of the consequence of the impact occurring (based on its extent, intensity and duration) and the probability that the impact will occur.

For all potentially significant impacts, the significance of the anticipated impact was rated without and with recommended mitigation measures (where applicable). These are presented in Table 1 (refer to section D of the BAR form for a complete list of impacts assessed), which summarises:

- The impacts that were assessed;
- Their significance following the implementation of mitigation measures; and
- The key mitigation measures on which the significance rating is based.

The impact significance rating should be considered by the competent authority in their decision-making process based on the definitions of ratings ascribed below.

- **Insignificant:** The potential impact is negligible and will not have an influence on the decision regarding the proposed activity.
- **Very Low:** The potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity.
- **Low:** The potential impact may not have any meaningful influence on the decision regarding the proposed activity.
- **Medium:** The potential impact should influence the decision regarding the proposed activity.
- **High:** The potential impact will affect a decision regarding the proposed activity.
- **Very High:** The proposed activity should only be approved under special circumstances.

### 8.1 Evaluation

**Key relevant observations with regard to the overall impact significance ratings,** assuming mitigation measures are effectively implemented, are (refer to Table 1):

#### **Loss/disturbance of vegetation during construction, operation and decommissioning:**

Large scale clearing of the site will not take place during construction. Small portions of the development will result in the transformation of vegetation (e.g. internal roads, control building). Construction activities, such as drilling of holes and installation of panels would result in the trampling of vegetation. Disturbance to indigenous vegetation (which has been classified as least threatened) during the construction phase will be negligible and is rated to be of LOW (-ve) impact significance. With mitigation measures in place, this impact can be reduced to VERY LOW (-ve).

During the operational phase the natural vegetation of the site may be affected by active management (e.g. via brush cutting) and increased shade which may affect species composition on the site. The significance of this impact is rated as VERY LOW (-ve).

Vegetation impacts that occur during construction and operation are reversible provided that the recommended mitigation measures are implemented. Without mitigation measures, this impact on vegetation is expected to be VERY LOW (-ve).

#### **Impacts on (terrestrial) fauna during construction:**

Construction activities will result in disturbance to fauna on the site. If not appropriately controlled, presence of people on the site may lead to harm to animals (e.g. snares and hunting). The construction of a security fence surrounding the facility has the potential to trap animals within the construction area. Impacts on terrestrial fauna are anticipated to be VERY LOW (-ve) and can be reduced to INSIGNIFICANT if recommended mitigation measures are implemented.

**Impacts on avi-fauna during operation:**

There is an existing p132 kV power line on the site. It is anticipated that a new short (less than 1 km) overhead 132 kV power line, adjacent to the existing power line will be required. This has the potential to have an impact of MEDIUM (-ve) significance on birds. With mitigation, this impact can be reduced to LOW.

**Impacts on wetlands/watercourses during construction and decommissioning:**

Impacts on wetlands/watercourses could occur where infrastructure crosses these features. The layout plan for the facility insures a minimum buffer area of 50m around such features. Trenches carrying medium voltage cables may be required across some drainage lines. The impact on wetland as a result of construction activities is expected to be of VERY LOW (-ve) significance and if mitigated can be reduced to INSIGNIFICANT.

If appropriately mitigated during the construction phase, the expected impact on wetlands during decommissioning will be INSIGNIFICANT (-ve). In the absence of mitigation the impact will be VERY LOW.

**Water consumption during construction and operation:**

It is anticipated that groundwater will be used during the construction and operational phases of the development. The significance of the impact on the local aquifer during construction is rated to be VERY LOW (-ve).

Water will be required for the washing of solar panels during the operational phase. The volume of water required equates to approximately 2.5 mm of rainfall over the compact footprint (150 ha) of the site over the period of one year. The significance of the impact on the local aquifer during the operation is rated to be MEDIUM (-ve) due to the long term nature of the water requirement.

**Stormwater and soil erosion impacts during construction and decommissioning:**

Impacts during construction and decommissioning could result from uncontrolled stormwater which may lead to erosion. It is noted that the site has a low gradient and there are no signs of erosion. This impact is rated to be INSIGNIFICANT (-ve) for both phases.

**Job creation during construction, operation and decommissioning:**

Approximately 400 jobs, to the value of R78.5 million will be created during the construction phase. Even though the intensity of the impact is high, due to the short duration of construction, the overall significance is LOW (+). Even with mitigation to ensure local employment opportunities are maximised, the positive impact remains LOW (+ve).

Approximately 45 jobs will be created during the operation phase. This was rated to have a MEDIUM (+) impact. The significance rating is due to the long term nature of the job

opportunities. Even with mitigation to ensure local employment opportunities are maximised, the positive impact remains MEDIUM.

During the decommissioning there will be additional employment created, however the overall impact will be the loss of jobs. Workers would have gained skills through employment during the operational phase. Due to the probability that staff will be more competitive in the work place, this impact is expected to be LOW (-ve).

**Skills transfer:**

Construction with skilled and unskilled labour will lead to an improvement of skills. Construction staff will also receive social benefit schemes (such as Job training and skills programs). The impact of skills transfer is expected to have a LOW (+) impact.

**Social impacts during construction, operation and decommissioning:**

Social issues during the construction relating to the presence of workers (e.g. increased risk of crime on surrounding facilities in the area, and alcohol and drug related incidents etc.) was rated as a VERY LOW (-ve) impact and can be reduced to INSIGNIFICANT if mitigation measures are implemented.

In terms of the licensing conditions, significant investment would be made into local communities during operation. This is anticipated to have a HIGH (+) impact.

The opportunity of continued investment in the community would be lost. The significance of this impact is rated as MEDIUM (-ve).

**Noise impacts during construction:**

Noise from construction activities involves drilling, trenching and movement of vehicles. The area is classified as rural with very low baseline noise levels. It is further noted that there are few receptors in close proximity to the site. The significance of noise impacts is rated as VERY LOW (-ve). With mitigation the significance of the impact can be reduced to INSIGNIFICANT.

**Air quality impacts during construction and decommissioning:**

Dust emissions created during the construction phase as a result of clearing of vegetation and drilling of holes is expected to have a VERY LOW (-ve) impact. This impact can be reduced to INSIGNIFICANT if mitigation measures are implemented.

Dust will be created during the decommissioning phase due to all infrastructure, equipment, material and services being removed from site. An INSIGNIFICANT (-ve) dust impact significance is expected

### **Waste management impacts during construction, operation and decommissioning:**

Construction activities will involve the generation of significant quantities of waste (e.g. construction waste and packaging). Uncontrolled management of the waste on the site may lead to wind-blown litter. A large portion of this waste is recyclable and disposal of this waste would lead to a loss of natural resources. The significance of waste management impacts is expected to be LOW (-ve) impact and can be reduced to INSIGNIFICANT if mitigation measures are implemented.

Operational activities during operation will involve the generation of small quantities of domestic waste. Uncontrolled management of the waste on the site may lead to wind-blown litter and/ or illegal dumping. This is anticipated to have a VERY LOW (-ve) impact significance. Although mitigation is essential, it does not reduce the significance of the impact.

Waste management impacts as a result of the decommissioning and closure of the solar facility was rated to have a LOW (-ve) impact which can be reduced to INSIGNIFICANT, if mitigation measures are implemented.

### **Visual impacts:**

As the site is currently undeveloped, the proposed solar facility will definitely change the character of the environment. There are few residences within close proximity to the site who might experience a visual impact (other than vehicles passing by on the N10 and the train master). It is also proposed that motion sensor spotlights will also be installed around the perimeter of the fence which reduces the potential impact of security lighting. Landscape and visual impacts during the operational phase of the development are expected to have a MEDIUM (-ve) which can be reduced to LOW if mitigation measures are implemented;

### **Impacts on agricultural potential of the land:**

The site is currently used for grazing of sheep. It is anticipated that this will be discontinued during operation. The significance of the impact in a regional context is anticipated to be MEDIUM (-ve). At a local level, the impact of the solar facility may be positive as it will provide an income to the local farmer to invest money for farming on the remainder of his farm.

### **Provision of Renewable Energy:**

The proposed development will provide electricity to the existing Eskom grid, thereby improving security of energy supply and was rated as having a HIGH (+ ve) impact. With mitigation, this impact will remain to be of HIGH significance.

### **The No-go Alternative:**

Not implementing the activity would have the following socio-economic and environmental implications:

- Comparatively low value agricultural activity would continue;
- No production in energy would result in less energy security at a national level;
- The potential for job creation associated with the project would be lost; and
- Additional social benefit schemes (such as job training and skills programs), linked to the development would not materialise.

## **8.2 Findings**

1. The proposed development includes the construction of a 75 MW Solar Facility on Portion 1 of Farm Het Fortuin No. 66 in the Inxuba Yethemba Local Municipality, in the Eastern Cape;
2. The positive impacts associated with the construction phase include job creation (LOW) and skills transfer (LOW);
3. The negative impacts associated with the construction phase of the development include loss/or disturbance to indigenous vegetation (LOW), potential disturbance to fauna (VERY LOW) and watercourses/wetlands (VERY LOW), potential stormwater and erosion impacts (INSIGNIFICANT), potential social issues (e.g. risk of crime, and alcohol and drug related incidents) (VERY LOW), dust (VERY LOW) and noise (VERY LOW) impacts, waste management impacts (LOW) and potential impacts on the local aquifer from water consumption (VERY LOW);
4. The positive impacts that result from the operational phase include job creation (MEDIUM), community investment (HIGH) and the provision of renewable energy (HIGH);
5. The negative impacts associated with the operation phase of the project include potential disturbance to indigenous vegetation (VERY LOW), potential impacts on avi-fauna (MEDIUM), loss of agricultural potential of the land (MEDIUM), visual impacts due to change in character of the landscape (MEDIUM), potential waste management impacts (VERY LOW), and potential impacts on the local aquifer due to water consumption (MEDIUM);
6. There are no positive impacts associated with the decommissioning phase. Negative impacts include the potential to insufficiently re-vegetate/re-habilitate vegetation (VERY LOW), potential disturbance to watercourses/ wetlands (VERY LOW), potential stormwater/erosion (INSIGNIFICANT), the loss of jobs (LOW), the lost opportunity of continued investment into local communities (HIGH), and dust (INSIGNIFICANT) and waste management (LOW) impacts;
7. No impacts were identified that could would make the proposed activity environmentally unsuitable; and
8. A few comments were received from Interested and/or Affected Parties and are included in the comments and response report attached to Appendix E of the BAR.

## 9 Way Forward

The Draft BAR is not a final report and will be amended based on comments received from IAPs. The public participation process has given IAPs the opportunity to assist with identification of issues and potential impacts and provides an additional opportunity to gauge 'public acceptance' of the proposed project.

This Draft BAR is being released to the public and relevant government departments for a 40-day review period. The Summary Report is being circulated to all IAPs registered on SRK's database. A copy of the full report will be made available for public review at the Cradock Public Library.

Written comments on the Draft BAR should be submitted by 4 May 2012:

Tamarin Arthur

SRK Consulting

Fax: 041 – 509 4850

Postal Address: PO Box 21842, Port Elizabeth, 6000

Email: [tarthur@srk.co.za](mailto:tarthur@srk.co.za)

Once IAPs have commented on the information presented in the Draft BAR, the Final BAR accompanied by a Comments and Responses Report will be submitted to DEA for their decision. The public is therefore urged to submit comments, as these will affect the Final BAR and the decision taken by DEA.

**Table 1: Summary of potential impacts and key mitigation measures for the proposed 75 MW Dobbin Solar Facility**

Impact	Construction		Operation		Decommissioning		No-Go Alternative
	without mitigation	with mitigation	without mitigation	with mitigation	without mitigation	with mitigation	
Vegetation	Low (-ve)	Very Low (-ve)	Very Low (-ve)	n/a	Very Low (-ve)	n/a	n/a
Fauna (Terrestrial)	Very Low (-ve)	Insignificant (-ve)	n/a	n/a	n/a	n/a	n/a
Avi-Fauna	n/a	n/a	Medium (-ve)	Low (-ve)	n/a	n/a	n/a
Wetlands & watercourses	Very Low (-ve)	Insignificant	n/a	n/a	Very Low (-ve)	Insignificant (-ve)	n/a
Stormwater & Soil Erosion	Insignificant (-ve)	Insignificant (-ve)	n/a	n/a	Insignificant (-ve)	n/a	n/a
Job Creation/ loss during decommissioning	Low (+ve)	n/a	Medium (+ve)	n/a	Low (-ve)	n/a	Medium (-ve)
Social Issues	Very Low (-ve)	Insignificant (-ve)	High (+ve)	n/a	High (-ve)	n/a	High (-ve)
Skills Transfer	Low (+ve)	n/a	n/a	n/a	n/a	n/a	Low (-ve)
Noise	Very Low (-ve)	Insignificant (-ve)	n/a	n/a	n/a	n/a	n/a
Air Quality (Dust)	Very Low (-ve)	Insignificant (-ve)	n/a	n/a	Insignificant	Insignificant	n/a
Waste Management	Low (-ve)	Insignificant (-ve)	Very Low (-ve)	Very Low (-ve)	Low (-ve)	Insignificant	n/a
Visual	n/a	n/a	Medium (-ve)	Low (-ve)	n/a	n/a	n/a
Water Consumption	Very Low (-ve)	n/a	Medium (-ve)	n/a	n/a	n/a	n/a
Provision of Renewable Energy	n/a	n/a	High (+ve)	High (+ve)	n/a	n/a	n/a
Agricultural Potential	n/a	n/a	Medium (-ve)	n/a	n/a	n/a	n/a



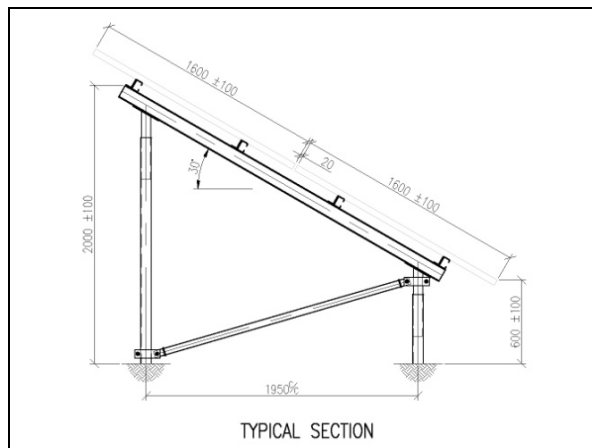


Figure 2: Typical section of a solar panel

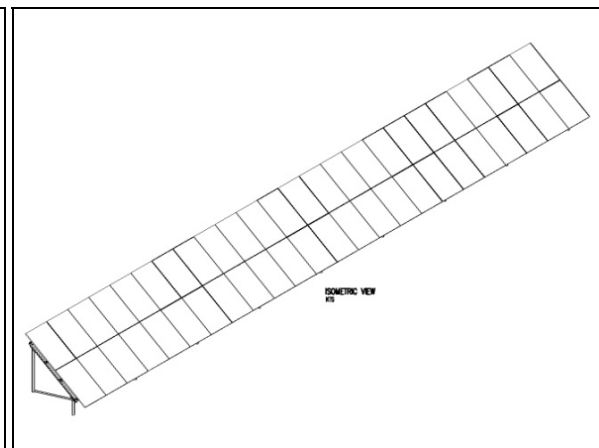


Figure 3: Isometric view of a solar panel

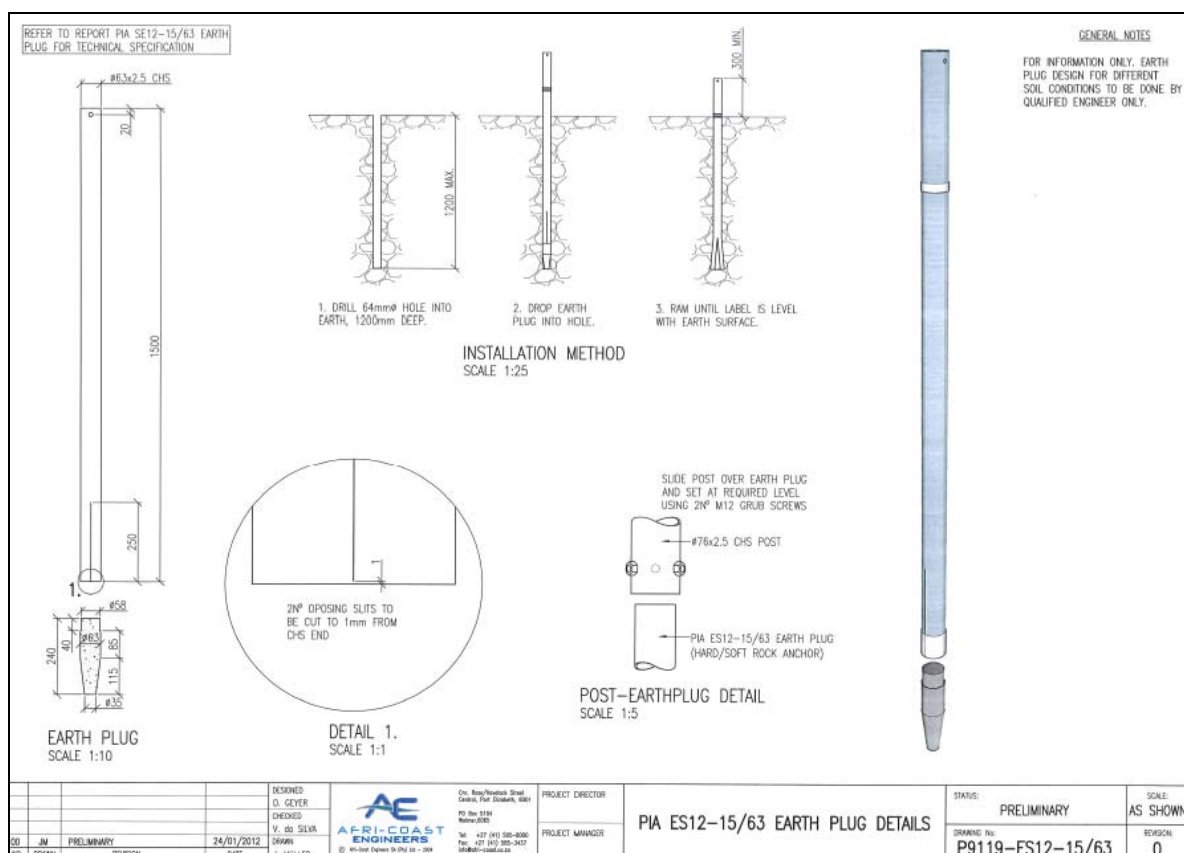


Figure 4: Solar panel anchoring system



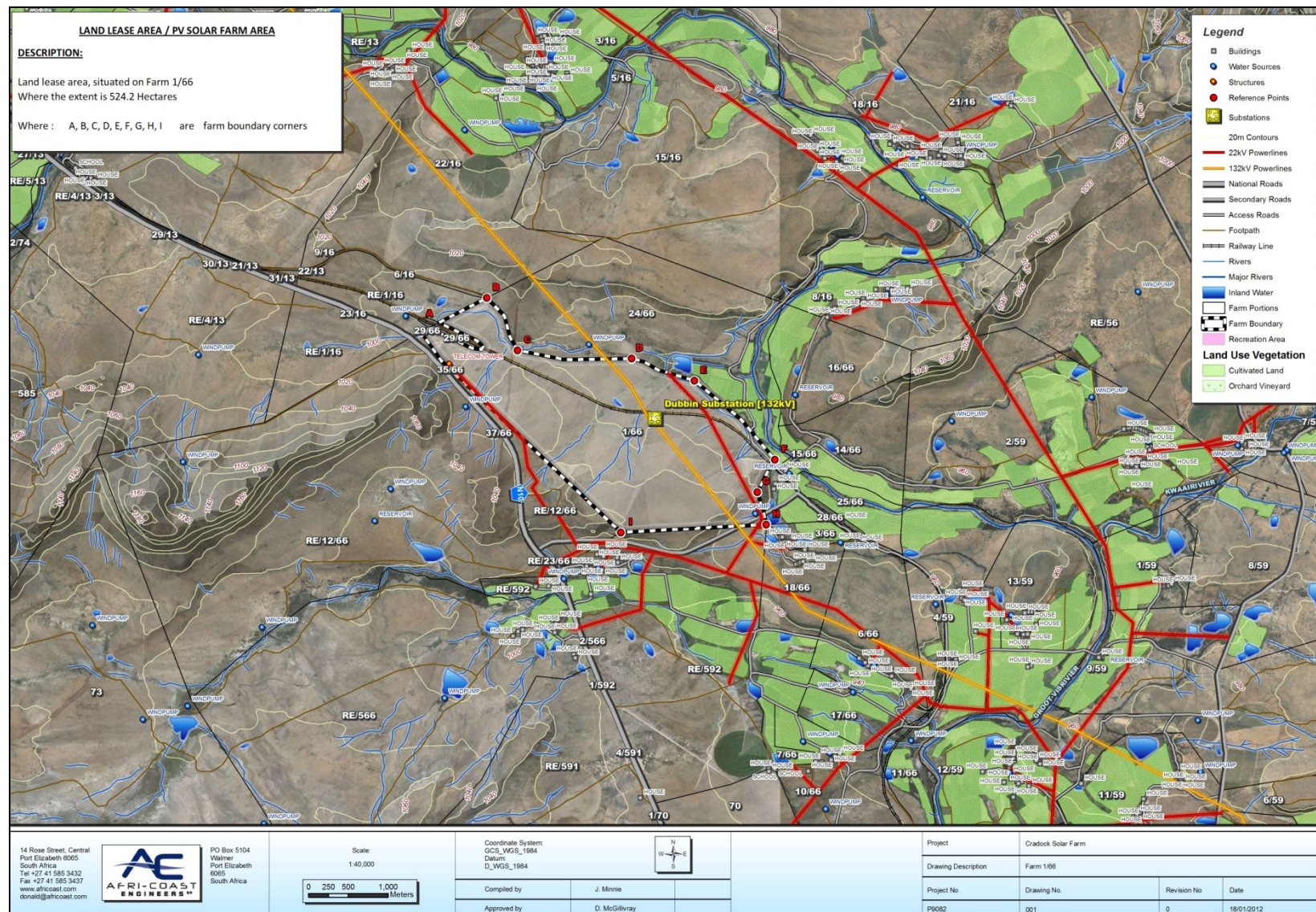


Figure 5: Site Locality Map for the proposed 75 MW Dobbin Solar Facility