

**DRAFT SCOPING REPORT**  
**PROPOSED DE RUST PV 2 SOLAR ENERGY FACILITY**  
**AND ASSOCIATED INFRASTRUCTURE ON PORTION 1 OF THE**  
**FARM SAMOEP 147, NORTHERN CAPE**

**December 2022**

**NAME OF APPLICANT: FE De Rust (PTY) LTD**

**PREPARED BY: Enviro-Insight CC**



## PROJECT DETAILS

|                           |   |
|---------------------------|---|
| <b>REPORT TITLE:</b>      | PROPOSED DE RUST SOLAR PV2 SOLAR ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE ON PORTION 1 OF THE FARM SAMOEP 147 NEAR POFADDER IN THE NORTHERN CAPE |
| <b>REPORT STATUS:</b>     | DRAFT SCOPING REPORT  |
| <b>DEA REFERENCE NO.:</b> | TBC   |
| <b>APPLICANT:</b>         | FE DE RUST PTY LTD  |
| <b>EAP:</b>               | ENVIRO-INSIGHT CC<br>MARVIN GRIMITT   |
| <b>DATE</b>               | DECEMBER 2022   |

**When referenced this report should be cited as:** Enviro-Insight CC. (2022). Scoping Report for the Proposed De Rust Solar PV2 Solar Energy Facility and associated infrastructure on Portion 1 of the Farm Samoep 147 near Pofadder in the Northern Cape.

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## EXECUTIVE SUMMARY

### Details of the proposed De Rust Solar PV2 Solar Energy Facility

| Component                                | Description / Dimensions   |
|--|--|
| Project Name                             | De Rust PV 2 Solar Energy Facility   |
| Province                                 | Northern Cape  |
| Farm portion                             | Portion 1 of the Farm Samoep 147   |
| Extent (ha)                              | 485 hectares   |
| 21-digit Surveyor General code           | C03600000000014700001  |
| Contracted capacity of the facility (MW) | 240 MW (Maximum)   |
| Cabling                                  | Underground up to 1m deep  |
| Capacity of onsite substation            | 33/132kV (100mX100M)   |
| Grid connection                          | Proposed Korana Substation   |
| Width of internal roads                  | Construction phase: up to 10m<br>Operational phase: up to 8 m  |
| Proximity to grid connection             | +/-10km approximately  |
| Laydown areas                            | Construction period laydown footprint (temporary): ± 6 ha<br>Temporary hardstand area (boom erection, storage and assembly area): ± 12 ha<br>O&M Area: 1.1ha |

## PROJECT OVERVIEW

### Background

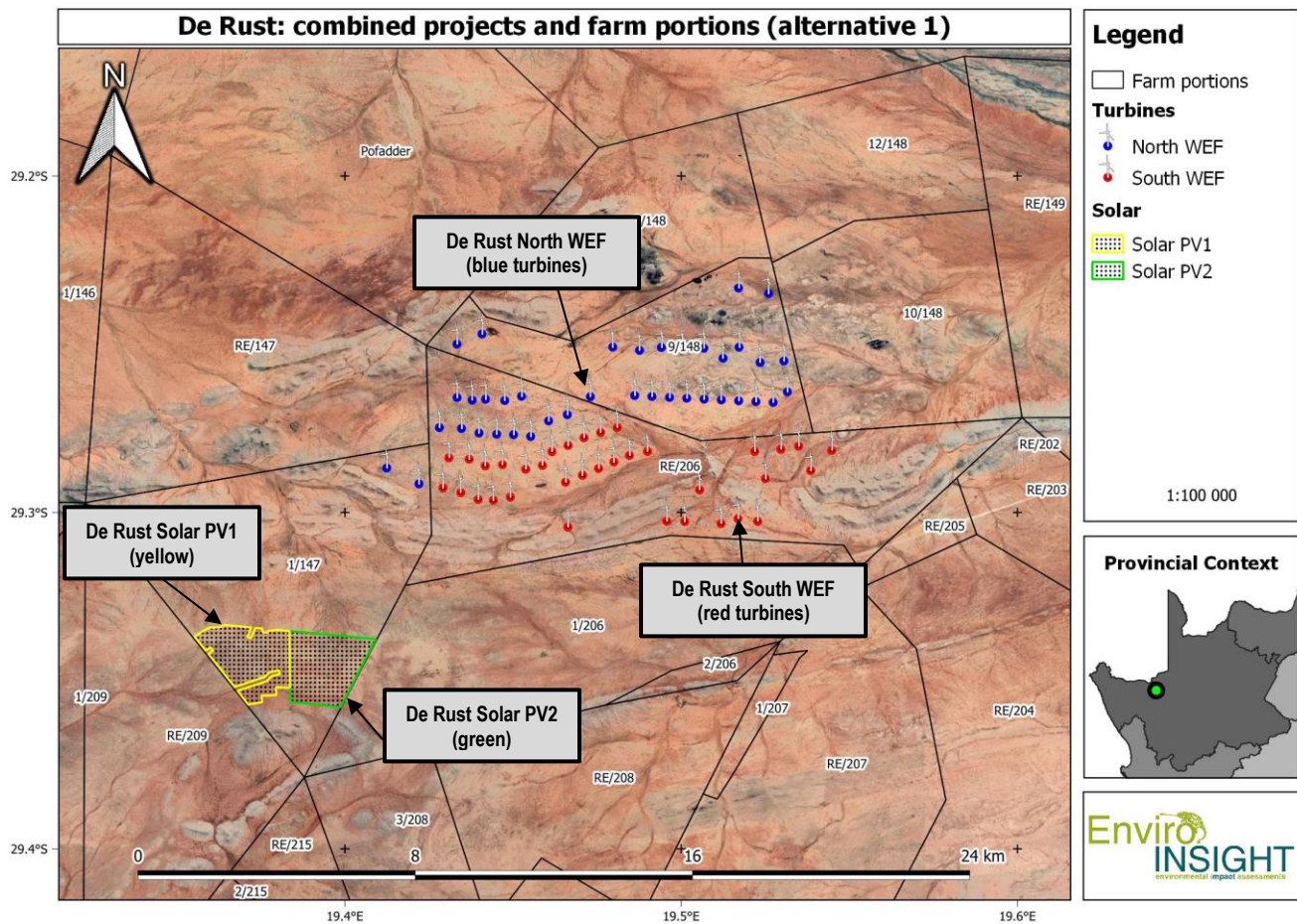
The proposed study area for the renewable energy developments is located approximately 23 km south of Pofadder within the Khâi-Ma Local Municipality, in the Northern Cape. The site can be reached via the R358 off the N14.

The developer is planning on developing two wind energy facilities (WEFs) and two solar energy facilities (SEFs) to be known as the FE De Rust WEFs & SEFs. The project areas for all four renewable energy developments are located on Portion 1 of the

Farm Samoep 147 (a portion will be used for the proposed Solar Energy Facilities), Portion 9 of the Farm Nouzees 148 and the Remaining Extent of the Farm Houmoed 206, within the Khâi-Ma Local Municipality.

The proposed renewable energy facilities are separated as follows:

- **FE De Rust PV2 SEF (this scoping report)**
- FE De Rust PV1 SEF
- FE De Rust North WEF
- FE De Rust South WEF



*The four proposed renewable energy projects in relation to one another. This scoping report for environmental authorisation will only focus on the De Rust PV2 SEF.*

## Project Introduction

FE De Rust (Pty) Ltd (hereafter the Applicant) is proposing the development of a solar energy facility (SEF) and associated infrastructure on a site located approximately 23 kilometers (km) south of Pofadder in the Northern Cape province of South Africa. The proposed development will have a generation capacity of up to 240MW which will feed into the National Grid. This report comprises the Draft Scoping Report (DSR) for the proposed development of the **De Rust PV 2 Solar Energy Facility (SEF)**.

The proposed study area for the SEF located approximately 23km south of the town of Pofadder within the Khâi-Ma Local Municipality, in the Northern Cape Province of South Africa. The site can be reached via the R358, which branches off the N14. The De Rust PV 2 SEF footprint is approximately 485 hectares (ha) and will be located on Portion 1 of the Farm Samoep 147.

The De Rust Solar PV2 SEF will consist of PV panels, with a generation capacity of 240MW, depending on the available technology at the time. Additional ancillary infrastructure to the SEF would include underground and above-ground cabling between project components, onsite substation/s, Battery Energy Storage Systems (BESS), mounting systems to support the PV panels, internal/ access roads (up to 10 m in width during the construction phase) linking the PV panels and other infrastructure on the site, and permanent workshop area and office for control, maintenance and storage. As far as possible, existing roads will be utilised and upgraded (where needed) with the relevant stormwater infrastructure and gates constructed as required. The perimeter of the proposed SEF may be enclosed with suitable fencing. A formal laydown area for the construction period, containing a temporary maintenance and storage building along with a guard cabin will also be established.

Additionally, a power line with a capacity of up to 132kV-400kV is required. At this stage, options are still being considered for either the construction of a new line to feed into the Korana substation or connect with existing lines. This associated electrical infrastructure will require a separate Environmental Authorisation and is being conducted as a part of a separate Basic Assessment (BA) process. More details will be provided in the Final Environmental Impact Assessment Report (FEIAR).

In terms of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) and the Environmental Impact Assessment (EIA) Regulations (2014, as amended), promulgated in Government Gazette 40772 and Government Notice (GN) R326, R327, R325 and R324 on 7 April 2017, a full Scoping and EIA Process is required for the construction of the proposed. Enviro-Insight CC (hereafter Enviro-Insight) has been appointed to undertake the Scoping & EIA (S&EIA) process for the SEF, on behalf of the Applicant. The S&EIA process will determine the biophysical, social and economic impacts associated with undertaking the proposed activities. Given that energy related projects have been elevated to national strategic importance in

terms of the S&EIA process, the proposed SEF requires authorisation from the National Department of Forestry, Fisheries and the Environment (DFFE) as the Competent Authority (CA), acting in consultation with other spheres of government.

## ENVIRONMENTAL LEGISLATIVE REQUIREMENTS

As noted above, in terms of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) and the EIA Regulations (29014, as amended), promulgated in Government Gazette 40772 and Government Notice (GN) R326, R327, R325 and R324 on 7 April 2017, a full Scoping and EIA Process is required for the construction of the proposed De Rust Solar PV 2. The need for the full Scoping and EIA is triggered by, amongst others, the inclusion of Activity 1 listed in GN R325 (Listing Notice 2):

***“The development of a facility or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, excluding where such development of facility or infrastructure is for photovoltaic installations and occurs (a) within an urban area; or (b) on existing infrastructure”.***

Chapter 2 of this Draft Scoping Report contains the detailed list of activities contained in R327, R325, and R324 (EIA Regulations, 2014, as amended) which may be triggered by the various project components and thus form part of the S&EIA Process.

The purpose of the S&EIA is to identify, assess and report on any potential impacts the proposed project, if implemented, may have on the receiving environment. The impact assessment phase needs to show the CA (DFFE) and the project Applicant (FE De Rust) what the consequences of their choices will be in terms of impacts on the biophysical, social and economic environment and how such impacts can, as far as possible, be avoided or mitigated and managed.

## SCOPING PHASE

The purpose of the scoping report is to identify and evaluate the main issues and potential impacts of the proposed development at a detailed desktop level based on existing information.

The scoping phase is conducted as the precursor to the EIA phase during which:

- Project and baseline environmental information is collated. Baseline information for the scoping report is gathered through visual inspections during field visits of the proposed project area and surroundings, desktop studies which include GIS mapping, and review of existing reports, guidelines and legislation.



- Landowners, adjacent landowners, local authorities, environmental authorities, as well as other stakeholders which may be affected by the project, or that may have an interest in the environmental impacts of the project are identified.
- Interested and affected parties (I&APs) are informed about the proposed project.
- CA is consulted to confirm legal and administrative requirements.
- Environmental issues and impacts are identified and described.
- Development alternatives are identified and evaluated, and non-feasible development alternatives are eliminated.
- The nature and extent for further investigations and specialist input required in the EIA phase is identified.
- The draft and final scoping reports are submitted for review by authorities, relevant organs of state and I&APs.
- Key I&AP issues and concerns are collated into an issues and response report for consideration in the EIA phase.

Issues raised in response to this Draft Scoping Report (currently being released for a 30-day comment period) will be captured in a Comments and Response Report as an appendix to the Final Scoping Report (FSR), which will be submitted to the CA for decision-making (i.e. approval or rejection). If approved, it marks the end of the Scoping Phase after which the EIA Process moves into the impact assessment and reporting phase.

## **PUBLIC PARTICIPATION PROCESS**

The Public Participation Process (PPP) commenced on 2 November 2022 with the placement of site notices at prominent places on the boundary of the property in order to notify and inform the public of the proposed project and invite I&APs to register. All individuals who registered for this project has been added to the I&AP list, provided that they have given the correct and complete contact details in order to receive communications for this project. The notification procedure included (Appendix C):

- Newspaper advertisement: published in the Blesbok on 9 November 2022;
- Site Notices: erected at prominent points along the property boundaries and noticeable places on 2 November 2022; and
- Emails were composed and sent to the identified authorities, adjacent landowners, and I&APs that have registered thus far. I&APs were provided the opportunity to comment on the Background Information Document (BID).

The DSR will be released for comment for a 30-day period from the 14 December 2022 – 4 February 2023. Comments on the DSR will be included in the Final Scoping Report which will be submitted to DEA for decision-making.

## SCREENING TOOL REPORT

The Minister of Environment, Forestry and Fisheries, gave notice that the submission of a report generated from the national web-based environmental screening tool<sup>1</sup>, as contemplated in Regulation 16(1)(b)(v) of the Environmental Impact Assessment Regulations, 2014, published under Government Notice No. R982 in Government Gazette No. 38282 of 4 December 2014, as amended, will be compulsory from 4 October 2019 when submitting an application for environmental authorisation in terms of regulation 19 and regulation 21 of the Environmental Impact Assessment Regulations, 2014.

Based on the generated screening report, all environmental theme sensitivities are indicated below.

| Theme                                      | Very High sensitivity* | High sensitivity* | Medium sensitivity | Low sensitivity |
|--|------------------------|-------------------|--------------------|-----------------|
| Agriculture Theme                          |                        |                   |                    |                 |
| Animal Species Theme                       |                        |                   |                    |                 |
| Aquatic Biodiversity Theme                 |                        |                   |                    |                 |
| Archaeological and Cultural Heritage Theme |                        |                   |                    |                 |
| Avian Theme                                |                        |                   |                    |                 |
| Civil Aviation Theme                       |                        |                   |                    |                 |
| Defence Theme                              |                        |                   |                    |                 |
| Landscape Theme                            |                        |                   |                    |                 |
| Paleontology Theme                         |                        |                   |                    |                 |
| Plant Species Theme                        |                        |                   |                    |                 |
| RFI Theme                                  |                        |                   |                    |                 |
| Terrestrial Biodiversity Theme             |                        |                   |                    |                 |

\* Require full assessments.

All the environmental themes followed the relevant protocols (20 March 2020; 30 October 2020) and accompanied guidelines (SANBI 2020) to assess and verify the sensitivities.

<sup>1</sup> <https://screening.environment.gov.za/screeningtool/#/pages/welcome>



## SUMMARY OF RECEIVING ENVIRONMENT

Based on the scoping analysis, a few potentially sensitive sites have been identified within the study area. These will inform the layout alternatives and will be further assessed during the EIA phase. The table below summarises the specialist findings of the Scoping Report for the entire project.

|   |  |
|---|--|
| <p><b>Terrestrial Biodiversity</b></p>            | <p>The study area is situated within the Nama-Karoo Biome, a landlocked region in the central plateau of the western half of South Africa that represents the second largest biome, comprising approximately 248,284km<sup>2</sup>. It is essentially a grassy, dwarf shrubland, dotted with characteristic koppies, most of which lies between 1,000 and 1,400 meters above sea level. Eastwards, the ration of grasses to shrubs increases progressively, until the Nama Karoo eventually merges with the Grassland Biome. On the northern fringes the dwarf shrubland often has an overstory of shrubs and trees. It does not have a unique or species rich flora, with only 2.147 plants of which 386 (18%) are endemic and 67 are threatened.</p> <p>mainly located in an ESA with CBA2 surrounding it towards the west and south. All turbines are located within the ESA, which reduces the impacts of the proposed development footprint on the receiving environment. All associated infrastructure must be located outside the CBA2 as well.</p> |
| <p><b>Sensitive Plant Species Assessment</b></p>  | <p>The plant species theme initially indicated Medium sensitive due to the presence of sensitive species 144, sensitive species 854, sensitive species 425 and Cephalophyllum fulleri . Sensitive species 144 was recorded during the site sensitivity verification. As per the screening report, four plant SCC are likely to occur on the study area.</p>  |
| <p><b>Sensitive Animal Species Assessment</b></p> | <p>No sensitive fauna (mammals, herpetofauna or invertebrates) is expected to occur on the study area, as confirmed during the site verification. The avifauna component is addressed in a separate report. Accordingly, the impact of the De Rust PV2 SEF on animals is considered to be medium to low should appropriate mitigation measures be followed.</p>  |
| <p><b>Avifauna</b></p>                            | <p>The study area is located in a region dominated by natural and diverse koppies/ ridge, drainage line, karroid and sandy grassland and shrubland karoo vegetation types. Several drainage lines and small farm dams as well as small to large natural pans can be found scattered across the study area with most being mostly dry with some seasonal flow/ inundation. The powerline infrastructure that traverses the PAOI is a significant habitat for Martial Eagles.</p> <p>Fourteen priority species were recorded during the initial surveys, including Martial Eagle, Karoo Korhaan, Ludwig's Bustard, Lanner Falcon, Red Lark and Black-winged Kite. Of these, the Martial Eagle and Ludwig's Bustard was the most concerning large bird species. At the commencement of the survey, the PAOI was characterised by extremely atypical high rainfall in areas normally associated with arid conditions. The onset</p>  |

|                                    |   |
|------------------------------------|---|
|                                    | <p>of a stochastic extreme rainfall event (wet season) may have atypically transformed the PAOI where it is possible that diluted densities (and perhaps diversity) of avifaunal assemblages may have been recorded due to an abundance of high forage value habitat that became temporarily available in the region. This increases the concern regarding large nomadic species such as bustards, large wide foraging raptors such as Martial Eagle and vultures seeking water sources within the PAOI when typical arid conditions return over the next 12 months</p>   |
| <p><b>Aquatic Biodiversity</b></p> | <p>Tate Environmental was appointed by Enviro-Insight Consulting as independent specialists to conduct the relevant wetland and riparian related studies in order to assist the facilitation of the required environmental authorisation and water use licence processes.</p> <p>The outcome of this assessment delineated 11 watercourse units within the site. These watercourses were considered to be minimally modified and in a largely natural PES. The watercourses were classified as having Very High and Moderate EIS ratings. A scientific buffer was calculated for the watercourses, however inline with the precautionary principle, and given the highly variable nature of the washes, it was proposed that a 100m buffer for depressions and a 40m wash buffer was utilised to protect these sensitive environments</p>                   |
| <p><b>Agriculture</b></p>          | <p>The agricultural potential for the proposed project area is low as per the screening tool report. This is not only due to the predominantly rainfall constraints, but also due to the soil constraints. The terrain is unsuitable for cultivation and the opportunity for grazing is very limited for livestock. Currently, the land is not being utilised for livestock grazing. Due to the low potential an agricultural impact statement will be undertaken for the proposed SEF during the EIA phase.</p>  |
| <p><b>Heritage</b></p>             | <p>The Screening Tool indicated that the Archaeological and Cultural Heritage Theme has a low sensitivity and the Palaeontology Theme as Medium Sensitivity, even though the sensitivity is low and medium it was concluded that a Heritage Impact Assessment be conducted by Jaco van der Walt from HCAC. A Heritage Impact Assessment is undertaken to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to develop the additional structures. A Heritage and Palaeontology Assessment will be included in the EIA phase of the proposed development</p>  |
| <p><b>Socio-economic</b></p>       | <p>The findings of the Scoping level SIA indicate that the proposed De Rust PV 2 SEF will result in several social and socio-economic benefits, including creation of employment and business opportunities during both the construction and operational phase. The project will also contribute to local economic development through socio-economic development (SED) contributions. In addition, the development will improve energy security and reduce the carbon footprint associated with energy generation. The findings of the SIA also indicate that the potential negative impacts associated with both the construction and operational phase are likely to be Low Negative with mitigation. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented. The site is also</p> |

located within the Springbok REDZ. The area has therefore been identified for the development of renewable energy projects. The establishment of the proposed De Rust PV 2 SEF is therefore supported by the findings of the Scoping level SIA.

**Traffic**

It is anticipated that the required components will be imported will be shipped to Coega, Saldanha Bay Harbour or Cape Town harbour and then transported via road, N14 and R358, to the site from Coega, Saldanha Bay or Cape Town harbours, depending on the load restrictions. Specialized high lifting and heavy load capacity cranes will be utilised to erect the solar panels. The solar farm will be built in one phase, with a total construction period of up to 24 months.

**PLAN OF STUDY**

In line with the relevant legislative requirement, the Plan of Study (PoS) for the EIA phase of the assessment is indicated in this report. Consultation with DFFE will be ongoing throughout this S&EIA process. However, it is anticipated that DFFE will provide relevant comment with respect to the adequacy of this PoS for the EIA, as it informs the scope and scale of the EIR.

The Scoping Phase has identified potential environmental impacts, specialist studies required to assess these impacts and indicated the alternatives that require further discussion and assessment during the EIA phase. The relevant section outlines the proposed PoS which will be conducted for the various environmental aspects during the EIA Phase. It is also important to note that the PoS will also be guided by comments obtained from I&AP's and other stakeholders during the commenting period.

The objective of the EIA phase will be to:

- Identify and assess the environmental (biophysical and social) impacts of the construction, operation, and decommissioning impacts of the proposed development. The cumulative impacts of the proposed development will also be identified and evaluated;
- Alternative activities and locations will be determined and assessed in parallel with the proposed activity;
- Identify and evaluate potential management and mitigation measures that will reduce the negative impacts of the proposed development and enhance the positive impacts;
- Compile monitoring, management, mitigation and training needs in the EMP; and
- Provide the decision-making authorities with sufficient and accurate information in order to make a sound decision on the proposed development.

The Impact Assessment Phase has four key elements:

- Specialist Studies: Specialist studies identified during the Scoping Phase and DFFE Screening Report, and any additional studies that may be required by the competent authority, are undertaken as the initial phase of the EIA. The relevant specialists have already been appointed to undertake the various assessments prior to the commencement

of the EIA phase in order to identify potential fatal flaws from an early stage in the process and inform the PoS. Specialists will gather baseline information relevant to the study being undertaken and assess impacts associated with the development. Specialists will also indicate areas to be avoided, make recommendations to mitigate negative impacts and optimise benefits. The resulting information is synthesised into the draft EIAR (with the complete assessment attached to the EIAR) that will be made available to I&APs for review and comment.

- Environmental Impact Assessment Report (EIAR): The main purpose of this Report is to gather environmental information and evaluate the overall impacts associated with the project, to consider mitigation measures and alternative options, and make recommendations in choosing the best development alternative. The EIAR also identifies mitigation measure/management recommendations to minimise negative impacts and enhance benefits. The draft EIAR and associated reports will be made available for public and authority review and comment for a period of 30 days. The availability of the draft EIAR will be communicated to all registered I&APs and will be accessible through various platforms to be confirmed at the time. After comments have been received, the final EIAR will be compiled and submitted to the DFFE for review. This report will assist the DFFE in making an informed decision on whether to grant or reject the proposed development.
- Environmental Management Programme (EMPr): The EMPr provides guidelines to the Applicant and the technical team on how to best implement the mitigation measure/ management recommendations outlined in the EIAR during the construction, operational and decommissioning phase. The EMPr is a law binding document, and once approved it cannot be amended without permission from the DFFE.
- Public Participation Process (EIA Phase): The PPP initiated during the Scoping Phase, is continued. This includes continuous engagement with I&APs and stakeholders which includes consultation meetings, receiving comments, issues and concerns raised by I&APs and the authorities during the review period, and also provides relevant responses to these comments. Comments on the Draft EIAR received from I&APs are included and addressed in the final submitted EIAR in the form of a Comments & Response Report

**NEMA EIA REGULATIONS REQUIREMENTS FOR SCOPING REPORT**

**Appendix 2: Content of the scoping report**

2. (1) scoping report must contain the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process, and must include—

| Appendix 2<br>Regulation 2 | Content as per Appendix 2 of NEMA EIA Regulations 2014 (as amended)   | Section      |
|----------------------------|---|--------------|
| a)                         | details of—<br>(i) the EAP who prepared the report; and<br>(ii) the expertise of the EAP, including a curriculum vitae.   | 1.3          |
| b)                         | the location of the activity, including:<br>(i) the 21 digit Surveyor General code of each cadastral land parcel;<br>(ii) where available, the physical address and farm name; and<br>(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;   | 2.1          |
| c)                         | a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is—<br>(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken;<br>(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken; | 1, 2.1 & 5.1 |
| d)                         | a description of the scope of the proposed activity, including—<br>(i) all listed and specified activities triggered; and<br>(ii) a description of the activities to be undertaken, including associated structures and infrastructure;   | 2.1<br>3.4   |
| e)                         | a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;                                   | 3            |

|    |   |  |
|----|---|--|
| f) | a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;   | 2.4  |
|    | a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including  |  |
|    | (i) details of the alternatives considered;   | 7.1  |
|    | (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;  | 4.3  |
|    | (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;  | 4.3, to be updated in final scoping report |
|    | (iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;   | 5  |
|    | (v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts—            | 6.3  |
| g) | (aa) can be reversed;   |  |
|    | (bb) may cause irreplaceable loss of resources; and   |  |
|    | (cc) can be avoided, managed or mitigated;  |  |
|    | (vi) the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;  | 6.1  |
|    | (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; | 6.3  |
|    | (viii) the possible mitigation measures that could be applied and level of residual risk;   | 6.4  |
|    | (ix) the outcome of the site selection matrix;  | NA – will be completed in EIR              |
|    | (x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and  | 7.1  |

|    |   |                                    |
|----|---|------------------------------------|
|    | (xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;  | Further assessed in EIA            |
|    | a plan of study for undertaking the environmental impact assessment process to be undertaken, including—  | 7                                  |
|    | (i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;                          | 7.1                                |
|    | (ii) a description of the aspects to be assessed as part of the environmental impact assessment process;  | 7.2                                |
|    | (iii) aspects to be assessed by specialists;  | 7.3                                |
|    | (iv) a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;  | 6.1<br>7.4                         |
| h) | (v) a description of the proposed method of assessing duration and significance;  | 6.1<br>7.4                         |
|    | (vi) an indication of the stages at which the competent authority will be consulted;  | 4.3<br>7.5                         |
|    | (vii) particulars of the public participation process that will be conducted during the environmental impact assessment process;  | 7.5                                |
|    | (viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process;   | 7.6                                |
|    | (ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored. | Will be addressed in the EIA phase |
| i) | an undertaking under oath or affirmation by the EAP in relation to—   |                                    |
|    | (i) the correctness of the information provided in the report;  |                                    |
|    | (ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and  | Appendix G                         |
|    | (iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;           |                                    |



|    |   |  |
|----|---|--|
| j) | an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment; | Will be included after the commenting period |
| k) | where applicable, any specific information required by the competent authority; and   | Currently, not applicable                    |
| l) | any other matters required in terms of section 24(4)(a) and (b) of the Act.   | Currently, not applicable                    |

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## ABBREVIATIONS

|                  |  |
|------------------|--|
| <b>BID</b>       | Background Information Document  |
| <b>CARA</b>      | Conservation of Agricultural Resources Act                                   |
| <b>CBA</b>       | Critical Biodiversity Area   |
| <b>DWS</b>       | Department of Water and Sanitation   |
| <b>EA</b>        | Environmental Authorisation  |
| <b>EAP</b>       | Environmental Assessment Practitioner  |
| <b>EIR</b>       | Environmental Impact Report  |
| <b>EMFs</b>      | Environmental Management Framework   |
| <b>EMPr</b>      | Environmental Management Programme   |
| <b>ESA</b>       | Ecological Support Area  |
| <b>GIS</b>       | Geographical Information System  |
| <b>GNR</b>       | Government Notice Regulation   |
| <b>ha</b>        | Hectare  |
| <b>HIA</b>       | Heritage Impact Assessment   |
| <b>I&amp;APs</b> | Interested and Affected Parties  |
| <b>IUCN</b>      | International Union for Conservation of Nature                               |
| <b>NEM: BA</b>   | National Environment Management: Biodiversity Act (Act 10 of 2004)           |
| <b>NEM: WMA</b>  | National Environmental Management: Waste Management Act (Act No. 59 of 2008) |
| <b>NEMA</b>      | National Environmental Management Act (Act 107 of 1998) (as amended)         |
| <b>NHRA</b>      | National Heritage Resources Act, 1999 (Act No. 25 of 1999)                   |
| <b>NWA</b>       | National Water Act   |
| <b>PPP</b>       | Public Participation Process   |

|                |  |
|----------------|--|
| <b>SACNASP</b> | South African Council for Natural Scientific Professions |
| <b>SAHRA</b>   | South African Heritage Resources Agency                  |
| <b>SANBI</b>   | South African National Biodiversity Institute            |
| <b>SDF</b>     | Spatial Development Framework                            |
| <b>SDP</b>     | Spatial Development Plan                                 |
| <b>SCC</b>     | Species of Conservation Concern                          |

## DEFINITIONS AND TERMINOLOGY

**Activity:** means an activity identified in any notice published by the Minister or MEC in terms of section 24D(1)(a) of the NEMA as a listed activity or specified activity

**Alternatives:** in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the—

- (a) property on which or location where the activity is proposed to be undertaken;
- (b) type of activity to be undertaken;
- (c) design or layout of the activity;
- (d) technology to be used in the activity; or
- (e) operational aspects of the activity;

and includes the option of not implementing the activity;

**Application:** an application for an environmental authorisation in terms of Chapter 4 of the EIA Regulations (2014 as amended).

**Biodiversity:** Variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species, and of ecosystems.

**Cumulative impact:** in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.

**Development:** the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint.

**Development footprint:** any evidence of physical alteration as a result of the undertaking of any activity.

**Environmental authorisation:** The Competent Authority's grant or denial of permission to undertake the proposed activity. Previously referred to as the Record of Decision (RoD).

**EAP:** an environmental assessment practitioner as defined in section 1 of the NEMA.

**EMPr:** an environmental management programme contemplated in regulation 23 of the EIA Regulations (2014 as amended).

**Environmental Impact Assessment:** a systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and S&EIR.

**Mitigation:** to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

**Registered interested and affected party:** in relation to an application, means an interested and affected party whose name is recorded in the register opened for that application in terms of regulation 42 of the EIA Regulations (2014 as amended).

**Significant Impact:** an impact that may have a notable effect on one or more aspects of the environment or may result in noncompliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.

**Specialist:** a person that is generally recognised within the scientific community as having the capability of undertaking, in conformance with generally recognised scientific principles, specialist studies or preparing specialist reports, including due diligence studies and socio-economic studies. A specialist needs to be professionally registered (e.g. with the South African Council for Natural Scientific Professions).

## 1 INTRODUCTION

FE De Rust (Pty) Ltd (hereafter the Applicant) is proposing the development of a solar energy facility (SEF) and associated infrastructure on a site located approximately 23 kilometers (km) south of Pofadder in the Northern Cape province of South Africa. The proposed development, to be known as De Rust PV 2 SEF, will have a generation capacity of up to 240MW which will feed into the National Grid. Enviro-Insight CC (hereafter Enviro-Insight) has been appointed to undertake the requisite environmental impact assessment (EIA) process for the SEF as required in terms of the National Environmental Management Act (No. 107 of 1998) (NEMA), as amended, on behalf of the Applicant.

The proposed study area for the SEF development is located approximately 23km south of Pofadder within the Khâi-Ma Local Municipality, in the Northern Cape. The site can be reached via the R358 which branches off the N14 (Figure 1-1). The De Rust PV 2 SEF footprint is approximately 485 hectares (ha) and will be located on Portion 1 of the Farm Samoep 147 (21-digit Surveyor General code: C03600000000014700001) (Figure 1-2).

The De Rust North will consist of PV panels, with a generation capacity of 240MW, depending on the available technology at the time. Additional ancillary infrastructure to the SEF would include underground and above-ground cabling between project components, onsite substation/s, Battery Energy Storage Systems (BESS), mounting systems to support the PV panels, internal/ access roads (up to 10 m in width during the construction phase) linking the PV panels and other infrastructure on the site, and permanent workshop area and office for control, maintenance and storage. As far as possible, existing roads will be utilised and upgraded (where needed) with the relevant stormwater infrastructure and gates constructed as required. The perimeter of the proposed SEF may be enclosed with suitable fencing. A formal laydown area for the construction period, containing a temporary maintenance and storage building along with a guard cabin will also be established.

Additionally, a power line with a capacity of up to 132kV-400kV is required. At this stage, options are still being considered for the construction of a new line to feed into the Korana substation. This associated electrical infrastructure will require a separate Environmental Authorisation and is being conducted as a part of a separate Basic Assessment (BA) process. More details will be provided in the Environmental Impact Assessment Report (EIAR).







## 1.2 APPLICANT DETAILS

|                       |   |
|-----------------------|---|
| <b>Applicant</b>      | FE DE RUST PTY LTD  |
| <b>Contact Person</b> | Thomas Condesse   |
| <b>Address</b>        | Noland House, River Park, Mowbray, Western Cape, 7700             |
| <b>Telephone</b>      | +33622665932 / 0845484264   |
| <b>Email</b>          | thomas.condesse@energyteam.co.za / millard.kotze@energyteam.co.za |

## 1.3 THE ENVIRONMENTAL IMPACT ASSESSMENT PROJECT TEAM

### 1.3.1 Environmental Assessment Practitioner (EAP)

FE De Rust (Pty) Ltd has appointed Enviro-Insight CC as an independent Environmental Assessment Practitioner (EAP) to undertake a Scoping and Environmental Impact Assessment (S&EIA) process for the proposed De Rust PV 2 SEF. Enviro-Insight CC has no vested interest in the proposed project and hereby declares its independence as required by the EIA Regulations (2014, as amended). For purposes of this S&EIA, the following person may be contacted at Enviro-Insight CC:

*Table 1-1: Enviro-Insight contact details*

|                       |  |
|-----------------------|--|
| <b>Company</b>        | Enviro-Insight CC  |
| <b>Contact Person</b> | Marvin Ryan Grimett /Ronell Kuppen   |
| <b>Purpose</b>        | Environmental Assessment Practitioner and Environmental Consultant                           |
| <b>Address:</b>       | Unit 8 Oppidraai Office Park, 862 Wapadrand Road, Wapadrand Security Village, Pretoria, 0081 |
| <b>Telephone:</b>     | 012 807 0637   |
| <b>Email:</b>         | info@enviro-insight.co.za  |

#### 1.3.1.1 Qualifications and Memberships

Mr. Grimett holds a Bachelor of Social Science (Honours)- Geography and Environmental Management and is registered as an EAP (2019/1713.) with EPASA. He has more than 7 years' experience as an environmental assessment practitioner.

Ms. Kuppen has an BSc (Honours) degree in Geography, with approximately 10 years' experience in the environmental consulting field, ranging from EIA's, WULAS and Public Participation.



### 1.3.1.2 Summary of past experience

Mr. Grimett has over seven years' experience as an environmental consultant, compiling and managing several environmental authorisation reports, including Environmental Management Programmes (EMPr), rehabilitation plans and environmental auditing. This included fieldwork, data collection, preparation of permits and licensing studies, compliance monitoring and community engagement, and project managing interdisciplinary teams and contractors.

Ms. Kuppen has approximately 10 years' experience in the environmental consulting field, ranging from EIA's, WULAS and Public Participation and ECO's

### 1.3.2 Specialists

Specialist studies will be undertaken to address the key issues that require further investigation based on the screening report generated (Appendix E). The specialist studies involve the gathering of data relevant to identifying and assessing impacts that may occur as a result of the proposed project. The specialists will also recommend appropriate mitigation or optimisation measures to minimise potential negative impacts or enhance potential benefits, respectively.

Enviro-Insight has selected a team of highly experienced specialists in order to execute this S&EIA in a professional and impartial manner. The project team, specifically the sub-consultants, is indicated in Table 2-1

**Table 1-2: EIA sub-consultant Project Team.**

| Specialist Assessment            | Company                                | Professional Specialist   |
|----------------------------------|--|---|
| Terrestrial Biodiversity         | Enviro-Insight CC                      | Corné Niemandt <i>Pr.Sci.Nat.</i><br>Samuel Laurence <i>Pr.Sci.Nat.</i><br>Alex Rebelo <i>Cand.Sci.Nat.</i> |
| Sensitive Plant Species          | Enviro-Insight CC                      | Corné Niemandt <i>Pr.Sci.Nat.</i>   |
| Avifauna                         | Enviro-Insight CC                      | Samuel Laurence <i>Pr.Sci.Nat.</i><br>AE Van Wyk <i>Cand.Sci.Nat.</i>                                       |
| Aquatic Biodiversity             | Tate Environmental                     | Russell Tate <i>Pr.Sci.Nat.</i>   |
| Socio-economic                   | Independent social sciences consultant | Tony Barbour  |
| Traffic                          | Innovative Transport Solutions Global  | Pieter Arangie  |
| Heritage and Paleontological     | HCAC                                   | Jaco van der Walt   |
| Agriculture Compliance Statement | Independent Consultant                 | Johann Lanz   |

In addition to the S&EIR process, Enviro-Insight has provided a Terrestrial Biodiversity team that has conducted the avifauna, bats, sensitive plant species and terrestrial biodiversity assessments for this project. Accordingly, an independent specialist for each of these assessments will be appointed for the final review of the EIA reports in order to ensure that all reports are independent and unbiased.

Neither Enviro-Insight nor any of its sub-consultants are subsidiaries of *FE De Rust*, nor is *FE De Rust* a subsidiary to Enviro-Insight. Enviro-Insight, its sub-consulting specialists, and external reviewers, do not have any interests in secondary or downstream developments that may arise out of the authorisation of the proposed project.

#### 1.4 ASSUMPTIONS AND LIMITATIONS

Certain assumptions, limitations, and uncertainties are associated with the Scoping Phase. This report is based on information that is currently available and, as a result, the following limitations and assumptions are applicable:

- This report is based on project information provided by the Applicant, the initial layout design and the updated screening report dated November 2022;
- This report is based on a project description taken from client meetings, preliminary drawings and design specifications for the proposed SEF that have not yet been finalised and which are likely to undergo a number of iterations and refinements before they can be regarded as definitive and proposed methodology for the operations. Detailed information will be provided in the EIA Phase;
- No specialist studies have been completed for the scoping phase. Descriptions of the environmental, economic and social environments are based on limited desktop assessments and available literature for the area. Where necessary, specialists have been consulted. More detailed information will be provided in the EIA phase based on the outcomes of the specialist studies. Limited scoping-phase specialist input was obtained for inclusion in this report;
- The description of the baseline environment and where possible the up-to-date information has been obtained from various sources. More detailed information will be provided in the EIA phase based on the outcomes of the specialist studies, and the finalisation of the design layout;
- A detailed impact assessment cannot be done at present as the levels of confidence are considered low until detailed specialist input and comments from the I&APs are obtained which will be presented and discussed in more detail during the EIA phase;
- Public Participation is a continuous process and will continue throughout the EIA process. I&APs can register at any time and contact the EAP regarding comments, issues or concerns throughout the process. I&APs should not wait until

an opportunity arises such as when the draft reports are released for review and comment to raise their concerns or interact with the EAP.

## 2 DESCRIPTION OF THE PROPOSED PROJECT

### 2.1 NATURE AND EXTENT OF PROPOSED DE RUST PV 2 SEF

The Applicant is responding to the growing electricity demand within South Africa, the current infrastructure failure which disrupts sufficient electricity supply, and the increasing pressure on countries to reduce their reliance on fossil fuels, by addressing the need for sustainable renewable energy in the country. Accordingly, the Applicant is proposing the development of a commercial SEF and associated infrastructure on the remainder of the farm Samoep, located south of Pofadder, to add new capacity to the national electricity grid.

The proposed study area for the SEF development is located approximately 23km south of Pofadder. The site can be reached via the R358 which branches off the N14 (Figure 1-1). The De Rust PV 2 SEF footprint is approximately 485 hectares (ha) and will be located on Portion 1 of the Farm Samoep 147 (Figure1-2).

**Table 2-1: Project summary**

| De Rust Solar PV2                            |                                  |               |
|--|----------------------------------|---------------|
| Farm name(s)/ Erf No                         | Portion 1 of the Farm Samoep 147 |               |
| 21-digit Surveyor General code               | C03600000000014700001            |               |
| Ward   | 6                                |               |
| Local Municipality                           | Khâi-Ma Local Municipality       |               |
| District Municipality                        | Namakwa District Municipality    |               |
| Co-ordinates of the proposed site/s (DDMMSS) | Latitude (S)                     | Longitude (E) |
| Point A                                      | 29°20'7.47"S                     | 19°23'0.94"E  |
| Point B                                      | 29°20'15.31"S                    | 19°24'34.47"E |
| Point C                                      | 29°21'28.74"S                    | 19°23'55.43"E |
| Point D                                      | 29°21'22.75"S                    | 19°23'2.21"E  |
| Mid-Point                                    | 29°20'52.61"S                    | 19°23'38.84"E |
| State the extent of proposed development     | approximately 485 hectares       |               |

What is the current zoning and current land use of the site(s)?

Agricultural

The proposed De Rust PV 2 SEF will consist of PV panels, with a generation capacity of 240MW, depending on the available technology at the time. Additional ancillary infrastructure to the SEF would include underground and above-ground cabling between project components, onsite substation/s, Battery Energy Storage Systems (BESS), mounting systems to support the PV panels, internal/ access roads (up to 10 m in width) linking the PV panels and other infrastructure on the site, and permanent workshop area and office for control, maintenance and storage. As far as possible, existing roads will be utilised and upgraded (where needed) with the relevant stormwater infrastructure and gates constructed as required. The perimeter of the proposed SEF may be enclosed with suitable fencing. A formal laydown area for the construction period, containing a temporary maintenance and storage building along with a guard cabin will also be established.

The components of the SEF and associated infrastructure are as follows:

- PV panels will have a generation capacity of up to 240 MW (depending on the available technology at the time),
- PV Panel Mounting System,
- onsite substation/s of 100mX100m (33/132kV) to facilitate the connection between the SEF and Aggeneys substation,
- a Battery Energy Storage System (BESS),
- cabling between PV panels, to be laid underground,
- internal/ access roads (up to 10 m in width during the construction phase) linking the PV panels rows and other infrastructure on the site,
- permanent workshop area and office for control, maintenance and storage, and
- temporary laydown areas during the construction phase (which will be rehabilitated).

The final PV Panel model to be utilised will only be determined closer to the time of construction, depending on the technology available at the time. The optimal positioning (taking into account the energy generating potential) for each panel will be determined once all the environmental sensitivities have been determined in the EIA phase. The preferred layout design and development footprint is included in the EIAr.

The components of a typical solar facility subsystem are depicted by Figure 2-1 and Figure 2-2, which entails:

- Photovoltaic Cells: Solar cells can be arranged into large groupings called arrays. These arrays, composed of many thousands of individual cells, can function as central electric power stations, converting sunlight into electrical energy for distribution to industrial, commercial, and residential users.

- Support Structures (Solar Panel Mounts)– The PV Panels will require a supportive structure. These can either be a fixed structure, where the panels are placed at an angle to obtain maximum solar irradiation, or it could be axis tracking support structure that will track the movement of the sun throughout the day to maximise solar irradiation. The preferred layout will be determined during construction.

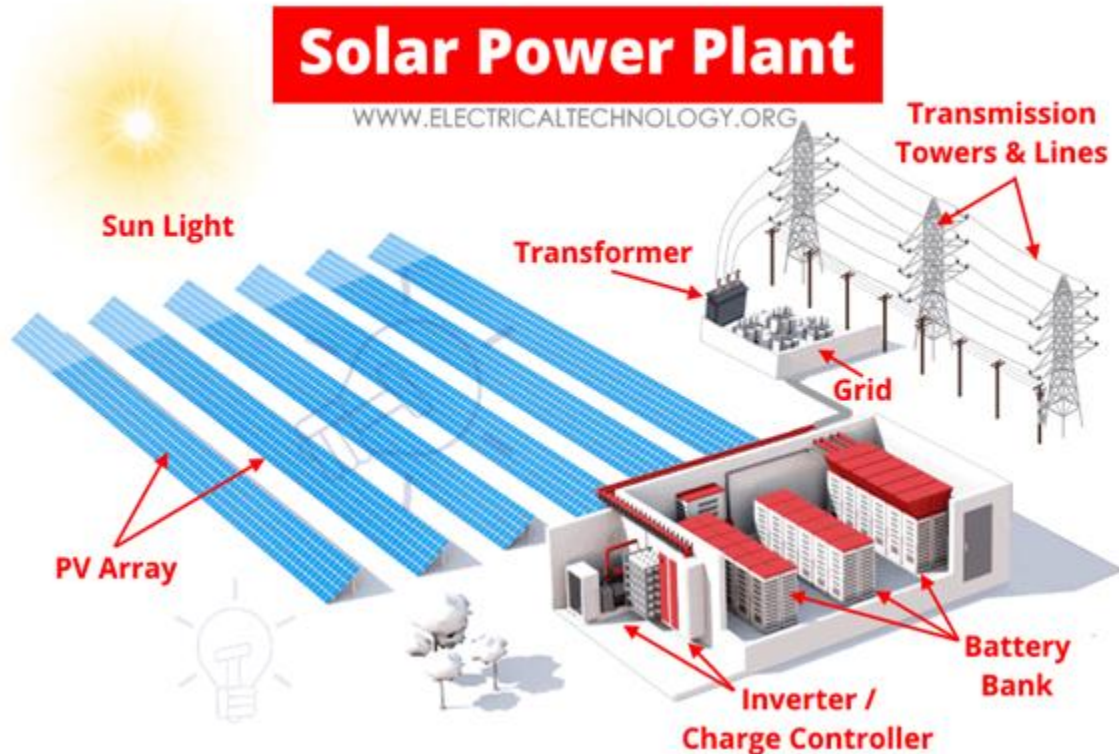


Figure 2-1: Simplified diagram of the main components of a Solar Facility. (Source: <https://www.electricaltechnology.org>).



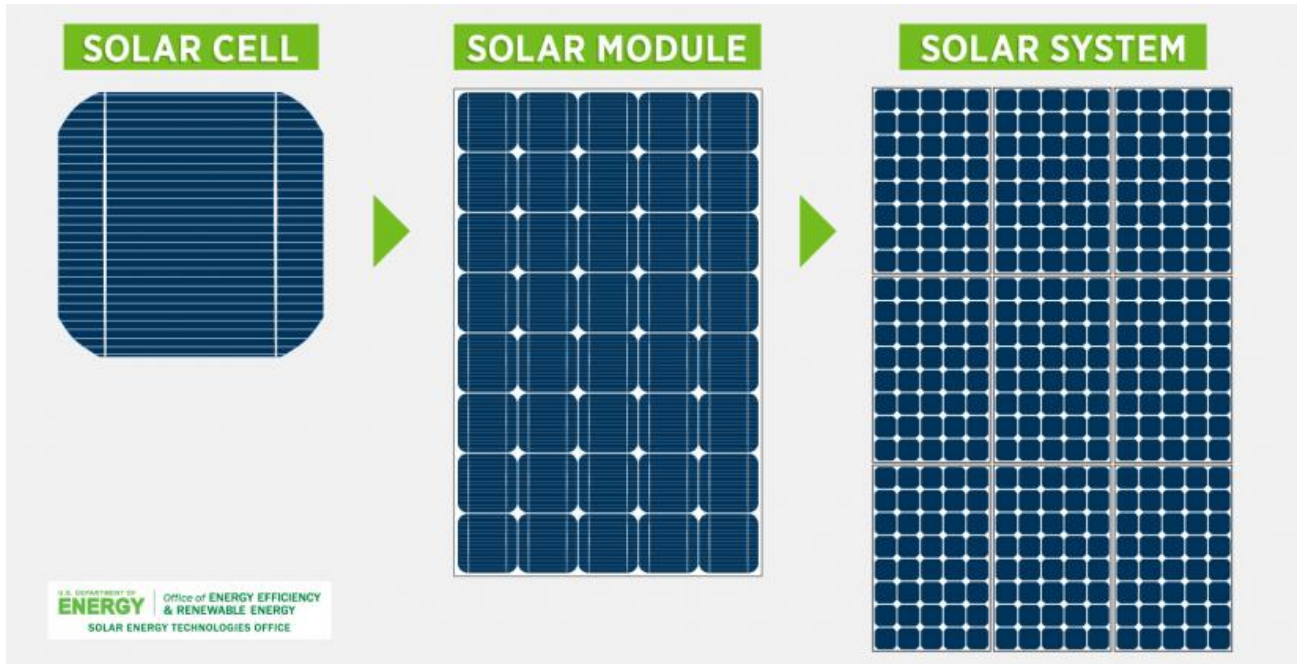


Figure 2-2: Simplified diagram of the PV System from PV cell to module to PV Array. Source: [www.energy.gov](http://www.energy.gov)

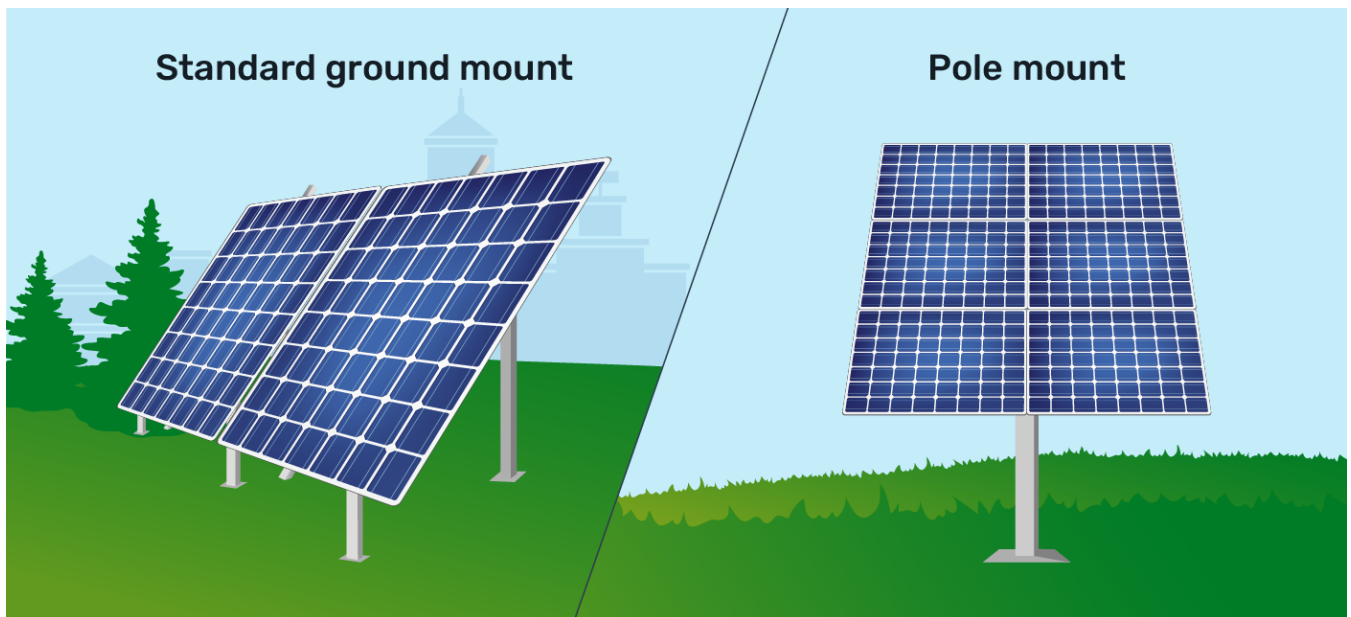


Figure 2-3: PV Solar Panel Mounts. Source: [www.solarreviews.com](http://www.solarreviews.com).

## 2.2 PROJECT DEVELOPMENT PHASES

The following section describes the details the different phases of the proposed De Rust PV 2 SEF:

- Pre-Construction
- Construction;
- Operation; and
- Decommission.

### **Pre-construction**

Prior to the commencement of the main construction works, the Contractor will undertake vegetation clearance and site establishment works.

This phase ensures that all design layouts are finalised, that risks associated with the construction phase is discussed and mitigated prior to commencement, to do a final walkdown of the study area and to apply and secure the necessary permits. The 'search and rescue' procedure with regards to plants, animals and heritage features must be done, and all sensitive areas with their buffers must be demarcated prior to commencement with construction activities.

### **Construction**

Prior to the commencement of the main construction works, the Contractor will undertake vegetation clearance and site establishment works.

The construction phase is temporary in nature (usually up to 24 months) with a development footprint for the construction of:

- compounds and laydown areas;
- platforms, or "crane pads", required to erect the solar panels;
- new or upgraded access and internal roads;
- storage areas and site office;
- substation and BESS;
- underground cables to connect the solar panels to the on-site substation;

Even though not a physical construction activity, the construction phase includes the transport of components and equipment to and within the site.

After the construction phase is completed, rehabilitation of temporary construction areas will commence. Any area that does not form part of the operational phase of the project (this can include internal roads and access points) must be rehabilitated as per the rehabilitation plan (to be included in the EIA report).



**Figure 2-4: Photographs depicting the construction phase of a solar farm similar to De Rust Solar PV2 SEF. Source: [www.power-technology.com](http://www.power-technology.com), [renewablesnow.com](http://renewablesnow.com).**

### **Operational phase**

The operational phase is about 20-25 years, and mainly consists of operation and maintenance. All the solar panels will be operational except under circumstances of mechanical breakdown, inclement weather conditions or for maintenance purposes.



## Decommissioning

Solar farm components have an expected end of life, whereby the components need to be dismantled and transported off site, or by replacing the existing infrastructure with the latest technology based on the relevant legislation at the time. Decommissioning requires a temporary laydown area and associated access to accommodate the required equipment and lifting cranes. Prior to the transportation off site, the components need to be evaluated based on reuse, recycle or permanent disposal in accordance with regulatory requirements at that time. The area needs to be rehabilitated based on the rehabilitation plan, by returning the soil, landscape features and vegetation back to its original state prior to the construction phase in order for the land to be used for agricultural purposes again, or as determined by the landowner and competent authorities.

## 2.3 NEED AND DESIRABILITY

As part of the EIA process, the need and desirability for the development of the proposed De Rust PV 2 SEF needs to be considered and discussed in order to provide context regarding the realistic economic and social benefits the development will add on all spheres of government (local, provincial and national).

Reference is made to the Department of Environmental Affairs (DEA) 2017 Guideline on Need and Desirability which states that while the “concept of need and desirability relates to the type of development being proposed, essentially, the concept of need and desirability can be explained in terms of the general meaning of its two components in which need refers to time and desirability to place – i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed? Need and desirability can be equated to wise use of land – i.e., the question of what is the most sustainable use of land.”

**Table 2-2: Need and Desirability**

| Question   |   | Answer  |
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| <b>“securing ecological sustainable development and use of natural resources”</b>                                |   |   |
| 1. How will this development (and its separate elements/aspects) impact on the ecological integrity of the area? |   |   |
| 1.1. How were the following ecological integrity considerations taken into account?:                             | 1.1.1. Threatened Ecosystems  | There is no threatened ecosystem  |
|  | 1.1.2. Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning | Various specialist studies were compiled for the proposed project. Refer to Section 5.4-Section 5.12 and Appendix D for the specialist studies undertaken. These specialists have taken inconsideration all impacts relating to the proposed development and provided the |

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|   | procedures, especially where they are subject to significant human resource usage and development pressure   | appropriate mitigation measures, which the applicant is committed to following.  |
|   | 1.1.3. Critical Biodiversity Areas (“CBAs”) and Ecological Support Areas (“ESAs”)  | Refer to Section 5.4   |
|   | 1.1.4. Conservation targets  | Refer to Section 5.4   |
|   | 1.1.5. Ecological drivers of the ecosystem   | Refer to Section 5.4   |
|   | 1.1.6. Environmental Management Framework  | Refer to Section 5.4   |
|   | 1.1.7. Spatial Development Framework   | Refer to Section 5.4   |
|   | 1.1.1. Threatened Ecosystems   | Refer to Section 5.4   |
|   | 1.1.8. Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.)   | All global responsibilities to which South Africa is signatory or party to were considered, the proposed development complies with all international responsibilities. |
| <p>1.2. How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p> | <p>The proposed SEF can disturb plant and species and vegetation from clearing of the development footprint, soil erosion and alien plant invasion. Increased levels of pollution, noise, disturbance and human presence can impact negatively on faunal communities.</p> <p>As part of the Scoping process preliminary specialist assessments were conducted to identify areas most environmentally suitable for development within the proposed development site boundary.</p> <p>As a result of these preliminary assessments a proposed development layout has been produced that avoids sensitive areas and identified constraints.</p> <p>Detailed specialist reports will be compiled and included in the Environmental Impact Assessment Report (EIAR) that will include</p> |  |

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|   | <p>proposed mitigation measures to further reduce risks or enhance opportunities during construction, operation and decommissioning phases of the development. With implementation of these mitigation measures, all identified negative impacts are expected to be reduced to acceptable levels of medium or low negative significance. All mitigation measures proposed by the specialists are included in the EMPr for the project.</p>   |
| <p>1.3. How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>  | <p>On a national level the development will lessen the country's dependency on coal, and contribute to lowering water consumption, pollution and environmental degradation per kW of electricity produced.</p>   |
| <p>1.4. What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?</p>   | <p>The generation of waste will largely be restricted to the construction phase of the project and consist of normal construction phase solid waste streams.</p> <p>The EMPr which will be included in the EIAr will detail specific mitigation measures that must be implemented for the appropriate management and minimisation of waste, during all phases of the project.</p> <p>Registered service providers will be utilised to transport solid waste to registered landfills.</p> |
| <p>1.5. How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p> | <p>Visual assessments will be conducted during the EIA phase of the development and the relevant buffers will be applied to cultural landscapes / heritage sites. The proposed development layout is produced by avoiding solar panels placement within sensitive areas based on the preliminary assessment.</p> <p>A Heritage Impact Assessment and a Visual Impact Assessment will be conducted during the EIA phase to assess the proposed layout.</p>                                |

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| <p>1.6. How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p> | <p>Solar is a renewable resource and will be the 'fuel' for the SEF to generate electricity.</p> <p>Therefore, the development will have a minimal impact on non-renewable resources.</p>  |
| <p>1.7. How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use</p>  | <p>The SEF will use the renewable energy resource of solar to generate power.</p> <p>Construction of the SEF will require use of water, a renewable natural resource.</p> <p>Operation of the SEF will consume relatively small quantities of water when compared to alternative energy technologies such as coal.</p> <p>Impacts on the ecosystem caused by use of these renewable energy resources has been evaluated.</p>                                 |
|   | <p>1.7.1. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. dematerialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)</p>   |
|   | <p>1.7.2. Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important</p>  |
|   | <p>The proposed SEF will reduce South Africa's dependency on non-renewable resources, particularly coal, as an energy source.</p> <p>Solar as an energy source is not dependant on water, as compared to the massive water requirements of conventional power stations, has a limited footprint and does not impact on large tracts of land, and poses limited pollution and health risks, specifically when compared to coal and nuclear energy plants.</p> |
|   | <p>The current land use is low-intensity grazing and the land is not suitable for other agricultural uses.</p>   |

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| <p>of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?</p> | <p>priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)</p> | <p>The proposed development will increase yield as the landowners will be paid for the use of their land. This will improve cash flow and financial sustainability of farming enterprises on site.</p> <p>The proposed development itself will not cause a significant change in land use, as the development site is primarily low intensity agriculture (grazing), which can still proceed once the development is constructed.</p> <p>Solar is a renewable resource and a solar energy facility is the best use thereof.</p> <p>The SEF site would also be suitable for a solar energy facility, however the current land use would not be able to continue.</p>   |
|   | <p>1.7.3. Do the proposed location, type and scale of development promote a reduced dependency on resources?</p>   | <p>The proposed SEF is predicted to reduce dependency on coal as an energy source.</p> <p>Solar as an energy source is not dependant on water, as compared to the massive water requirements of conventional coal fired power stations, has a limited footprint and does not impact on large tracts of land, and poses limited pollution and health risks, specifically when compared to coal and nuclear energy plants.</p>  |
| <p>1.8. How were a risk-averse and cautious approach applied in terms of ecological impacts?</p>  | <p>1.8.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p>                                     | <p>This report is based on a project description and site plan, provided to by the applicant, which has not been approved by DFFE at this stage of the project. The project description and site plan may undergo refinements before being regarded as final. A project description based on the final design will be concluded once DFFE has provided feedback on the layout provided in this report.</p> <p>Descriptions of the natural and social environments are based on limited fieldwork and available literature.</p> <p>It should be emphasised that information, as presented in this document, only has reference to the study area as indicated on the accompanying maps. Therefore, this information cannot be applied to any other area without a detailed investigation being undertaken.</p> |

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|  | <p>1.8.2. What is the level of risk associated with the limits of current knowledge?</p>  | <p>The risk associated with assumptions and limits of current knowledge is the potential for information being assessed to be incorrect. This would translate to erroneous impact identification and mitigation measures. However, due to the amount of site work conducted the risk associated with this is considered to be low.</p>   |
|  | <p>1.8.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>  | <p>The project description and site plan will undergo refinements before being regarded as final. A project description based on the final design will be concluded once DFFE has provided feedback on the layout provided in this report.</p>   |
| <p>1.9. How will the ecological impacts resulting from this development impact on people's environmental right in terms following</p>  | <p>1.9.1. Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</p> | <p>Preliminary assessments were conducted and identified and assessed by the specialists. Detailed impact assessments and specialist studies will be conducted during the EIA phase of the project and will take into consideration all impact and mitigation measures proposed by the specialists.</p> <p>Based on preliminary assessments undertaken the proposed development attempts to avoid sensitive areas and where there is an impact the mitigation measures provided by the specialists during the EIA phase will be implemented.</p>                     |
|  | <p>1.9.2. Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?</p>  | <p>Renewable energy has fewer negative health effects than other forms of non-renewable energy generation and will have overall positive health benefits.</p>  |
| <p>1.10. Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?</p> |   | <p>The preliminary findings of this SIA conducted for the proposed SEF indicates that during the construction and the operational phase of the proposed development project, various employment opportunities, with different levels of skills will be created. In addition, this will also create local business opportunities benefitting the socioeconomic development of the local communities. The proposed SEF also represents an investment in clean, renewable energy infrastructure, which, given the negative environmental and socio-economic impacts</p> |

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|   | associated with a coal based energy economy and the challenges created by climate change, represents a significant positive social benefit for society as a whole.  |
| 1.11. Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?   | The preliminary assessment of the potential impacts on ecology, avifauna, bat and aquatic have indicated that the proposed development does not have unacceptable negative impacts. These however will be updated and detailed during the EIA phase when detailed specialist studies will be included.        |
| 1.12. Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the “best practicable environmental option” in terms of ecological considerations? | Specialist recommendations, buffers and no-go areas will influence mapping. These will identify the most suitable areas for development for which a development layout was then produced for assessment. The results of the specialist’s studies further informed the development of the updated site layout. |
| 1.13. Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?  | The cumulative impacts will be assessed during the EIA phase.   |

**“promoting justifiable economic and social development”**

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| 2.1. What is the socio-economic context of the area, based on, amongst other considerations, the following considerations? | <p>2.1.1. The IDP (and its sector plans’ vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area</p> <p>Namakwa District municipality Integrated Development Plan (IDP): The 2020/2021 IDP indicates that it aligns with the 17 United Nations development goals, ranging from alleviating poverty and reducing inequality through job creation and economic growth, as well as ensuring access to affordable, reliable, sustainable and modern energy for all. The IDP states that local economic development will include the construction of renewable energy projects in the area.</p> <p>Khai Ma Local Municipality Integrated Development Plan (IDP) 2017-2022: The IDP indicates five Key Performance Areas (KPA) of which Infrastructure Development and Basic Service Delivery (KPA1) and Economic Development (KPA 3) are relevant and applicable to the proposed SEF.</p> |
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|   |  | <p>In summary the proposed De Rust PV 2 SEF is in congruence with national provincial and local policies and frameworks and is supported by policy.</p> <p>Northern Cape Spatial Development Framework, 2018</p> <p>The interior parts of the Province and the Namaqualand coast have been identified as having potential for renewable energy production and targets have been put in place for 25% of the provinces' energy generation capacity to be acquired from renewable energy projects such as wind, solar, thermal, biomass and hydroelectricity by the year 2020.</p>   |
|   | <p>2.1.2. Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),</p> <p>2.1.3. Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.)</p> <p>2.1.4. Municipal Economic Development Strategy ("LED Strategy")</p> | <p>The current zoning of the property is agricultural. An application will be submitted to the municipality for approval. The proposed SEF will fit into the current landscape as this is evolving to accommodate SEFs in the area.</p> <p>Khai Ma Local Municipality Integrated Development Plan (IDP) 2017-2022: The IDP indicates five Key Performance Areas (KPAs) of which Infrastructure Development and Basic Service Delivery (KPA1) and Economic Development (KPA 3) are relevant and applicable to the proposed SEF. KPA3 will lead to Local Economic Development (LED), food security, social infrastructure, health, environment, education, and skills development.</p> |
| <p>2.2. Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-</p> | <p>2.2.1. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?</p>   | <p>The proposed development will contribute towards local economic development and skills development programs of the local and district municipalities through the support and co-operation between public and private sectors, creation of employment and business opportunities, and the opportunity for skills development and on-site training during both construction and operation phases.</p>   |

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| <p>economic objectives of the area?</p>  |  |  |
|  | <p>2.3. How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities</p>   | <p>The proposed development will contribute towards the local economic development strategies of the municipalities through the creation of employment and business opportunities, and the opportunity for skills development and on-site training during both construction and operation phases.</p> <p>In addition, the proposed development will also create local business opportunities benefitting the socio-economic development of the local communities.</p>  |
|  | <p>2.4. Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?</p> | <p>SEFs are socially and economically sustainable in the short and long term. Social economic development contributions are concentrated in the immediate vicinity of the SEF benefiting the local community.</p>  |
| <p>2.5. In terms of location, describe how the placement of the proposed development will:</p> | <p>2.5.1. result in the creation of residential and employment opportunities in close proximity to or integrated with each other</p>   | <p>During the construction phase of the proposed SEF employment opportunities will be created, for low-skilled workers, semi-skilled and for skilled personnel. Members from the local communities are likely to be in a position to qualify for the majority of the low skilled and a proportion of the semi-skilled positions.</p> <p>The typical lifespan of SEFs is 20 to 25 years. During the operational phase there will be a significant decrease in employment opportunities.</p> <p>It should be noted that the majority of the semi- and low skilled employment opportunities are likely to be available to the local communities, which will present a positive social benefit to these communities due to the low availability of employment opportunities in these areas. The recruitment process and the requirements for each skill level and each employment opportunity need to be clearly communicated to local communities to ensure that no unrealistic expectations are created.</p> |

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|  | <p>2.5.2. reduce the need for transport of people and goods</p>   | <p>The need for transport of people and goods will be increased during the construction phase. Most staff employed will live within the local community or surrounding areas thereby lowering carbon footprints are predicted due to the commercial forms of transport that will be employed to move the workforce (e.g. public transport, contractor buses).</p>   |
|  | <p>2.5.3. result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport)</p> | <p>N/A</p>  |
|  | <p>2.5.4. compliment other uses in the area</p>   | <p>Local communities and their service providers will benefit from the socio-economic development provided by the SEF and current land use will be able to continue.</p>  |
|  | <p>2.5.5. be in line with the planning for the area</p>   | <p>The proposed SEF is in line with applicable international, national, provincial and local planning strategies.</p>   |
|  | <p>2.5.6. for urban related development, make use of underutilised land available with the urban edge</p>   | <p>The proposed development occurs away from the urban edge and within rural portion of the geographical area.</p>  |
|  | <p>2.5.7. optimise the use of existing resources and infrastructure</p>   | <p>Solar energy is a renewable, clean resource and reduces pollution and the reliance on non-renewable fossil fuels and water for electricity generation.</p> <p>Existing access roads will be utilised wherever possible.</p> <p>The existing Eskom substation has the capacity to support this development.</p> <p>It is expected that any construction water required will be delivered by tankers.</p> <p>Waste removal will be in accordance with best practice by qualified waste removal contractors to the nearest registered landfill.</p> |

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|   | <p>Portable sanitation facilities will be utilised during construction, so that no connection to the local sewerage system will be required.</p> <p>Any additional infrastructure required will be constructed by the developer.</p>   |
| 2.5.8. opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement) | <p>Solar energy is a renewable, clean resource and reduces pollution and the reliance on non-renewable fossil fuels and water for electricity generation, this will contribute to the electrical bulk services for the region.</p>   |
| 2.5.9. discourage "urban sprawl" and contribute to compaction/densification   | <p>Not applicable as the proposed development site lies within rural areas.</p>  |
| 2.5.10. contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs   | <p>The existing Korana substation has capacity for additional energy generation. The proposed development will utilise this existing capacity.</p> <p>The project will contribute to economic and infrastructure development in the Northern Cape Province, in line with the Provincial Development and Resource Management Plan.</p>  |
| 2.5.11. encourage environmentally sustainable land development practices and processes  | <p>Construction of the renewable energy SEF project will assist South Africa in transitioning from a carbon-intensive resource use economy to a sustainable low carbon footprint economy.</p> <p>Sustainable land development is an overarching aspect of the proposed project development.</p>  |
| 2.5.12. take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.)  | <p>Feasibility of access for solar panel delivery, the site is easily accessible from the main roads;</p> <p>Close proximity to the Eskom grid with available evacuation capacity;</p> <p>Viable solar source, therefore suited to a solar farm development;</p> <p>The proposed site is agricultural land with low agricultural potential and willingness of landowners to host a solar farm on their properties.</p> |

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|  | <p>2.5.13. the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential)</p>                  | <p>The proposed development will create jobs and contribute towards socio-economic development in an area that does not have high economic potential. The SEF is likely to result in positive socio-economic opportunities. Refer to section 5.10</p>   |
|  | <p>2.5.14. impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area</p> | <p>Impacts to the cultural landscape are unavoidable but may be of a medium to low significance and no other aspects of heritage are expected to be impacted significantly, if identified. The area is currently being developed to accommodate various solar farms, therefore the sense of place is currently changing and the proposed SEF will fit into the change in sense of place.</p>  |
|  | <p>2.5.15. in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?</p>                                 | <p>The proposed development is predicted to support the creation of a more integrated settlement.</p>   |
| <p>2.6. How were a risk-averse and cautious approach applied in terms of socio-economic impacts?</p> | <p>2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p>  | <p>Please refer to section 1.3 for a detailed list of Assumptions and Limitations.</p> <p>This report is based on a project description and site plan, provided by the applicant, which has not been approved by DFFE at the current stage of the project. The project description and site plan will undergo refinements before being regarded as final. A project description based on the final design will be concluded once DFFE has provided feedback on the layout provided in this report.</p> <p>Descriptions of the natural and social environments are based on fieldwork, available literature and desktop analysis.</p> <p>It should be emphasised that information, as presented in this document, only has reference to the study area as indicated on the accompanying maps. Therefore, this information cannot be applied to any other area without a detailed investigation being undertaken.</p> |

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|   | <p>2.6.2. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?</p> | <p>The risk due to limits of current knowledge is considered to be low due to the positive socioeconomic impact expected from the proposed SEF.</p>  |
|   | <p>2.6.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>  | <p>A risk-averse and cautious approach was utilised throughout the impact assessment process by all specialists.</p>   |
| <p>2.7. How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:</p>  | <p>2.7.1. Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</p>     | <p>Negative social impacts relating to the proposed SEF will be assessed in detail by the specialist. Appropriate mitigation measures will be provided during the EIA Phase. Please refer to Section 5.10.</p>   |
|   | <p>2.7.2. Positive impacts. What measures were taken to enhance positive impacts?</p>   | <p>Positive impacts were identified by the Social Specialist, refer to Section 5.10</p>  |
| <p>2.8. Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?</p> |   | <p>There is a potential that the proposed SEF will place a strain on services and the ecological environment. The relevant specialist have accounted for these impacts during their preliminary assessments and will provide mitigation measures during the EIA Phase.</p> |
| <p>2.9. What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?</p>  |   | <p>The site sensitivity map identified the most suitable areas for development for which a development layout was then produced for assessment. The results of the preliminary specialist's studies.</p>   |
| <p>2.10. What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons</p>   |   | <p>The proposed development aligns with a variety of planning policies that consider environmental and spatial justice.</p>  |

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| <p>(who are the beneficiaries and is the development located appropriately)?<sup>34</sup></p> <p>Considering the need for social equity and justice, do the alternatives identified, allow the “best practicable environmental option” to be selected, or is there a need for other alternatives to be considered?</p> |  |   |
| <p>2.11. What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?</p>                | <p>The proposed development will contribute to equitable access by supplying electricity to the national grid, and by providing local and regional socioeconomic benefits in terms of the REIPPPP Economic Development requirements, which includes a BBBEE scorecard on which solar projects are evaluated.</p> |   |
| <p>2.12. What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?</p>  | <p>Construction, operation and decommissioning of the proposed development will be done according to environmental health and safety legislative requirements and applicable guidelines.</p>   |   |
| <p>2.13. What measures were taken to:</p>  | <p>2.13.1. ensure the participation of all interested and affected parties</p>   | <p>Public participation is being undertaken according to NEMA: EIA Regulations (2014) as amended and DEA (2017) Public Participation Guidelines.</p>  |
|  | <p>2.13.2. provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation</p>  | <p>The PPP is being undertaken in terms of legislative requirements and best practise guidelines. All notifications are provided in English.</p>  |
|  | <p>2.13.3. ensure participation by vulnerable and disadvantaged persons,</p>   | <p>The PPP is being undertaken according to best practise guidelines; Notification of initiation of the PPP was provided in all required channels, i.e. newspaper adverts, site notices, local posters and written notifications.</p> |
|  | <p>2.13.4. promote community wellbeing and empowerment through environmental education, the raising of</p>   | <p>The proposed development fits into the various planning policies</p>   |



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|  | <p>environmental awareness, the sharing of knowledge and experience and other appropriate means,</p>   |   |
|  | <p>2.13.5. ensure openness and transparency, and access to information in terms of the process</p>   | <p>Legislative requirements and best practise guidelines are followed throughout the process.<br/><br/>The PPP is being undertaken in terms of legislative requirements and best practise guidelines.</p> |
|  | <p>2.13.6. ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge</p>  | <p>A PPP is being undertaken in terms of legislative requirements and best practise guidelines.<br/><br/>A Social Impact Assessment forms part of the process.</p>  |
|  | <p>2.13.7. ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted</p>   | <p>The PPP that are conducted according to legislation and guidelines ensure that women and youth are recognised and involved in the process.</p>   |
| <p>2.14. Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g.. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?</p> | <p>The proposed SEF has a good planning fit with all applicable policies and will result in substantial local socio-economic opportunities.<br/><br/>The key challenges facing the region are poverty and inequality and a shortage of skills.<br/><br/>As such the proposed development will be of benefit to the local area by creating job and business opportunities, particularly for unskilled and semi-skilled local workers.</p> |   |
| <p>2.15. What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have</p>   | <p>Future workers on the proposed development will be educated on their rights to refuse work.</p>   |   |

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| <p>been taken to ensure that the right of workers to refuse such work will be respected and protected?</p> |   |   |
| <p>2.16. Describe how the development will impact on job creation in terms of, amongst other aspects:</p>  | <p>2.16.1. the number of temporary versus permanent jobs that will be created,</p>  | <p>Temporary employment opportunities will be created during the construction phase and permanent employment opportunities will be created for the operational phase of the proposed development for skilled and unskilled workers</p>  |
|  | <p>2.16.2. whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),</p> | <p>The majority of the semi- and low-skilled employment opportunities are likely to be available to the local communities, which will present a positive social benefit to these communities due to the low availability of employment opportunities in these areas.</p>  |
|  | <p>2.16.3. the distance from where labourers will have to travel,</p>   | <p>It is expected that most workers will reside in the nearby towns.</p>  |
|  | <p>2.16.4. the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits),</p>                                       | <p>The majority of employment opportunities associated with the operational phase is likely to benefit the community. It will also be possible to increase the number of local employment opportunities through the implementation of a skills development and training programme linked to the operational phase.</p> <p>The local hospitality industry is likely to benefit from the operational phase. These benefits are associated with site visits by company staff members and other professionals (engineers, technicians etc.) who are involved in the company and the project but who are not linked to the day-to-day operations.</p> <p>Procurement during the operational phase will also create opportunities for the local economy and businesses.</p> |
|  | <p>2.16.5. the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).</p>                              | <p>The creation of jobs associated with the proposed SEF represents a high opportunity cost, as the employment by current agriculture operations is very low, and could continue.</p>   |
|  | <p>2.17.1. that there were intergovernmental coordination and</p>   | <p>All applicable planning policies and legislation were considered. The proposed development fits with all planning policies.</p>  |

|   |  |  |
|---|--|--|
| <p>2.17. What measures were taken to ensure:</p>  | <p>harmonisation of policies, legislation and actions relating to the environment</p> <p>2.17.2. that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?</p>                                      | <p>Organs of State were pre-identified and registered on the I&amp;AP database.</p> <p>As registered I&amp;APs all public correspondence including notifications of reports availability are provided.</p> |
| <p>2.18. What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people’s common heritage?</p>  | <p>The proposed development aims to uphold the principles of sustainable development.</p> <p>The project team consists of suitably qualified individuals that comply with all legal requirements.</p>  |  |
| <p>2.19. Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?</p>  | <p>Detailed Specialist mitigation measures will be included during the EIA phase of the project.</p>   |  |
| <p>2.20. What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?</p>                                      | <p>An EMPr will submitted with EIAR. The EMPr is a legally binding document, which when enforced during construction, operational or decommissioning phases, hold the applicant or their representative liable for any remedial actions as a result of negligence.</p> |  |
| <p>2.21. Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?</p> | <p>The alternative selection process includes the assessment of the No Development alternative, site alternatives, design layout alternatives and technology alternatives.</p>   |  |
| <p>2.22. Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?</p>  | <p>Specialist will identify cumulative impacts during the EIA process and provided in the EIAR.</p>  |  |

### 3 LEGAL CONTEXT

In terms of GNR 779 of 1 July 2016, the National Department of Environment, Forestry and Fisheries (DEFF) has been determined as the Competent Authority in terms of Section 24C(1), 24C(2)(a)(i) and 24D of the National Environmental Management Act, 1998, confirms that the Minister of Environmental Affairs is the Competent Authority for activities which are identified as activities in terms of section 24(2)(a), which may not commence without an environmental authorisation, and which relates to the Integrated Resources Plan (IRP) 2010 - 2030 and any updates. The legislative and policy context of this Report is described in detail below.

#### 3.1 NATIONAL ENVIRONMENTAL SCREENING TOOL AND ENVIRONMENTAL THEME PROTOCOLS

##### 3.1.1 Screening Report

The Minister of Environment, Forestry and Fisheries, gave notice that the submission of a report generated from the national web-based environmental screening tool<sup>2</sup>, as contemplated in Regulation 16(1)(b)(v) of the Environmental Impact Assessment Regulations, 2014, published under Government Notice No. R982 in Government Gazette No. 38282 of 4 December 2014, as amended, will be compulsory from 4 October 2019 when submitting an application for environmental authorisation in terms of regulation 19 and regulation 21 of the Environmental Impact Assessment Regulations, 2014.

In addition, a set of protocols that an applicant needs to adhere to in the Environmental Authorisation (EA) process were developed and on 20 March 2020 the Minister of Forestry, Fisheries and the Environment gazetted the Protocols for national implementation purposes. The gazette '*Procedures to be followed for the Assessment and Minimum Criteria for Reporting of Identified Environmental Themes in terms of Section 24(5)(a) and (h) of the National Environmental Management Act (1998) when Applying for Environmental Authorisation*', has protocols that have been developed for environmental themes which include agriculture, avifauna, biodiversity (Terrestrial and Aquatic Biodiversity), noise, defence and civil aviation.

The protocols set requirements for the assessment and reporting of environmental impacts of activities requiring EA. The higher the sensitivity rating of the features on the proposed site as identified by the screening tool report, the more rigorous the assessment and reporting requirements.

Based on the generated screening report, all environmental theme sensitivities are indicated in Table 3-1 below.

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<sup>2</sup> <https://screening.environment.gov.za/screeningtool/#/pages/welcome>

**Table 3-1: Environmental themes from Screening Tool which needs to adhere to in the Environmental Authorisation process.**

| Theme                                      | Very High sensitivity* | High sensitivity* | Medium sensitivity | Low sensitivity |
|--|------------------------|-------------------|--------------------|-----------------|
| Agriculture Theme                          |                        |                   |                    |                 |
| Animal Species Theme                       |                        |                   |                    |                 |
| Aquatic Biodiversity Theme                 |                        |                   |                    |                 |
| Archaeological and Cultural Heritage Theme |                        |                   |                    |                 |
| Avian Theme                                |                        |                   |                    |                 |
| Civil Aviation Theme                       |                        |                   |                    |                 |
| Defence Theme                              |                        |                   |                    |                 |
| Landscape Theme                            |                        |                   |                    |                 |
| Paleontology Theme                         |                        |                   |                    |                 |
| Plant Species Theme                        |                        |                   |                    |                 |
| RFI Theme                                  |                        |                   |                    |                 |
| Terrestrial Biodiversity Theme             |                        |                   |                    |                 |

\* Require full assessments.

The EAP and relevant specialists however do not agree with the outcome of the following themes:

- Avian Theme – it is indicated as low but should be **High** (refer to relevant avifauna section in Chapter 5).

All the environmental themes followed the relevant protocols (20 March 2020; 30 October 2020) and accompanied guidelines (SANBI 2020) to assess and verify the sensitivities.

### 3.2 RENEWABLE ENERGY DEVELOPMENT ZONE

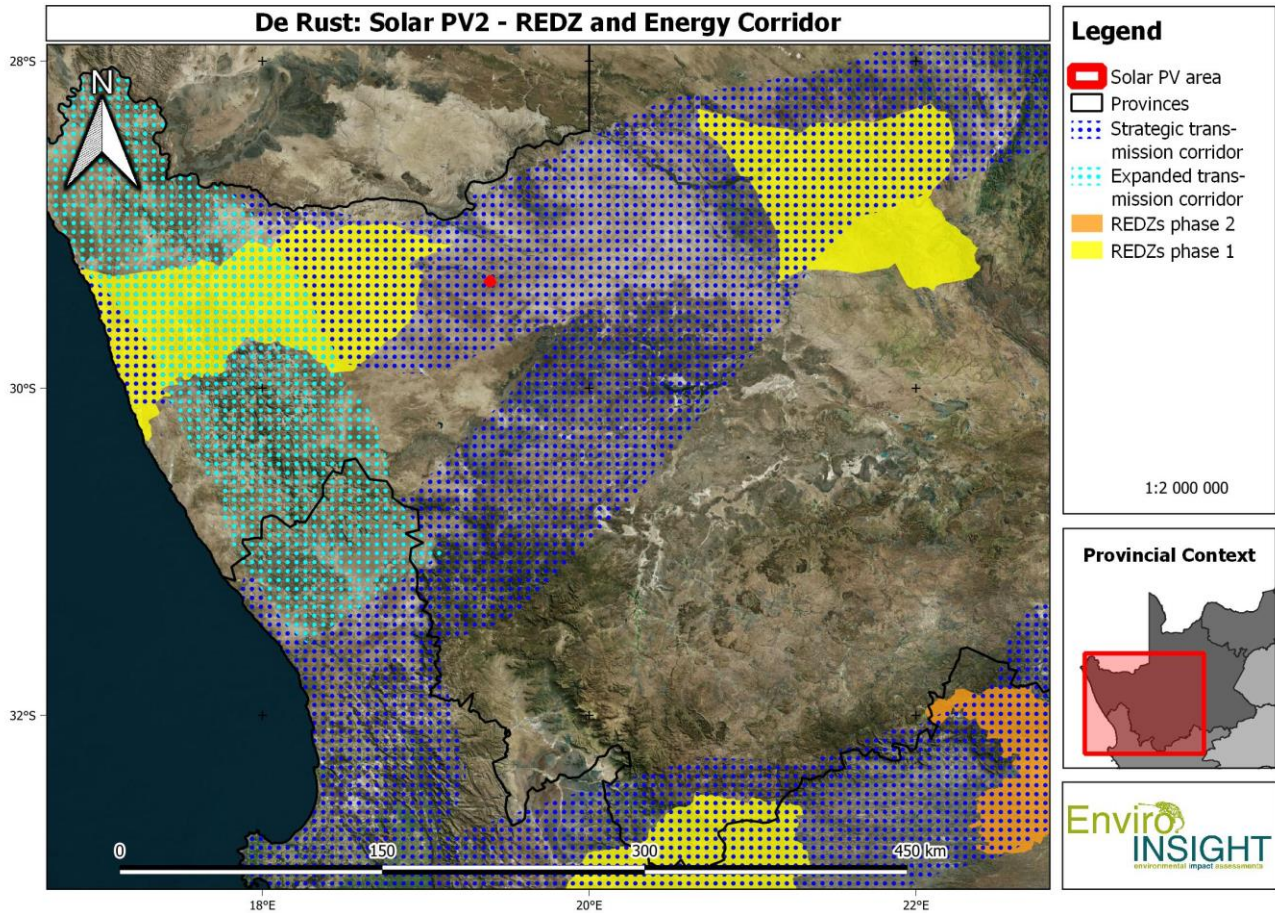
On 17 February 2016, Cabinet approved the Renewable Energy Development Zones (REDZs) for large scale wind and solar photovoltaic development and associated Strategic Transmission Corridors (STC) which support areas where long term electricity grid will be developed.

The procedure to be followed in applying for EA for a large-scale project in a REDZ or in a Power Corridor was formally gazetted on 16 February 2018 in GN113 and GN114. New wind or PV projects located within one of the eight REDZ areas, and new



electricity grid expansion within the 5 Strategic Transmission Corridors are subject to a Basic Assessment and not a full EIA process, as well as a shortened timeframe of 147 days (90 day BA process and 57 decision-making process).

The proposed De Rust PV 2 SEF is not located in a REDZ, but is located in the Western Strategic Transmission Corridor. Accordingly, a S&EIR is required for the SEF and a BA process is required for the grid connection.



**Figure 3-1: Location of the De Rust PV 2 within the Renewable Energy Development Zones (REDZs) overlaid onto the electricity grid infrastructure corridors**

### 3.3 RENEWABLE ENERGY AUTHORISATION REQUIREMENTS

The legislative and policy context of this Report is detailed below. The planning context is detailed in Section 3.3 hereafter as part of the ‘need and desirability’ evaluation.

### **Constitution of the Republic of South Africa, Act 108 of 1996**

The Constitution of the Republic of South Africa is the supreme law of the country and underpins all environmental legislation. As such, any law or conduct that is inconsistent with the Constitution is invalid (Constitution, 1996). The Constitutional environmental right is included in section 24, which states:

*“Everyone has the right—*

- (a) to an environment that is not harmful to their health or well-being; and*
- (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that—*
  - (i) prevent pollution and ecological degradation;*
  - (ii) promote conservation; and*

*secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”.*

The constitution also gives provision in section 27(1)(b) which states that everyone has the right to have access to sufficient water and section 27(2) requires the state to take reasonable and other measures, within its available resources, to achieve the progressive realization of each of these rights.

The Constitution of the Republic of South Africa forms the foundation of all environmental principles and management in the country and it is enshrined in all legislation. Such legislation is discussed below with specific reference to the environment.

### **Aspect of Project**

An EIA process is being undertaken to determine the impacts associated with the project, including environmental, social and economic. As part of the EIA process, mitigation measures and monitoring plans are compiled to ensure that any potential impacts are managed to acceptable levels to support the rights as enshrined in the Constitution. The project must prove to be sustainable and balance the social, economic and environmental aspects of sustainable development.

### **National Environmental Management Act (Act 107 of 1998 as amended) and EIA Regulations (2014, as amended)**

The National Environmental Management Act (NEMA; No. 107 of 1998, as amended) gives effect to the Constitution of the Republic of South Africa by providing a framework for cooperative environmental governance and environmental principles that enable and facilitate decision-making on matters affecting the environment.

Chapter one of the NEMA outlines national environmental management principles that must be incorporated into all decisions regarding the environment, throughout the country by all organs of state. Central to these principles is the concept of



sustainability, which entails meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.

Chapters two to three of the NEMA outline government and non-government institutions and their responsibilities for ensuring co-operative governance and making decisions.

Chapter 5 of NEMA provides for integrated environmental management. The purpose of this Chapter is to promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities. Section 24 (1) specifically states:

*“In order to give effect to the general objectives of integrated environmental management laid down in this Chapter. the potential impact on—*

*(a) the environment;*

*(b) socio-economic conditions; and*

*(c) the cultural heritage,*

*of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity.”*

NEMA requires that an environmental authorisation be issued by a competent authority (CA) before the commencement of a listed activity in terms of the Environmental Impact Assessment Regulations Listing Notices for Basic Assessment or scoping & Environmental Impact Assessment (S&EIA).

In South Africa, EIA became a legal requirement in 1997 with the promulgation of regulations under the Environment Conservation Act (ECA). Subsequently, NEMA was passed in 1998. Section 24(2) of NEMA empowers the Minister and any MEC, with the concurrence of the Minister, to identify activities which must be considered, investigated, assessed and reported on to the competent authority responsible for granting the relevant environmental authorisation. On 21 April 2006 the Minister of Environmental Affairs and Tourism promulgated the first EIA regulations in terms of Section 24 of NEMA. These EIA regulations, under sections 24(5) and 44 of NEMA, were updated in June 2010 and again in December 2014. In April 2017, the 2014 EIA regulations were amended.

Environmental authorisation for an activity may only be issued by the competent authority (CA) after the developer has complied with the procedural requirements as set out in the 2014 EIA regulations of NEMA.

### **Aspect of Project**

The NEMA EIA regulations, 2014 (as amended) are applicable to this project. Several listed activities in terms of NEMA GNR No. R982, R983, R984 and R985 in the Government Gazette of 4 December 2014, as amended, have been triggered and need to be authorised for the proposed solar farm.

Based on the listed activities triggered, the application for environmental authorisation will follow the scoping and EIR process as set out in Regulations 21-24.

### **National Environmental Management: Biodiversity Act (Act 10 of 2004 as amended)**

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004 as amended) (“NEMBA”) aims to provide for the management and conservation of South Africa’s biodiversity within the framework of the NEMA, the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources and the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources. The Act places severe restrictions on activities that could have adverse effects on threatened or protected species.

The purpose of the NEMBA includes:

- the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998;
- the protection of species and ecosystems that warrant national protection; and
- the sustainable use of indigenous biological resources and the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources.

Provision is made for protection of threatened or protected ecosystems and species as well as provisions guarding against the introduction of alien and invasive species. The Act identifies restricted activities involving listed threatened, protected or alien species. These activities include picking parts of, or cutting, chopping off, uprooting, damaging or destroying, any specimen of a listed threatened or protected species. As stipulated in Section 57 of the Act, a person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7. Lists of critically endangered, endangered, vulnerable and protected species in GNR 151 of 23 February 2007 and List of threatened ecosystem 2011 have been published under NEMBA. Regulations have also been promulgated on Threatened and Protected Species in GNR 324 (29 April 2014). These lists and associated restricted activities as well as the regulations need to be taken into account during the implementation of any renewable energy development activities as well as during assessments for authorisations associated with these activities in terms of other legislation.

Application may be made for a permit to engage in restricted activities, which application may be subject to various stringent requirements as set out in Section 88 of the NEMBA. The CA responsible for administering the NEMBA is dependent on the province in which the activity is taking place.

### **Aspect of Project**

Protected species: Several threatened species occur or are likely to occur on the study area. As the Terrestrial Biodiversity Assessment is ongoing, detailed information will be presented in the EIR.

Threatened Ecosystems: No listed threatened ecosystems intersect the Project Areas.

Alien and Invasive Species: All alien species need to be controlled and management interventions indicated in the Environmental Management Programme. Species such as *Prosopis glandulosa* (Category 3 invader) has been recorded on site.

#### **Environmental Conservation Act, Act No. 73 of 1989 (ECA)**

In terms of section 25 of the ECA, the national Noise Control Regulations (GN R154 in Government Gazette No. 13717 dated 10 January 1992) (NCR) was promulgated. The NCRs were revised under Government Notice Number R55 of 14 January 1994 to make it obligatory for all authorities to apply the regulations. Currently, no provincial or local regulations exist in the Northern Cape and no approval is required.

SEFs and related infrastructure will increase noise levels during operation as well as possible construction noises.

#### **Aspect of Project**

A Noise Impact Assessment will be included in the EIR.

#### **National Environmental Management: Air Quality Act (Act 39 of 2004 as amended)**

The National Environment Management: Air Quality Act (NEMAQA) serves to repeal the Atmospheric Pollution Prevention Act (45 of 1965) and various other laws dealing with air pollution.

According to the Act, the DEA, the provincial environmental departments and local authorities are separately and jointly responsible for the implementation and enforcement of various aspects of the Air Quality Act.

#### **Aspect of Project**

Although no major air quality issues are expected, the Applicant needs to be mindful of the Act as it also relates to potential dust generation during construction. This will be addressed in the EIA phase of the project and the necessary management and monitoring requirements will be included in the EMPr.

#### **National Environmental Management: Waste Act (Act 59 of 2008 as amended)**

The National Environmental Management: Waste Act (NEMWA) came into effect on 1 July 2009. Section 19 of the NEMWA provides for listed waste management activities and states in Section 19(1) that the Minister may publish a list of waste management activities that have, or are likely to have a detrimental effect on the environment. Such a list was published in GN 921 of 29 November 2013, identifying those waste management activities that require a Waste Management Licence in terms of the Act. Activities are defined within Category A (non-hazardous) and Category B (hazardous) Category C (lower threshold in terms of waste volumes) wastes. From a renewable energy perspective, only Category A is considered here. The activities listed under Category B are equivalent to those that require an EIA process stipulated in the EIA regulations made under section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

### ***Aspect of Project***

There are no listed activities which require authorisation. The Applicant must ensure that all activities associated with the project address waste related matters in compliance with the requirements of the Act and must consult with the local municipality to ensure that all waste is disposed of at a registered landfill site. This will be addressed in the EIA phase of the project and the necessary management and monitoring requirements will be included in the EMPr.

### **National Water Act (Act 36 of 1998 as amended)**

The National Water Act (NWA) includes provisions requiring that a water use license be issued by the Department of Water & Sanitation (DWS) before a project developer engages in any activity defined as a water use in terms of the NWA. Water use definitions considered probably or possibly relevant to Renewable Energy projects in terms of the NWA, section 21 includes:

- Taking of water from a water resource;
- Storing of water;
- Impeding or diverting the flow of water in a water course;
- Engaging in a stream flow reduction activity;
- Engaging in a controlled activity (this includes the use of water for power generation purposes);
- Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;
- Altering the bed, banks, course, or characteristics of a watercourse. This includes altering the course of a watercourse (previously referred to as a river diversion).

Construction of infrastructure within 500m of a watercourse will likely be required for the associated roads and cables.

### ***Aspect of Project***

An authorisation might be required in terms of Section 21 (c) and (i) in the form of either a General Authorisation (GA) or Water Use License Application (WULA). An application will be submitted if the project.

An Aquatic Biodiversity Assessment will be included in the EIR.

### **National Environmental Management: Protected Areas Act (NEMPAA; Act 57 of 2003)**

The objectives of the National Environmental Management: Protected Areas Act 2003 (Act 57 of 2003) (NEMPAA) as amended by the National Environmental Management: Protected Areas Amendment Act 31 of 2004, are to:

- provide for the declaration and management of protected areas;
- provide for co-operative governance in the declaration and management of protected areas;

- effect a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity;
- provide for a representative network of protected areas on state land, private land and communal land;
- promote sustainable utilisation of protected areas for the benefit of people, in a manner that would preserve the ecological character of such areas;
- promote participation of local communities in the management of protected areas, where appropriate; and
- provide for the continued existence of South African National Parks.

The Act also provides for the maintenance and monitoring of declared protected areas. The CA responsible for administrating the NEMPAA is dependent on the province in which the activity is taking place.

***Aspect of Project***

The study area is not located within or adjacent to a protected area in terms of this Act. No further action is required.

**National Heritage Resources Act (No. 25 of 1999)**

National Heritage Sites in South Africa are places that that are of historic or cultural importance and which are for this reason declared in terms of Section 27 of the National Heritage Resources Act (NHRA). The designation was a new one that came into effect with the introduction of the Act on 1 April 2000 when all former National Monuments declared by the former National Monuments Council and its predecessors became provincial heritage sites as provided for in Section 58 of the Act.

Both national and provincial heritage sites are protected under the terms of Section 27 of the NHRA and a permit is required to work on them. National Heritage Sites are declared and administered by the national Heritage Resources Authority, SAHRA whilst provincial heritage sites fall within the domain of the various provincial heritage resources authorities, in this case the Northern Cape Provincial Heritage Resources Authority Ngwao Boswa Kapa Bokone (NBKB). Heritage resources are protected by the Act and may not be disturbed in any way without a permit issued by the South African Heritage Resources Agency or the relevant Provincial Heritage Resources Authority. Section 38(1) of the NHRA stipulates the triggers which would require a Heritage Impact Assessment (HIA) to become part of an EIA submitted for consideration by the relevant state department.

***Aspect of Project***

SAHRA must be informed of the project and a Heritage Impact Assessment (HIA) must be undertaken by a qualified specialist. A HIA will be included in the EIR.

### **Northern Cape Nature Conservation Act (NCNCA; Act 9 of 2009)**

Numerous sections (specifically sections 50-51) under NCNCA deal with indigenous and protected plants. The protected status of various species that may be located on the site requires a permit under NCNCA in order for the plants to be removed or destroyed i.e. a permit is required before development may commence.

#### ***Aspect of Project***

A Terrestrial Biodiversity Assessment will be included in the EIR. Where required, permits will be applied for in terms of the NCNCA.

### **Conservation of Agricultural Resources Act (CARA; Act 43 of 1983)**

The purpose of this Act is to ensure that natural agricultural resources of South Africa are conserved through maintaining the production potential of land, combating and preventing erosion, preventing the weakening or destruction of water sources, protecting vegetation, and combating weeds and invader plants.

#### ***Aspect of Project***

As per the Screening Tool generated, the Agricultural Potential is considered low. Where required, measures for addressing erosion, protection of vegetation and water sources and managing alien plants will be included in the EMP. A compliance statement will be included in the EIA.

### **Electricity Regulation 2006 (Act 4 of 2006) as amended by the ERAA in 2007)**

The Electricity Regulation Act (No 47 of 1999, as amended in 2007; RGA) provides a national regulatory framework for the electricity supply industry and makes the National Energy Regulator of South Africa the overseer and enforcer of the framework. The act requires registration and licensing of anyone wanting to generate, transmit, reticulate (i.e. network), distribute, trade, or import and export electricity. In addition, the act regulates the reticulation of electricity by municipalities.

#### ***Aspect of Project***

The proposed SEF is in line with the call of the Electricity Regulation Act as it has the potential to improve energy security of supply through diversification.

### **Municipal Systems Act (Act 32 of 2000)**

The Municipal Systems Act (No. 32 of 2000, MSA) concerns itself with the internal systems and administration of municipalities. The Act requires that the Constitution and other national level acts (e.g. NEMA) be incorporated into strategic planning at a municipal level. The CA responsible for administering the MSA is dependent on the municipality in which the activity is taking place.



Development at a local level is the primary focus as the act separates the responsibility of a service authority with that of a service provider; sets out the roles of officials and councillors, and provides for a range of requirements; including Integrated Development Plans (IDPs), performance management and tariff setting. The Act accordingly regulates municipal service delivery and provides a comprehensive range of service delivery mechanisms through which municipalities may provide municipal services. It explains the process to be applied and the criteria to be considered in reviewing and selecting municipal service delivery mechanisms.

Under the Act, every municipal council must adopt a single, inclusive and strategic plan (i.e. IDP) for the development of the municipality. At a municipal level, these plans may call for the implementation of renewable energy projects and should be referenced in applications to motivate for relevant environmental authorisations. IPPs will need to consult with the various relevant municipal authorities and development plans as applicable to each specific project design and location.

### **Aspect of Project**

The proposed SEF development needs to be in line with the local and district municipalities IDPs. The Applicant needs to consult with the relevant municipalities throughout the process as a key stakeholder.

### **Spatial Planning and Land Use Management Act (SPLUMA; Act 16 of 2013)**

SPLUMA aims to confirm and regulate the role of municipalities in land-use planning and land-use management. Two of the most relevant objectives of the SPLUMA are to ensure that the system of spatial planning and land use management promotes social and economic inclusion and to provide for the sustainable and efficient use of land.

The Act provides that spatial planning consists of:

- Spatial development frameworks adopted at each level of government;
- Development principles, norms and standards;
- The management and facilitation of land use through land-use schemes; and
- Procedures to deal with and decide on development applications provided for in national and provincial legislation.

The national, provincial and local governments are instructed to adopt spatial development frameworks (SDFs). SDFs must 'guide planning and development decisions across all sectors'. At different levels of government the SDFs intended to guide some of the following:

- National Spatial Development Framework (NSDF) - must indicate the desired patterns of land use in South Africa;
- Provincial Spatial Development Framework (PSDF) - must provide a spatial representation of the province's land development policies, strategies and objectives and must indicate desired and intended patterns of land use and, importantly, delineate areas in which development would not be appropriate;

- Regional Spatial Development Framework (RSDF) – will be imposed if when a municipality fails to adopt or amend an MSDF the Minister may step in, declare a region and adopt an RSDF for that region and when it is ‘necessary to give effect to national land-use policies or priorities’ the Minister may do the same; and
- Municipal Spatial Development Framework (MSDF) - identify current and future significant structuring and restructuring elements of the spatial form of the municipality, including development corridors, activity spines and economic nodes where public and private investment will be prioritised and facilitated.

### ***Aspect of Project***

The proposed development needs to comply with the surrounding landscape, and must apply for a land use change with the relevant municipality since the land is classified as agricultural use.

### **National Roads Act (Act. 93 of 1996)**

This Act provide for co-operative and co-ordinated strategic planning, regulation, facilitation and law enforcement in respect of road traffic matters by the national, provincial and local spheres of government.

The National Roads Act 93 OF 1996 makes provision for regulating the transportation of dangerous goods and substances by road. Section 275 states that, no person shall operate on a public road any vehicle in or on which dangerous goods is transported, unless such dangerous goods is transported in accordance with Chapter VIII of the Act. Chapter VIII also incorporates the SABS standard specifications relating the transportation of dangerous goods and substances. Section 279 indicates the availability of an authority for classification and certification of dangerous goods should there be any doubt as to the appropriate classification of dangerous goods.

Certain vehicles and loads cannot be moved on public roads without exceeding the limitations in terms of the dimensions and/or mass as prescribed in the Regulations.

### ***Aspect of Project***

Due to the large size of many of the solar energy facility’s components (e.g. tower and blades) they will need to be transported via “abnormal loads”. A Traffic and Transport Impact Assessment will be included in the EIR. Comment from the Northern Cape Department of Transport is required.

### **Astronomy Geographic Advantage Act (Act 21 of 2007)**

The Astronomy Geographic Advantage Act 21 of 2007 aims:

- to provide for the preservation and protection of areas within the Republic that are uniquely suited for optical and radio astronomy;

- to provide for intergovernmental co-operation and public consultation on matters concerning nationally significant astronomy advantage areas; and
- to provide for matters connected therewith.

In February 2010, the Minister of Science and Technology declared all land in the Northern Cape Province situated 250km from the centre of the South African Large Telescope (SALT) dome as an astronomy advantage area for optical astronomy purposes and the whole of the territory of the Northern Cape Province, excluding Kimberly, as an astronomy advantage area for radio astronomy purposes.

Furthermore, those parts of the Northern Cape which are to contain the SALT dome, the MeerKAT radio telescope and the multi-billion rand Square Kilometre Array (SKA) have been declared as core astronomy advantage areas. While all land within a 3km radius of the centre of the SALT dome falls under the Sutherland Core Astronomy Advantage Area, sections of the Kareeberg and Karoo Hoogland municipal areas, consisting of three sections of farming land, constitute the Karoo Core Astronomy Advantage Area.

The extensive power requirements of the SKA and the MeerKAT radio telescope are likely to play a prominent role in determining the extent to which the generation of electrical energy through the establishment of wind and solar power projects is to be permitted in the Northern Cape.

#### **Aspect of Project**

A radio frequency interference (RFI) and electromagnetic interference (EMI) assessment may be required. Comments from the MeerKAT and SKA are required.

#### **Civil Aviation Act (Act 13 of 2009)**

Civil aviation in South Africa is governed by the Civil Aviation Act, 2009 (Act 13 of 2009). This Act provides for the establishment of a stand-alone authority mandated with controlling, promoting, regulating, supporting, developing, enforcing and continuously improving levels of safety and security throughout the civil aviation industry. This mandate is fulfilled by the South African Civil Aviation Authority (SA CAA) as an agency of the Department of Transport (DoT). The SA CAA achieves the objectives set out in the Act by complying with the Standards and Recommended Practices (SARPs) of the International Civil Aviation Organisation (ICAO), while considering the local context when issuing the South African Civil Aviation Regulations (SA CARs). All proposed developments or activities in South Africa that potentially could affect civil aviation must thus be assessed by SACAA in terms of the SA CARs and South African Civil Aviation Technical Standards (SA CATS) in order to ensure aviation safety.

The Obstacle Evaluation Committee (OEC) which consists of members from both the SA CAA and South African Air Force (SAAF) fulfils the role of streamlining and coordinating the assessment and approvals of proposed developments or activities that have the potential to affect civil aviation, military aviation, or military areas of interest. With both being national and

international priorities, the OEC is responsible for facilitating the coexistence of aviation and renewable energy development, without compromising aviation safety.

**Aspect of Project**

Comments from the OEC are required to ensure the safety of aircrafts.

**Subdivision of Agricultural land (No. 70 of 2009)**

The Subdivision of Agricultural Land Act (Act No. 70 of 1970) controls the subdivision of all agricultural land in South Africa and prohibits certain actions relating to agricultural land. In terms of the Act, the owner of agricultural land is required to obtain consent from the Minister of Agriculture in order to subdivide agricultural land.

The purpose of the Act is to prevent uneconomic farming units from being created and degradation of prime agricultural land. The Act also regulates leasing and selling of agricultural land as well as registration of servitudes.

**Aspect of Project**

Approval will be required from the Department of Agriculture, Land Reform and Rural Development (DALRRD) for any activities on the land zoned for agriculture and any proposed rezoning or sub-divisions of agricultural land.

**Mineral and Petroleum Resource Development Act (No. 28 of 2002 as amended)**

Mineral and Petroleum Resources Development Act (MPRDA, Act No. 28 of 2002) makes provision for equitable access to and sustainable development of the South Africa's mineral and petroleum resources and to provide for matters connected therewith.

The objects of this Act are (amongst others) to:

- Give effect to the principle of the State's custodianship of the nation's mineral and petroleum resources.
- Promote equitable access to the nation's mineral and petroleum resources to all the people of South Africa.
- Give effect to Section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development.

As per Section 27 (1) of the Act, the Department of Mineral Resources and Energy (DMRE) must grant permission for all mining operations. Both the removal of sand and/or stone from a borrow pit or quarry requires an application for a mining permit or a mining right.

Section 53 of the Act requires that Ministerial approval is attained for "any person who intends to use the surface of any land in any way which may be contrary to any object of this Act or is likely to impede any such object".

**Aspect of Project**

Any activities associated with the SEF requiring extraction of sand or hard rock for construction purposes will require the submission of an application to DMRE for either a mining permit or mining licence. The De Rust PV 2 SEF must seek approval to use the land for the purposes of the SEF from the Minister.

### **The Occupational Health and Safety Act (Act 85 of 1993)**

The objective of this Act is to provide for the health and safety of persons at work. In addition, the Act requires that, “as far as reasonably practicable, employers must ensure that their activities do not expose non-employees to health hazards”. The importance of the Act lies in its numerous regulations. These cover, among other issues, noise and lighting.

#### ***Aspect of Project***

The Applicant must be mindful of the principles and broad liability and implications contained in the OHS Act and mitigate any potential impacts. The necessary management and monitoring requirements will be included in the EMP.

### **3.3.1 Planning Context**

South Africa’s National Development Plan (NDP) 2030 offers a long-term plan for the country. It defines a desired destination where inequality and unemployment are reduced and poverty is eliminated so that all South Africans can attain a decent standard of living. Electricity is one of the core elements of a decent standard of living.

The NDP envisages that, by 2030, South Africa will have an energy sector that provides reliable and efficient energy service at competitive rates; that is socially equitable through expanded access to energy at affordable tariffs; and that is environmentally sustainable through reduced emissions and pollution. In formulating its vision for the energy sector, the NDP took as a point of departure the Integrated Resource Plan (IRP) 2010–2030 promulgated in March 2011.

The renewable energy industry has substantial support in the South African planning context, which is detailed in the following national and provincial plans:

- National Development Plan 2030;
- National Integrated Resource Plan for Electricity (2010-2030);
- Integrated Resource Plan (IRP 2019)
- National Infrastructure Plan 2012, as amended;
- Northern Cape Provincial Growth and Development Strategy (PGDS);
- Northern Cape Provincial Spatial Development Framework (PSDF); and
- Northern Cape Climate Change Response Strategy

More specifically, the proposed De Rust PV 2 SEF falls within the jurisdiction of the Khâi-Ma Local Municipality and the Namakwa District Municipality. An evaluation of the ‘need and desirability’ of the project (Section 2.3) considers the strategic context of the project with regard to the municipal Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) as follows:

- Namakwa District Municipality IDP 2021-2022;
- Namakwa District Municipality SDF 2012;
- Namakwa District Municipality Local Economic Development (LED) strategy; and
- Khâi-Ma Municipality IDP 2017 – 2022.

### 3.3.2 Policy Context

In South Africa, the national utility company, Eskom, sources up to 77% of its electricity needs from coal. Against the backdrop of heightened climate change awareness and a growing concern around the reliance and environmental impacts of using fossil fuels, as well as an increasing projected electricity demand in the country, a number of policies were developed that aim to diversify the electricity generation mix for South Africa. These include the White Paper on the Energy Policy of the Republic of South Africa (1998), the White Paper on Renewable Energy (2003) and the National Climate Change Response Policy White Paper (2011).

However, despite the proactive policy stance from the early 2000s, by the end of the decade there was an electricity shortage that resulted in rolling black outs since 2008. In direct response to these electricity shortages, the IRP was issued as a medium-term strategy which set the target for renewable energy supply to 17.8 Gigawatts (GW) over a 20-year period from 2010 to 2030. This will contribute to 42% of all new electricity capacity and included specific allocations for the various types of renewable energy through subsequent ministerial determinations from the Department of mineral resources and energy (DMRE). These renewable energy targets are procured through a competitive tendering process called the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) run by the DMRE, which commenced in 2011. The REIPPPP is highlighted as a significant policy for enabling achievement of climate change mitigation goals under South Africa’s INDC. The success of this programme has been internationally recognised, with the United Nations Environmental Programme (UNEP) 2014 Report placing South Africa among the top-10 countries in respect to renewable energy investment. The procurement of new, renewable energy, generation capacity from Independent Power Producers (IPPs) in order to meet the national commitment of transition to a low carbon economy and ensure security of energy supply. The target of 26 030 MW of installed



capacity from PV and Wind resources, as indicated in the Integrated Resource Plan of 2019, will be met through a rolling procurement plan by 2030.

The proposed De Rust PV 2 SEF would therefore have both national and global significance as it aligns with national policy direction as well as contributing to South Africa being able to meet some of its international climate change obligations, by aligning domestic policy with internationally agreed strategies and standards as those set by the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, as well as the recent Convention of the Parties (COP) 21 in Paris 2015, to all of which South Africa is a signatory.

### 3.4 LEGAL REQUIREMENTS AS PER THE EIA REGULATIONS, 2014 (AS AMENDED)

NEMA, as amended, establishes the principles for decision-making on matters affecting the environment. Section 2 sets out the National Environmental Management Principles which apply to the actions of organs of state that may significantly affect the environment. Accordingly, NEMA identifies activities that require authorisation prior to commencement. Such activities listed in the 2014 EIA Regulations (GN R982) are detailed in Table 3-2.

**Table 3-2: Listed activities triggered by the proposed De Rust PV 2 SEF.**

| Government Notice                                  | Activity Number | Description   | Aspect of the Project  |
|--|-----------------|---|--|
| Listing Notice 1: R.327 as amended on 7 April 2017 | 11              | The development of facilities or infrastructure for the transmission and distribution of electricity—<br>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; | Underground cables for the transmission of electricity generated by the solar panels to the onsite switching station.  |
|  | 12              | The development of –<br>(ii) infrastructure or structures with a physical footprint of 100 square meters or more;<br>where such development occurs-<br>(a) within a watercourse; or                                   | The proposed solar panels and associated infrastructure including access roads and laydown areas during the construction phase located within a watercourse or the 32m buffer area. The final placement of all infrastructures will be refined during the process, and avoid the |

|    |  |  |
|----|--|--|
|    | (c) within 32 meters of a watercourse, measured from the edge of a watercourse   | watercourse and indicated buffer as far as possible.   |
| 14 | The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.  | Storage of fuel, oil and other chemicals on site could trigger this activity. The volumes are not known but will have a combined capacity of between 80 and 500 m <sup>3</sup> .   |
| 19 | The infilling or depositing of any material of more than 10 m <sup>3</sup> into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 m <sup>3</sup> from a watercourse;  | The infilling or depositing of any material of more than 10 m <sup>3</sup> into a watercourse may be triggered with the construction of internal service roads or cables across drainage lines.  |
| 24 | The development of a road -<br><br>(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres.   | Roads are required throughout the construction and operational stages of the project. during the construction phase, roads will be approximately 10m wide for the delivery of solar panels and other equipment, and approximately 8m wide during the operational phase for maintenance purposes. |
| 28 | Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:<br><br>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare. | The current land use of the proposed farm on which the project is proposed is agriculture. The development is outside an urban area and the development footprint is > 1 ha.   |

|  |    |  |  |
|--|----|--|--|
|  | 56 | The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre –<br><br>(ii) where no reserve exists, where the existing road is wider than 8 metres  | The widening of portions of existing roads or the lengthening of roads will be required to accommodate the logistical construction requirements to access the site and associated infrastructure.  |
| Listing Notice 2: R.325 as amended on 7 April 2017 | 1  | The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more.  | The De Rust PV 2 SEF will consist of solar panels with a capacity of up to 240MW, depending on the available technology at the time of construction.   |
|  | 15 | The clearance of an area of 20 hectares or more of indigenous vegetation.  | The total area to be cleared is expected to be greater than 20 ha, depending on the final layout. This includes solar panels, roads, and other permanent infrastructure. During the construction phase, some areas will be cleared for the laydown, storage and assembly areas which will be rehabilitated post construction.  |
| Listing Notice 3: R.324 as amended on 7 April 2017 | 10 | The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic meters.<br><br>g. Northern Cape<br><br>ii. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;<br><br>iii. Outside urban areas: | A CBA runs through the study area and wetlands or watercourse is present throughout the study area.<br><br>The exact location of the storage and handling of dangerous goods are not yet known, but the necessary precaution will be taken and where possible these areas will be avoided. It is possible that this activity may become redundant after the necessary steps have been taken. |

|  |    |  |  |
|--|----|--|--|
|  |    | (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;  |  |
|  | 18 | <p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</p> <p>g. Northern Cape</p> <p>ii. Outside urban areas:</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ii) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland</p> | Upgrades of existing roads are likely to take place within the CBA and a watercourse. The exact roads for upgrade are currently unknown. |

#### 4 SCOPING AND EIR PROCESS

A S&EIR is conducted in two phases. The first phase is scoping and the second phase is the EIR. The scoping phase will commence once the environmental authorisation application has been submitted with the competent authority (in this case Department of Forestry, Fisheries and the Environment - DFFE). The following tasks will be undertaken for the scoping phase: identify stakeholders and interested and affected parties (I&APs); identify relevant policies and legislation; consider the need and desirability of the project; consider alternative technologies and sites; identify the potential environmental issues; determine the level of assessment and public participation process required for the EIA phase; and identify preliminary measures to avoid, mitigate or manage potential impacts.

The requirements for the submission of the scoping report to competent authority is specifically contained in Chapter 4 Part 3 of the NEMA Reg No 326 (amended on 7 April 2017). The S&EIR process can take up to 300 days to complete (87 days for

scoping phase, 106 days for EIA phase, and 107 days for competent authority to review). The applicant must, within 44 days of receipt of the application by the competent authority, submit to the competent authority a scoping report which has been subjected to a public participation process of at least 30 days and which reflects the incorporation of comments received, including any comments of the competent authority. The competent authority must, within 43 days of receipt of a scoping report, make a decision

The purpose of the scoping report is to identify and evaluate the main issues and potential impacts of the proposed development at a detailed desktop level based on existing information.

#### 4.1 APPROACH

*There are two distinct phases in the S&EIR process namely the Scoping Phase and the EIR Phase, as outlined in Figure 4-1.* This report deals with the scoping phase. The requirements for the S&EIA process are specifically contained in Chapter 4 Part 3 of the EIA Regulations 2014 (as amended).

The scoping phase is conducted as the precursor to the Environmental Impact Assessment (EIA) process during which:

- Project and baseline environmental information is collated. Baseline information for the scoping report is gathered through visual inspections during field visits of the proposed project area and surroundings, desktop studies which include GIS mapping, and review of existing reports, guidelines and legislation.
- Landowners, adjacent landowners, local authorities, environmental authorities, as well as other stakeholders which may be affected by the project, or that may have an interest in the environmental impacts of the project are identified.
- Interested and affected parties (I&APs) are informed about the proposed project.
- Competent authority (CA) is consulted to confirm legal and administrative requirements.
- Environmental issues and impacts are identified and described.
- Development alternatives are identified and evaluated, and non-feasible development alternatives are eliminated.
- The nature and extent for further investigations and specialist input required in the EIA phase is identified.
- The draft and final scoping reports are submitted for review by authorities, relevant organs of state and I&APs.
- Key I&AP issues and concerns are collated into an issues and response report for consideration in the EIA phase.

Issues raised in response to this Draft Scoping Report (currently being released for a 30-day comment period) will be captured in a Comments and Response Report as an appendix to the Final Scoping Report (FSR), which will be submitted to the CA for decision-making (i.e. approval or rejection). If approved, it marks the end of the Scoping Phase after which the EIA Process moves into the impact assessment and reporting phase.

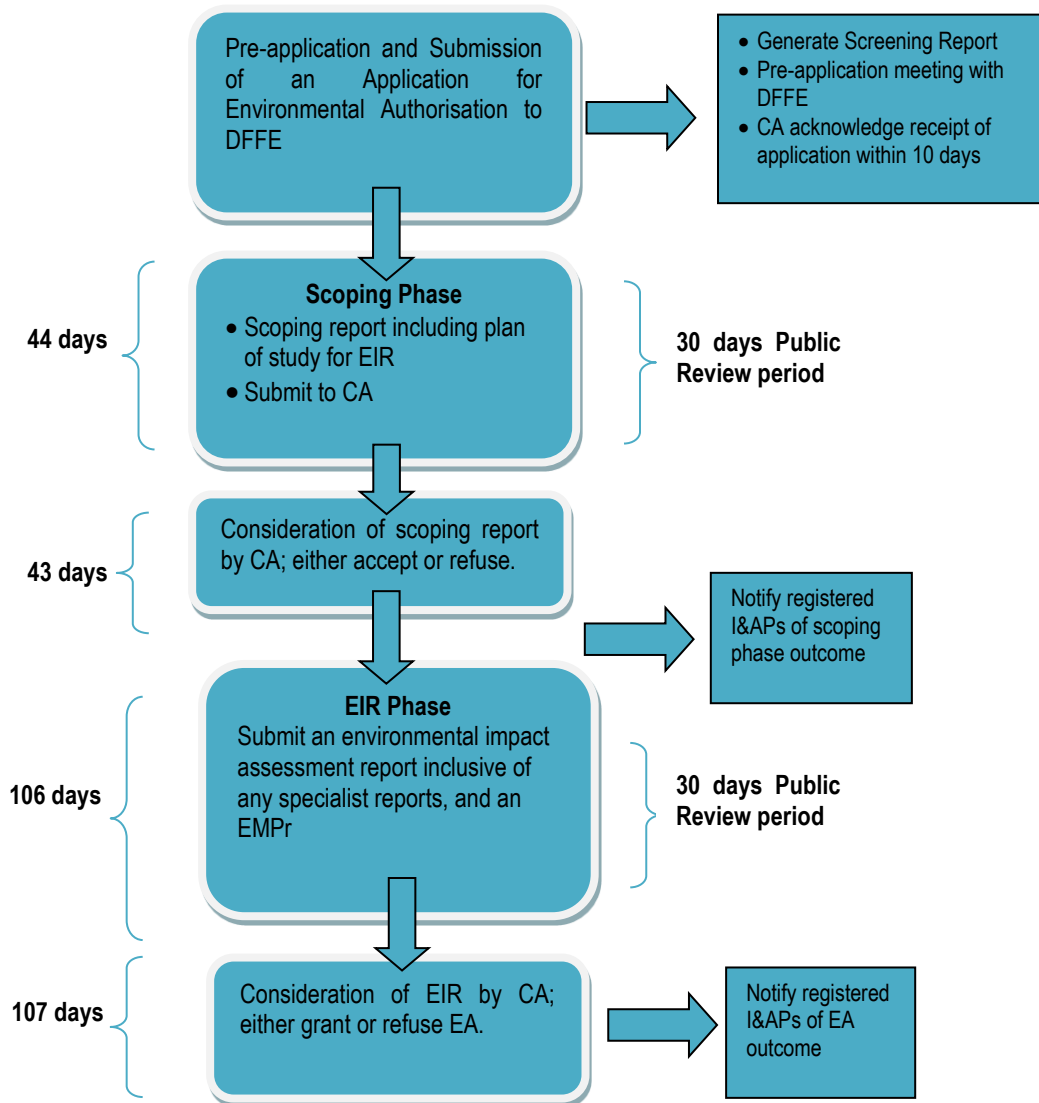


Figure 4-1: The S&EIR process in terms of the EIA Regulations (2014, as amended).

The content for the scoping report is included in Appendix 2 of the EIA Regulations 2014 (as amended). The scoping process can take up to 87 days, 44 days to submit the final scoping report to the CA and 43 days for the CA to review the scoping report.



## 4.2 SPECIALIST ASSESSMENTS

To provide a scientific assessment that is transparent and robust, a clear methodology is required as per the protocols for each environmental theme as highlighted by the screening report (Appendix E). It is necessary to take note that each specialist requires specific methodology to their investigation (scoping reports are included in Appendix D).

For more information on specialist assessments refer to Chapter 5.

## 4.3 PUBLIC PARTICIPATION

The Public Participation Process (PPP) was developed to ensure compliance with environmental regulatory requirements and to provide I&APs with an opportunity to evaluate the proposed project. During this process stakeholders can provide inputs and to receive feedback from the environmental specialists, other stakeholders and the competent authority.

### 4.3.1 Objectives of Public Participation

- Provide Stakeholders and Interested and Affected parties (I&APs) with an opportunity to voice their support or concerns and raise questions regarding the project, application or decision made by the CA;
- Provides an opportunity for I&APs, EAP and the CA to obtain clear, accurate and understandable information about the environmental, social and economic impacts of the proposed activity or implications of a decision;
- Provide Stakeholders, I&APs, and the CA with the opportunity of suggesting ways of reducing or mitigating negative impacts of an activity and for enhancing positive impacts;
- Enable the applicant / EAP to incorporate the needs, preferences and values of affected parties into the process and submitted reports for review.

### 4.3.2 Legislation

The PPP must comply with the several important sets of legislation that require public participation as part of an application for authorisation or approval, namely:

- The National Environmental Management Act (Act No. 107 of 1998 - NEMA);
- The EIA Regulations (2014, as amended);
- Guidelines for Public Participation (2017)

Adherence to the requirements of the above-mentioned Acts will allow for an Integrated PPP to be conducted, and in so doing, satisfy the requirement for public participation referenced in the Acts. The details of the Integrated PPP are provided below.

Adherence to the requirements of the above-mentioned Acts and Regulations will allow for effective PPP to be conducted, and in so doing, satisfy the requirement for public participation referenced in the Acts.

### 4.3.3 Identification of I&APs

An I&AP database will be compiled of key stakeholders and I&AP's identified for notification of the Environmental Authorisation Application. The I&AP database includes, amongst others; landowners, affected communities, regulatory authorities and other specialist interest groups. A list of key stakeholders is as follows:

- Competent Authority: Department of Forestry, Fisheries and the Environment (DFFE)
- Northern Cape Department: Agriculture, Environmental Affairs, Rural Development and Land Reform
- Department of Water & Sanitation (DWS)
- Department of Mineral Resources and Energy (DMRE)
- Eskom
- South African Heritage Resource Authority (SAHRA)
- Namakwa District Municipality
- Khâi-Ma Local Municipality
- Khâi-Ma Local Municipality Councillor for Ward 6
- Civil Aviation Authority (CAA)
- BirdLife South Africa
- South African Bat Assessment Association (SABAA)
- Square Kilometre Array (SKA)
- Endangered Wildlife Trust (EWT)

### 4.3.4 Notification and Register of I&APs

The PPP commenced on 2 November 2022 with the placement of site notices at prominent places on the boundary of the property. All individuals who registered for this project has been added to the I&AP list, provided that they have given the correct and complete contact details in order to receive communications for this project. The notification procedure included (Appendix C):

- Newspaper advertisement: published in the Blesbok on 9 November 2022;
- Site Notices: erected at prominent points along the property boundaries and noticeable places on 2 November 2022; and
- Emails were composed and sent to the identified authorities, adjacent landowners, and I&APs that have registered thus far.

#### **4.3.5 Background Information Document**

Included in the I&AP notification letters and e-mails sent out was a Background Information Document (BID). The BID includes the following information:

- Locality map and description;
- Project description and background;
- Legal framework;
- Explanation of the Scoping and EIR Process to be followed; and
- Provide opportunity to get involve and comment on the proposed project.

#### **4.3.6 Consultation with I&APs**

Meetings or open days with I&APs will be held upon request, these meeting will be held virtually or in person to allow all relevant parties to have an opportunity to take part in the PPP. Refer to section 4.3.3 for more details on this.

#### **4.3.7 Notification of availability of scoping report**

All registered I&APs and stakeholders have been notified via email of the availability of the Draft Scoping Report for review for a period of 30 days from **14 December 2022 to 4 February 2023**. The report is available on Enviro-Insight's website at <http://www.enviro-insight.co.za/download-it/project-downloads/>. CD electronic copies are also available on request from Enviro-Insight.

## **5 DESCRIPTION OF THE RECEIVING ENVIRONMENT**

A general description of the study area is outlined in the section below. The receiving environment in relation to each specialist study is also provided. During the Scoping Phase, sensitive areas are mapped for each environmental aspect and provided to the Proponent and design team. Based on this, the environmental sensitivities will be then avoided as far as possible in the placement of the solar panels and associated infrastructure during the EIR phase.

The following environmental aspects (as per the screening report) are further described in the following subsections:

- Terrestrial Biodiversity;
- Sensitive Animal Species;
- Sensitive Plant Species;
- Avifauna;
- Aquatic Biodiversity;
- Cultural Heritage and Archaeology;
- Agriculture;

- Socio-economic;
- Traffic and Transportation;
- Electromagnetic and radio frequency interference.

For a more detailed understanding of the PAOI, the geology, climate and land cover need to be discussed. This will be the addressed first followed by the environmental aspects as per the screening report.

## 5.1 REGIONAL AREA

The proposed development will be located approximately 23km south of Pofadder, within the Khâi-Ma Local Municipality in the Northern Cape Province (Figure 5-1). The proposed solar farm can be accessed the via the R358 regional road. The centre point and corner co-ordinates for the development site are included in Table 5-1. The Project has a total footprint of approximately 485ha situated on Portion 1 of the Farm Samoep 147 (21-digit Surveyor General code: C0360000000014700001).

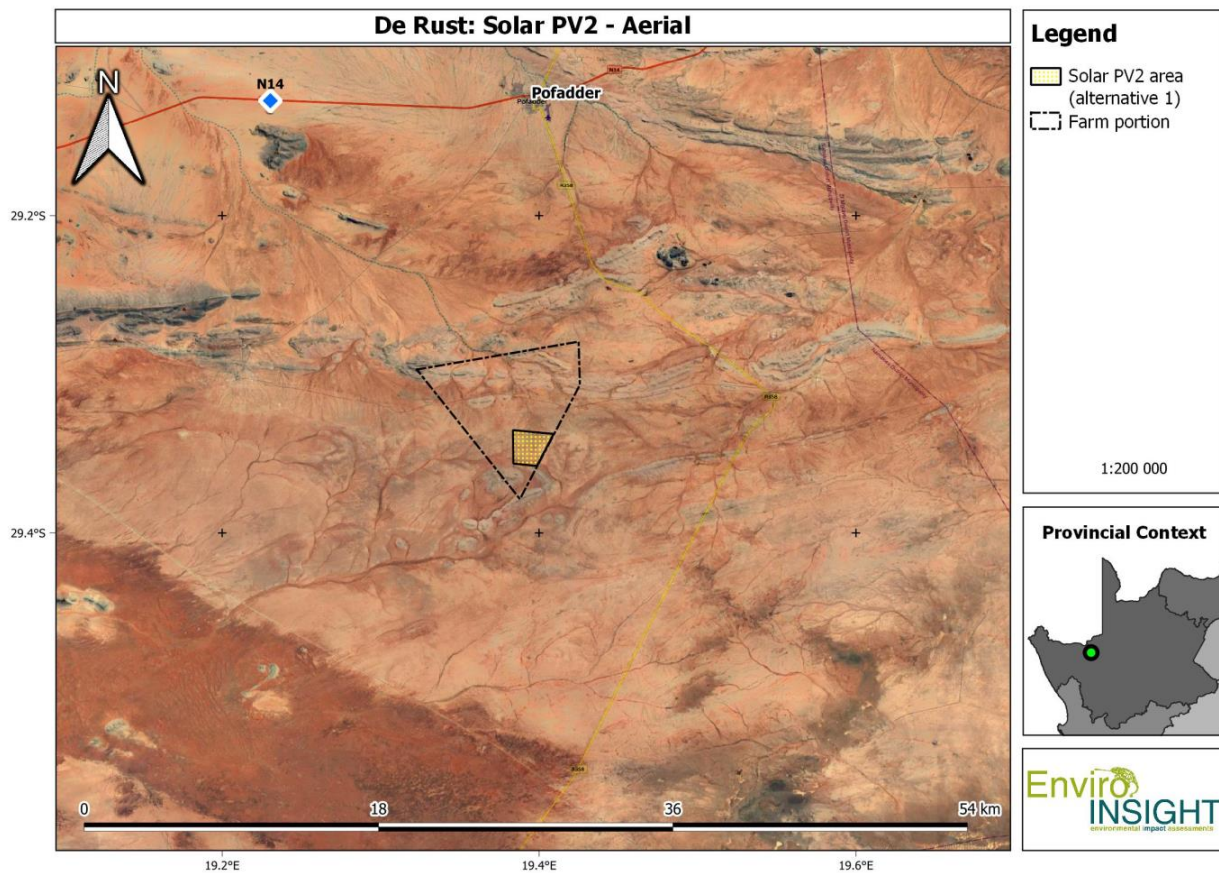
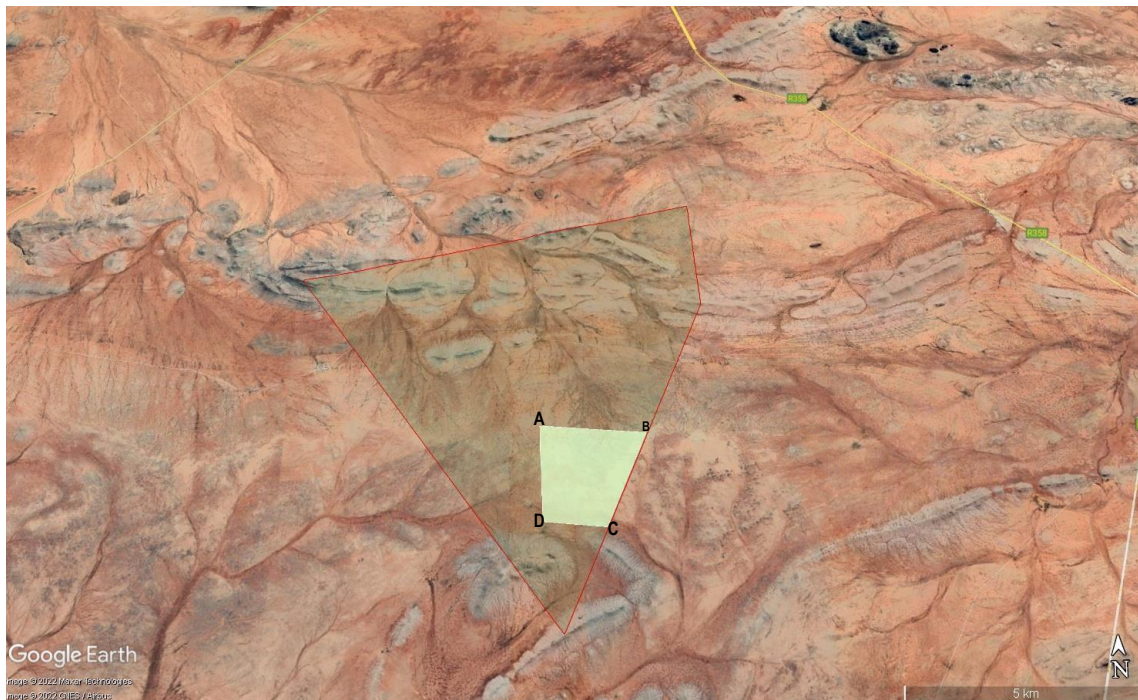


Figure 5-1: Regional Study Area.





**Figure 5-2: Point Location of Site**

**Table 5-1: Application Site of the Proposed De Rust PV 2 SEF Location.**

| FE De Rust PV 2 SEF                          |               |               |
|--|---------------|---------------|
| Co-ordinates of the proposed site/s (DDMMSS) | Latitude (S)  | Longitude (E) |
| Point A                                      | 29°20'7.47"S  | 19°23'0.94"E  |
| Point B                                      | 29°20'15.31"S | 19°24'34.47"E |
| Point C                                      | 29°21'28.74"S | 19°23'55.43"E |
| Point D                                      | 29°21'22.75"S | 19°23'2.21"E  |
| Mid-Point                                    | 29°20'52.61"S | 19°23'38.84"E |

## 5.2 CLIMATE

The nearby town of Pofadder, the site is approximately 23km south of the town, receives most of its rainfall between February and April (data from 1985; <https://www.meteoblue.com/>), and recent data (2009-2021) indicates that most rainfall occurs from October to March, with a mean annual rainfall of 135 mm (<https://wapor.apps.fao.org/>). The warmest months are October through to April with a mean daily maximum of 33 °C and minimum of 17°C (February) and winter maximum temperatures of

18 °C and minimum 2 °C (July; <https://www.meteoblue.com/>).

### 5.3 TOPOGRAPHY

The site has varied terrain, consisting of a relatively flat plain with small quartzite ridges and koppies that form linear hilly regions across the properties, with especially large hills in the southeast, and dolerite outcrops forming small to large conical koppies in the northeast. There are some rocky areas on the flats that are not associated with higher terrain, located in the northern central portion of the PA. (Figure 5-3).

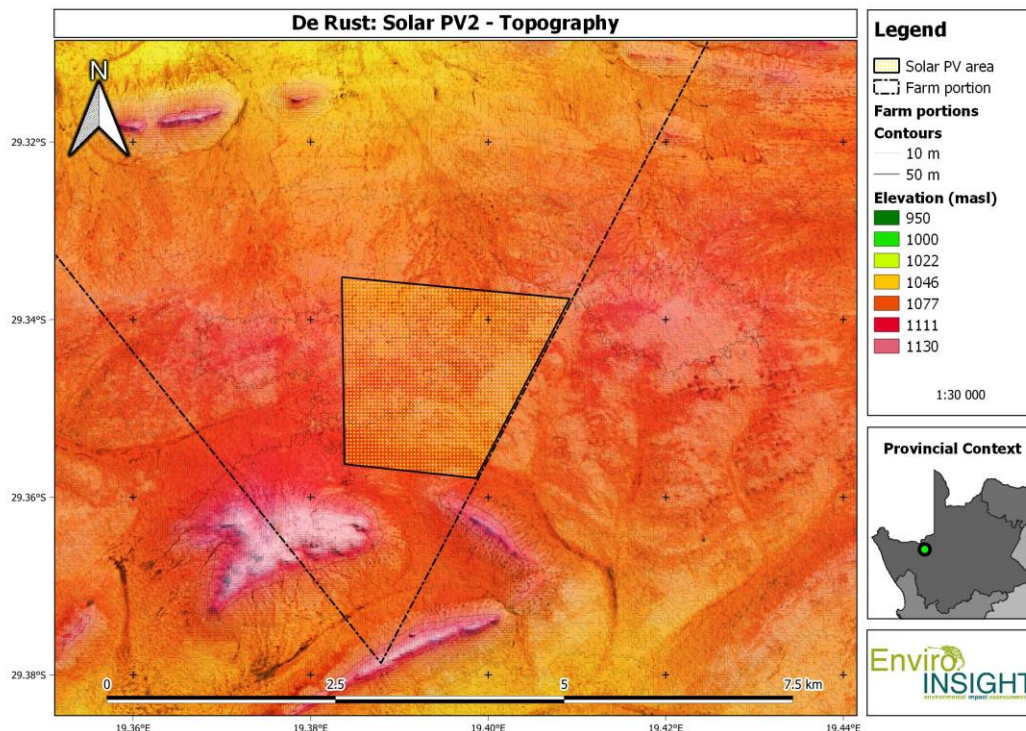


Figure 5-3: Topography in relation to De Rust PV 2 SEF (SANBI, 2018)..

### 5.4 TERRESTRIAL BIODIVERSITY

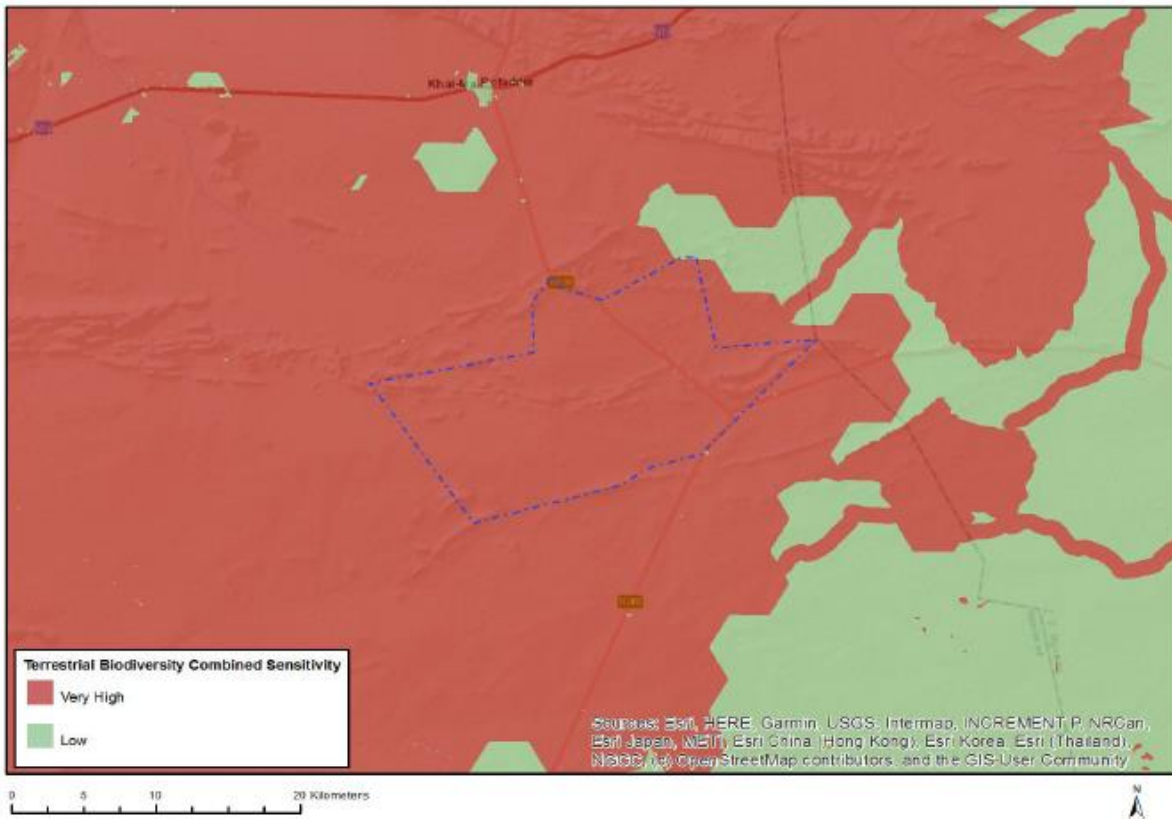
The assessment and minimum reporting requirements of this protocol are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (screening tool). The requirements for terrestrial biodiversity are for landscapes or sites which support various levels of biodiversity. The screening report generated 05/02/2021 indicated that the Terrestrial Biodiversity Combined Sensitivity Theme is indicated as **Very High** sensitivity (Figure 5-4). The sensitive features which trigger the Very High sensitivity include:

- Freshwater ecosystem priority area quinary catchments;



- Critical Biodiversity Area 1
- Critical Biodiversity Area 2;
- Freshwater ecosystem priority area quinary catchments;
- Focus Areas for land-based protected areas expansion; and
- Ecological Support Area.

Accordingly, a Terrestrial Biodiversity Specialist Assessment must be conducted based on the Protocols (published on 20 March 2020).



**Figure 5-4: Screening Tool map of relative terrestrial biodiversity theme sensitivity.**

#### **5.4.1 Biome and Regional Vegetation**

The study area is situated within the Nama-Karoo Biome, a landlocked region in the central plateau of the western half of South Africa that represents the second largest biome, comprising approximately 248,284km<sup>2</sup>. It is essentially a grassy, dwarf shrubland, dotted with characteristic koppies, most of which lies between 1,000 and 1,400 meters above sea level. Eastwards, the ration of grasses to shrubs increases progressively, until the Nama Karoo eventually merges with the Grassland Biome. On the northern fringes the dwarf shrubland often has an overstorey of shrubs and trees. It does not have a unique or species rich

flora, with only 2.147 plants of which 386 (18%) are endemic and 67 are threatened. Despite the relatively low diversity, the Nama-Karoo vegetation has a high diversity of plant life forms. These include coexisting ephemerals, annuals, geophytes, c3 and C4 grasses, succulents, deciduous and evergreen chamaephytes and trees.

Natural disturbance factors that drive many vegetation dynamics include many that are linked to human actions and many disturbances interact to modify effects. Factors include grazing by livestock and wild herbivores, fire, rainfall and runoff and other episodic events such as hailstorms. Very little of the Nama-Karoo has been transformed from natural vegetation to crops, dams, industry or other forms of land use that threaten natural diversity. The dominant land use is the ranching of small stock, cattle and game farming with indigenous antelope.

Natural vegetation distribution patterns are linked to variations in geology and associated soils, and a distinction exists between plant communities requiring moister soils, and those requiring higher nutrient status soils. Vegetation is also adapted to saline or calcareous soil conditions, where the incidence of non-succulent dwarf shrubs is higher, and is virtually absent on saline soils, where succulent-leaved dwarf shrubs and succulent predominate. Some plants survive because they are able to store water in their thick leaves or root systems, and other may become deciduous in response to the high frequency of drought-like conditions.

The following VEGMAP (Mucina & Rutherford, 2006) vegetation types will be affected by the proposed development ():

- Aggeneys Gravel Vygieveld;
- Bushmanland Arid Grassland;
- Bushmanland Basin Shrubland;
- Bushmanland Inselberg Shrubland; and
- Namaqualand Klipkoppe Shrubland.

The study area is not located in a national threatened ecosystem, as confirmed in the screening report.

### **Aggeneys Gravel Vygieveld**

This vegetation type is situated on flat or slightly sloping plains (appearing as distinctly white surface quartz layers against the background of red sand or reddish soil), supporting sparse, low growing vegetation dominated by small to dwarf lead-succulents of the families Aizoaceae, Crassulaceae, Euphorbiaceae, Portulacaceae and Zygophyllaceae, with some perennial components. *Eragrostis nindensis* is the dominant perennial graminoid. It is strongly associated with Gneisses and Quartzites, which are the primary determinants of the location of the different types of gravel patches usually found at foothills or on peneplains associated with the base of inselbergs or low ridges amongst the gently undulating plains.

The conservation status is set as Least Threatened and none is conserved in statutory conservation areas. Due to low vegetation cover, the gravel patches are not targeted for grazing and no serious alien plant incursions are observed. These gravel patches are not well defined in the landscape and there are probably more gravel patches of considerable extent in the region of Pofadder and Aggeneys that are currently featured. The low precipitation explains why the biomass of plants occurring on the gravel patches is low, but can be considered a true Succulent Karoo vegetation type and forms the easternmost extent of the Succulent Karoo Biome in Bushmanland.

**Common species** occurring in the region include *Boscia albitrunca*, *Ruschia divaricata*, *Euphorbia gariiepina*, *E. gregaria*, *E. mauritanica*, *Hypertelis salsoloides*, *Kleinia longiflora*, *Lycium cinereum*, *Psilocaulon subnodosum*, *Sarcocaulon crassicaule*, *Senecio sarcoides*, *Titanopsis hugo-schlechteri*, *Pegolettia retrofracta*, *Aptosimum spinescens*, *Eriocephalus ambiguus*, *Euphorbia spinea*, *Fagonia capensis*, *Galenia fruticosa*, *Helichrysum pumilio subsp. pumilio*, *Hermannia spinosa*, *Microlooma incanum*, *Monechma spartioides*, *Crassula corallina subsp. macrorrhiza*, *C. deltoidea* and *Stipagrostis ciliata*.

**Biogeographically important species** occurring in this vegetation type include the following: *Antimima vanzylii*, *Ceraria fruticulosa*, *C. namaquensis*, *Stomatium alboroseum*, *Berkheya canescens*, *Anacampseros filamentosa subsp. namaquensis*, *Avonia papyracea subsp. namaensis*, *A. papyracea subsp. papyracea*, *Crassula sericea var. sericea*, *Mesembryanthemum inachabense*, *Phyllobolus latipetalus* and *Adenoglossa decurens*.

**Endemic taxa** occurring in this vegetation *Adromischus nanus*, *Dintherus puberulus*, *D. vanzylii*, *Lapidaria margaretae*, *Anacampseros bayeriana*, *Conophytum achabense*, *C. angelicae subsp. angelicae*, *C. burgeri*, *C. maughamii*, *C. praesectum*, *C. ratum*, *Lithops dorotheae* and *L. julii subsp. fulleri*.

### **Bushmanland Arid Grassland**

The southern border of the unit is formed by edges of the Bushmanland Basin while in the northwest this vegetation unit borders on desert vegetation (northwest of Aggeneys and Pofadder). The northern border (in the vicinity of Upington) and the eastern border (between Upington and Prieska) are formed with often intermingling units of Lower Gariiep Broken Veld, Kalahari Karroid Shrubland and Gordonias Duneveld. This vegetation type comprises extensive to irregular plains on a slightly slope plateau. Sparse grassland vegetation is dominated by white grasses (*Stipagrostis* species) giving this vegetation type the character of semidesert „steppe“. In places low shrubs of *Salsola* change the vegetation structure. In abundant rainfall years rich displays of annual herbs can be expected. A Least Threatened status is ascribed to this vegetation type and only small patches is statutorily conserved in the Augrabies Falls National Parks and Goegap Nature Reserve, very little of the area has been transformed and erosion is very low.

Biogeographically important taxa include *Tridentea dwequensis* and the Endemic species *Dintherus poleevansii*, *Larryleachia dinteri*, *L. marlothii*, *Ruschia kenhardtensis*, *Lotononis oligocephala* and *Nemesia maxii*. Important Taxa (Western and Eastern regions only) include the following:

**Graminoids:** *Aristida adscensionis*, *A. congesta*, *Enneapogon desvauxii*, *Eragrostis nindensis*, *Schmidtia kalahariensis*, *Stipagrostis ciliata*, *S. obtusa*, *Cenchrus ciliaris*, *Enneapogon scaber*, *Eragrostis annulata*, *E. porosa*, *E. procumbens*, *Panicum lanipes*, *Setaria verticillata*, *Sporobolus nervosus*, *Stipagrostis brevifolia*, *S. uniplumis*, *Tragus berteronianus* and *T. racemosus*.

**Small Trees:** *Acacia mellifera subsp. detinens* and *Boscia foetida subsp. foetida*.

**Tall Shrubs:** *Lycium cinereum*, *Rhigozum trichotomum*, *Cadaba aphylla* and *Parkinsonia africana*.

**Low Shrubs:** *Aptosimum spinescens*, *Hermannia spinosa*, *Pentzia spinescens*, *Aizoon asbestinum*, *A. schellenbergii*, *Aptosimum elongatum*, *A. lineare*, *A. marlothii*, *Barleria rigida*, *Berkheya annectens*, *Blepharis mitrata*, *Eriocephalus ambiguus*,

*E. spinescens, Limeum aethiopicum, Lophiocarpus polystachyus, Monechma incanum, M. spartioides, Pentzia pinnatisecta, Phaeoptilum spinosum, Polygala seminuda, Pteronia leucoclada, P mucronata, P sordida, Rosenia humilis, Senecio niveus, Sericocoma avolans, Solanum capense, Talinum arnotii, Tetragonia arbuscula and Zygophyllum microphyllum.*

**Succulent Shrubs:** *Kleinia longiflora, Lycium bosciifolium, Salsola tuberculata and S. glabrescens.*

**Herbs:** *Acanthopsis hoffmannseggiana, Aizoon canariense, Amaranthus praetermissus, Barleria lichtensteiniana, Chamaesyce inaequilatera, Dicoma capensis, Indigastrium argyraeum, Lotononis platycarpa, Sesamum capense, Tribulus pterophorus, T terrestris, Vahlia capensis, Gisekia pharnacioides, Psilocaulon coriarium and Trianthema parvifolia.*

**Geophytic Herb:** *Moraea venenata*

### **Bushmanland Basin Shrubland**

Bushmanland Basin Shrubland occurs on the extensive basin centered on Brandvlei and Van Wyksvlei, spanning Granaatboskolk in the west to Copperton in the east, and Kenhardt in the north to around Williston in the south. The area is characterised by slightly irregular plains dominated by a dwarf shrubland, with succulent shrubs or perennial grasses in places. The geology consists largely of mudstones and shales of the Ecca group and Dwyka tillites with occasional dolerite intrusions. Soils are largely shallow to non-existent, with calcrete present in most areas. Rainfall ranges from 100-200 mm and falls mostly during the summer months as thunder storms. As a result of the arid nature of the area, very little of this vegetation type has been affected by intensive agriculture and it is classified as Least Threatened. None of the unit is conserved in statutory conservation areas. According to Mucina and Rutherford no signs of serious transformation are present for the vegetation type, but scattered individuals of *Prosopis* sp. occur in some areas (e.g. in the vicinity of the Sak River drainage system), and some localised dense infestations form closed 'woodlands' along the eastern border of the unit with Northern Upper Karoo (east of Van Wyksvlei) (Mucina & Rutherford, 2006 as amended).

There are few endemic and biogeographically important species present at the site and only *Tridentea dwequensis* is listed by Mucina and Rutherford as biogeographically important while *Cromidon minimum, Ornithogalum bicornutum* and *O.ovatum* subsp *oliverorum* are listed as being endemic to the vegetation type (Mucina & Rutherford, 2006 as amended).

### **Bushmanland Inselberg Shrubland**

**Regional Distribution:** Northern Cape Province: system of prominent "inselbergs" (solitary mountains) and smaller koppies exposed over surrounding flat plains between 850 and 1150 m alt. centred on the town of Aggeneys. Most important inselbergs include (from east to west) Namies, Achab, Gamsberg, Aggeneysseberg, Witberg, Haramoep, and Naip. Total area covered by the vegetation type is approximately 78 000ha of which 2545ha occurs in the study area or 3.2% of the regional extent.

**Study Area Distribution:** This vegetation unit occurs on the slopes of the inselbergs and koppies within the study area. The vegetation of the Gamsberg plateau is considered as Aggeneys Gravel Vygieveld. The upper south-facing slope of the

Gamsberg on quartzite scree (above approximately 900m) is considered here as Namaqualand Klipkoppe Shrubland. This unit is mapped in the Anderson (2000) but not the Desmet et al. (2005) map.

**Habitats:** Two main habitats can be distinguished: Mountains slopes and Rocky Plains.

**Vegetation characteristics:** Sparse to dense vegetation of variable composition; mixture of lowgrowing grasses (*Eragrostis*, *Aristida*, *Digitaria*, *Enneapogon* and *Panicum*); leaf-succulent karoo shrubs (*Ruschia*, *Antimima*, *Drosantherum*, *Psilocaulon*), microphyllous and spinescent karoo shrubs (Acanthaceae, Asteraceae), succulent trees (*Aloe*, *Ceraria*, *Euphorbia*).

**Common Taxa:** *Eragrostis nindensis*, *Enneapogon desvauxii*, *Aristida congesta* subsp. *congesta*, *Oropetium capense*, *Digitaria eriantha*, *Aristida adscensionis*, *Chascanum garipense*, *Hermannia stricta*, *Aptosimum spinescens*, *Pappea capensis*, *Ceraria namaquensis*, *Ceraria fruticulosa*, *Dyerophytum africanum*, *Rogeria longiflora*, *Ficus ilicina*, *Ruschia robusta*, *Hereroa puttkameriana*, *Drosantherum godmaniae*, *Nymania capensis*, *Hibiscus elliotiae*, *Pelargonium xerophyton*, *Pelargonium spinosum*, *Euphorbia spinea*, *Euphorbia gregaria*, *Euphorbia gariepina*, *Euphorbia avasmontana*, *Cucumis rigidus*, *Tylecodon rubrovenosus*, *Crassula sericea* var. *sericea*, *Crassula namaquensis* var. *namaquensis*, *Crassula garibina*, *Cotyledon orbiculata* var. *orbiculata*, *Adromischus trigynus*, *Salsola aphylla*, *Boscia foetida* subsp. *foetida*, *Boscia albitrunca* var. *albitrunca*, *Commiphora gracilifrons*, *Ehretia rigida*, *Rhigozum trichotomum*, *Helichrysum tomentosum* subsp. *aromaticum*, *Osteospermum armatum*, *Lopholaena cneorifolia*, *Kleinia longiflora*, *Hirpicium alienatum*, *Helichrysum herniarioides*, *Geigeria vigintiquamea*, *Eriocephalus scariosus*, *Eriocephalus pauperrimus*, *Eriocephalus microphyllus* var. *pubescens*, *Eriocephalus ambiguus*, *Dicoma capensis*, *Aloe gariepensis*, *Aloe dichotoma*, *Hoodia gordonii*, *Rhus undulata*, *Ozoroa dispar*, *Hermbstaedtia glauca*, *Tetragonia reduplicata*, *Galenia fruticosa*, *Galenia* cf. *meziana*, *Aizoon asbestinum*, *Monechma spartioides*, *Blepharis pruinosa*, *Blepharis mitrata*, *Blepharis micra*, *Acanthopsis hoffmannseggiana*.

**Important Taxa:** *Brunsvigia comptonii*, *Pachypodium namaquanum* (not present in the study area), *Euphorbia virosa* (not present in the study area).

**Endemic Taxa:** *Avonia recurvata* subsp. *minuta*, *Conophytum friedrichiae* (not present in the study area), *Conophytum fulleri*, *Conophytum marginatum* var. *karamoepense*, *Conophytum praeseatum*, *Dinteranthus vanzylii* var. *vanzylii* (not present in study area), *Schwantesia pillansii*.

**Notes:** This unit shows intermediate floristic similarities between the Succulent and Nama Karoo biomes and the Gariep Stony Desert. With the removal the upper south-facing slopes and plateau communities from this vegetation unit many important and endemic taxa have been removed from this vegetation unit. Generally, all the species of conservation concern that occur on the Gamsberg are associated with the Aggeneys Gravel Vygieveld, Namaqualand Klipkoppe Shrubland and Azonal (Kloof) vegetation units.

### **Namaqualand Klipkoppe Shrubland (SKn1)**

This vegetation type occurs in the Western and Northern Cape in the central and north-central regions of Namaqualand. It is typified by dramatic landscapes of large granite and gneiss domes and disintegrating boulder koppies that support open shrubland dominated by dwarf shrubs with ericoid or succulent leaves, many of which are deciduous. It is classified as Least Threatened on a national basis (DEA 2011), with a conservation target of 28%. Approximately 6% has been statutorily conserved and about 5% has been transformed (Rouget et al 2004). This vegetation type occupies only about 1% of the prospecting area, and is not present in the proposed mining area.

The soils associated with Namaqualand Klipkoppe Shrubland can be described as: Mokolian granites and gneisses which forms gentle to moderate rocky slopes with rock sizes varying from medium to large with flat to gentle rock sheets as well as rock domes. The soils are described as yellow-brown to brown loamy sand, 0.15 – 0.6 m deep (Mucina & Rutherford, 2006).

According to Mucina & Rutherford (2006), the Namaqualand Klipkoppe Shrubland has 15 endemic plant species namely:

**Succulent Shrubs:** *Ottosonderia monticola*, *Tylecodon nigricaulis*.

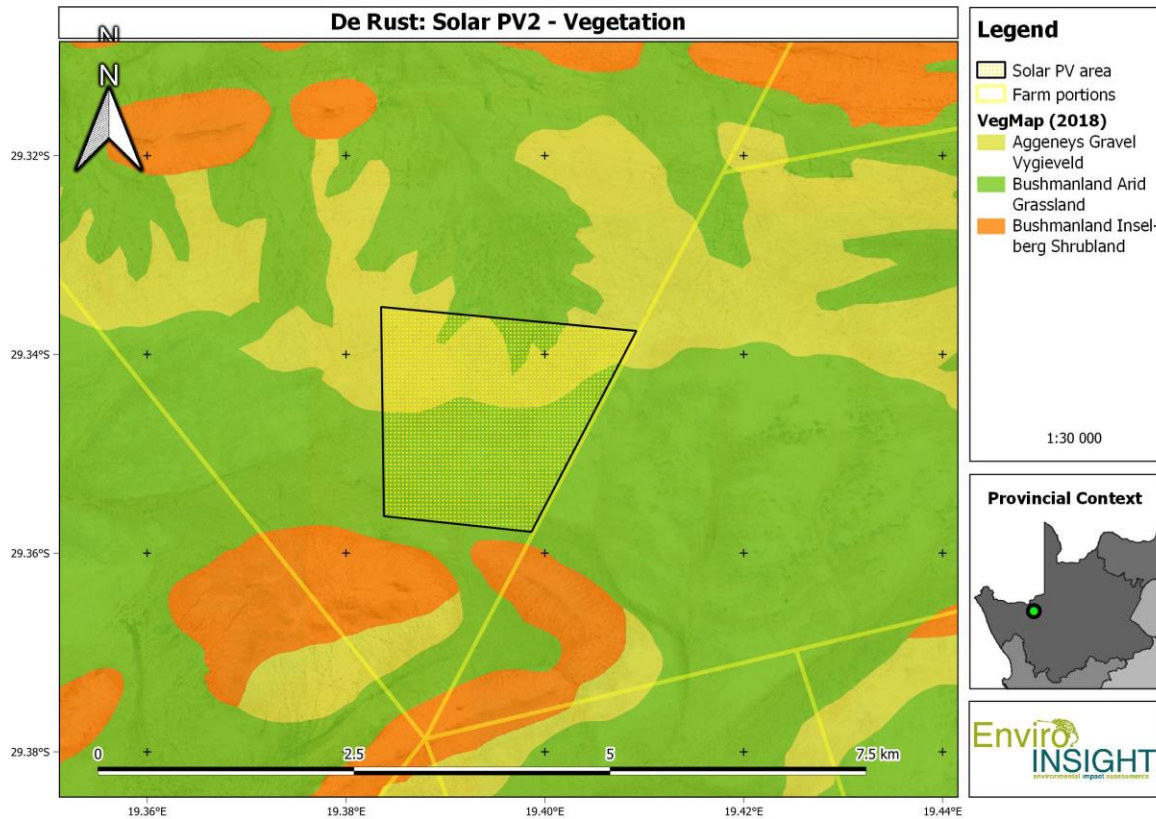
**Low Shrubs:** *Lotononis benthamiana*, *L. longiflora*, *L. quinata*, *Wiborgia incurvata*.

**Herbs:** *Tripteris spathulata*, *Zaluzianskya collina*.

**Geophytic Herbs:** *Ornithogalum leeupoortense*, *O. louisae*, *Xysmalobium pearsonii*.

**Succulent Herbs:** *Quagua bayeriana*, *Q pallens*, *Stapeliopsis khamiesbergensis*.





**Figure 5-5: Regional vegetation types in relation to the study area (SANBI, 2018).**

#### 5.4.2 Northern Cape Critical Biodiversity Areas

The Northern Cape CBA Map (2016) identifies biodiversity priority areas, called Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), which, together with protected areas, are important for the persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of the landscape as a whole (Holness & Oosthuysen, 2016). Priorities from existing plans such as the Namakwa District Biodiversity Plan, the Succulent Karoo Ecosystem Plan, National Estuary Priorities, and the National Freshwater Ecosystem Priority Areas were incorporated. Targets for terrestrial ecosystems were based on established national targets, while targets used for other features were aligned with those used in other provincial planning processes.

Critical biodiversity areas (CBA's) are terrestrial and aquatic features in the landscape that are critical for retaining biodiversity and supporting continued ecosystem functioning and services. The primary purpose of CBA's is to inform land-use planning in order to promote sustainable development and protection of important natural habitat and landscapes. Biodiversity priority areas are described as follows:



- *Critical biodiversity areas (CBA's)* are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses. For CBA's the impact on biodiversity of a change in land-use that results in a change from the desired ecological state is most significant locally at the point of impact through the direct loss of a biodiversity feature (e.g. loss of a populations or habitat). All FEPA prioritized wetlands and rivers have a minimum category of CBA1, while all FEPA prioritised wetland clusters have a minimum category of CBA2.
- *Ecological support areas (ESA's)* are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for critical biodiversity areas. For ESA's a change from the desired ecological state is most significant elsewhere in the landscape through the indirect loss of biodiversity due to a breakdown, interruption or loss of an ecological process pathway (e.g. removing a corridor results in a population going extinct elsewhere or a new plantation locally results in a reduction in stream flow at the exit to the catchment which affects downstream biodiversity). All natural non-FEPA wetlands and larger rivers have a minimum category of ESA.

According to the CBA Map (Figure 5-6), the study area is mainly located in an ESA with CBA2 surrounding it towards the west and south. All turbines are located within the ESA, which reduces the impacts of the proposed development footprint on the receiving environment. All associated infrastructure must be located outside the CBA2 as well.

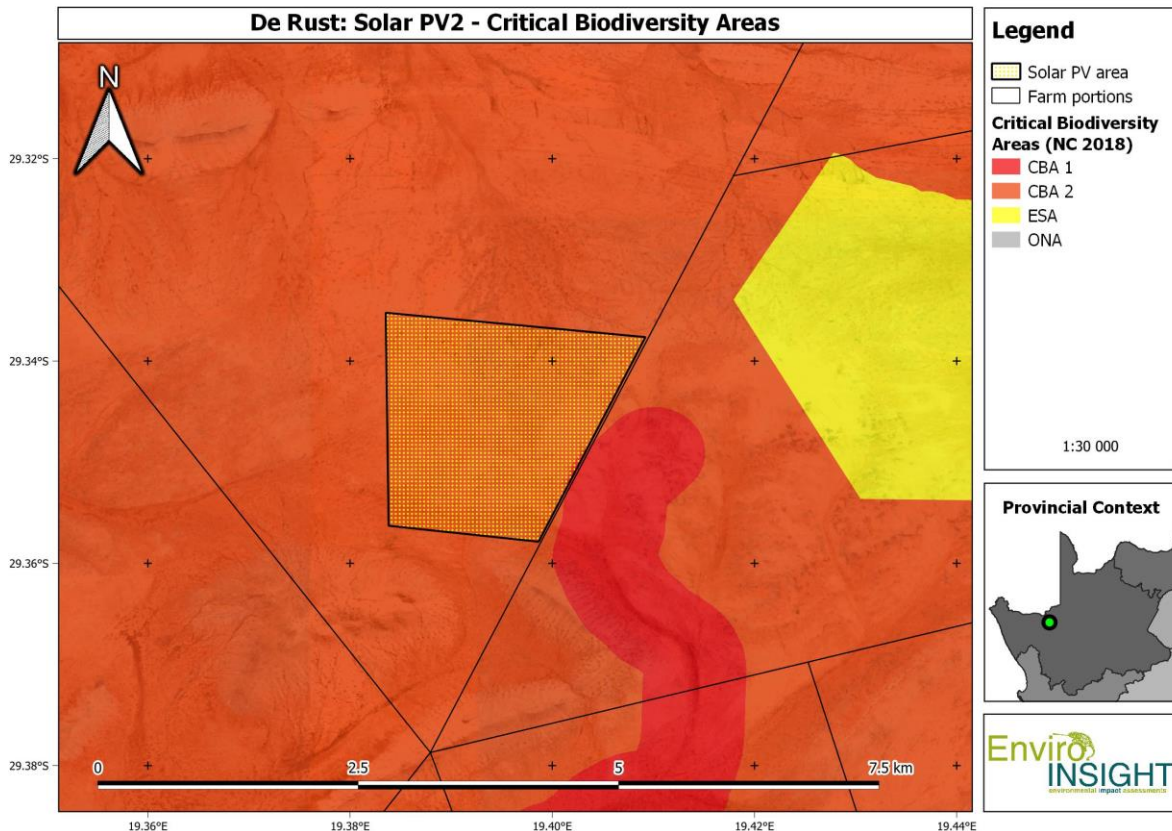


Figure 5-6: The study area in relation to the Northern Cape Critical Biodiversity Areas (2016).

## 5.5 PLANT AND ANIMAL SENSITIVE SPECIES

The Animal species theme is indicated as High sensitive due to the presence of sensitive avifauna species, while the remaining taxa groups are considered to be low (Figure 5-7). The avifauna component is addressed in a separate report (see section below) based on the specific protocol and guidelines. Accordingly, only a compliance statement is required.

The plant species theme initially indicated Medium sensitive due to the presence of sensitive species 144, sensitive species 854, sensitive species 425 and *Cephalophyllum fullerii* (Figure 5-8). Sensitive species 144 was recorded during the site sensitivity verification. Accordingly, a full assessment was incorporated for this theme to account for all possible sensitive species likely to occur on site.

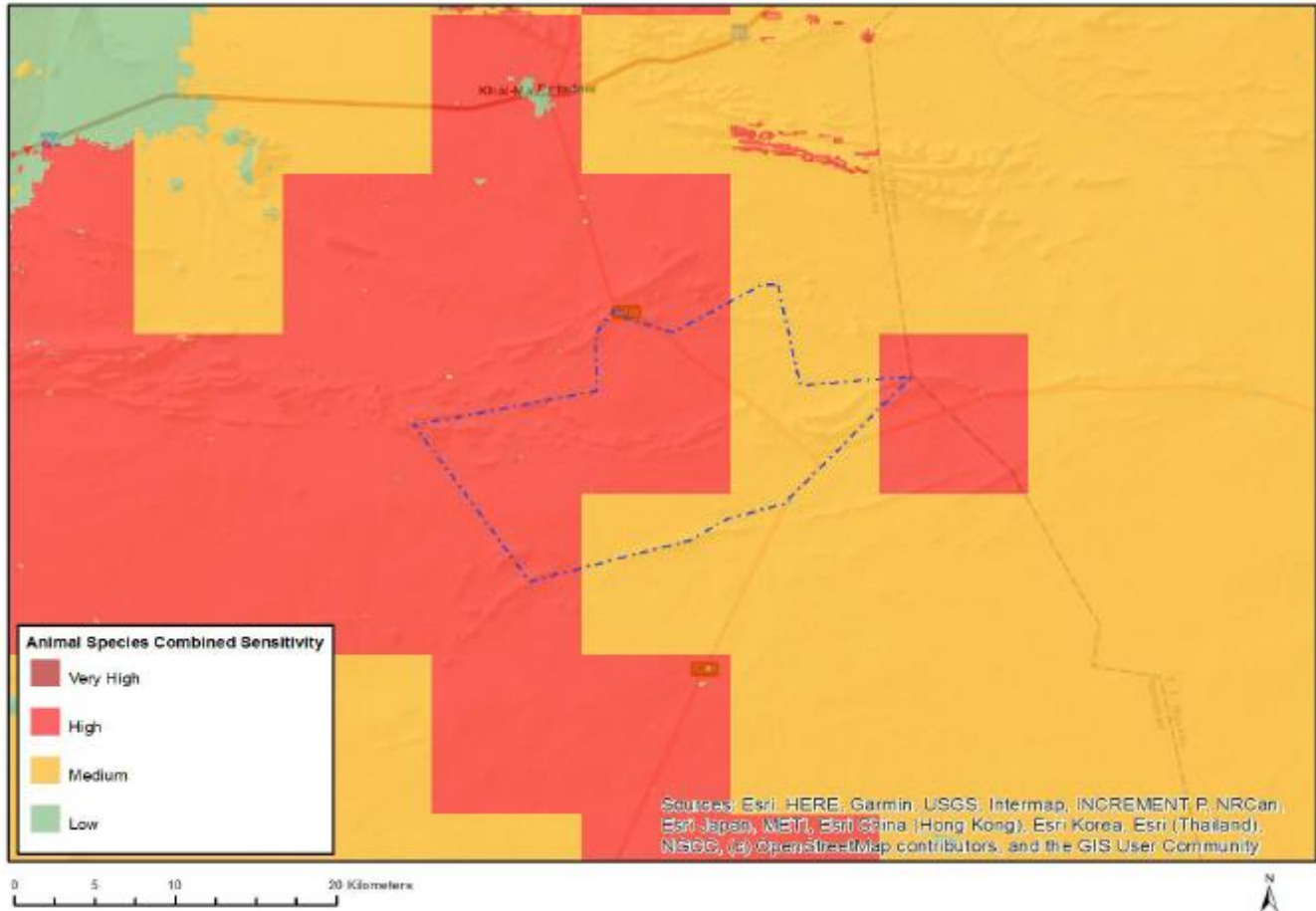
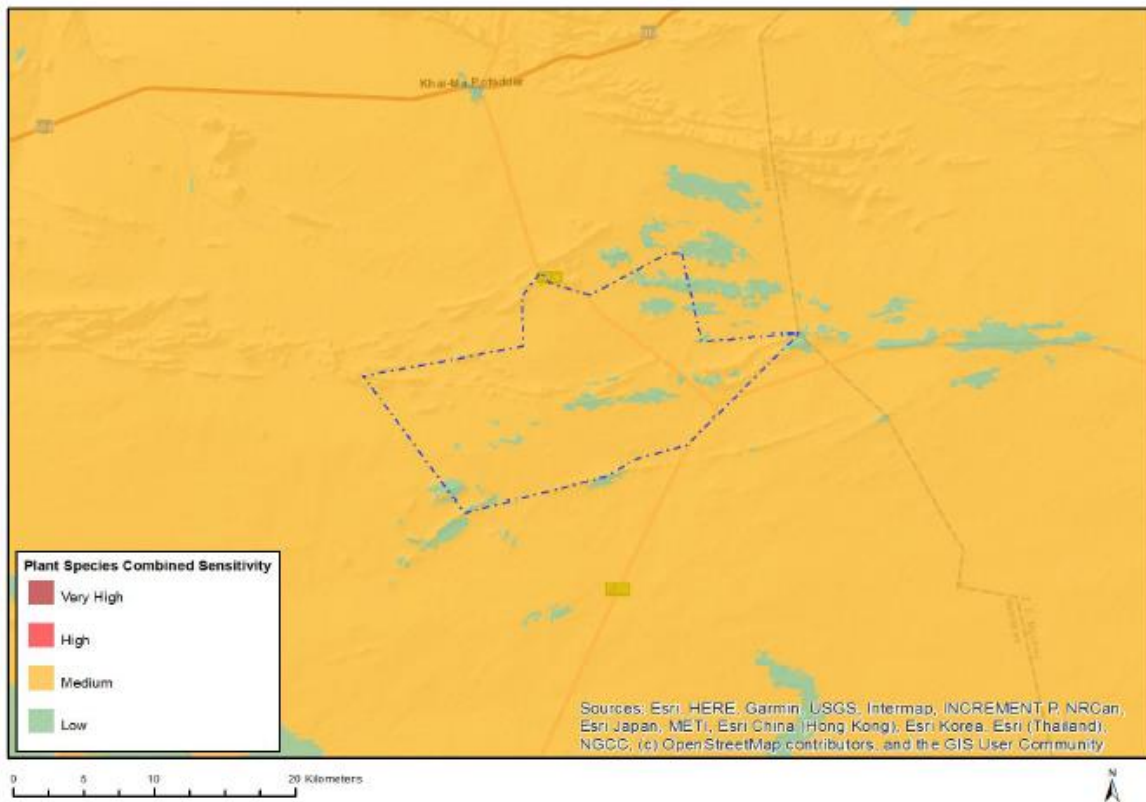


Figure 5-7: Screening Tool map of relative animal species theme sensitivity.



**Figure 5-8: Screening Tool map of relative plant species theme sensitivity.**

### 5.5.1 Sensitive Plant Species

As per the screening report, four plant SCC are likely to occur on the study area.

## 5.6 AVIFAUNA

### 5.6.1 Preconstruction Bird Monitoring Survey Design

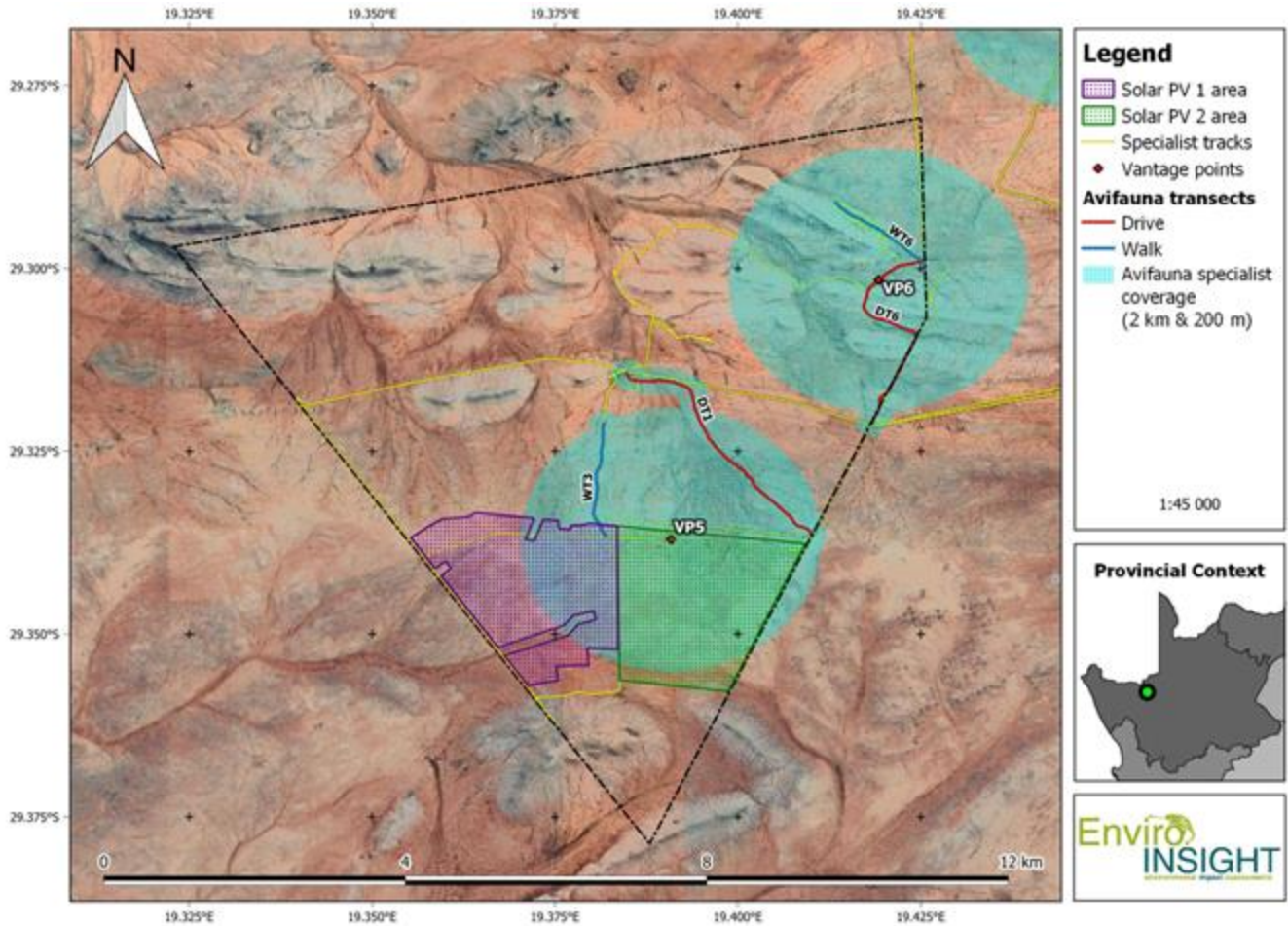
The proposed study area is classified as a Regime 2 based on the size of the study area (>150 ha), high avifaunal sensitivity and type of technology that will be used for the proposed project. The avifaunal sensitivity was determined based on the number of priority species occurring, or potentially present, within or around the study area, the regional or globally threat status of these species, avifaunal habitat found in the area, population of priority species, bird movement corridor and proximity to Important Bird and Critical Biodiversity Areas. The duration, in terms of data collection, for this study was 6 months consisting of 3 visits of 3-5 days each, covering both the peak wet and dry seasons of the year. This complies with the requirements of the Best

Practice Guidelines available at the time (Jenkins et al., 2017). The surveys conducted per season/ dates are summarised as Table 5-2 below. It is important to understand that although the methods do not require VPs (as per WEFs), the SEFs benefitted from concurrent data collection from the associated WEF development as shown in the combined development footprint map shown as Figure 5-9.

**Table 5-2: Avifauna monitoring sampling period for De Rust Solar PV 1 SEF and Control Site.**

| Date         | Season | Methodology applied |
|--------------|--------|---------------------|
| October 2021 | Spring | VP, DT, WT, WB, NE  |
| January 2022 | Summer | VP, DT, WT, WB, NE  |
| May 2022     | Autumn | VP, DT, WT, WB, NE  |
| August 2022  | Winter | VP, DT, WT, WB, NE  |





**Figure 5-9: Avifauna survey sites and specialist coverage (GPS tracks) for the proposed De Rust Solar PV 2 SEF.**

**Vantage Points:** Only 2 vantage points (VPs) from the WEF survey within the project study area were applied to the De Rust SEFs, and one identified at the control area, to record the flight altitude and patterns of priority species (totaling three VPs). These sampling points were located at strategic locations within the Project Footprint and set up to allow the visual coverage of the SEFs and its immediate surroundings. Each location was surveyed for a minimum of 12 hours of observation per season divided through the early morning, midday and late afternoon times of day (Jenkins et al. 2015).

**Walked Transects:** Three linear transects ranging from 1.5 km to 3.5 km in length (3.31 km total and 6657 inc. the control), two located in the proposed Project footprint and one within the control area, were walked in order to characterize the passerine and small bird communities. The same transects were repeated in every season. Surveys started after sunrise and were performed throughout the day to account for temporal variation in bird activity. As a general rule, transects were not walked in adverse

conditions, such as heavy rain, strong winds or thick mist. During the surveys, no adverse conditions were recorded that precluded successful analysis.

**Driven Transects:** Populations large terrestrial birds should be estimated on each visit to the project area by means of road counts (vehicle-based sampling; best applied for relatively large proposed SEFs, especially those with good networks of roads and tracks). Road counts of large terrestrial birds and raptors require that one or a number of driven transects be executed (depending on site size, terrain and infrastructure), comprising one or a number of set routes, limited by the existing roadways but as far as possible directed to include a representative cross section of habitats within the project area of influence (PAOI). Nine drive transects were identified in the project footprint and one drive transect in the control area with a combined total length of 26.935 km. One observer travelling slowly in a vehicle recorded all species on both sides of the drive transect. The observer stopped at regular intervals (every 100 to 300 m) to scan the environment with binoculars.

**Wetlands:** Main water bodies (including wetlands) present within the study area were identified on a Geographical Information System (GIS). These identified and mapped water bodies were surveyed to determine their level of utilisation by water birds. Due to seasonality, the birds were only be surveyed during periods with some prevailing inundation or rainfall. Some drainage lines within the greater PAOI were inundated during the 2021 spring surveys and were observed accordingly.

**Specialist Nest Survey:** Any habitats within the PAOI of the proposed SEF, or equivalent habitats around the study area, deemed likely to support nest sites of key raptor and other species of conservation concern, including power lines, stands of large trees, marshes and drainage lines, were surveyed. All potential breeding sites, once identified fully, were mapped, and checked during each survey to confirm occupancy, and all evidence of breeding and the outcomes of such activity, where possible, recorded.

**Incidental Observations of Priority Species:** All other sightings of priority species (and particularly those suggestive of breeding or important feeding or roosting sites or flight paths) on the SEF and control site as well as within the broader study area were recorded, along with additional relevant information such as habitat type, abundance, habits and weather data. These observations were used as complementary data to characterise the bird community and its utilisation of the site, as recommended by the Best Practice Guidelines (Jenkins et al., 2017).

## 5.6.2 Description of Major Bird Habitats

**Nama Grassland:** The sandy grassland habitats show a reduced structural complexity and vegetation which provides for a more generic species diversity albeit often higher densities of avifauna. The habitat contains features that provide suitable foraging habitat for Red Lark, Ludwig's Bustard (*Neotis ludwigii*), Kori Bustard (*Ardeotis kori*) and Secretary bird (*Sagittarius serpentarius*). However, the habitat is characterised by a much-reduced dune like topography and a lower prevalence of grassed red sand infusions which provides infused supporting highly localized portions of optimal habitat for Red Larks.



**Shrubland:** The Powerlines have proved to be highly sensitive in regard to large raptors, especially Martial Eagle which nest frequently on the powerline infrastructure and who utilise the powerlines to launch hunts.

### 5.6.3 Observed and Expected Avifauna

#### 5.6.3.1 Total species composition and abundance

The study area supports a relatively high diversity and abundance of avifauna, which is to be expected in an arid area with a high habitat diversity like the Pofadder region. A total of 83 species have been observed, as shown in Appendix 1. This medium to high diversity is predominantly due to a number of factors including:

- High regional aridity which shows a high temporal variability in species diversity;
- Diverse habitat types (with some highly sensitive habitat such as drainage lines and temporary pans within the PAOI).
- Climate change which is characterised by lower rainfall and increased temperatures but with stochastic high rainfall events as with 2022.
- Powerline infrastructure bisecting the PA (raptor nesting habitat).

It must be noted that stochastic high rainfall events (especially after the prolonged drought periods) and other atypical prevailing influences (persistent mild weather) may have influenced the local avifaunal assemblage densities which were often recorded as being very high.

#### 5.6.3.2 Priority species list

A list of expected and observed priority species (Retief et al. 2012) in the project area is provided in Table 5-3. A total of 19 priority species are expected to occur on and surrounding the study area, of which 14 have been recorded.

It is clear from Table 5-3 that numerous priority avifauna species occurs within the PAOI and can be expected to interact with the proposed development. With all proposed and approved SEFs developments, it is vital to consider the context within which these species are observed in the current study, as congregatory behaviour, nesting behaviour and foraging behaviour may differ from that at the adjacent existing SEFs facility. Indeed, Van Rooyen (2020) suggests that displacement effects of the SEFs are more significant than direct mortality which can greatly affect habitat specific species such as Red Lark and Ludwig's Bustard. Consequently, all applicable data of priority species observed within the monitoring seasons of field surveys allowed for careful evaluation of potential impacts and application of suitable mitigation measures to reduce these impacts where possible. According to the literature, 14 Red-Listed species are known to occur in the region with nine species highly likely and six species confirmed during the completed surveys, representing a very high success rate given a single year study period. Of the expected species and according to Taylor et al. (2015), two of the species are Endangered, four of the species are Vulnerable and three are Near-Threatened. For the current study, it was deemed unnecessary that all SCC should be discussed in intensive

detail unless deemed highly relevant to the proposed development. However, all relevant SCC are described in brief (**Error! Reference source not found.** 5-4). Three selected relevant species that are possibly susceptible to the proposed development were discussed below in greater detail, which include specific (Guideline-based) recommendations for monitoring and mitigation. Photographic evidence of SCC and Priority Species observed during the current study is provided in Figure 5-10

**Table 5-3: Priority avifauna species list (both expected and recorded as defined by Retief et al. 2012) for the study area.**

| Common name                     | Scientific name                 | Priority species rank | Global Status | Regional Status | South African Endemic | Current pre-construction monitoring |
|---------------------------------|---------------------------------|-----------------------|---------------|-----------------|-----------------------|-------------------------------------|
| Bustard, Ludwig's               | <i>Neotis ludwigii</i>          | 14                    | EN            | EN              |                       | X                                   |
| Buzzard, Jackal                 | <i>Buteo rufofuscus</i>         | 43                    | LC            | LC              | X                     | X                                   |
| Cursorer, Burchell's            | <i>Cursorius rufus</i>          | 69                    | LC            | VU              | X                     | X                                   |
| Cursorer, Double-banded         | <i>Rhinoptilus africanus</i>    | 72                    | LC            | NT              |                       | X                                   |
| Eagle, Booted                   | <i>Aquila pennatus</i>          | 59                    | LC            | LC              |                       | X                                   |
| Eagle, Martial                  | <i>Polemaetus bellicosus</i>    | 4                     | EN            | EN              |                       | X                                   |
| Eagle, Verreaux's               | <i>Aquila verreauxii</i>        | 2                     | LC            | VU              |                       |                                     |
| Eagle-owl, Spotted              | <i>Bubo africanus</i>           | 98                    | LC            | LC              |                       | X                                   |
| Falcon, Lanner                  | <i>Falco biarmicus</i>          | 24                    | LC            | VU              |                       | X                                   |
| Goshawk, Southern Pale Chanting | <i>Melierax canorus</i>         | 75                    | LC            | LC              | X                     | X                                   |
| Kestrel, Greater                | <i>Falco rupicoloides</i>       | 95                    | LC            | LC              |                       | X                                   |
| Kite, Black-winged              | <i>Elanus caeruleus</i>         | 94                    | LC            | LC              |                       | X                                   |
| Korhaan, Karoo                  | <i>Eupodotis vigorsii</i>       | 51                    | LC            | NT              | X                     | X                                   |
| Korhaan, Southern Black         | <i>Afrotis afa</i>              | 37                    | VU            | VU              |                       | X                                   |
| Korhaan, Northern Black         | <i>Afrotis afraoides</i>        | 90                    | LC            | LC              |                       | X                                   |
| Lark, Red                       | <i>Calendulauda burra</i>       | 40                    | VU            | VU              |                       | X                                   |
| Lark, Sclater's                 | <i>Spizocorys sclateri</i>      | 50                    | NT            | NT              |                       |                                     |
| Secretarybird                   | <i>Sagittarius serpentarius</i> | 13                    | EN            | VU              |                       |                                     |
| Snake- Eagle, Black-chested     | <i>Circaetus pectoralis</i>     | 60                    | LC            | LC              |                       | X                                   |

| Common name           | Scientific name       | Priority species rank | Global Status | Regional Status | South African Endemic | Current pre-construction monitoring |
|-----------------------|-----------------------|-----------------------|---------------|-----------------|-----------------------|-------------------------------------|
| Vulture, White-backed | <i>Gyps africanus</i> | 23                    | CR            | CR              |                       |                                     |

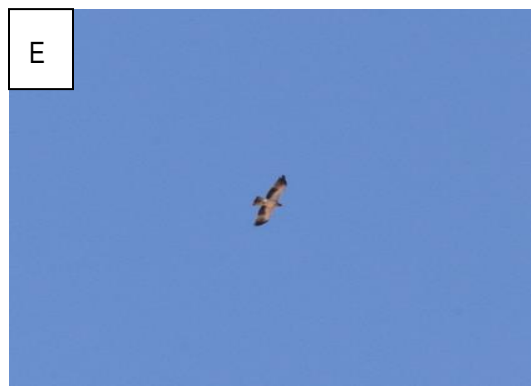


Figure 5-10: Avifauna SCC observed within the proposed De Rust Solar PV 2 SEF PAOI (A- Martial Eagle observed within the proposed De Rust SEF; B- Double-banded Courser observed within the proposed De Rust SEF; C- Karoo Korhaan observed

*within the proposed De Rust SEF; D- Jackal Buzzard observed within the proposed De Rust SEF PA; E- Booted Eagle observed within the proposed De Rust SEF)*

**Table 5-4: Summary of avifauna species of conservation concern of known distribution, previously recorded in or adjacent to the study area pentads.**

| Species                                      | Global Conservation Status <sup>3</sup> | National Conservation Status <sup>4</sup> | Preferred Habitat   | Potential likelihood of occurrence on study area and potential risk posed from the SEF   |
|--|---|---|---|--|
| <i>Spizocorys sclateri</i> (Sclater's lark)  | Near Threatened                         | Near Threatened                           | Dry shrubland, karroid drainage lines and karoo shrubveld                             | <b>Highly Likely:</b> High densities throughout the region but uncommon in the study area. The species is likely to be a breeding resident within or adjacent to the study area. A localised low flying passerine, it is not highly susceptible to SEF development activities but is threatened by habitat loss.   |
| <i>Calendulauda burra</i> (Red lark)         | Vulnerable                              | Vulnerable                                | Red dune open shrubland/ grassy duneveld  | <b>Confirmed:</b> Low densities throughout the region but locally common in the study area. The species is likely to be a breeding resident within or adjacent to the study area. A localised low flying passerine, it is susceptible to SEF development activities (high display flights) but is more threatened by habitat loss.   |
| <i>Aquila verreauxii</i> (Verreaux's' Eagle) | -                                       | Vulnerable                                | Mountainous areas or areas with prominent outcrops with a high prey base (e.g. hyrax) | <b>Regionally confirmed, absent from study area:</b> Frequent foraging resident throughout the PAOI but far less frequent within the study areas due to the large distances to the mountainous preferred habitats and a general lack of localised abundant prey. Localised areas exhibiting high abundance of hyraxes and rock rabbits should be considered highly sensitive to the species. The species is susceptible to poisoning events and SEF facilities with a low risk from proposed activities. |

<sup>3</sup> IUCN 2021

<sup>4</sup> Taylor et al. 2015

| Species  | Global Conservation Status <sup>3</sup> | National Conservation Status <sup>4</sup> | Preferred Habitat   | Potential likelihood of occurrence on study area and potential risk posed from the SEF   |
|--|---|---|---|--|
| <i>Polemaetus bellicosus</i><br>(Martial Eagle)    | Endangered                              | Endangered                                | Open bushveld, desert savanna and karoo with adequate roosting and foraging potential.                              | <b>Confirmed:</b> A breeding resident adjacent to the PA and regular foraging visitor dependent on adequate food supply and roosts. No breeding pair nesting within the proposed SEF boundary were recorded but frequent sightings in terms of foraging activity on the development footprint area. Typically, the species would exhibit a Moderate risk.  |
| <i>Falco biarmicus</i><br>(Lanner Falcon)          | -                                       | Vulnerable                                | Varied, but prefers to breed in mountainous areas.  | <b>Confirmed:</b> A fairly common foraging migrant recorded in the current study and expected periodically to occur. Not highly vulnerable to the proposed activities.   |
| <i>Neotis ludwigii</i><br>(Ludwig's Bustard)       | Endangered                              | Endangered                                | Primary upland grassland, desert savanna and karoo with foraging and roosting particularly on rocky/ hilly terrain. | <b>Confirmed:</b> High densities throughout the study areas. The species is likely to be a breeding resident within or adjacent to the study area. A large bodied species, it is highly susceptible to SEF development activities as shown by direct interactions with the existing powerlines in the region.  |
| <i>Sagittarius serpentarius</i><br>(Secretarybird) | Endangered                              | Vulnerable                                | Prefers open grassland or lightly wooded habitat although forages extensively in open karroid savannah.             | <b>Moderate to Highly Likely:</b> Irregular low-density resident which is most likely of lower risk to the proposed development activities given ground foraging habitats. In addition, persistent long term regional drought may have significantly decimated local prey sources (especially snakes) thus further reducing the likelihood of persisting local populations of significant densities. |
| <i>Eupodotis vigorsii</i><br>(Karoo Korhaan)       | Near threatened                         | Near threatened                           | Karroid habitats, large saline pans and shallow impoundments.   | <b>Confirmed:</b> Common resident occurring near areas with drainage lines (including ephemeral) and open areas. Individually susceptible to SEF development activities but as a species is considered low risk.   |

| Species                                | Global Conservation Status <sup>3</sup> | National Conservation Status <sup>4</sup> | Preferred Habitat  | Potential likelihood of occurrence on study area and potential risk posed from the SEF  |
|--|---|---|--|---|
| <i>Falco naumanni</i> (Lesser Kestrel) | Near Threatened                         | Least Concern                             | Widespread species prefers open grassland or lightly wooded habitat although forages extensively in open karroid savannah. Roosts collectively in locations with tall trees. | <b>Confirmed:</b> Regular migrant of fluctuating seasonal density which is most likely of lower risk to the proposed development activities due to most pressures occurring with breeding grounds and migration routes. |

#### 5.6.4 Preconstruction Monitoring Main Results

Due to the ongoing preconstruction monitoring, the final data will be presented in the final EIA report.

**Walked Transects counts:** During the walked transects, the total number of individual birds (per species) were recorded regardless of if they are listed as priority or not. Notable Priority Species recorded during walked transects included Ludwig's Bustards that were often flushed from foraging positions as well as Double-banded Coursers, Lesser Kestrel, Northern Black Korhaans and Karoo Korhaans. The main focus of drive transects were the recording of large birds and raptors. Ludwig's Bustards, raptors and korhaans and Red Lark were the most frequently recorded priority species. For the final EIA, the data will be used to calculate the combined Index of Kilometric Abundance (IKA = birds/km) for each priority species.

**Vantage Points:** VP surveys data was only used to support the WT and DT data.

**Nest Survey:** Nest sites were searched for during the surveys which included windmills, trees, pylons, bridges and masts, representing most potential roost and nesting sites for raptors. Water bodies were potential roost and nesting sites for multiple species, but the high degree of seasonality and above average rainfall conditions was optimal to being representative of optimal breeding habitat for water associates. Highly significant breeding habitat was recorded during the survey and Ludwig's Bustard is considered a resident and to be breeding on site. Pylons were examined for raptor nesting sites to be discussed for Martial Eagles below. However, it is vital to understand that the abandoned large raptor (Martial Eagle) nests driving the site sensitivity analysis still hold significance given the potential for recolonisation as well the use of the nests by other priority species



### 5.6.5 Preliminary SEF Site Sensitivity

Each demarcated sensitive feature was evaluated for the degree of sensitivity based on the complete 12-month data set (minus passage rates). There is an important presence of a number of SCC in the study area, recorded regularly and widespread through the proposed SEF area. In addition, there are several raptors utilising the PAOI, some of them priority species and/or of conservation concern, such as the Martial Eagle, Lanner Falcon, Pale-chanting Goshawk and Jackal Buzzard. Areas of drainage lines and natural vegetation which are vital to maintaining populations of habitat obligate sensitive species (such as Red Lark). Martial Eagle nests (occupied or abandoned) were buffered according to either best practice (1 km). These areas must be avoided by the developer where associated infrastructure may be located. Due to an interactive process within the client and the specialist team, very few of the proposed infrastructure coincide with areas currently demarcated as High sensitivity features as the layout was carefully re-evaluated in order to mitigate against negative interaction with priority species such as Martial Eagle, Red Lark and Ludwig's Bustard.

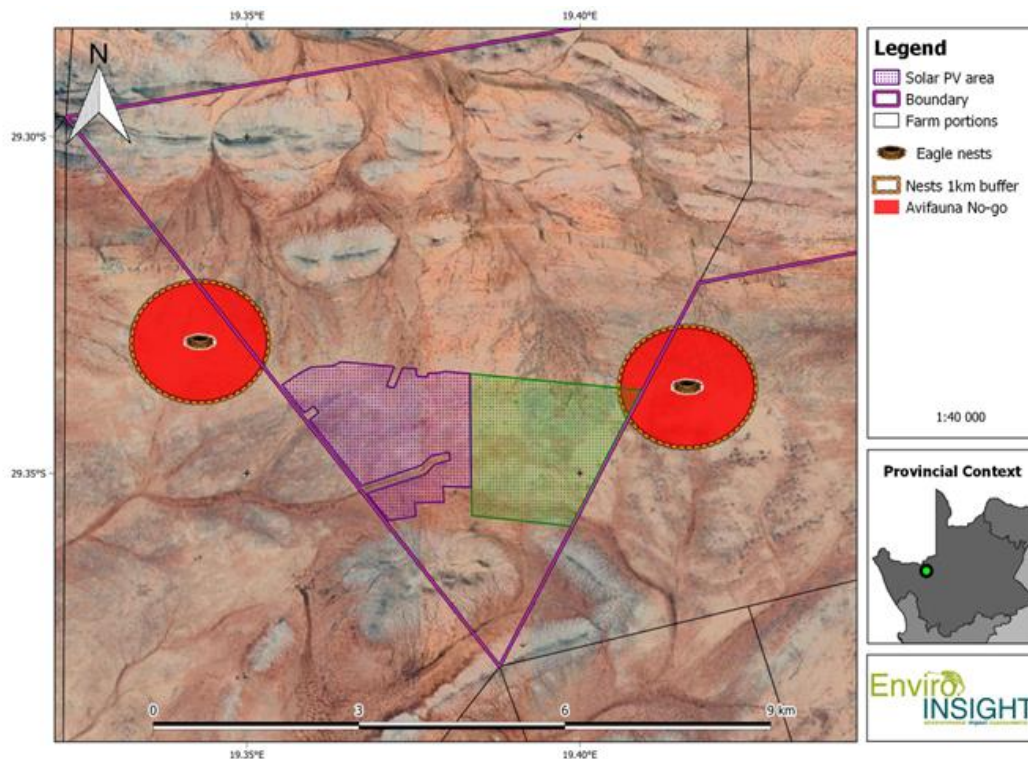


Figure 5-11: Preliminary avifaunal sensitive features.

### 5.6.6 Impacts

- Habitat loss (including foraging and breeding) and fragmentation due to displacement (avoidance of disturbance).
- Collision and electrocution with above-ground power transmission lines (to be assessed in separate application).



- Disturbance due to noise such as, machinery movements and maintenance operations during the construction and operational phase of the proposed PV solar farm.
- The attraction of some novel bird species due to the development of a solar farm with associated infrastructure such as perches, nest and shade opportunities
- Chemical pollution: Chemicals being used to keep the PV panels clean from dust (suppressants) etc.

#### Cumulative Impacts

- Habitat loss: The destruction of highly sensitive habitat (for example sandy substrates for Red Lark) will potentially increase.
- Road-kills: Many birds are commonly killed on roads, especially nocturnal species such as Spotted Eagle-Owl and courser species.
- Powerlines: Numerous existing and new power lines are significant threats to large terrestrial priority species in the region as powerlines may kill significant numbers of all large terrestrial bird species.

#### 5.6.7 Mitigation

Habitat destruction: Where possible, apply necessary buffers for roost sites and other sensitive bird habitat features, avoiding the construction of panels and access roads in these areas. Roads must utilise or upgrade existing farm roads as far as possible. All underground cables bisecting sensitive habitats must be placed below the subsurface flow of the ephemeral wetlands with the linear construction pits subjected to full rehabilitation in order to maintain normal subsurface flow. All roads and crossings must be engineered not to impede surface or subsurface flow in any way.

Bird mortality: Avoid placement of panels near sensitive bird breeding and roosting habitats. The application of adaptive mitigation measures (e.g., retrofitting non-polarising white tape can be used around and/or across panels to minimise reflection), according to post-construction monitoring results (counted collisions of threatened species) must be informed by environmental correlates of avifaunal activity and/or collisions (EMPr). In addition, the addition of grazing sheep to the footprint may attract raptor SCC who may scavenge on dead lambs/ adult sheep or prey upon livestock. Strict carcass retrieval must be incorporated into the EMP where carcasses are removed and correctly disposed of within the same day of death. This will require constant monitoring of all sheep herds in the footprint.

Bird collisions with panels and powerlines: Use of parabolic (curved) mirrors is preferred instead of flat heliostats to reduce the likelihood of skyward reflection to minimise potential bird collisions. However the use of flat panels does not represent a fatal flaw. All powerlines must be flapped with appropriate diverters and no elevated powerlines are to cross drainage line habitats.

Avoidance: It is recommended that limited development takes place in High sensitivity areas. Minimise impacts to natural and artificial wetlands and water bodies by implementing the appropriate buffer areas where no development may take place. This includes a 50 m proposed no-go buffer proposed around small artificial water points as they serve as focal points for bird activity and 50 metres around drainage lines/ wetlands. All large impoundments require a 1000 metre buffer from any infrastructure

activity although this may be reduced to approximately 800 metres if no new powerline infrastructure impacts the 1000 metre threshold. All Verreaux's and Tawny Eagle nests must be buffered by at least 1 km with a preferable "non-disturbance" exclusion of 1.5 km during breeding season (refer to Figure 20). As some avoidance is not possible, the strict preconstruction prescriptive mitigation measures for infrastructure engineering described above must be applied.

#### General Mitigation Measures

- Formal post construction monitoring must be applied once the development have been activated, as per the most recent edition of the best practice guidelines (Jenkins et al. 2017). The exact scope and nature of the post-construction monitoring will be informed on an ongoing basis by the result of the monitoring through a process of an establishment of available new technology and adaptive management. The purpose of this would be to establish if and to what extent displacement of priority species has occurred through the altering of breeding and foraging behaviour post-construction, and to search for and identify carcasses near panels and newly erected powerlines (mortality).
- High value target species such as Lanner Falcon, Ludwig's Bustards and Martial Eagles can be tracked using periodic ECO monitoring regimes to monitor movement patterns and breeding success. These programs should be implemented during and post construction.
- Post-construction monitoring should be undertaken as per the EMPr. The exact scope, nature and frequency of the post-construction monitoring will be informed on an ongoing basis by the results of the monitoring through a process of adaptive management.

#### 5.6.8 Species Specific Risk Analysis and Recommended Mitigations

##### Ludwig's Bustard (*Neotis ludwigii*)

Ludwig's Bustards are globally and regionally listed as Endangered (BirdLife International 2012b and Taylor et. al. 2015) which is cause for a significant evaluation of the species in relation to the proposed development. Actual counts were carried out during the pre-construction monitoring process although and monitoring data suggest that a permanent (albeit seasonal) population including breeding pairs persist for prolonged periods within the study area. Multiple and frequent sightings were recorded. The species is highly migratory and localised development may not represent a fatal flaw. However, the fact that sub-adults and juveniles are encountered in the study area provides strong anecdotal evidence of residential breeding behaviour which may have significance ramifications for the Cumulative Impact Assessment.

It must be stated that some local landowners stated that Ludwig's bustards have increased in density over the last ten years within the region (sometimes numbering up to 130 congregated individuals) and within the Project footprint. By all accounts, 2022 showed a particularly high density. There are a number of possible explanations for the observed increase in density in 2022:

- This species, as a nomad, may show localised and temporal increases as part of natural population dynamics due to climatic fluctuations. 2022 experienced a highly unusual amount of rainfall in 2022 over an extended period of time. This caused an activation of the seed bank within the PAOI and subsequently, a large amount of fodder was available for avifaunal species including Ludwig's Bustard.
- The lack of smaller (and less visible) powerlines within much of the study area allowing for localised lower mortality rates; and

This species is almost certainly resident and at risk to the installation of non-marked powerlines which may cause collision of birds and could significantly reduce local and regional populations. In addition, large-scale increases in fencing combined with a high volume of large maintenance trucks may cause drastic declines in bustard numbers due to flushing displacements, collisions and entanglements. The presence of this species must form a significant focal point of the mitigation measures.

On a final note, concerning monitoring of the species (and possible mitigations), it is vital to highlight that fact that as an Endangered species, Ludwig's bustard demands higher degrees of auditing and monitoring attention than other Red-Listed birds (a fact supported by multiple publications including Visser et. al. 2018 and Scott et. al. 2012). It is also vital to highlight that presence or absence over time for a nomadic species is difficult to predict and spatial/ temporal population reductions may or may not be development-induced. For example, another prolonged drought may all but exclude local colonisation which will be immediately reversed with the onset of more unusual heavy rains. Although it is highly feasible that the development may be directly responsible for local population reductions, comprehensive and continuous data collection is required to monitor the situation on site and apply appropriate mitigation measures and far more significant weighting and value should be applied to the Cumulative Impact Assessment.

### **Martial Eagles and Nest Site**

Utilising the interpretations stipulated above and in the absence of any mitigation measures, a preliminary buffer of 1 km is recommended as an exclusion area around the one active and one (recently dormant) Martial Eagle nests adjacent to the footprint, which were confirmed after the completion of the 12-month pre-construction monitoring. There is currently no species-specific guideline for the Martial Eagle, and buffer areas around nest sites (especially nests that have been unused for long periods of time) remains a scientifically contentious topic of discussion in the industry without rigorous scientific studies providing necessary guidance (for example, Murgatroyd, Bouten & Amar 2021). The only published recommended buffer to implement around raptor nests in South Africa is for the Verreaux's Eagle (Ralston-Paton, 2017), which dictates that a precautionary buffer of 3 km is recommended and may be reduced or increased based on the results of rigorous avifaunal surveys, but nest buffers should never be less than 1.5 km. This buffer is deemed more than adequate for Martial Eagles in relation to SEFs.

### **5.6.9 Conclusions**

The study area is located in a region dominated by natural sandy grassland vegetation types. The powerline infrastructure that traverses the PAOI is a significant habitat for Martial Eagles.

Fourteen priority species were recorded during the initial surveys, including Martial Eagle, Karoo Korhaan, Ludwig's Bustard, Lanner Falcon, Red Lark and Black-winged Kite. Of these, the Martial Eagle and Ludwig's Bustard was the most concerning large bird species. At the commencement of the survey, the PAOI was characterised by extremely atypical high rainfall in areas normally associated with arid conditions. The onset of a stochastic extreme rainfall event (wet season) may have atypically transformed the PAOI where it is possible that diluted densities (and perhaps diversity) of avifaunal assemblages may have been recorded due to an abundance of high forage value habitat that became temporarily available in the region. This increases the concern regarding large nomadic species such as bustards, large wide foraging raptors such as Martial Eagle and vultures seeking water sources within the PAOI when typical arid conditions return over the next 12 months.

### 5.6.10 Professional Opinion

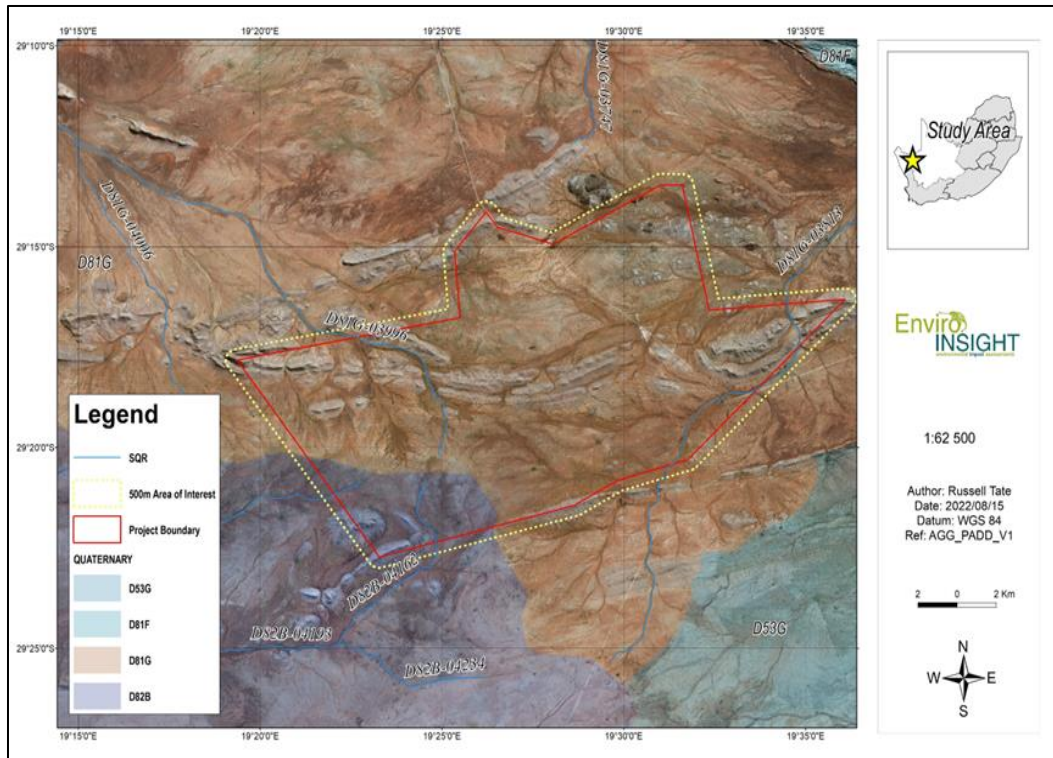
A final Professional Opinion will be submitted at the conclusion of the EIA submission. However, a preliminary opinion is provided below.

- The addition of the proposed De Rust SEFs does indicate potentially significant impacts to the receiving environment via the risk to Priority Species (such as Martial Eagle, Red Lark and Ludwig's Bustard) as well as the Cumulative Impacts need to be considered and provision made within the EMPr for this development.
- Overall, it is still the opinion of the consultants that the impacts associated with SEFs projects are far preferable (from an environmental impact perspective) to extractive and/ or non-renewable alternatives. It must be related that this report must be considered in context with the greater EIA process.
- In addition, while striving to maintain the highest standards of mitigation and monitoring as well as the commissioning of a highly detailed preconstruction assessment, developments such as the De Rust SEFs be encouraged within designated areas.
- The presence of nesting and breeding Ludwig's Bustard and Martial Eagles within the PAOI are of particular concern. Avoidance mitigation must be implemented in conjunction with the aforementioned avoidance mitigation. Thus, the author will look to support Environmental Authorisation (EA) based upon the following conditions;
- All recommended buffering be strictly adhered to.
- All recommended mitigation measures be applied preconstruction, post construction and operations.
- The EMPr be updated every three years in order to reevaluate the potential distributional population changes of species such as Martial Eagles and Vultures. Thus, retrofitted mitigations such as AI, radar and camera technology may have to be applied.

## 5.7 AQUATIC BIODIVERSITY

The hydrological setting of the project is within the D81G and D82B quaternary catchments of the Orange River water management area. The specific Area of Interest (AoI) for this project was drainage within the D81G-03996, D81G-03813 and

D82B-04162 Sub Quaternary Reaches (SQR). The watercourses do not reach the Orange River and typically terminate before reaching the river. Only under significant rainfall is the D81G-03996 SQR expected to reach the Orange River via the Goob se Laagte non-perennial watercourse.



**Figure 5-12: Hydrological setting of the Study Area**

It is important to state that the watercourses classified in this study do not conform to standard wetland definitions and classifications provided in Ollis et al. (2013) where typical indicators such as redoximorphic and hydrophytic vegetation indicators were largely absent. Despite this, active inundation, landform indicators and at times hydrophytic vegetation indicators provided sufficient evidence to support the classification and delineation of the watercourses.

A total of 11 hydrogeomorphic (HGM) units were delineated in this study consisting of two watercourse types including depressions and non-perennial wash systems.

**Table 5-5: Wetland classification within 500m screening zone.**

| Wetland System Unit | Hectares | Level 1 | Level 2         |                          | Level 3        | Level 4    |                |                        |
|---------------------|----------|---------|-----------------|--------------------------|----------------|------------|----------------|------------------------|
|                     |          | System  | DWS Ecoregion/s | NFEPA Wet Veg Group/s    | Landscape Unit | 4A (HGM)   | 4B             | 4C                     |
| HGM1                | 205      | Inland  | Nama Karoo      | Gariiep Desert Bioregion | Plain          | Wash       | Not applicable | Not applicable         |
| HGM2                | 45       | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Wash       | Not applicable | Not applicable         |
| HGM3                | 110      | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Wash       | Not applicable | Not applicable         |
| HGM4                | 209      | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Wash       | Not applicable | Not applicable         |
| HGM5                | 33       | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Wash       | Not applicable | Not applicable         |
| HGM6                | 52       | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Wash       | Not applicable | Not applicable         |
| HGM7                | 78       | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Wash       | Not applicable | Not applicable         |
| HGM8                | 0.4      | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Depression | Endorheic      | Without channel inflow |
| HGM9                | 0.2      | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Depression | Endorheic      | Without channel inflow |
| HGM10               | 0.1      | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Depression | Endorheic      | Without channel inflow |
| HGM11               | 8.7      | Inland  | Nama Karoo      | Richtersveld Bioregion   | Plain          | Depression | Endorheic      | Without channel inflow |



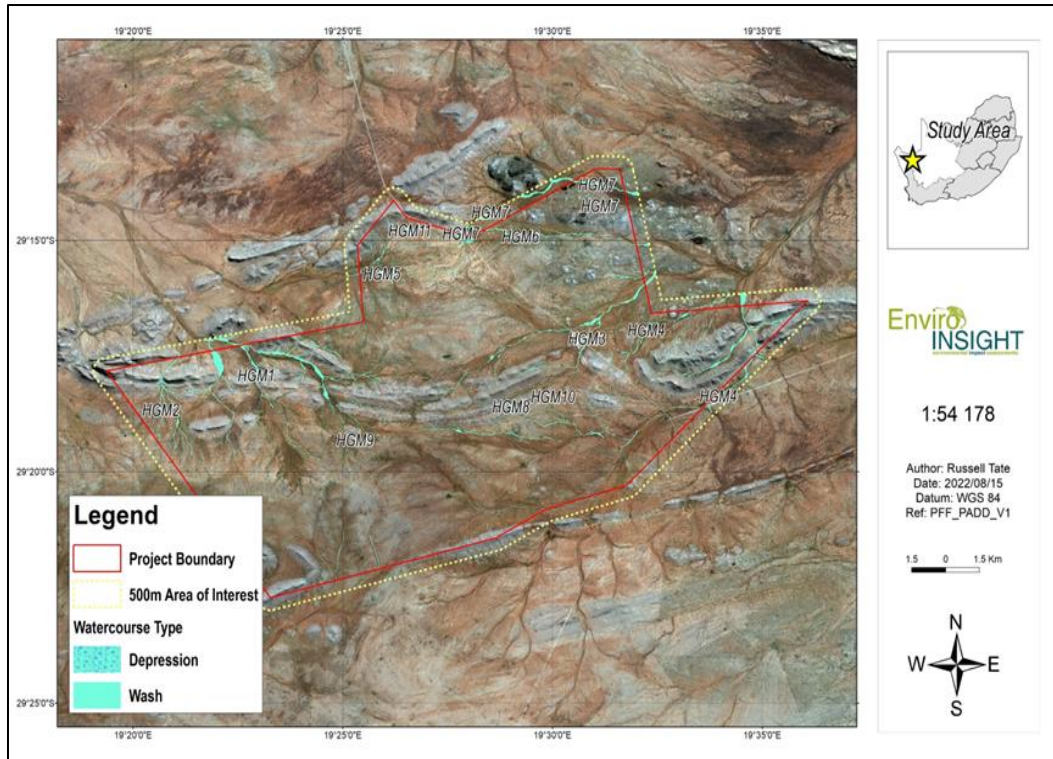


Figure 5-13: HGM Layout of the watercourses

### 5.7.1 Geomorphology

The site was located on the watershed between three separate catchments feeding each respective SQR to the north, east and south. There is an extensive flat plain in the south-west of the project area which is dissimilar to the rest of the study site which consisted of undulating plains with tall rocky outcrops. Valley bottom landforms were present and were typically located between steep rocky outcrops. The landforms associated with the project were such that alluvial processes have deposited substrates in valley bottom plains where anastomosed and multiple thread features are located. These features are dynamic and change according to rainfall patterns and the presence of obstructions. Many of the channels terminate in alluvial plains where infiltration rates reduce surface runoff. Alluvial plains are not considered to be watercourses or floodplains as active channels, vegetation and soil indicators were absent

### 5.7.2 Soils

Two land types were associated with the project area and included the Ag25 and Ib131 land types. The Ag25 land type was the dominant form where watercourses are expected to be present in the valleys (terrain unit 5). The watercourse soil forms which would be represented are the Dundee soil forms. It is noted that out of the expected soils, only the expected Dundee soil form was likely harbour wetland/riparian characteristics. Based on the classifications the indicate SCS classes of A/B for the Ag25

and class B for the Ib131 land types respectively. These SCS classifications indicate that the soil types have low runoff potential and high infiltration rates even when thoroughly wetted.

There were indications of the Dundee soil forms which were present in the lower reaches of the larger watercourses in the Aol. In terms of soil indicators, alluvial plains were lacking typical features and in the case of this project it is presented that the use of the valley bottom and watercourse centreline would suffice as the watercourse primary defining feature.

Within the depression systems, surface deposits of silts were noted to occur, however the soil forms present were not indicated to be Rensburg or Arcadia soils but rather Clovelly and Mispah soil forms. Despite this, the presence of the silts in the depressions indicates that the systems are temporarily inundated and would serve an important ecological function. This further supported the classification of the depression systems

### **5.7.3 Vegetation**

The vegetation types present in the study area showed a diverse vegetation types. It is noted that the watercourses were largely associated with the Bushmanland Arid Grassland vegetation type. Common species in the vegetation types include grass typical of *Stripagrostis* and *Schmidtia* species (Mucina and Rutherford, 2006). Soil and vegetation indicators were effective to inform watercourse extent. However, owing to a high degree of variability a greater confidence was placed on landform indicators such as direct inundation observations, silt deposits, and topography.

### **5.7.4 Watercourse Condition**

The ecological condition of the watercourses were not impacted to a significant degree. Where modifications were observed they were related to impoundments or crossings via linear infrastructure. It is noted that watercourse and roadway crossings across the alluvial plains have a significant impact on channel morphology which follows that of the road path.

### **5.7.5 Ecosystem Services**

The depression and wash HGM units provided primarily biodiversity and grazing related eco-services. The results indicated a moderately high importance for biodiversity maintenance for both depression and wash systems. The results also indicated a moderate importance rating for provisioning services, particularly relating to the use of the systems for grazing.

### **5.7.6 Ecological Importance and Sensitivity**

The Northern Cape conservation plan indicates that the wash and depression habitats are located in Critical Biodiversity Areas one and two. Ecological Support Areas were also noted to be present. The depression pan systems were derived to have very high EIS, whilst the non-perennial washes were derived to be of moderate EIS. Due to the endorheic nature of the pans, they

are more vulnerable to development. The presence of the invertebrates within the depression pan systems further supports their classification as important and sensitive landscape features which corroborates their assessment and classification as watercourses. No listed aquatic macroinvertebrates are associated with the proposed project

### 5.7.7 Buffers and Regulated Areas

The buffer zones were defined based on the river and wetland ecosystems buffer tool as presented in Macfarlane et al. 2017 and Macfarlane et al. (2009). The buffer zone indicated a need of 15m from the washes, whilst a buffer zone of 20m was provided for depressions. It is however important to consider the dynamic nature of the washes as well as the ecological importance of the depression systems. For this reason, it is proposed that buffer zones are increased from 15m to 40m for the wash systems. Whilst depression systems were provided with a buffer zone of 100m to protect the expected catchment of the systems. The provision of the wider buffers aligns with the precautionary approach particularly where indicators for the delineations were limited.

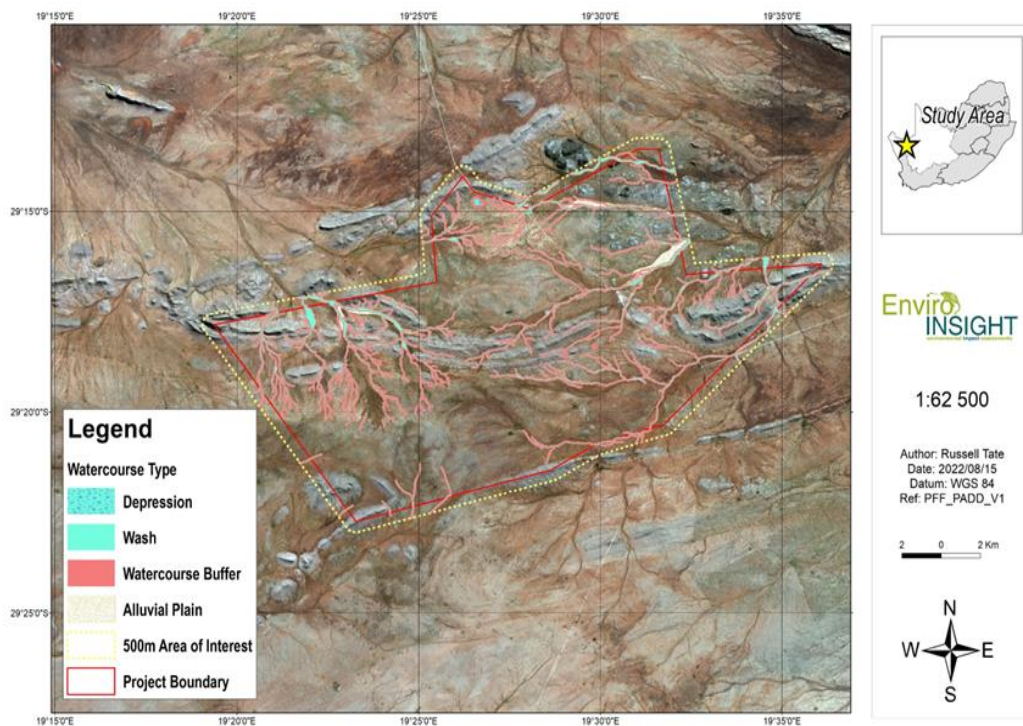


Figure 5-14: 40m and 100m buffer zone for the watercourse

### 5.7.8 Preliminary impacts

- Operation of equipment and machinery

- Clearing vegetation
- Stockpiling of and placement construction materials
- Final landscaping, backfilling and postconstruction rehabilitation
- Alteration of drainage
- Alteration of surface water flow dynamics
- Establishment of alien plants on disturbed areas

### 5.7.9 Mitigation Measures

- All contractors and staff are to be familiarised with the method statement and have undergone an induction / training on the location of sensitive No-Go areas and basic environmental awareness using the mitigation provided in this report.
- Access routes into or adjacent to the wash must make use of existing road ways and crossings where possible.
- Areas where construction is to take place must be clearly demarcated. Any areas not demarcated must be avoided;
- Storm-water generated from roadways must be captured and buffered, where flow velocities are to be significantly reduced before discharge into the environment.
- Storm-water verges as well as other denuded areas must be grassed (re-vegetated) with local indigenous grasses to protect against erosion;
- Any materials excavated must not be deposited in the river channel or valley slopes where it is prone to being washed downstream or impeding natural flow;
- The installation of sedimentation/erosion protection measures must be implemented before the start of construction, e.g., several rows of silt traps and fences (this is particularly important in the access roads leading or adjacent to the watercourse);
- Stockpiling or storage of materials and/or waste must be placed beyond the defined buffers in this report for each respective activity;
- No vehicles shall enter watercourse buffer zones outside of construction footprints;
- No vehicles shall be serviced on site; a suitable workshop with appropriate pollution control facilities should be utilised offsite;
- Hydrocarbons for refuelling purposes must be stored in a suitable storage device on an impermeable surface outside of the delineated wetland buffer zone;
- Disturbed areas must be re-vegetated after completion of the phase;
  - A one-month timeframe for the initiation of this action;
  - Ripping of the soils should occur in two directions; and
  - Removed vegetation and topsoil can be harvested and applied here.
- Drainage channels constructed for the access roads must be constructed so as not to result in erosion;



- An inspection of the drainage channels must be completed within 1 week following the end of activities and within a week after the first rainfall event. Should excessive sediment be transported down the channels it is recommended that sediment screens are implemented;
- An alien vegetation removal and management plan must be implemented along the verges of the roads and crossing points;
- General storm-water management practices should be included in the design phase and implemented during the construction phase of this project; and
- Following the completion of the phase, all construction materials and debris should be removed and disposed of in a suitable off-site area. An inspection should be completed within a week after the phase is completed.
- The implementation of a suitable storm-water management plan for the disturbance footprint must be in place and implemented by this phase;
- The access road and silt traps (if installed) must be inspected monthly for signs of erosion. When erosion is observed, the area should be rehabilitated within 7 days. In addition, inspections following a >80mm/24 hr rainfall event must occur within 7 days of the event;
- An annual audit of the roads for signs of environmental disturbance outside of the footprint area must be conducted; and
- Alien invasive management programmes should continue throughout the duration of the activity.
- Watercourse monitoring should take place annually as part of the environmental management plan.
- The implementation of the buffer zone stipulated in this report;
- Clean and dirty surface water separation and a storm-water management plan must be put into place via standard best practice methods;
- A clear storm-water management plan for hardened surfaces must be implemented;
- The revegetation of disturbed non-active cleared areas must take place within 1 month of completing the construction phase;
- The above must be audited within 3 months of completing the phase;
- No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression or evaporated.
- All stockpiles and hazardous waste storage areas must be bunded by either a cut-off trench or berm directed to a Pollution Control Dam inline with best practice surface water management guidelines.
- The implementation of the buffer zones provided in this report;
- Clean and dirty surface water separation and storm-water management plan must be put into place via standard best practice methods;
- An effective storm-water management plan for the solar panels must be implemented;

- The revegetation of disturbed non active cleared areas must take place within 1 month of completing the construction phase;
- The above must be audited within 3 months of completing the phase;
- No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression. Should domestic water be required to be discharge, the management of nitrogen concentrations is imperative.
- All stockpiles and hazardous waste storage areas must be bunded by either a cut-off trench directed to a Pollution Control Dam or via a berm.

### 5.7.10 Conclusion

The outcome of this assessment delineated 11 watercourse units within the Aol. These watercourses were considered to be minimally modified and in a largely natural PES. The watercourses were classified as having Very High and Moderate EIS ratings. A scientific buffer was calculated for the watercourses, however inline with the precautionary principle, and given the highly variable nature of the washes, it was proposed that a 100m buffer for depressions and a 40m wash buffer was utilised to protect these sensitive environments.

The outcomes of the risk assessment indicate minor impacts from the proposed activities. The minor impacts can be attributed to low runoff potential, gentle topography and arid conditions. Should avoidance and basic mitigation actions be implemented, limited impacts to aquatic biodiversity can be expected.

In the view of the proposed new activities, should the proposed mitigation actions be implemented, no fatal flaw was identified. In line with the recommendations, avoidance must be implemented.

## 5.8 AGRICULTURAL POTENTIAL

### 5.8.1 Agricultural Potential

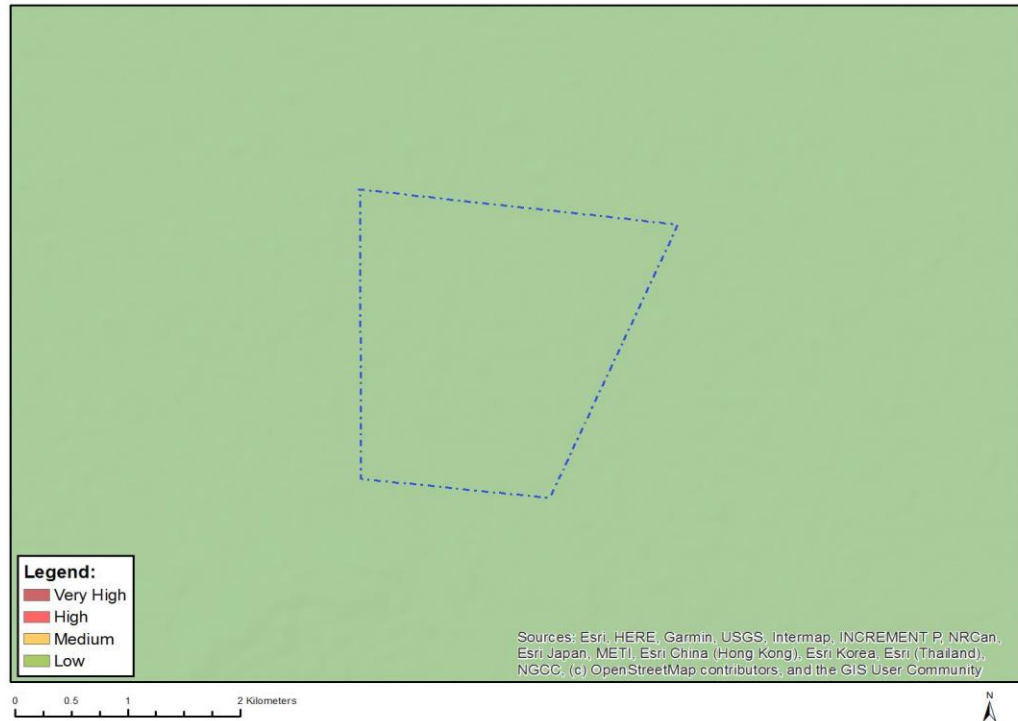
The agricultural potential for the proposed project area is **low** as per the screening tool report. This is not only due to the predominantly rainfall constraints, but also due to the soil constraints. The terrain is unsuitable for cultivation and the opportunity for grazing is very limited for livestock. Currently, the land is not being utilised for livestock grazing.

### 5.8.2 Agricultural Sensitivity

In terms of sensitivity, the land is regarded as **low**. Figure 5-15 indicates the proposed development sight overlaid by the agricultural potential as per the Screening Tool, green = Low and yellow = Medium.

Due to the low potential an agricultural impact statement will be undertaken for the proposed SEF during the EIA phase.

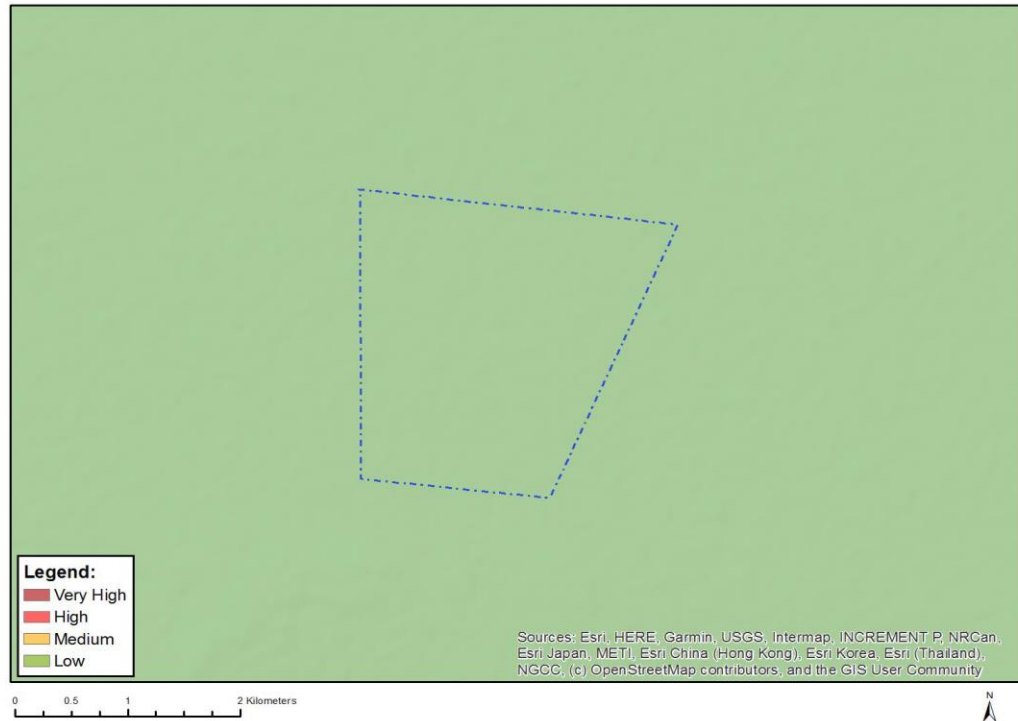




**Figure 5-15: Agricultural Potential sensitivity (green = Low and yellow = Medium) as per the Screening Tool.**

## 5.9 HERITAGE AND PALAEOLOGY

The Screening Tool indicated that the Archaeological and Cultural Heritage Theme has a low sensitivity and the Palaeontology Theme as Medium Sensitivity, even though the sensitivity is low and medium it was concluded that a Heritage Impact Assessment be conducted by Jaco van der Walt from HCAC. A Heritage Impact Assessment is undertaken to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to develop the additional structures. A Heritage and Palaeontology Assessment will be included in the EIA phase of the proposed development.



**Figure 5-16: Archaeological and cultural heritage theme is as per the Screening Tool.**

## 5.10 SOCIO-ECONOMIC

The development of renewable energy and the associated energy infrastructure is strongly supported at a national, provincial, and local level. The development of and investment in renewable energy and associated energy distribution infrastructure is supported by the National Development Plan (NDP), New Growth Path Framework and National Infrastructure Plan, which all highlight the importance of energy security and investment in energy infrastructure.

### 5.10.1 Impacts

Construction:

Positive

- Creation of employment and business opportunities, and the opportunity for skills development and on-site training: The construction phase will extend over a period of approximately 18-24 months and create employment opportunities. A percentage of the low and semi-skilled employment opportunities will benefit residents from local towns in the area, including Poffadder, Aggeneys, Springbok and Keimoes. Most the beneficiaries are likely to be historically disadvantaged

(HD) members of the community. This would represent a short term positive social benefit in an area with limited employment opportunities. A percentage of the wage bill will be spent in the local economy which will also create opportunities for local businesses. The capital expenditure will create opportunities for the local and regional and local economy. The sector of the local economy most likely to benefit from the proposed development is the local service industry. The potential opportunities for the local service sector would be linked to accommodation, catering, cleaning, transport, and security, etc. associated with the construction workers on the site. However, given the relatively small scale of the development and short construction period the benefits will be limited.

#### Negative

- Impacts associated with the presence of construction workers on local communities.
- Increased risks safety, livestock and farming infrastructure associated with the construction related activities and presence of construction workers on the site.
- Increased risk of grass fires associated with construction related activities.
- Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles.

Scoping level SIA indicate that the significance of all the potential negative impacts with mitigation are likely to be Low Negative. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented.

### 5.10.2 Operational

#### Positive Impacts

- The establishment of infrastructure to improve energy security and support renewable sector.
- Creation of employment opportunities.
- Benefits for local landowners.
- Benefits associated with socio-economic contributions to community development.

The proposed project will supplement South Africa's energy and assist to improve energy security. In addition, it will also reduce the country's reliance on coal as an energy source. This represents a positive social benefit.

#### Negative Impacts

- Noise impacts associated with the operation of the plant.
- Visual impacts and associated impacts on sense of place.
- Potential impact on property values.
- Potential impact on tourism.

Scoping level SIA indicate that the significance of all the potential negative impacts with mitigation are likely to be Low Negative. The potential negative impacts can therefore be effectively mitigated.

### 5.10.3 Conclusion

The findings of the Scoping level SIA indicate that the proposed De Rust SEFs will result in several social and socio-economic benefits, including creation of employment and business opportunities during both the construction and operational phase. The project will also contribute to local economic development through socio-economic development (SED) contributions. In addition, the development will improve energy security and reduce the carbon footprint associated with energy generation. The findings of the SIA also indicate that the potential negative impacts associated with both the construction and operational phase are likely to be Low Negative with mitigation. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented. The site is also located within the Springbok REDZ. The area has therefore been identified for the development of renewable energy projects. The establishment of the proposed De Rust Solar SEFs are therefore supported by the findings of the Scoping level SIA.

## 5.11 TRAFFIC AND TRANSPORTATION

A Traffic and Transportation Impact Assessment report is required to evaluate the expected traffic impact of the proposed development during the construction and operation phase. The report will identify the preferred access route to the site, comment on the condition of the existing roads in the site vicinity, identify possible access points to the site and recommend road improvements to the surrounding road network to accommodate the proposed development.

It is anticipated that the required components will be imported will be shipped to Coega, Saldanha Bay Harbour or Cape Town harbour and then transported via road, N14 and R358, to the site from Coega, Saldanha Bay or Cape Town harbours, depending on the load restrictions. Specialized high lifting and heavy load capacity cranes will be utilised to erect the solar panels. The solar farm will be built in one phase, with a total construction period of up to 24 months.

### 5.11.1 Impacts:

- Degradation of road surfaces
- Increased road capacity
- Abnormal Loads for delivery of heavy equipment

### 5.11.2 Recommendations

- Construction and operational traffic impacts to be evaluated during the evaluation phase.
- The abnormal route needs to be planned and evaluated from the appropriate harbour(s) to the site prior to any final transportation.

- The vertical and horizontal alignments of the access routes must be designed to limit the gradients and radii to ensure acceptable access for the abnormal loads.
- The roads should be monitored during the construction phase for possible damage to the road surface and/or layer works to prevent permanent damage to the road.

A Traffic and Transportation Impact Assessment will be provided in the EIA phase.

## 5.12 ELECTROMAGNETIC AND RADIO FREQUENCY INTERFERENCE

The South African Radio Astronomy Observatory (SARAO) is a National Facility managed by the National Research Foundation and incorporates all national radio astronomy telescopes and programmes.

The Square Kilometre Array (SKA) project is an international effort (co-hosted between South Africa and Australia) to build the world's largest radio telescope, with a square kilometre (one million square metres) of collecting area. It will have an unprecedented scope in observations, exceeding the image resolution quality of the Hubble Space Telescope by a factor of 50 times, whilst also having the ability to image huge areas of sky in parallel.<sup>9</sup> The South African MeerKAT radio telescope, situated 90 km outside the small Northern Cape town of Carnarvon, is a precursor to the SKA telescope and will be integrated into the mid-frequency component of SKA Phase 1. The SKA is located in the Nama Karoo of South Africa, providing the perfect radio quiet backdrop for the high and medium frequency arrays that will form a critical part of the SKA's ground-breaking continent wide telescope. In an effort to protect this unique landscape in the country, the Minister of Science and Technology declared three Astronomy Advantage Areas in the Karoo in terms of the Astronomy Geographic Advantage Act (Act 21 of 2007).

The Applicant is committed to take all precautionary measures to limit the electromagnetic emissions (EMI) in all your electrical cable installations and equipment. The sensitivity with regards to telecommunications is considered low as there aren't any towers telecommunications towners within the vicinity of the site.

## 6 IMPACT ASSESSMENT

### 6.1 METHODOLOGY

Direct, indirect and cumulative impacts of the issues that will be identified during the specialist investigations will assessed in terms of these standard rating scales to determine their significance. The rating system used for assessing impacts (or when specific impacts cannot be identified, the broader term issue should apply) is based on six criteria, namely:

- **Status** of impacts – determines whether the potential impact is positive (positive gain to the environment), negative (negative impact on the environment), or neutral (i.e. no perceived cost or benefit to the environment). Take note that a positive impact will have a low score value as the impact is considered favourable to the environment;
- **Spatial extent** of impacts – determines the spatial scale of the impact on a scale of localised to global effect. Many impacts are significant only within the immediate vicinity of the site or within the surrounding community, whilst others may be significant at a local or regional level. Potential impact is expressed numerically on a scale of 1 (site-specific) to 5 (global);
- **Duration** of impacts – refers to the length of time that the aspect may cause a change either positively or negatively on the environment. Potential impact is expressed numerically on a scale of 1 (project duration) to 5 (permanent);
- **Frequency of the activity**– The frequency of the activity refers to how regularly the activity takes place. The more frequent an activity, the more potential there is for a related impact to occur.
- **Severity** of impacts – quantifies the impact in terms of the magnitude of the effect on the baseline environment, and includes consideration of the following factors:
  - The reversibility of the impact;
  - The sensitivity of the receptor to the stressor;
  - The impact duration, its permanency and whether it increases or decreases with time;
  - Whether the aspect is controversial or would set a precedent;
  - The threat to environmental and health standards and objectives;
- **Probability** of impacts –quantifies the impact in terms of the likelihood of the impact occurring on a percentage scale of <5% (improbable) to >95% (definite).

### Determination of Impact Significance

The information presented above in terms of identifying and describing the aspects and impacts is summarised in below in and significance is assigned with supporting rationale.

**Table 6-1: Consolidated Table of Aspects and Impacts Scoring**

| Spatial Scale               | Rating | Duration              | Rating | Severity                     | Rating |
|-----------------------------|--------|-----------------------|--------|------------------------------|--------|
| Activity specific           | 1      | One day to one month  | 1      | Insignificant/non-harmful    | 1      |
| Area specific               | 2      | One month to one year | 2      | Small/potentially harmful    | 2      |
| Whole site/plant/mine       | 3      | One year to ten years | 3      | Significant/slightly harmful | 3      |
| Regional/neighbouring areas | 4      | Life of operation     | 4      | Great/harmful                | 4      |



| Spatial Scale                  | Rating | Duration     | Rating   | Severity                     | Rating |
|--------------------------------|--------|--------------|--|------------------------------|--------|
| National                       | 5      | Post closure | 5  | Disastrous/extremely harmful | 5      |
| Frequency of Activity          |        | Rating       | Probability of Impact  |                              | Rating |
| Annually / Once-off            |        | 1            | Almost never/almost impossible                                   |                              | 1      |
| 6 monthly                      |        | 2            | Very seldom/highly unlikely                                      |                              | 2      |
| Monthly                        |        | 3            | Infrequent/unlikely/seldom                                       |                              | 3      |
| Weekly                         |        | 4            | Often/regularly/likely/possible                                  |                              | 4      |
| Daily / Regularly              |        | 5            | Daily/highly likely/definitely                                   |                              | 5      |
| Significance Rating of Impacts |        |              | Timing   |                              |        |
| Very Low (1-25)                |        |              | Pre-construction<br>Construction<br>Operation<br>Decommissioning |                              |        |
| Low (26-50)                    |        |              |  |                              |        |
| Low – Medium (51-75)           |        |              |  |                              |        |
| Medium – High (76-100)         |        |              |  |                              |        |
| High (101-125)                 |        |              |  |                              |        |
| Very High (126-150)            |        |              |  |                              |        |
| Adjusted Significance Rating   |        |              |  |                              |        |

**Confidence** – The degree of confidence in predictions based on available information and specialist knowledge:

- Low;
- Medium; or
- High.

In addition, each impact needs to be assessed in terms of reversibility and irreplaceability as indicated below:

- **Reversibility** of the Impacts - the extent to which the impacts/risks are reversible assuming that the project has reached the end of its life cycle (decommissioning phase):
  - High reversibility of impacts (impact is highly reversible at end of project life i.e. this is the most favourable assessment for the environment);
  - Moderate reversibility of impacts;
  - Low reversibility of impacts; or
  - Impacts are non-reversible (impact is permanent, i.e. this is the least favourable assessment for the environment).

The environmental significance rating is an attempt to evaluate the importance of a particular impact, the consequence and likelihood of which is assessed by the relevant specialist. The description and assessment of the aspects and impacts is presented in a consolidated table with the significance of the impact assigned using the process and matrix detailed below.

The sum of the first three criteria (spatial scope, duration and severity) provides a collective score for the consequence of each impact. The sum of the last two criteria (frequency of activity and frequency of impact) determines the likelihood of the impact occurring. The product of consequence and likelihood leads to the assessment of the significance of the impact (Significance = Consequence X Likelihood), shown in the significance matrix below in Table 6-2

**Table 6-2: Significance Assessment Matrix**

|   |    | Consequence (Severity + Spatial Scope + Duration) |    |    |    |    |    |    |    |     |     |     |     |     |     |  |
|---|----|---|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|--|
| Likelihood<br>(Frequency of Activity + Probability of Impact) | 1  | 2   | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  | 11  | 12  | 13  | 14  | 15  |  |
|   | 2  | 4   | 6  | 8  | 10 | 12 | 14 | 16 | 18 | 20  | 22  | 24  | 26  | 28  | 30  |  |
|   | 3  | 6   | 9  | 12 | 15 | 18 | 21 | 24 | 27 | 30  | 33  | 36  | 39  | 42  | 45  |  |
|   | 4  | 8   | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40  | 44  | 48  | 52  | 56  | 60  |  |
|   | 5  | 10  | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50  | 55  | 60  | 65  | 70  | 75  |  |
|   | 6  | 12  | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60  | 66  | 72  | 78  | 84  | 90  |  |
|   | 7  | 14  | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70  | 77  | 84  | 91  | 98  | 105 |  |
|   | 8  | 16  | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80  | 88  | 96  | 104 | 112 | 120 |  |
|   | 9  | 18  | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90  | 99  | 108 | 117 | 126 | 135 |  |
|   | 10 | 20  | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |  |

**Table 6-3: Positive and Negative Impact Mitigation Ratings.**

| Colour Code | Significance Rating | Value   | Negative Impact Management Recommendation  | Positive Impact Management Recommendation                           |
|-------------|---------------------|---------|--|---|
|             | Very High           | 126-150 | Avoidance – consider alternatives  | Optimal contribution from Project                                   |
|             | High                | 101-125 | Avoidance as far as possible; implement strict mitigation measures to account for residual impacts | Positive contribution from Project with scope to improve            |
|             | High-Medium         | 76-100  | Where avoidance is not possible, consider strict mitigation measures                               | Moderate contribution from Project with scope to improve            |
|             | Low-Medium          | 51-75   | Mitigation measures to lower impacts and manage the project impacts appropriately                  | Improve on mitigation measures                                      |
|             | Low                 | 26-50   | Appropriate mitigation measures to manage the project impacts                                      | Improve on mitigation measures; consider alternatives to improve on |

|  |          |      |                                |                                     |
|--|----------|------|--------------------------------|-------------------------------------|
|  | Very Low | 1-25 | Ensure impacts remain very low | Consider alternatives to improve on |
|--|----------|------|--------------------------------|-------------------------------------|

## 6.2 IDENTIFICATION OF IMPACTS

Potential impacts resulting from the proposed De Rust PV 2 SEF were identified during this scoping phase using input from the following sectors:

- Existing information based on literature reviews and desktop assessments (EAP and specialist inputs);
- Site visit with the project team;
- Guidelines;
- Legislation; and
- Views of interested and affected parties (thus far).

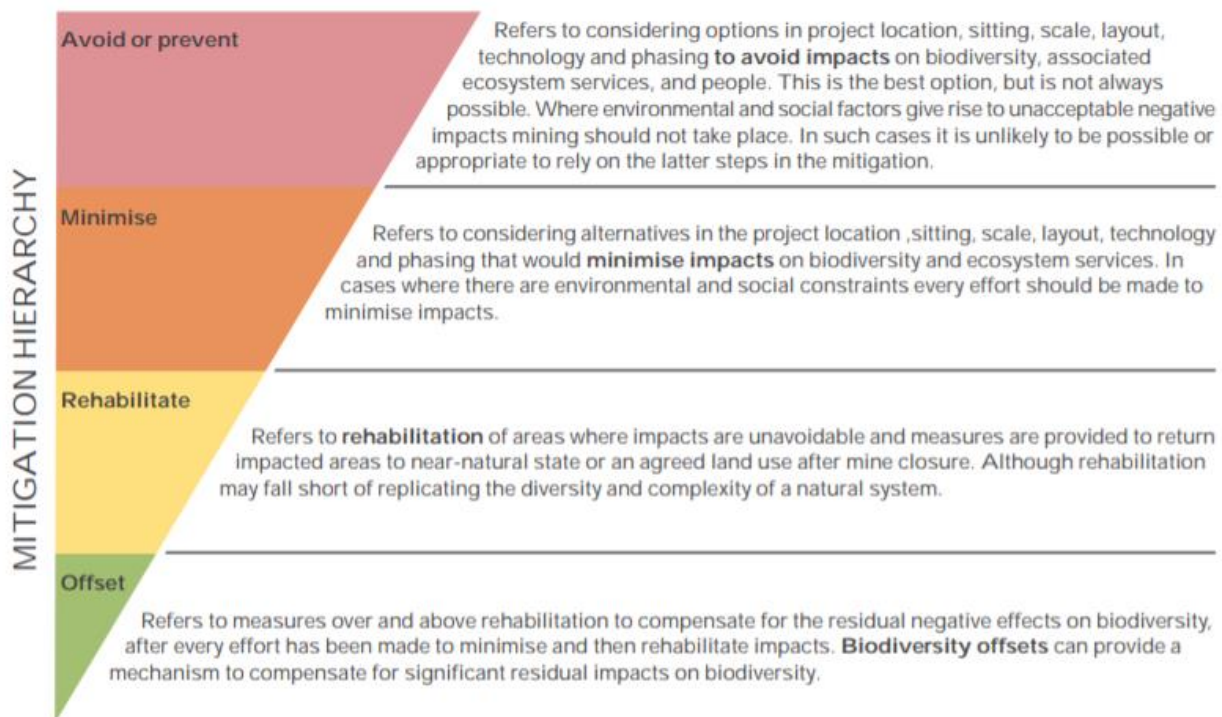
The following potential impacts were identified:

- Surface water;
- Disturbance of geology and soils;
- Land uses and capability;
- Socio-economic impacts;
- Sensitive Flora and Fauna;
- Terrestrial Biodiversity / Ecosystem services;
- Traffic and Transportation;
- Dust;
- Noise;
- Visual;
- Heritage and cultural resource impacts; and
- Paleontological Impacts.

## 6.3 MITIGATION MEASURES

The Impact Mitigation Hierarchy (DEA 2013) will be followed to achieve no overall or limited negative impact on the receiving environment. The Impact Mitigation Hierarchy is a tool which is used reiteratively throughout the project lifecycle to limit negative

impacts on the environment. There are four steps/tiers within the hierarchy, and include: Avoid/Prevent, Minimise, Rehabilitate and Offset (Figure 6-1).



**Figure 6-1: The Impact Mitigation Hierarchy (DEA et al., 2013).**

Very High impacts should be avoided through alternative layout designs, technology alternatives etc. Where avoidance is not possible, the impacts that are generated by the development should be minimised if measures are implemented in order to reduce the impacts. The proposed mitigation measures should ensure that the development considers the environment and the predicted impacts in order to minimise impacts and achieve sustainable development. Where avoidance and/or minimisation is not possible, rehabilitation and possible offset will be considered. These last two options are rarely considered and should only be done if the first two options could not be met. This will be assessed and discussed in more detail during the EIA phase.

#### 6.4 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Currently, a comprehensive impact assessment cannot be conducted for the anticipated impacts; however, the anticipated impacts can be discussed and an indication provided whether it will be positive or negative.

All impacts identified in the following tables will require further investigation either by the EAP or by the identified specialist. It is likely that additional impacts will be added based on the results of the site assessments of the EAP and of each specialist.

**Table 6-4: Potential Impacts prior to mitigation measures.**

| Impact  | Status of Impacts Prior to Mitigation | Proposed Mitigation/ Improvement Measures  |
|---|---------------------------------------|--|
| <b>Terrestrial Biodiversity</b>   |                                       |  |
| The clearance for the construction of the proposed structures and infrastructure will result in vegetation loss | Negative                              | <ul style="list-style-type: none"> <li>• Keep the footprint of the disturbed area to the minimum and designated areas only.</li> <li>• Unnecessary vegetation clearing should be avoided.</li> <li>• Ensure rehabilitation plan is initiated during and after construction.</li> <li>• Vegetation clearing on slopes should be minimised and where necessary, appropriate stormwater management should be put in place to limit erosion potential of exposed soil.</li> <li>• No harvesting of indigenous species for firewood should be permitted.</li> </ul>   |
| Accidental introduction of alien species and invaders   | Negative                              | <ul style="list-style-type: none"> <li>• Eradication and/ or control of alien invasive plants and weeds as per the alien and invasive species monitoring programme.</li> <li>• Disturbance of natural areas should be avoided as far as possible and the spread of alien flora into natural areas should be controlled.</li> <li>• Continuous monitoring of the growth and spread of alien and invasive flora coupled with an adaptive management approach to identify suitable control mechanisms (e.g. mechanical, chemical or biological control). Mechanical control is usually preferred.</li> <li>• Cleaning of vehicles and equipment before entering natural areas to remove large deposits of foreign soils and plant material sourced from elsewhere.</li> </ul> |
| Destruction or displacement of flora and fauna species of conservation concern (SCC)                            | Negative                              | <ul style="list-style-type: none"> <li>• SCC should either be relocated (by means of the necessary permits) or protected <i>in situ</i>, depending on the species under question and the decision of the competent authority.</li> <li>• Protect suitable habitat for the continued existence of SCC.</li> <li>• The layout design for the proposed SEF should be adjusted to exclude sensitive areas.</li> <li>• Keep the footprint of the disturbed area to the minimum and designated areas only.</li> </ul>  |

|                    |          |  |
|--------------------|----------|--|
|                    |          | <ul style="list-style-type: none"> <li>An environmental induction for all staff members must be mandatory to discuss these impacts such as the presence of SCC which may not be damaged, caught or removed without a permit.</li> </ul>  |
| Faunal mortalities | Negative | <ul style="list-style-type: none"> <li>An environmental induction for all staff members must be mandatory in which specific issues related to the killing and/or disturbance of faunal species should be avoided. Several staff members should complete a snake handling course in order to safely remove snakes from designated areas.</li> <li>Road mortalities should be monitored by both vehicle operators (for personal incidents only) and the ECO (all roadkill on a periodic monitoring basis as well as specific incidents) with trends being monitored and subject to review as part of the monthly reporting. Monitoring should occur via a logbook system where staff takes note of the date, time and location of the sighting/incident. This will allow determination of the locations where the greatest likelihood exists of causing road mortality and allow mitigation against it (e.g. fauna underpasses, and seasonal speed reductions). Finally, mitigation should be adaptable to the onsite situation which may vary over time.</li> </ul> |
| Faunal mortalities | Negative | <ul style="list-style-type: none"> <li>All staff operating motor vehicles must undergo an environmental induction training course that includes instruction on the need to comply with speed limits, to respect all forms of wildlife and, wherever possible, prevent accidental road kills of fauna. Drivers not complying with speed limits should be subject to penalties.</li> <li>The proposed activities may result in the deaths of numerous fauna species. It is suggested that construction activities occur from a predetermined area and move along a gradient to allow fauna species to relocate.</li> <li>The ECO should monitor live animal observations in order to monitor trends in animal populations and thus implement proactive adaptable mitigation of vehicle movements.</li> <li>Should holes or burrows be located on site where construction may occur, contact a zoological specialist to investigate and possibly remove any species located within them.</li> </ul>   |



|  |          |   |
|--|----------|---|
|  |          | <ul style="list-style-type: none"> <li>Where possible, barriers around excavation sites should be erected to prevent fauna from falling into the excavations.</li> <li>The proposed substation needs to be demarcated and fenced off to restrict animals from moving into this area, which will reduce fauna mortalities.</li> </ul>  |
| <b>Avifauna</b>  |          |   |
| Habitat loss   | Negative | <ul style="list-style-type: none"> <li>Apply necessary buffers for roost and foraging sites and other sensitive bird habitat features, avoiding the construction of solar panels and access roads in these areas. Roads must utilise or upgrade existing farm roads as far as possible</li> </ul>   |
| Collision mortality with solar panels                                  | Negative | <ul style="list-style-type: none"> <li>Avoid placement of solar panels near sensitive bird breeding and roosting habitats. The application of adaptive mitigation measures (e.g., shutdown on demand retrofitting), according to post-construction monitoring results (counted strikes of threatened species) must be informed by environmental correlates of avifaunal activity and/or strikes.</li> </ul>   |
| Collision and electrocution with above-ground power transmission lines | Negative | <ul style="list-style-type: none"> <li>The risk is not considered to be high, and the annual collision risk is estimated at less than 5 birds per year. The fatality rates post-construction will provide additional data and the risk model can be adjusted accordingly.</li> </ul>  |
| Disturbance of flight/migratory pathways                               | Negative | <ul style="list-style-type: none"> <li>It is recommended that limited development takes place in High sensitivity areas. Minimise impacts to natural and artificial wetlands and water bodies by implementing the appropriate buffer areas where no development may take place. This includes a 200 m no-go buffer proposed around water points (500 metres from the largest seasonal impoundment within the Project Footprint) as they serve as focal points for bird activity.</li> </ul> |
| Disturbance due to lights, noise, machinery movements and              | Negative | <ul style="list-style-type: none"> <li>If solar panels are to be lit at night, lighting should be kept to a minimum and should preferably not be white light. Flashing strobe lights should be used where possible (provided this complies with Civil Aviation Authority regulations).</li> </ul>   |

|                                      |          |   |
|--------------------------------------|----------|---|
| maintenance operations               |          | <ul style="list-style-type: none"> <li>Lighting of the solar farm (for example security lights) should be kept to a minimum. Lights should be directed downwards (provided this complies with Civil Aviation Authority regulations).</li> </ul>   |
| <b>Aquatic Biodiversity</b>          |          |   |
| Operation of equipment and machinery | Negative | <ul style="list-style-type: none"> <li>Construction of infrastructure should not be located within watercourses and associated buffers.</li> <li>A water use licence application is required for activities within 500m of a wetland.</li> </ul>  |
| Clearing vegetation                  | Negative | <ul style="list-style-type: none"> <li>It is essential that the road and other linear networks (cables) follow contour and lowest gradients as far as possible. Appropriate stormwater design for the road network is essential to prevent roads from serving as concentrated conduits for water run-off, significantly increasing erosion potential and sediment transport capacity. Water diversions along the road should be placed at regular intervals in order to divert water back into the natural veld on the downstream side of the road. This diverted water should be released in a diffuse manner on contour, e.g. appropriately designed swale.</li> <li>Access roads should preferably be dirt roads on contour. It is essential to choose appropriate water crossing for the road network in order to reduce potential negative impacts. Crossing points should preferably utilise watercourse sections which already contain exposed bedrock and has a low gradient in that particular section of the watercourse. These are ideal natural crossing points which need little intervention so as to ensure that historic stormwater run-off regimes are not altered. Where necessitated crossings should be simple low water bridges that do not interrupt surface or subsurface flows. Concentration of water flow must be avoided. Where water is concentrated it needs to be diffusely released through appropriate diffuse release infrastructure placed on contour and or cutting bedrock to contour, especially on the downstream side.</li> <li>Watercourse crossings should be aligned perpendicular to the natural flow regime and on contour in order to prevent flow concentration and associated negative impacts.</li> </ul> |

|   |          |  |
|---|----------|--|
|   |          | <ul style="list-style-type: none"> <li>It is recommended that the road lay-out and all final positions of watercourse crossings be appropriately “fine tuned” through field verification in the impact assessment phase in order to minimise potential impacts and reduce road construction cost.</li> </ul>   |
| Stockpiling of and placement construction materials | Negative | <ul style="list-style-type: none"> <li>Prevention of contaminated surface runoff which might impact to the water resource used by downstream users.</li> <li>All hazardous chemical must be stored in a bunded facility. Handling of such chemicals must be undertaken on a non-permeable surface.</li> <li>All hydrocarbons, lubricants and explosives should be adequately stored and bunded off to prevent any contamination to the groundwater during an accidental spill.</li> <li>All water that may collect in an area used for the storage of hydrocarbons must pass through an oil water separator before been discharged as dirty water.</li> <li>Spillages on open soil must be contained and removed and treated as hazardous waste.</li> <li>Emergency response plan to be put in place if spillages occur.</li> <li>Regular inspection should be conducted of storage facilities.</li> </ul>   |
| Excavating/shaping landscape                        | Negative | <ul style="list-style-type: none"> <li>All contractors and staff are to be familiarised with the method statement and have undergone an induction / training on the location of sensitive No-Go areas and basic environmental awareness using the mitigation provided in this report.</li> <li>Access routes into or adjacent to the wash must make use of existing road ways and crossings where possible.</li> <li>Areas where construction is to take place must be clearly demarcated. Any areas not demarcated must be avoided;</li> <li>Storm-water generated from roadways must be captured and buffered, where flow velocities are to be significantly reduced before discharge into the environment.</li> <li>Storm-water verges as well as other denuded areas must be grassed (re-vegetated) with local indigenous grasses to protect against erosion;</li> <li>Any materials excavated must not be deposited in the river channel or valley slopes where it is prone to being washed downstream or impeding natural flow;</li> </ul> |

|                                    |          |  |
|------------------------------------|----------|--|
|                                    |          | <ul style="list-style-type: none"> <li>• The installation of sedimentation/erosion protection measures must be implemented before the start of construction, e.g., several rows of silt traps and fences (this is particularly important in the access roads leading or adjacent to the watercourse);</li> <li>• Stockpiling or storage of materials and/or waste must be placed beyond the defined buffers in this report for each respective activity;</li> <li>• No vehicles shall enter watercourse buffer zones outside of construction footprints;</li> <li>• No vehicles shall be serviced on site; a suitable workshop with appropriate pollution control facilities should be utilised offsite;</li> <li>• Hydrocarbons for refuelling purposes must be stored in a suitable storage device on an impermeable surface outside of the delineated wetland buffer zone;</li> <li>• Disturbed areas must be re-vegetated after completion of the phase;</li> <li>• A one-month timeframe for the initiation of this action;</li> <li>• Ripping of the soils should occur in two directions; and</li> <li>• Removed vegetation and topsoil can be harvested and applied here.</li> <li>• Drainage channels constructed for the access roads must be constructed so as not to result in erosion;</li> <li>• An inspection of the drainage channels must be completed within 1week following the end of activities and within a week after the first rainfall event. Should excessive sediment be transported down the channels it is recommended that sediment screens are implemented;</li> <li>• An alien vegetation removal and management plan must be implemented along the verges of the roads and crossing points;</li> <li>• General storm-water management practices should be included in the design phase and implemented during the construction phase of this project; and</li> <li>• Following the completion of the phase, all construction materials and debris should be removed and disposed of in a suitable off-site area. An inspection should be completed within a week after the phase is completed.</li> </ul> |
| Final landscaping, backfilling and | Negative | <ul style="list-style-type: none"> <li>• The implementation of a suitable storm-water management plan for the disturbance footprint must be in place and implemented by this phase;</li> </ul>   |

|   |          |   |
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| postconstruction rehabilitation                         |          | <ul style="list-style-type: none"> <li>The access road and silt traps (if installed) must be inspected monthly for signs of erosion. When erosion is observed, the area should be rehabilitated within 7 days. In addition, inspections following a &gt;80mm/24 hr rainfall event must occur within 7 days of the event;</li> <li>An annual audit of the roads for signs of environmental disturbance outside of the footprint area must be conducted; and</li> <li>Alien invasive management programmes should continue throughout the duration of the activity.</li> <li>Watercourse monitoring should take place annually as part of the environmental management plan.</li> </ul> |
| Alteration of drainage                                  | Negative | <ul style="list-style-type: none"> <li>The implementation of a suitable storm-water management plan for the disturbance footprint must be in place and implemented by this phase;</li> <li>Watercourse monitoring should take place annually as part of the environmental management plan.</li> </ul>   |
| Alteration of surface water flow dynamics               | Negative | <ul style="list-style-type: none"> <li>The implementation of a suitable storm-water management plan for the disturbance footprint must be in place and implemented by this phase;</li> <li>Watercourse monitoring should take place annually as part of the environmental management plan.</li> </ul>   |
| Establishment of alien plants on disturbed areas        | Negative | <ul style="list-style-type: none"> <li>An alien vegetation removal and management plan must be implemented along the verges of the roads and crossing points;</li> <li>Disturbed areas must be re-vegetated after completion of the phase;                             <ul style="list-style-type: none"> <li>A one-month timeframe for the initiation of this action;</li> <li>Ripping of the soils should occur in two directions; and</li> <li>Removed vegetation and topsoil can be harvested and applied here.</li> </ul> </li> </ul>  |
| <b>Geology and Soils</b>                                |          |   |
| Land use change which will affect the soil and land use | Negative | <ul style="list-style-type: none"> <li>The agricultural potential is considered medium to low.</li> <li>Change in land use is required. Application to be submitted to the municipality.</li> <li>Compensate landowners where necessary.</li> </ul>   |

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| capability both during construction phase.  |          | <ul style="list-style-type: none"> <li>Apply for SALA with the Department of Agriculture.</li> <li>Rehabilitation of soil and vegetation after construction and at decommissioning phases to return the land back to for grazing capacity.</li> </ul>  |
| Site clearance and levelling during the construction phase will cause some additional exposed areas and could trigger erosion and siltation, especially during rainy periods. | Negative | <ul style="list-style-type: none"> <li>Prevent soil loss through erosion.</li> <li>Develop appropriate storm water management system to control surface run off over exposed areas.</li> <li>Preserve topsoil for later use after construction activities.</li> <li>Ensure all vehicles stay within the designated areas (for example, away from watercourses).</li> <li>Plan to construct the majority of development outside peak rain period.</li> <li>Have in place temporary erosion and sedimentation trapping control measures during the construction phase, where necessary.</li> </ul> |
| Storage of topsoil  | Negative | <ul style="list-style-type: none"> <li>Remove and stockpile topsoil from roads, building platforms etc. prior to construction.</li> <li>Preserve topsoil and store in an appropriate manner to maintain viability and seed bank for future rehabilitation after construction.</li> <li>Store away from watercourses to prevent sedimentation and erosion.</li> <li>Protect from alien plant establishment.</li> </ul>  |
| <b>Social and Economic</b>  |          |  |
| Creation of employment and business opportunities   | Positive | No Mitigation required   |
| Presence of construction workers and potential impacts  | Negative | <ul style="list-style-type: none"> <li>Where possible, the proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically for semi and low-skilled job categories.</li> </ul>   |



|  |                 |  |
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| <p>on family structures and social networks</p>  |                 | <ul style="list-style-type: none"> <li>• The proponent and the contractor(s) should develop a code of conduct for the construction phase. The code should identify which types of behaviour and activities are not acceptable. Construction workers in breach of the code should be subject to appropriate disciplinary action and/or dismissed. All dismissals must comply with the South African labour legislation.</li> <li>• The proponent and the contractor should implement an HIV/AIDS awareness programme for all construction workers at the outset of the construction phase.</li> <li>• The contractor should provide transport for workers to and from the site on a daily basis. This will enable the contractor to effectively manage and monitor the movement of construction workers on and off the site.</li> <li>• The contractor must ensure that all construction workers from outside the area are transported back to their place of residence within 2 days for their contract coming to an end.</li> <li>• No construction workers, with the exception of security personnel, should be permitted to stay over-night on the site.</li> </ul> |
| <p>Safety risk, stock theft and damage to farm infrastructure associated with presence of construction workers</p> | <p>Positive</p> | <ul style="list-style-type: none"> <li>• The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences.</li> <li>• All farm gates must be closed after passing through.</li> <li>• Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site.</li> <li>• The proponent should consider the option of establishing a MF (see above) that includes local farmers and develop a Code of Conduct for construction workers. This committee should be established prior to commencement of the construction phase. The Code of Conduct should be signed by the proponent and the contractors before the contractors move onto site.</li> <li>• The proponent should hold contractors liable for compensating farmers and communities in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of</li> </ul>                |

|                                      |                 |  |
|--------------------------------------|-----------------|--|
|                                      |                 | <p>Conduct to be signed between the proponent, the contractors, and neighbouring landowners. The agreement should also cover loses and costs associated with fires caused by construction workers or construction related activities (see below).</p> <ul style="list-style-type: none"> <li>• The Environmental Management Plan (EMP) must outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested.</li> <li>• Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained in the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms.</li> <li>• Contractors appointed by the proponent must ensure that construction workers who are found guilty of stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation.</li> <li>• It is recommended that no construction workers, with the exception of security personnel, should be permitted to stay over-night on the site.</li> </ul> |
| <p>Increased risk of grass fires</p> | <p>Positive</p> | <ul style="list-style-type: none"> <li>• The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc., during the construction phase will be compensated for. The agreement should be signed before the construction phase commences.</li> <li>• Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas.</li> <li>• Smoking on site should be confined to designated areas.</li> <li>• Contractor should ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high-risk dry, windy winter months.</li> <li>• Contractor should provide adequate fire-fighting equipment on-site, including a fire fighting vehicle.</li> <li>• Contractor should provide fire-fighting training to selected construction staff.</li> </ul>  |

|  |                 |   |
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|  |                 | <ul style="list-style-type: none"> <li>• No construction staff, with the exception of security staff, to be accommodated on site overnight.</li> <li>• As per the conditions of the Code of Conduct, in the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the fire-fighting costs borne by farmers and local authorities.</li> </ul>  |
| <p>Impact of heavy vehicles and construction activities</p>    |                 | <ul style="list-style-type: none"> <li>• The movement of construction vehicles on the site should be confined to agreed access road/s.</li> <li>• Establishment of a Grievance Mechanism that provides local farmers and other road users with an effective and efficient mechanism to address issues related to construction related impacts, including damage to local gravel farm roads.</li> <li>• The movement of heavy vehicles associated with the construction phase should be timed to avoid times days of the week, such as weekends, when the volume of traffic travelling along the access roads may be higher.</li> <li>• Establishment of a Grievance Mechanism that provides local farmers and other road users with an effective and efficient mechanism to address issues related to construction related impacts, including damage to local gravel farm roads.</li> <li>• Dust suppression measures should be implemented, such as wetting on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.</li> <li>• All vehicles must be road worthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.</li> </ul> |
| <b>Traffic &amp; Transport</b>                                 |                 |   |
| <p>Increased traffic volumes on the existing road networks</p> | <p>Negative</p> | <ul style="list-style-type: none"> <li>• Speed limits must be implemented on site as well as safety controls.</li> <li>• Construction of access roads within safety limits from other crossings.</li> <li>• Possible road upgrades where required.</li> <li>• Create safe environment for pedestrians, animals and motorists, where necessary.</li> <li>• Create fauna underpasses where necessary (example bridge crossings).</li> </ul>   |

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| <p>Inadequate planning for the transportation of solar panels and specialist construction equipment to the site.</p> | <p>Negative</p> | <ul style="list-style-type: none"> <li>• Further assessment will be undertaken during the EIA Phase and mitigation will be provided in the EIR and the EMPr to reduce this impact.</li> <li>• A Traffic Management Plan must be compiled by a suitably qualified specialist during the Planning and Design Phase/prior to the commencement of the Construction Phase.</li> <li>• Project planning must include a plan for traffic control that will be implemented, especially during the construction phase of the development.</li> <li>• Consultation with the local Road Traffic Unit in this regard should be done early in the planning phase. The necessary road traffic permits should be obtained for transporting parts, containers, materials and construction equipment to the site.</li> </ul>   |
| <p><b>Health &amp; Safety</b></p>  |                 |   |
| <p>Roads and vehicles</p>  | <p>Negative</p> | <ul style="list-style-type: none"> <li>• Speed limits must be in place on site and before access roads on a provincial or national road.</li> <li>• Ensure drivers are trained in road safety.</li> </ul>   |
| <p>Health of work force during the construction phase</p>  | <p>Negative</p> | <ul style="list-style-type: none"> <li>• Construction workers to wear protective clothing (e.g. masks that minimize dust inhalation, clothing that protects against sunburn and dangerous animals such as snakes (wearing of snake garters))</li> <li>• Lock away dangerous plant, equipment and material when not supervised or in use.</li> <li>• Dispose of the various types of waste generated in the appropriate manner at the licensed waste fill sites at regular intervals.</li> <li>• Provide safe and clean drinking water and instil regular water breaks to keep workers hydrated.</li> <li>• Provide sufficient chemical /portable toilets at strategic locations that are cleaned regularly.</li> <li>• Keep local emergency contact details on hand at the site office.</li> <li>• Inform the local SAPS and Ward Councillors about the construction progress and time-lines to ensure that they are able to adequately deal with any type of disruptive behaviour which could occur due to the project.</li> </ul> |

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| Surrounding neighbours  |          | <ul style="list-style-type: none"> <li>Personnel are not permitted on other properties without permission.</li> <li>Avoid conflict with surrounding landowners.</li> </ul>   |
| <b>Air Quality</b>  |          |  |
| Dust pollution  | Negative | <ul style="list-style-type: none"> <li>The removal of vegetation will be minimised during stripping to reduce the effects of dust pollution as a result of exposed soil.</li> <li>Water or dust control agents should be used in working areas, and roads will be sprayed for dust suppression on a regular basis in designated susceptible areas during heavy usage.</li> <li>Dust monitoring must be undertaken in accordance to the monitoring programme.</li> <li>It is recommended that topsoil stockpiles should be vegetated to sustain biological components as well as prevent dust emissions.</li> <li>Reduction of dust fallout levels and particulate matter.</li> </ul> |
| <b>Electromagnetic Interference (EMI)</b>                           |          |  |
| Possible SEF interference to television, radio and microwave signal | Negative | <ul style="list-style-type: none"> <li>Accurate placement of solar panels in the planning and design phase can reduce this effect. This includes approval from the relevant companies.</li> <li>If complaints are received from surrounding landowners regarding this issue, the developer must investigate and mitigate these issues to the best of their abilities. It must be noted that the site is located in a remote part of the country.</li> </ul>  |

## 6.5 VISUAL REPRESENTATION OF ALL ALTERNATIVE AND SITE SENSITIVITY

The combined sensitivity map was based on the findings from all specialist assessments and inputs from all stakeholders. The following relevant features were included, which are considered “no-go” areas (i.e. no development make occur in these areas). This report is based on a project description and site plan, provided to by the applicant, which has not been approved by DFFE at this stage of the project. The project description and site plan may undergo refinements before being regarded as final. Since only a few stakeholders participated in the process, the buffers could not be finalised.

The Alternative 1 was considered as the Preferred Alternative as it was considered as the most suitable since it has the least impact on the sensitive features on the site, however layouts will be finalised during the EIR phase.

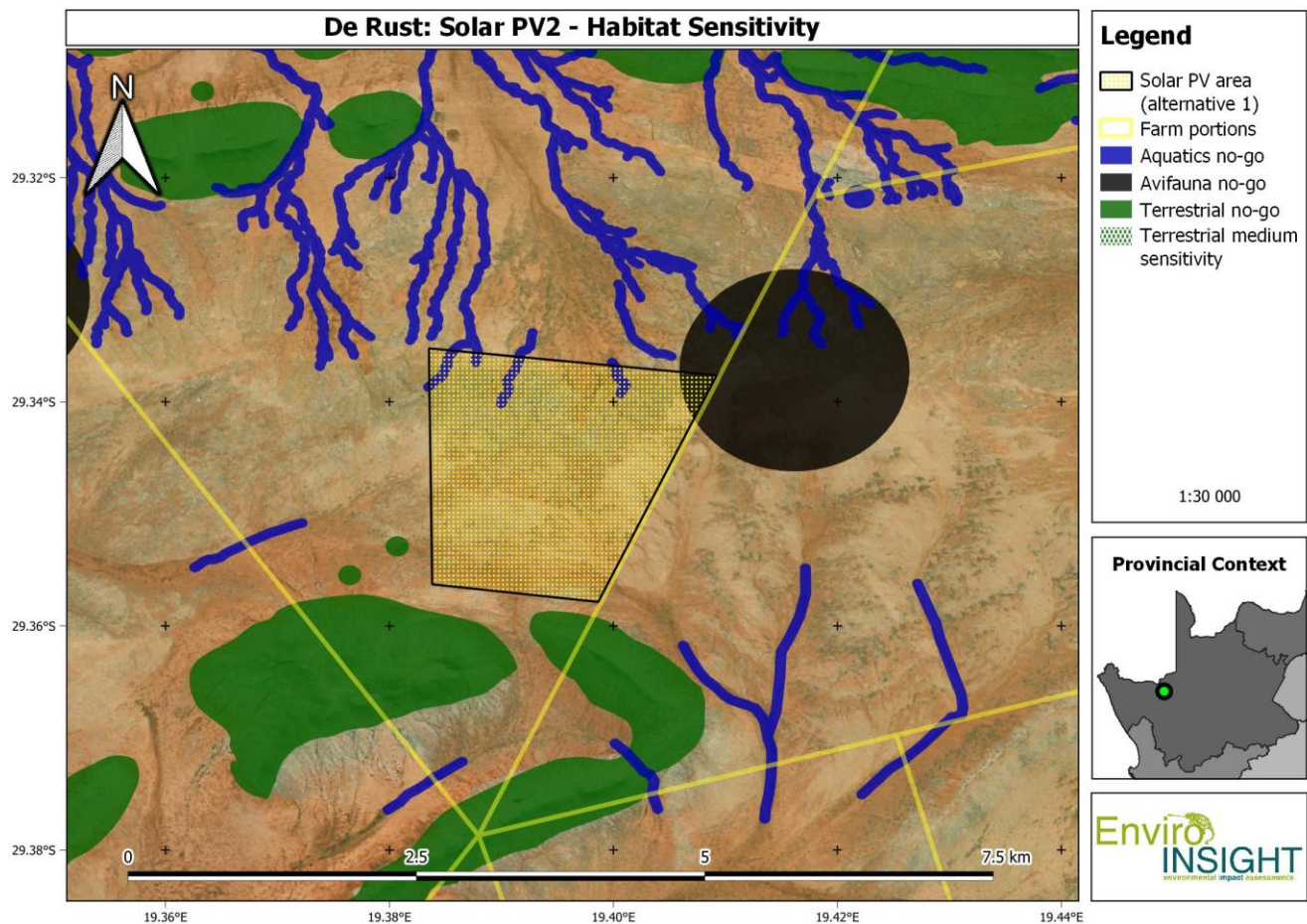


The following relevant features were included, which are considered “no-go” areas (i.e. no development make occur in these areas):

Avifauna: 50 m buffer around natural drainage line vegetation & a 200 m buffer around seasonally inundated watercourses;

Watercourses: 100m buffer for depressions and a 40m wash buffer;

Plants: Sensitive habitat including Koppies, Sensitive species 144 with 100m buffer.



**Figure 6-2: Sensitivity analysis indicating no-go areas for alternative 1 (preferred alternative)**



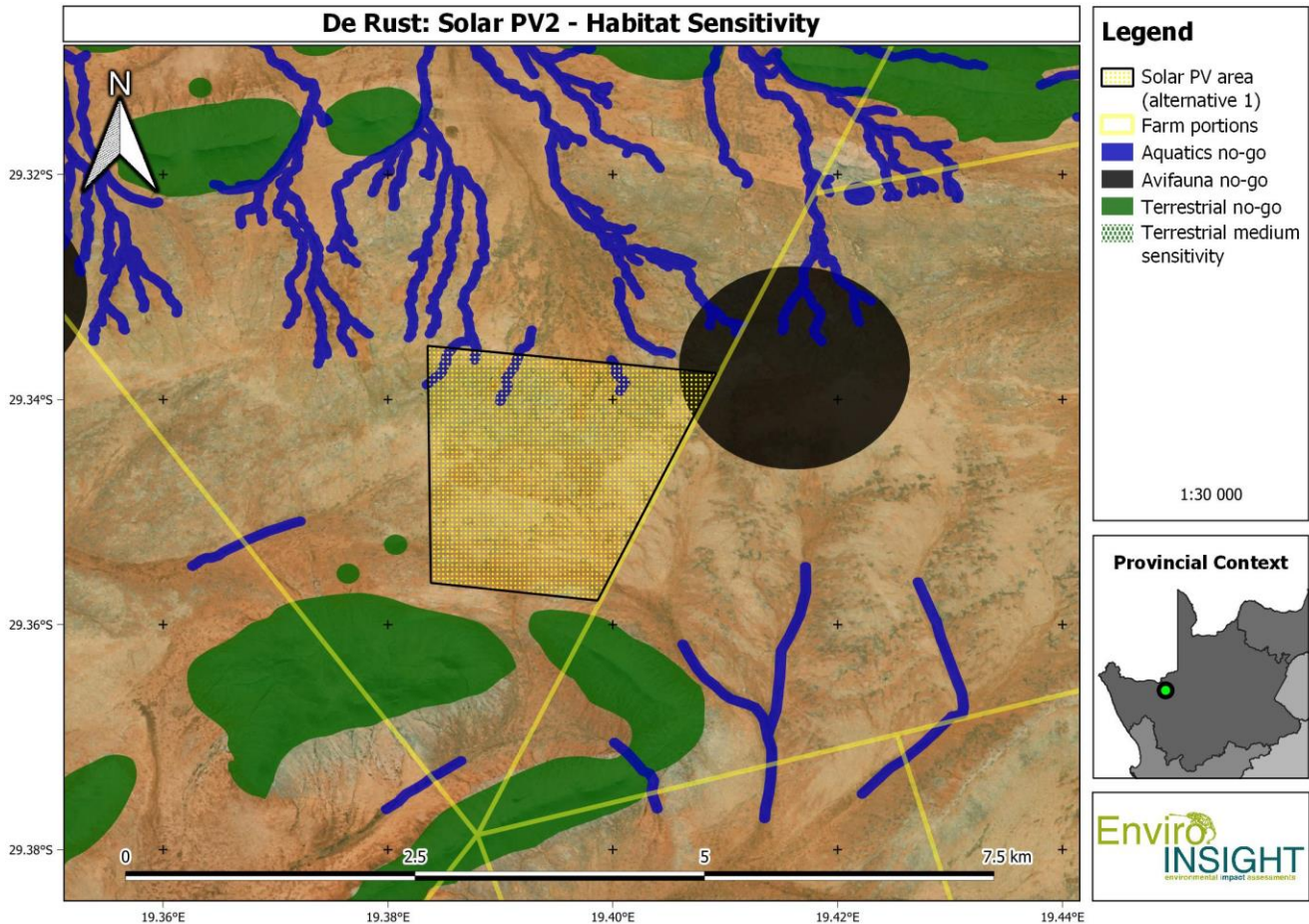


Figure 6-3: Sensitivity analysis indicating no-go areas for alternative 2

## 7 PLAN OF STUDY FOR UNDERTAKING THE EIR

In line with the relevant legislative requirement, this Chapter sets out the Plan of Study (PoS) for the EIA phase of the assessment. Consultation with DFFE will be on going throughout this S&EIA process. However, it is anticipated that DFFE will provide relevant comment with respect to the adequacy of this PoS for the EIA, as it informs the scope and scale of the EIR. The Scoping Phase has identified potential environmental impacts, specialist studies required to assess these impacts and indicated the alternatives that require further discussion and assessment during the EIA phase. The section below outlines the proposed PoS which will be conducted for the various environmental aspects during the EIA Phase. It is also important to note that the PoS will also be guided by comments obtained from I&AP's and other stakeholders during the commenting period.

## 7.1 ALTERNATIVES CONSIDERED

The NEMA requires that alternatives are considered during the EIA process. Potential alternative options are identified during the scoping phase, and will be assessed further in the EIA phase.

The 2014 EIA Regulations (as amended) provide the following definition:

**“alternatives”**, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the—

- (a) property on which or location where the activity is proposed to be undertaken;
- (b) type of activity to be undertaken;
- (c) design or layout of the activity;
- (d) technology to be used in the activity; or
- (e) operational aspects of the activity;

and includes the option of not implementing the activity;

The following types of alternatives are most pertinent to the proposed project and are detailed further below:

- Location alternatives;
- Layout alternatives;
- Technology alternatives; and
- The “no-go” alternative.

### 7.1.1 Location alternative

The proposed De Rust PV 2 SEF was selected based on the following parameters:

- Good solar resource.
- Close proximity to an Eskom substation (Korana substation) which has the potential to support the proposed SEF project generation capacity.
- Relatively flat site, which makes construction easier and less expensive than on an undulating site.
- Landowner support. The landowner has already signed an agreement and is familiar with the process
- There are proposed SEFs in the area. Accordingly, the De Rust PV 2 SEF will not change the landscape significantly and can make use of existing infrastructure such as haulage routes, and align powerlines and substations where possible. This can significantly reduce the disturbance of transmission lines.
- The low density of homesteads in the area which will have low visual, noise and flicker impacts.

- The land has a low agricultural potential and can only be used for low intensity livestock grazing which can continue after construction of the SEF.

Based on the above, the De Rust PV 2 SEF site was selected as the preferred alternative due to the favourable factors listed above.

### 7.1.2 Layout alternative

An initial site layout has been compiled based on *inter alia* the following criteria:

- Spatial orientation requirements of solar panels and associated infrastructure (e.g. roads);
- Layout relative to other existing infrastructure, such as powerlines and the Korana substation;
- Solar resource profile (this could have significant technical constraints);
- Topographical constraints, including surface water and steep slopes of hills; and
- Required setbacks from property boundaries for noise, visual and flicker impacts.

Based on the findings of the Scoping Report, the layout will be updated to include biophysical constraints of sensitive flora, avifauna, and bats, surface water features, sensitive heritage areas, and associated buffer areas. Input from all specialists, stakeholders, and competent authority will be considered in the final layout design and selection of the preferred alternative.

Two (2) layout alternatives were considered for the project.

- Alternative 1 (Preferred Alternative) – The specific GPS coordinates are shown in Table 7-2 below.

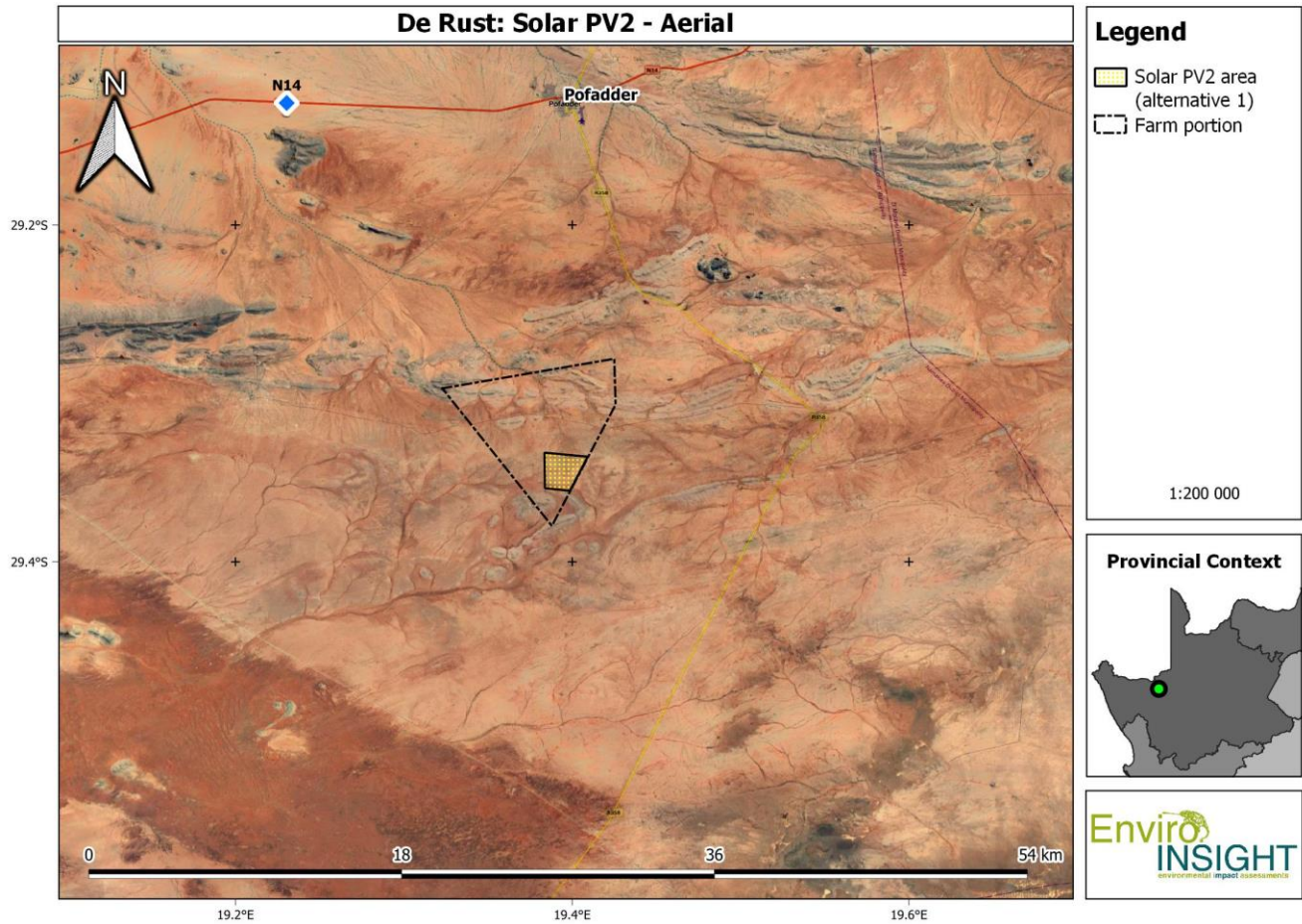


Figure 7-1: Alternative 1

Table 7-1: Site Coordinates

| FE De Rust PV 2 SEF                          |               |               |
|--|---------------|---------------|
| Co-ordinates of the proposed site/s (DDMMSS) | Latitude (S)  | Longitude (E) |
| Point A                                      | 29°20'7.47"S  | 19°23'0.94"E  |
| Point B                                      | 29°20'15.31"S | 19°24'34.47"E |
| Point C                                      | 29°21'28.74"S | 19°23'55.43"E |
| Point D                                      | 29°21'22.75"S | 19°23'2.21"E  |
| Mid-Point                                    | 29°20'52.61"S | 19°23'38.84"E |



Alternative 2: This alternative was considered for the maximum number of solar panels for the property but was disregarded due to sensitivities and setbacks identified early in the process. Refer to Figure 6-3 for sensitivities. In addition, the developer decided to split the site into two SEFs.

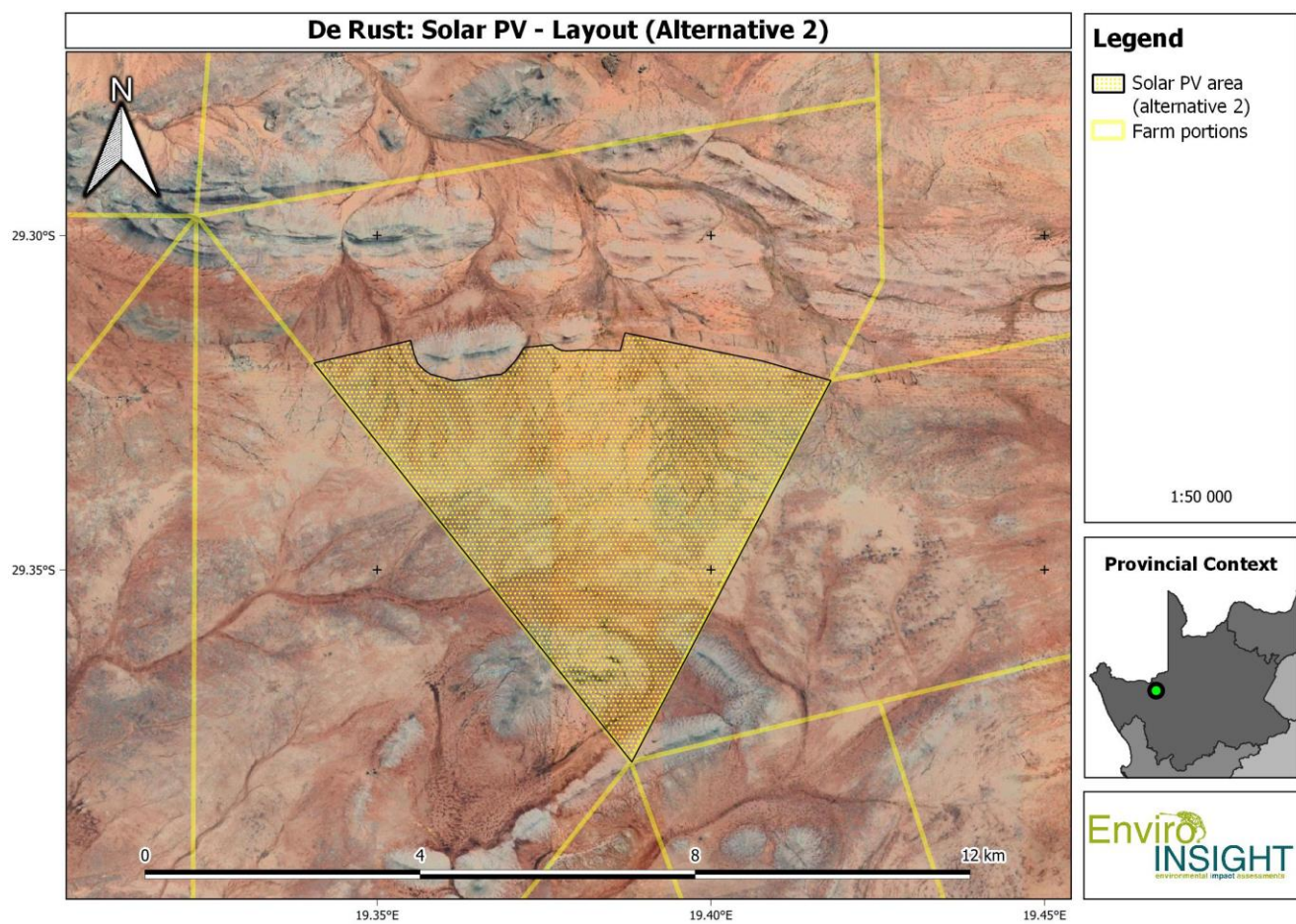


Figure 7-2: Alternative 2

### 7.1.3 Technology alternative

The most important factors that are considered when selecting a solar panels for any site, are the annual average solar coverage. The ongoing monitoring of the solar resource on site will be used to inform the solar panels layout.

Other determining factors when selecting the preferred solar panels are efficiency, full load hours and the capacity factor. The pricing of relevant technology at the time of construction is also a key factor, as well as the exchange rate for imported components.

#### 7.1.4 “No-Go” alternative

It is mandatory to consider the “no-go” option in the EIA process. The “no-go” alternative refers to the current status quo and the risks and impacts associated with it.

The no-go alternative would result in the continuation of the current land use at the site which is currently not used for anything, and is therefore considered natural. Historically, it was grazed by livestock. When properly managed, this land can be used to protect the environment, but this is not a necessary or desired outcome and accordingly the land can mainly be used for livestock grazing, should the landowner decide to reintroduce animals (sheep) on the property. The impact of not continuing with the proposed solar farm development would be advantageous to both terrestrial and aquatic biodiversity (if it is maintained and managed properly), but the positive economic and social aspects will not be realised which means that the local economy will not benefit from this land not being utilised for the intended purpose as the land is currently constraining economic activity

## 7.2 A DESCRIPTION OF THE ASPECTS TO BE ASSESSED AS PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The objective of the EIA phase will be to:

- Identify and assess the environmental (biophysical and social) impacts of the construction, operation, and decommissioning impacts of the proposed development. The cumulative impacts of the proposed development will also be identified and evaluated;
- Alternative activities and locations will be determined and assessed in parallel with the proposed activity;
- Identify and evaluate potential management and mitigation measures that will reduce the negative impacts of the proposed development and enhance the positive impacts;
- Compile monitoring, management, mitigation and training needs in the EMP; and
- Provide the decision-making authorities with sufficient and accurate information in order to make a sound decision on the proposed development.

The Impact Assessment Phase has four key elements:

- Specialist Studies: Specialist studies identified during the Scoping Phase and DFFE Screening Report, and any additional studies that may be required by the competent authority, are undertaken as the initial phase of the EIA. The relevant specialists have already been appointed to undertake the various assessments prior to the commencement of the EIA phase in order to identify potential fatal flaws from an early stage in the process and inform the PoS. Specialists will gather baseline information relevant to the study being undertaken and assess impacts associated with the development. Specialists will also indicate areas to be avoided, make recommendations to mitigate negative



impacts and optimise benefits. The resulting information is synthesised into the draft EIAR (with the complete assessment attached to the EIAR) that will be made available to I&APs for review and comment.

- Environmental Impact Assessment Report (EIAR): The main purpose of this Report is to gather environmental information and evaluate the overall impacts associated with the project, to consider mitigation measures and alternative options, and make recommendations in choosing the best development alternative. The EIAR also identifies mitigation measure/management recommendations to minimise negative impacts and enhance benefits. The draft EIAR and associated reports will be made available for public and authority review and comment for a period of 30 days. The availability of the draft EIAR will be communicated to all registered I&APs and will be accessible through various platforms to be confirmed at the time. After comments have been received, the final EIAR will be compiled and submitted to the DFFE for review. This report will assist the DFFE in making an informed decision on whether to grant or reject the proposed development.
- Environmental Management Programme (EMPr): The EMPr provides guidelines to the Applicant and the technical team on how to best implement the mitigation measure/ management recommendations outlined in the EIAR during the construction, operational and decommissioning phase. The EMPr is a law binding document, and once approved it cannot be amended without permission from the DFFE.
- Public Participation Process (EIA Phase): The PPP initiated during the Scoping Phase, is continued. This includes continuous engagement with I&APs and stakeholders which includes consultation meetings, receiving comments, issues and concerns raised by I&APs and the authorities during the review period, and also provides relevant responses to these comments. Comments on the Draft EIAR received from I&APs are included and addressed in the final submitted EIAR in the form of a Comments & Response Report.

### 7.3 ASPECTS TO BE ASSESSED BY SPECIALISTS

The specific challenges and impacts relevant to the proposed De Rust PV 2 SEF are the following:

- Impacts on terrestrial ecosystems;
- Impacts on avifauna;
- Impacts on bats;
- Impacts on sensitive flora;
- Impacts on aquatic ecosystems;
- Impacts on the transportation of components during the construction phase;
- Visual Impacts; and

- Impacts on the socio-economic environment of the region.

## **7.4 A DESCRIPTION OF THE PROPOSED METHOD OF ASSESSING THE ENVIRONMENTAL ASPECTS**

Refer to section 6.1 for more details.

## **7.5 PARTICULARS OF THE PUBLIC PARTICIPATION PROCESS THAT WILL BE CONDUCTED DURING THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS**

Competent authorities, stakeholders and I&APs will be consulted during the initial notification period, the scoping phase, and during the EIA phase.

### ➤ **Consultation with the competent authority**

A pre-application meeting was held in June 2022, after which communication was maintained via email. Comments on the draft scoping report will be obtained and incorporated into the report prior to submitting the final report for approval.

If the scoping report is accepted, the email communication will continue and the competent authorities comments on the draft EIA report will also be sourced. As and when necessary, the competent authority will be consulted throughout the process.

### ➤ **Steps to be taken to notify interested and affected parties**

A detailed description of the PPP conducted for the scoping phase is described in Section 4.3 above and Appendix C.

I&APs were notified of the proposed application via newspaper advertisements, emails, site and public notices. In addition, consultation meetings with affected landowners and stakeholders will be undertaken during the scoping phase. The PPP will be undertaken in accordance with the NEMA process and the EIA Regulations (2014, as amended). An opportunity was provided to the public to register as I&AP's and to provide initial comments, and a 30 day period will be provided to comment on this draft Scoping Report. The information submitted by I&AP's will be utilised during the Impact Assessment and compilation of the EIAR where considered necessary. Should the Final Scoping Report be accepted by the DFFE, the EIA phase of the process will commence.

During the EIA phase I&APs, stakeholders and the competent authorities will be notified of the process to be undertaken (similar way as described in Section 4.3 above and as outlined in the EIA Regulations (2014, as amended), will be provided an opportunity to comment on the draft EIAR which will include specialist studies and attend consultation meetings, where relevant.

### ➤ **Details of the engagement process to be followed**

The process of identifying and contacting landowners, stakeholders and I&APs commenced when I&APs were notified as part of site and public notices, newspaper adverts, emails, and distribution of the Background Information Document (BID).

Landowners and their contact details were identified through existing EIA reports, contact details received from registered I&APs and/or Title Deed search for the properties falling within the proposed study area. Proof of notifications and documentation pertaining to the PPP will form part of the public participation records as part of the Scoping and Environmental Impact Assessment phase.

As mentioned above, during the EIA phase, I&APs will be afforded the following opportunities to participate in the project:

- I&APs will be requested via notifications to provide their comments on the project, notified when the draft EIAR will be available for review;
- The EIAR and EMPr will be available for comment for a period of 30 days which will be accessible from Enviro-Insight's website: <http://www.enviro-insight.co.za/download-it/project-downloads/>. CD copies will be made available on request to Enviro-Insight.

All comments and issues raised during the public participation period will be incorporated into the Final EIAR and EMPr to be submitted to the DFFE for review and the final decision-making.

I&APs will be notified about the decision of the competent authority within 14 days of receiving written letters, and will specify any further process that is to be undertaken such as the appeal process.

➤ **Description of the information to be provided to Interested and Affected Parties**

The following information, but not limited to this, will be made available to I&APs:

- Background Information Document (Appendix C): The aim of the BID is to inform all Interested and Affected Parties about the proposed project and process to be followed during the scoping and EIA phase which includes the undertaking of PPP and environmental impact assessment process for the compilation of the Environmental Impact Assessment and Environmental Management Programme for the proposed development;
- The site plan, scale and extent of activities to be authorised (Appendix B);
- Draft Scoping Report which includes:
  - the plan of study;
  - list of activities to be authorised according to NEMA EIA Regulations;
  - indication and discussion of the impacts of activities to be authorised;
  - the proposed specialist studies that will be undertaken as part of the project;
  - discussion of alternatives including location, process and methodology as well as the No-Go alternative; and
  - Details of the relevant legislation that must be adhered to.

- Draft EIAR and EMPr which will include the results from the specialist assessments will also be made available for public review and comment for a period of 30 days; and
- Information will also be made available as requested by the Interested and Affected Parties throughout the process.

## **7.6 A DESCRIPTION OF THE TASKS THAT WILL BE UNDERTAKEN AS PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS**

As discussed in detail in the above sections and summarised below, the following tasks will be undertaken as part of the EIA phase of the project:

- Finalisation of the legislative context within which the activities are located and document how the proposed activity complies with and responds to this;
- Finalisation of the activities triggered under NEMA based on the specialist assessments and the final design layout and specifications;
- Identification of the location of the development footprint within the preferred site based on impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- Identification of the most ideal location for the activities within the preferred site based on the lowest level of environmental sensitivity identified during the assessment, especially with the proposed sitting of the solar panels and associated infrastructure;
- Determination of the nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and degree to which these impacts can be reversed, may cause irreplaceable loss of resources, can be avoided, managed or mitigated
- Identification of suitable measures to avoid, manage or mitigate identified impacts;
- Detailed specialist studies;
- Continued Public Participation Process;
- Compilation of the draft EIAR and EMPr, and once the consultation, review and commenting period has finished the finalisation of the EIAR and EMPr which will be submitted to the competent authority for review and final decision making.

## APPENDICES