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Final Scoping Report (FSR) and Plan of Study for Environmental Impact Assessment (POSEIA)

Proposed 75MW Photovoltaic, Renewable Energy, Solar Facility and Associated Power Lines on Portion 15 of the Farm 271 –JS (Area B) and on the Farm Kruisrivier No. 270 (Area C)

APPLICATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998), AS AMENDED, AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2010;

PREPARED FOR:	RE CAPITAL 2 (Pty) Ltd	**DATE:** 7th November 2013
NEW NEAS REFERENCE NO:	**DEA/EIA/0002045/2013** (Previous No: DEA/EIA/0001371/2012)	
NEW DEA PROJECT REFERENCE:	**14/12/16/3/3/2/586** (Previous No: 14/12/16/3/3/1/665)	

ENVIRONMENTAL ASSESSMENT PRACTITIONER PROFILE AND EXPERIENCE

Sharples Environmental Services cc (SES)

Is an independent environmental consultancy and has since 1998 been actively engaged in the fields of environmental planning, assessment and management. They advise private, corporate and public enterprises on a variety of differing land use applications ranging from large-scale residential estates, resorts and golf courses to municipal service infrastructure installations and the planning of major arterials. SES has offices in George and in Cape Town. The consultants listed below are all involved in the project management of this EIA Process. Lauren Jansen is the lead consultant on this project.

John Sharples (Managing Director of SES Cape Town & George, Principal Environmental Consultant)

John has a Masters in Environmental Management from the University of the Free State as well as a Bachelors degree in Conservation. He has consulted for over 15 years and prior to this gained 12 years of experience working for environmental organizations.

Lauren Jansen (Senior Environmental Assessment Practitioner and Cape Town Office Manager)

Lauren has 7 years of local and international practical experience in the environmental management and climate science fields of expertise. Lauren has compiled numerous Environmental Impact Assessment Processes in the past 7 years and she has worked in the private environmental consulting field as well as in the public sector as an environmental case officer for DEA & DP.

Stephan Le Roux Meyer (Junior Environmental Assessment Practitioner – Cape Town)

Stephan studied public development and environmental management and obtained a 3 year degree at the University of Stellenbosch and has experience in environmental monitoring, environmental management plans and impact assessments. Stephan is currently project managing most of the Environmental Control Officer (ECO) projects with SES.

GLOSSARY OF TERMS

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 –

i. The property on which or location where it is proposed to undertake the activity;
ii. The type of activity to be undertaken;
iii. The design or layout of the activity;
iv. The technology to be used in the activity, and;
v. The operational aspects of the activity.

Department of Environmental Affairs and Development Planning (DEA&DP) - The Provincial Directorate of the National Department for Environmental Affairs and Tourism. This Department is responsible for evaluating the viability of the development proposal and issuing the appropriate Authorization**.**

Environment - The surroundings within which humans exist and that are made up of

i. The land, water and atmosphere of the earth;
ii. Micro organisms, plant and animal life;
iii. Any Part or combination of (i) and (ii) and the interrelationships among and between them; and
iv. The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

Environmental authorization – The authorization by a competent authority of a listed activity.

Environmental Assessment Practitioner (EAP) – The person responsible for planning, management and co-ordination of environmental impact assessment, strategic environmental assessments, environmental management plans or any other appropriate environmental instrument introduced through regulations.

Environmental impact - An environmental change caused by some human act.

Environmental Impact Assessment (EIA) – In relation to an application to which scoping must be applied, means the process of collecting, organizing, analyzing, interpreting and communicating information that is relevant to the consideration of that application. This process necessitates the compilation of an Environmental Impact Report, which describes the process of examining the environmental effects of a proposed development, the anticipated impacts and proposed mitigatory measures.

Environmental Impact Report (EIR) - A report assessing the potential significant impacts as identified during the Scoping phase.

Environmental Management Plan (EMP) - A management programme designed specifically to introduce the mitigation measures proposed in the Reports and contained in the Conditions of Approval in the Authorization.

Interested and Affected Party (I&AP) – Any individual, group, organization or associations which are interested in or affected by an activity as well as any organ of state that may have jurisdiction over any aspect of the activity.

NEMA EIA Regulations - The EIA Regulations means the regulations made under section 24(5) of the National Environmental Management Act (Act 107 of 1998) (Government Notice No. R 543, R 544, R 545 and R 546 in the Government Gazette of 18 June 2010 refer).

No-go alternative – The option of not proceeding with the activity, implying a continuation of the current situation / status quo.

Public Participation Process (PPP) - A process in which potential Interested and Affected Parties are

given an opportunity to comment on, or raise issues relevant to, specific matters.

Registered Interested and Affected Party – All persons who, as a consequence of the Public Participation Process conducted in respect of an application, have submitted written comments or attended meeting with the applicant or environmental assessment practitioner (EAP); all persons who have requested the applicant or the EAP in writing, for their names to be placed on the register and all organs of state which have jurisdiction in respect of the activity to which the application relates.

Scoping process - A procedure for determining the extent of and approach to an EIA, used to focus the EIA to ensure that only the significant issues and reasonable alternatives are examined in detail

Scoping Report – The report describing the issues identified during the scoping process.

Significant impact – Means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

Spatial Development Framework (SDF) - A document required by legislation and essential in providing conservation and development guidelines for an urban area, which is situated in an environmentally sensitive area and for which major expansion is expected in the foreseeable future.

ABBREVIATIONS

BA	Basic Assessment
BAR	Basic Assessment Report
BEE	Black Economic Empowerment
CA	Competent Authority
CBA	Critical Biodiversity Area
DEA&DP	Department of Environmental Affairs & Development Planning
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMMP	Environmental Management Master Plan
EMP	Environmental Management Framework
EMP	Environmental Management Programme
ESA	Ecological Support Area
HOA	Home Owners' Association
HWC	Heritage Western Cape
I&AP	Interested and Affected parties
IDP	Integrated Development Plan
LUPO	Land Use Planning Ordinance (Ordinance 15 of 1985)
NEMA	National Environmental Management Act, 1998
NEMPAA	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PPP	Public Participation Process
RLUP&M	Rural Land Use Planning and Management
SANS	South African National Standard
SDF	Spatial Development Framework
SES	Sharples Environmental Services cc
TSA	Temporary Storage Area
WCPSDF	Western Cape Provincial Spatial Development Framework

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1. Introduction

1.1 Background Information

1.1.1 Renewable Energy and Independent Power Producers Programme (IPPP)

RE Capital 2 (Pty) Ltd propose to establish a renewable energy, photovoltaic (PV) solar farm, a 22Kv overland powerline and a new internal substation on Portion 15 of the Farm 271 –JS (Area B) and on the Farm Kruisrivier No. 270 (Area C), Zeerust, North West Province. It is proposed to produce a maximum of 75MW of electricity and to add the electricity produced into the existing Eskom grid at the Zeerust substation that is located directly adjacent to the proposed site. The renewable energy produced on site is proposed to be fed (via underground cables) to a 88/33kv internal substation on site. A new 22kv overland powerline is then proposed from the 88/33kv internal substation to the existing 132kv substation (via a box feeder).

Investment in renewable energy and energy efficiency is important to reduce the negative economic, social and environmental impacts of energy production and consumption in South Africa. South Africa has a high level of renewable energy potential given our strong ocean currents, wind levels and the suns relatively high radiation levels. As stipulated in the White Paper on Renewable Energy (2003), South Africa presently has a target of supplying 10000GWh of renewable energy by the end of 2013. The Minister of Energy has determined that 3725 MW of renewable energy is required in order to ensure continued uninterrupted supply of electricity in South Africa. The renewable energy Independent Power Producer Procurement (IPP) Programme was therefore launched in August 2011 by the Department of Energy.

The proposed facility will transfer light energy from the sun to generate electricity through a process known as the "photovoltaic effect". The purpose of the proposed facility is to sell the electricity to Eskom as part of the renewable energy Independent Power Producers (IPP) procurement programme. This proposed 75MW of clean, renewable energy will contribute to the target that has been set by the SA Government.

The next round for Independent Power Producers to submit their BID's to the Department of Energy is in August 2014. This Environmental Impact Assessment Process must therefore be completed by July 2014 next year. We request therefore from the DEA that they take this into consideration in their response times on Reports and try to reduce their mandatory response times to an absolute minimum in order for the EA to be issued in July 2014. Renewable Energy Facility's should take priority given the deadlines set by the Department of Energy in support of co-operative governance.

1.2 Legislative Framework

The following Acts & Guidelines are of importance pertaining to this proposal.

- The National Environmental Management Act (NEMA), Act No 107 of 1998, as Amended;
- National Environmental Management Biodiversity Act (Act 10 of 2004);
- Conservation of Agricultural Resources Act – CARA (Act 43 of 1983);
- National Water Act (Act NO 36 of 1998);
- National Forest Act (Act No 84 of 1998);
- National Heritage Resources Act (Act No 25 of 1999);

- Green Paper on National Strategic Planning (2009);
- National Energy Act (Act 34 of 2008);
- White Paper on the Energy Policy of the Republic of South Africa (1998);
- White Paper on Renewable Energy (2003);
- NERSA Renewable Energy Feed In Tariff (REFIT) Guidelines (2009);
- Draft National Integrated Resource Plan (IRP) (2010);
- The National Health Act (No. 61 of 2003) and Health Act 63 of 1977;
- Occupational Heath and Safety Act (Act 85 of 1993);
- The White Paper on Integrated Pollution and Waste Management (2000);
- The National Waste Management Strategy (1999).

There are also a number of guidelines published by DEA&DP, DEA and CSIR as follows:

- Guideline for Determining the Scope of Specialist Involvement in EIA Processes;
- Guideline for the Review of Specialist Input into the EIA Process;
- Guideline for Involving Biodiversity Specialists in EIA Processes;
- Guideline for Involving Heritage Specialists in EIA Processes;
- Guideline for Involving Visual and Aesthetic Specialists in EIA Processes;
- Guideline for Environmental Management Plans;
- Guideline on Public Participation;
- Guideline on Alternatives; and
- Guideline on Need and Desirability;
- DEAT (2002) Screening, Information Series 5 (Integrated Environmental Management Information Series: Impact Significance)
- DEAT (2002) Scoping, Information Series 2 ((Integrated Environmental Management Information Series: Impact Significance)

A brief description of a selection of the important Act's and Legislation taken into account for this proposal is as follows:

NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY (ACT 10 OF 2004)

This Act controls the management and conservation of South African biodiversity within the framework of NEMA. Amongst others, it deals with the protection of species and ecosystems that warrant national protection, as well as the sustainable use of indigenous biological resources. Sections 52 & 53 of this Act specifically make provision for the protection of critically endangered, endangered, vulnerable and protected ecosystems that have undergone, or have a risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention through threatening processes.

The proposed site has been divided up into three segments for ease of reference. Please refer to the Locality Plan or the Biodiversity Overlay Map to view the initial assessment site that has been "scoped". A small portion of Area A has been mapped as a CBA Aquatic area due to the river shown on the Topocadastral Map, on the other side (east side) of the R49 National Road. This area should not be mapped as an Aquatic CBA zone given the fact that the site and the river are already separated by a road. A small portion of Area B and the entire site shown as Area C is mapped (by SANBI) as a Terrestrial CBA area.

CONSERVATION OF AGRICULTURAL RESOURCES ACT – CARA (ACT 43 OF 1983)

CARA provides for the regulation of control over the utilisation of the natural agricultural resources in order to promote the conservation of soil, water and vegetation and provides for combating weeds and invader plant species. The Conservation of Agricultural Resources Act also defines different categories of alien plants.

An initial scoping baseline soil assessment was undertaken on Area A only in order to indicate the type of soils on site, to identify any possible fatal flaws and to establish the soil potential of the site for agricultural production. This is important in order to establish if any "opportunity cost" would be lost if the renewable energy facility is constructed on this site.

NATIONAL WATER ACT (ACT NO 36 OF 1998)

The Act provides the framework for the sustainable management of South Africa's water resources. It aims to protect, use, develop, conserve, manage and control water resources as a whole, promoting integrated water resource management that involves participation of all stakeholders. The Act declares the national government to be the public trustee of the nation's water. The Act is administered by the national Department of Water Affairs (DWA) via regional offices.

This is not a water-intensive operational activity. A limited amount of water however is required for this PV Solar facility in order to clean the solar panels. There are currently a few alternative water use options. RE Capital 2 (Pty) Ltd could obtain water from an existing water reticulation system, borehole extraction, abstraction from a river nearby or water could possibly be obtained from a nearby reservoir. If water can be obtained from an existing water reticulation system nearby or from the reservoir, the cost of collecting the water by truck will be borne by RE Capital 2 (Pty) Ltd. The Local Municipality, the Ramotshere Moiloa Local Municipality, and the Department of Water Affairs (DWA) are please to respond in writing on the water use possibilities are in this area.

NATIONAL HERITAGE RESOURCES ACT (Act No 25 of 1999)

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999). South African National Heritage Resources Agency (SAHRA) is the enforcing authority in the Northern Cape, and is registered as a Stakeholder for this environmental process. In terms of Section 38 of the National Heritage Resources Act, SAHRA will comment on the detailed Heritage Impact Assessment (HIA) where certain categories of development are proposed. Section 38(8) also makes provision for the assessment of heritage impacts as part of an EIA process. The National Heritage Resources Act requires relevant authorities to be notified regarding this proposed development, as the following activities are relevant:

- *the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
- *any development or other activity which will change the character of a site exceeding 5 000 m² in extent;*
- *the re-zoning of a site exceeding 10 000m² in extent.*

The proposed site does exceed 5000m² and the underground cables will be greater than 300m long. A Notice of Intent to Develop (NID) will therefore be submitted to Heritage Western Cape. A scoping baseline archaeological assessment has been done on site A in order to determine any fatal flaws early in the EIA Process. Six areas of archaeological significance (stone walls, burial grounds) were identified by the specialist but as long as these areas are avoided no fatal flaws were observed. A detailed report will be done in the EIA Phase that will cover the entire assessment area (Area A, B & C).

GREEN PAPER ON NATIONAL STRATEGIC PLANNING (2009)

The Green paper on National Strategic Planning (2009) for South Africa has an overarching objective with respect to planning which is to enhance South Africa's socio economic development by improving planning within Government and managing the Governments development processes.

The 10 priorities as per the Medium Term Strategic Framework outlined in the Green Paper are:

- **Speed up economic growth and transform the economy to create decent work and sustainable livelihoods;**
- **Introduce a massive programme to build economic and social infrastructure;**
- Develop and implement a comprehensive rural development strategy linked to land and agrarian reform and food security;
- **Strengthen the skills and human resource base;**
- Improve the health profile of all South Africans;
- Intensify the fight against crime and corruption;
- Build cohesive, caring and sustainable communities;
- Pursue African advancement and enhanced international cooperation;
- **Ensure sustainable resource management and use; and**
- Build a developmental state, improve public services and strengthen democratic institutions.

The proposed development is in line with all of these priorities and puts South Africa on the path to achieving these priorities.

NATIONAL PLANNING COMMISSION (NPC)

In 2009 the South African government established the National Planning Commission (NPC). This Commission chaired by the Minister in the Presidency for national planning is charged with the responsibility to develop a long-term vision and strategic plan for South Africa. Given its responsibility to ensure greater synergy in terms of national planning imperatives, it is of paramount importance to align local government development and planning objectives with the overall national imperatives.

In November the NPC released its National Development Plan entitled "Vision for 2030". The following are the key priority areas of the plan:

- **Creating an economy that will create more jobs**.
- **Improving infrastructure.**
- **Ensuring the transition to a low carbon economy**.
- Enduring an inclusive and integrated rural economy.
- Reversing the spatial effects of apartheid.
- Improving the quality of education, training and innovation.
- Quality healthcare for all.
- Social protection.
- Building safer communities.
- Reforming the public services.
- Fighting corruption.
- Transforming the society and uniting the country.

THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA)

The activities shown in the table below are listed in terms of the National Environmental Management Act (Act No 107 of 1998), as Amended.

NATIONAL FOREST ACT (ACT NO 84 OF 1998)

The purpose of this Act is to:

- promote the sustainable management and development of forests for the benefit of all;
- create the conditions necessary to restructure forestry in Sate forests;
- provide special measures for the protection of certain forests and trees;
- promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes;
- promote community forestry;
- promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination.

This Act is governed by the National Department of Agriculture, Forestry and Fisheries who is a key commenting Authority in this EIA Process.

Table 1: NEMA Listed Activities _ Listing Notice 1 (R544), Listing Notice 2 (R545) and Listing Notice 3 (R546)

Government Notice R544 Activity No(s):	Describe the relevant **Basic Assessment Activity(ies)** in writing as per **Listing Notice 1** (GN No. R544)	Describe the portion of the development as per the project description that relates to the applicable listed activity
10	The construction of facilities or infrastructure for the transmission and distribution of electricity – (ii) **outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts;** or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.	The renewable energy produced on site is proposed to be fed (via underground cables) to a 88/33kv internal substation on site. A new 22kv overland powerline is then proposed from the 88/33kv internal substation to the existing 132kv substation (via a box feeder)
11	The construction of: (i) canals; (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlet structures; (vii) marinas; (viii) jetties exceeding 50 square metres in size; (ix) slipways exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	As can be seen in the Topocadastral Map, two National wetlands (valley bottom, very shallow and seasonally dry) are located adjacent to the site area. Natural drainage lines are also located adjacent to the site. It is proposed to erect infrastructure greater than 50m^2 within 32m from a natural drainage line. An appropriate buffer area will be provided (20m in this case) from the high water mark of the two wetlands and associated drainage lines that are located on the western perimeter of the site. This will be a condition of the EA.

8	The infilling or depositing of any material of more than 5m³ into or the dredging, excavation, removal or moving of soil, sand shells, shell grit, pebbles or rock from i. a water course ii. the sea iii. the seashore iv. the littoral active zone, an estuary or a distance of 100m inland of the high-water makr of the sea or an estuary, whichever distance is the greater excluding where such infilling, depositing, dredging, excavation, removal or moving is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority occurs behind the development setback line.	A minor drainage line (watercourse) has been identified on the site where the facility is proposed. This can be seen on the Topocadastral Map.
Government Notice R546 Activity No(s):	Describe the relevant **Basic Assessment Activity(ies)** in writing as per **Listing Notice 3** (GN No. R546)	Describe the portion of the development as per the project description that relates to the applicable listed activity
13	The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list. (2) the undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No. 544 of 2010. **(e) In North West:** i. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas (Type 1 only) and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve. ii. In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; (cc) Natural heritage sites.	300m² of vegetation is proposed to be removed in an area mapped as a Critical Biodiversity Area by SANBI. More than 75% of the vegetation in a 300m² area is indigenous.

14	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) purposes of agriculture or afforestation inside areas identified in spatial instruments adopted by the competent authority for agriculture or afforestation purposes; (2) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the activity is regarded to be excluded from this list; (3) the undertaking of a linear activity falling below the thresholds in Notice 544 of 2010. **(a) In Eastern Cape, Free State, KwaZulu-Natal, Gauteng, Limpopo, Mpumalanga, Northern Cape, Northwest and Western Cape:** i. All areas outside urban areas.	More than 5Ha of indigenous vegetation is proposed to be removed.
Government Notice R545 Activity No(s):	Describe the relevant **Scoping and EIA Activity(ies)** in writing as per **Listing Notice 2** (GN No. R545)	Describe the portion of the development as per the project description that relates to the applicable listed activity
1	The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.	It is proposed to generate a total of 75MW of electricity at peak times.
8	The construction of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.	The facility will require an underground distribution powerline that will be connected to the Zeerust Substation
15	Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for:(i) linear development activities; or (ii) agriculture or afforestation where activity 16 in this Schedule will apply.	It is proposed to physically alter approximately 150 Ha of land (currently zoned agriculture) for a photovoltaic solar plant.

Table 2: Competent Authorities (Approvals Required Before Construction May Commence)

Competent Authority	In terms of Legislation	Type of Approval / Licence / Required
The Department of Environmental Affairs (DEA)	National Environmental Management Act (NEMA)	Environmental Authorisation
Ramotshere Moiloa Local Municipality	Land Use Planning Ordinance (LUPO)	Consent Use Zoning Approval Required in terms of LUPO. Approval required in terms of services (if water to be obtained from existing reticulation system).
Department of Water Affairs (DWA)	The National Water Act (NWA)	1342m3 / annum during the construction phase and 671 m3 / annum during the operational phase of water is proposed to be abstracted from a borehole on Portion 15 of Kameeldoorn 271JP (Area A). Construction is proposed to take place within 500m from a National Wetland so a General Authorisation Water Use Registration is required to be issued from the DWA.
SAHRA	National Heritage Resources Act (NHRA)	Given the fact that the size of the site is greater than 5000m^2, heritage approval is required and a Notice of Intent to Develop is required to be submitted to SAHRA.
SANBI / DEA Biodiversity Directorate	National Environmental Management: Biodiversity Act	It is proposed that the Botanical Specialist will inform us of whether any TOPS Listed Species (Protected) are proposed to be removed. A TOPS Permit will be required if any species on this list is proposed to be removed. This will be determined in the EIA Phase.

The above approvals are informed by the Environmental Impact Assessment (EIA) process, an integrated process through which information regarding the proposed facility will be collected, organized, analysed and communicated to the relevant authorities for consideration. Based on the nature of the proposed activity, it is required that a scoping and environmental impact reporting process is to be followed. More detail on this process is provided in section 1.4 below.

1.3 The Scoping / EIA Process

The EIA process is informed by the EIA regulations Government Notice No. R 543 (18 June 2010, as amended) and typically follows three main phases, namely, an Application Phase, a Scoping Phase and an Impact Assessment Phase as illustrated in Figure1 below. We are at the stage highlighted in green.

EAP submit application (Regulation 26)
- Application form including Declaration of independence by the EAP

↓

Authority check of application (Regulation 13)
- Authority acknowledge receipt – within 14 days

↓

Initial Public Participation Process (Regulation 54)

- Allow all potential I & AP's to register and submit initial comment – within 21 days

↓

Undertake the scoping phase (Regulation 27 – 29)

- Open and maintain the Register of Interested and Affected Parties
- Prepare draft Scoping Report and Submit draft Scoping Report to Authority

2 Allow Registered Interested and Affected parties to view and comment on draft Scoping Report (Regulation 56 - 57) – for 40 day period

3 List additional comment in Comments and Response Report, compile Plan of Study for EIR and final Scoping Report (Regulation 29)

4 Allow Registered I & AP's to view and comment on FSR– for 21 day period

(WE ARE HERE)

5 Attach comments to the final report

- Submit final report to the Competent Authority

↓

Authority review & response (Regulation 30) Within 45 days:

- Accept report and give permission to continue to EIA phase
- Request amendments or
- Reject if:
  - Insufficient information (this can include minor information which the authority deems necessary)
  - Failure to consider guidelines

↓

Commence with impact assessment phase (Regulation 31 - 33)

- Commence with specialist studies as indicated in the Plan of Study for the EIA report
- Prepare draft EIA report & draft EMP
- Submit draft reports to the Competent Authority

6 Allow Registered Interested and Affected parties to view and comment on draft EIA report & draft EMP (Regulation 56 - 57) – for 40 day period

- Record the comments on the draft documents in the Comments and Response Report and compile final EIA report

7 Allow Registered Interested and Affected parties to view and comment on final EIA report – for 21 day period

- Attach comment to the final document and submit final EIA report (Regulation 34(1) to Competent Authority

↓

Authority review & response (Regulation 34(2) – 34(4)) – within 60 days:

- Accept report
- Reject if:
  - Insufficient information (this can include minor information which the authority deems necessary).
  - Failure to consider guidelines

↓

Authority to make a decision on the application (Regulation 35) Within 45 days of acceptance/receipt of reviewer/within 30 days of the lapsing of the 60 days:

- Grant environmental authorization
- Refuse environmental authorization

↓

Applicant to inform Registered I&APs of the decision within 12 days of the date of the decision (Regulation 10(2)).

Figure 1: The Scoping / EIA Process

1.3.1 The Application Phase

The following application has been submitted for this proposed 75MW PV Solar Facility:

- An EIA application form for an environmental authorisation has been submitted to DEA – seeking environmental authorisation;

The following applications still need to be submitted for this proposed 75MW PV Solar Facility:

- A Notice of Intent to Develop (NID) will be submitted to the South African National Heritage Resources Agency (SAHRA). A NID is required to be submitted because it is proposed to change the character of the site and the proposal is for more than 5 000m^2. The NID will be submitted together with a "Additional Information Checklist" the Draft Environmental Impact Assessment Report (DEIA) and a detailed Archaeological Impact Assessment as well as a detailed Heritage Impact Assessment – seeking Heritage Approval in the form of a Final Decision detailed Archaeological Impact Assessment as well as a detailed Heritage Impact Assessment – seeking Heritage Approval in the form of a Final Decision /Permit.
- An application in terms of the Land Use Planning Ordinance (LUPO) will be submitted shortly to the Ramotshere Moiloa Local Municipality in order to obtain a consent use (temporary rights to use the land for a different purpose, rather than agriculture). This application process can only start once a more detailed site plan has been developed, that avoids all the NO-GO zones and sensitive areas identified in the EIA Phase by the specialists.
- A Water Use License Application may be required to be submitted to the Department of Water Affairs. DWA have in fact already confirmed (non-binding) that the client is allowed to abstract water from a borehole on the Area A site. A General Authorisation may simply be issued without a WULA being submitted in order to abstract water from the borehole and due to the fact that the facility is located within 500m from the boundary of two wetlands.

1.3.2 The Scoping Phase

The aim of the Scoping Phase is to identify and define the key issues associated with the proposed activity. The scoping phase should give a broad idea of the status of the environment and whether or not any key environmental features would be impacted upon. This phase also identifies any fatal flaws in the proposed development. The resulting Scoping Report (this document) is compiled as per section 28 of Government Notice No. R 543 (18 June 2010, as amended) and outlined in Table 1-4 below.

The desired outcomes of scoping are as follows:

- The relevant legal framework has been identified and procedures required to meet compliance;
- Stakeholders have been effectively identified and informed;
- Alternatives for achieving the objectives of the proposed activity have been considered;
- Significant issues and impacts associated with the proposal have been identified to be further addressed;
- The roles and responsibilities of various stakeholders in the process have been clarified;
- Adequate terms of reference that are acceptable to all stakeholders have been set out for the appointment of specialists during the impact assessment phase.

The Draft Scoping Report (DSR) is circulated to those registered Interested and Affected Parties (I&APs) and the relevant authorities for their comment on the scope of the EIA. The Scoping Report includes a proposed Plan of Study (PoS) as required in terms of section 28(1)(n) of the EIA Regulations Government Notice No. R 543 (18 June 2010, as

amended). The PoS details the tasks, and the manner in which said tasks will be undertaken, during the environmental impact assessment phase and allows for recommendations by stakeholders as to the inclusion or consideration of additional factors, prior to the assessment phase being undertaken. Following stakeholders' review and comment, the Draft Scoping Report is finalised and submitted as a Final Scoping Report to the competent authorities. Based on the contents of the Scoping Report, the competent authorities may decide whether the assessment phase for the proposed project may go ahead or not.

1.3.3 The Impact Assessment Phase

During the impact assessment phase of the EIA, the relevant issues identified during scoping are assessed by environmental specialists. The outcome of these assessments will be presented to stakeholders for comment in a Draft Environmental Impact Assessment report (DEIA). Based on the findings in the DEIA, the competent authorities will decide, in consultation with other relevant authorities, whether the proposed project may proceed or not, and under what conditions.

1.4 Assumptions and Limitations

The findings of this report are subject to the following limitations:

- All information received from sources contributing to this project is assumed to be correct, unbiased and conducted by independent specialists;
- This report is limited because at this stage the "key issues and impacts" have only been "screened and scoped". Detailed information on the expected impacts of the proposed development and detailed information on the detailed site layout will become available to all registered Interested & Affected Parties when the Draft EIA Report is made available, at a later stage in the EIA Process.
- The Critical Biodiversity Area (CBA) bioregional mapping data produced by SANBI (the Biodiversity Maps for the North West Province that shows the Aquatic and Terrestrial CBA zones) is not accurate. This data should be used as an information source but the maps are not drawn to scale and they are not 100% accurate. On-the-ground assessment is therefore required by a specialist Botanist to confirm the data.
- The EAP visited the site in May. May and June are the lowest rainfall months of the year, receiving on average 0mm of rain. No watercourses (no wetland and no drainage lines) where therefore observed. The farmer also indicated that as far as he is aware there are no watercourses on the site. The mapping data however is assumed to be accurate and even though the watecourses are seasonal and mostly very dry that must still be regarded as watercourses.
- It must please be noted that technology advancements in the solar fields are changing every day. DEA must please take this into account if they decide to draft an Environmental Authorisation, so as not to be too specific.

2. Description of the Proposed Project

2.1 Site Location and Description of Property

Zeerust is a commercial town situated in Ngaka Modiri Molema district in the North West Province, South Africa. It lies in the Marico valley, approximately 240 kilometres northwest of Johannesburg. It lies on the N4, the main road link between South Africa and Botswana. There are large cattle ranches in the area, as well as wheat, maize, tobacco and citrus fruit farms. There are also fluorite and chromite mines in the vicinity. Tourism is also a developing industry.

As can be seen in Figure 2 below, the site earmarked for the proposed photovoltaic solar park is located just south of where the N4 and the R49 intersect, 1km from Shalimar Park and 4km from the town of Zeerust in the North West Province of South Africa. The site is located in the Ngaka Modiri Molema District Municipality and in the Ramotshere Moiloa Local Municipality.

The PV Solar facility was originally proposed on Area A, Area B and Area C (initial scoping assessment) but based on archaeological and heritage specialist input in the "Scoping Phase", that we considered key to identifying any fatal flaws in the development, Area A has now been excluded from being assessed further in this EIA. It is therefore now only proposed to develop the facility and associated power line infrastructure on Portion 15 of the Farm 271 –JS (Area B) and on the Farm Kruisrivier No. 270 (Area C), Zeerust, North West Province. Area B and Area C are approximately 150Ha which is large enough to develop a 75MW facility.

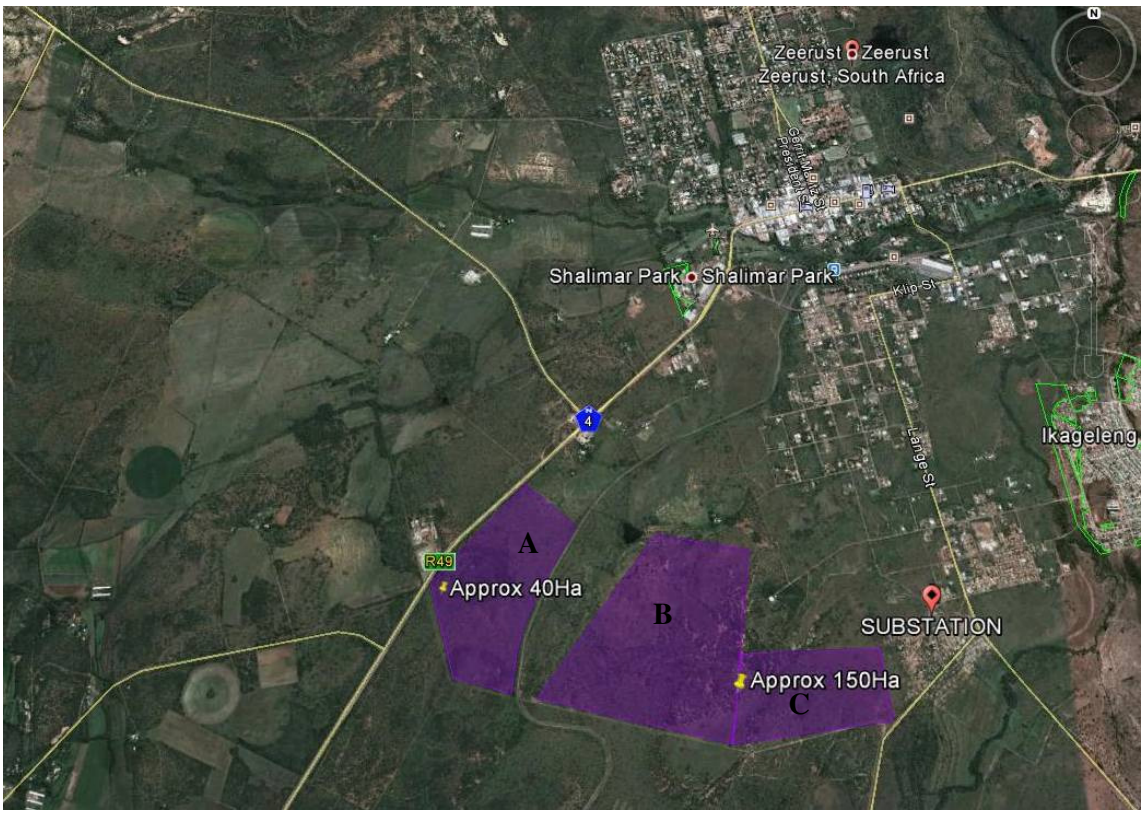

Figure 2: Location of the Original Site Proposed and the Zeerust Substation (Area A, B & C). Only Area B & Area C are now proposed to be developed.

Area B is owned by Johannes Keulder and Area C is owned by the Ramotshere Moiloa Local Municipality. An informal settlement is located surrounding and adjacent to the Zeerust substation.

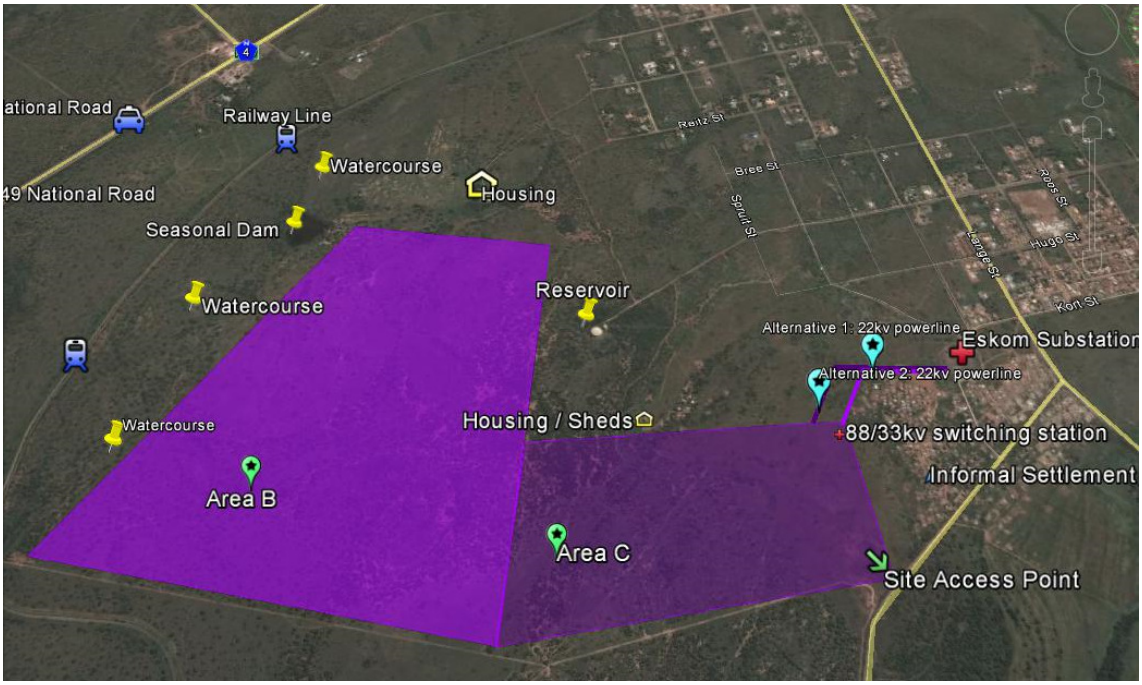

Figure 3: The Proposed Site (all purple areas) – Area A is no longer included

As can be seen from the Topocadastral Image below (figure 3) and the Aquatic and Terresrial CBA Map (figure 4), two National wetlands are located adjacent to the Area B proposed site (not on the site), as well as a minor drainage line that flows in a northerly direction, away from the site. This area west of the site where the wetlands and the drainage line is located were therefore excluded from the proposed site. A buffer area of 20m will be provided from the high water mark of the watercourse. It must be noted that the two drainage lines shown in the map below both flow away from the site (northwards).

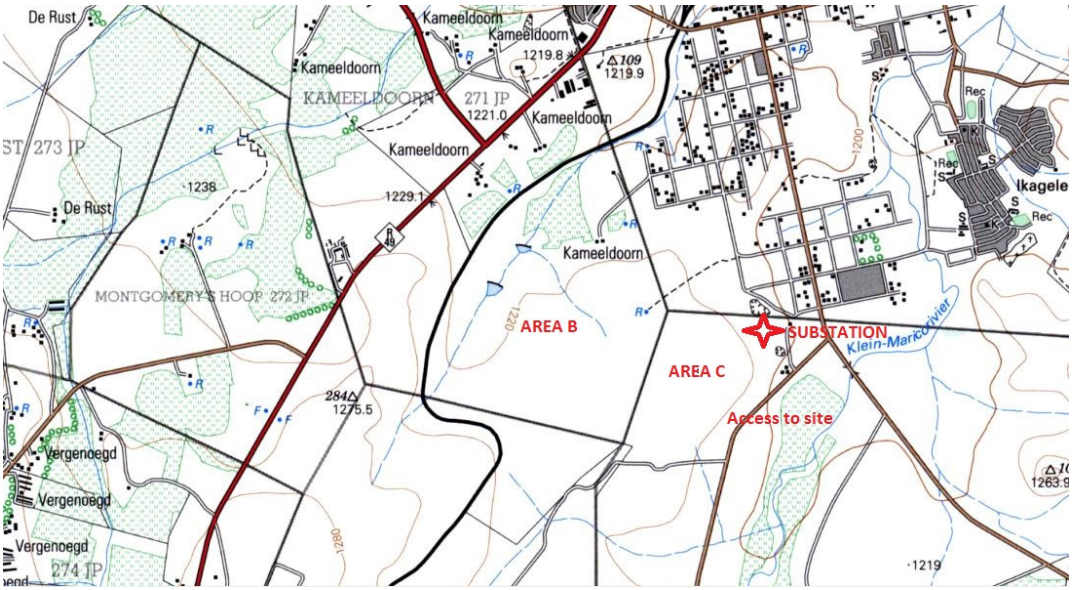

Figure 4: Topocadastral Map

During a site visit conducted by Sharples Environmental Services cc in May 2013 (winter dry season), it was noted that the drainage lines as well as the National Wetlands were dry and barren. SANBI has also mapped the two wetlands located off site (see figure 4 below) as National wetlands classed as "*Valley Floor – Channelled Valley Bottom*" wetland types.

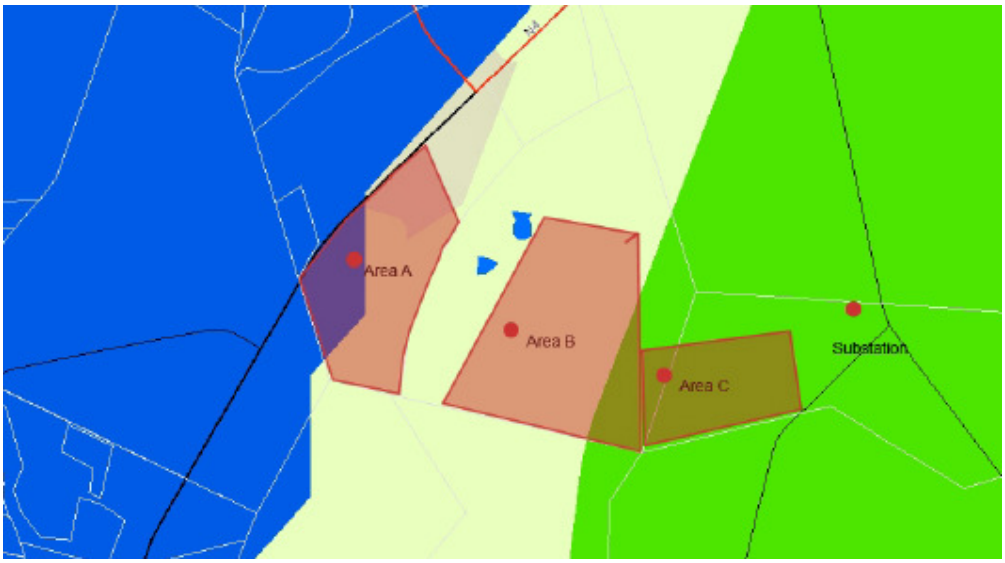

Figure 5: Aquatic and Terrestrial Critical Biodiversity Areas (CBA's)

Based on a desktop analysis of SANBI's mapping, which is not accurate or to scale, it seems as if Area C and a small portion or Area B is located in a CBA 1 Terrestrial zone. Most of Area A & Area B are located in an area mapped as a CBA 2 Terrestrial zone by SANBI BGIS. Area A is however no longer included in this development proposal due to the scattered sites of archaeological significance found on Area A. The Ecosystem Status Level map also published by SANBI shows that they site is found in an area of vegetation classed as "Least Threatened" vegetation (refer to maps in Annexure D).

Wileen Olivier from the DEA Biodiversity Branch explains in the comments she provided that the site is close to town and it is on a site where the vegetation type is not listed and where there is already considerable removal of vegetation cover due to agricultural activities on site.

2.2 Project Description

Please take note that the site is currently being surveyed and a detailed site plan will therefore be made available in the Draft Impact Assessment Report and it will be utilised by the specialists.

RE Capital 2 (Pty) Ltd propose to construct a Photovoltaic Solar Park (approximately 150Ha) and associated power line infrastructure that will produce 75MW of electricity to be connected to the Eskom Zeerust Substation. Photovoltaic's (PVs) are arrays of cells containing a solar photovoltaic material that converts solar radiation into direct current electricity. The facility will transfer light energy from the sun to generate electricity through a process known as the "photovoltaic effect". The purpose of the proposed facility is to sell the electricity to Eskom as part of the renewable energy Independent Power Producers (IPP) procurement programme. This programme was introduced by the Department of Energy (DoE) to promote the use of renewable power solutions.

Figure 6: An example of a PV Solar Facility. This proposed facility is proposed to look similar to the facility shown in this image.

2.2.1 Proposed Construction

The following is proposed to be constructed on site:

- It is proposed to clear all of the indigenous trees, the bushes and the indigenous grass cover on site by cutting down the trees and bushes in their entirety and by brush-cutting the grass. Grass cover will therefore remain on site (where possible) in order to stabilise the soil. Grass will be removed from areas where gravel internal roads are proposed;
- Numerous PV panel arrays of a height **between 2m and 3m** (most likely) that will produce a net output of 75MW of electricity. It is requested to have a maximum **allowance in the EA of 5m** due to emerging changes in technology.
- The tracking (tracking of the sun) system will **either** be a fixed system or a tracker system. The PV panels will be mounted on either a single axis (one motor) or a dual axis (two motors) tracking system that will use sun sensors to follow the movements of the sun.
- PV Solar panels are proposed in a west-east orientation in order to maximise energy received from the sun.
- The PV solar panels will more than likely be mounted to the ground in small concrete foundation blocks but the mounting structure choice will be influenced by the pricing and technology at the time of construction. Mounting will **either** be concrete foundation blocks or a deep seated screw system;
- Internal roads (minor gravel roads in order to access the panels, clean the panels, install the panels and maintain the panels);
- Inverters;
- Wiring to central inverter, the inverter is a pulse width mode inverter that converts DC current to AC current at grid frequency. A 500kW inverter has a size of approximately 3m x 2.5m x 1m. Output voltage is 480Vac;
- Small internal substation (88kv/33kv) to link to the Eskom 132kv Zeerust substation will be built on site.
- A 22 kV power line is proposed to link the internal substation to the Zeerust substation;
- Trenching – all DC and AC wiring within the PV plant will be buried underground;
- Equipment and material storage & laydown area;
- Water storage tanks;
- Sub-contractor site camps (5-10 sub-contractors for a renewable energy facility);
- Workshops and Offices;
- Ablution area;
- Waste Recycling Area;
- A palisade security fence around the solar park with a guarded security point; and
- Gravel and topsoil stockpiles.

A petrol generator will be acquired and used for all electrical needs during construction. In the construction phase of the development the solar panels will be delivered to the site either by truck or by train because the Zeerust Train Station is only 4 km away.

Vegetation (trees) that needs to be will be replanted elsewhere on site (botanist to confirm if trees are transplantable or not and if a 'search and rescue' operation is feasible). The land is currently zoned for agricultural use. It is not proposed to change the land use zoning of the site. A consent use (special use) application (temporary rights) will be submitted to the local municipality. The proposed activity only has a lifespan of 25 years, after which the land may be use for agricultural activities once again.

The figure below shows an example of the proposed "trenching" required to install the various cables underground and an example of the types of offices (could be approximately 10 -20 containers in total) proposed to be utilised by the various sub-contractors that will be on

site. These types of containers are also proposed to store materials on site.


Figure 7 (a & b): The figure on the left shows the proposed cable trenching and the figure on the right shows the types of temporary offices proposed.

2.2.2 Equipment & Material Storage Area

A relatively large equipment and material storage area (approximately 5Ha) including offices and workshops) is proposed during the construction of the facility that may be considerably reduced during the operation phase once all of the material has been used during construction. Materials that are proposed to be stored include a large quantity of cables, PV panels in boxes, plastic cable tubing (cables will be placed inside tubes) and a large variety of other minor parts required to install and erect the Solar PV Panels (including mounting structures). The photographs below are examples, taken at the Letsasti Solar Facility near Bloemfontein, of what the material and equipment storage areas are proposed to look like.

Figure 8 (a & b): Figure A shows an example of the storage of a PV Solar Panels once taken out of the box packaging. Figure B shows an example of the storage of cables

Figure 9: Shows an example of what the material storage area is proposed to look like.

Figure 10 (a & b): An example of the kind of plastic tubing for the cabling that is proposed to be stored and another example of a material storage area (figure B).

2.2.3 Solid Waste Management

Numerous solid waste streams will be produced as part of this proposed solar photovoltaic facility due to the various materials and products that need to be packaged and transported to this site. A waste recycling and storage area (approximately 1Ha) is therefore vital to be included as part of the solar facility development. Waste that will be produced on site includes metal waste, cabling, plastic tubing, cardboard, saw dust, plastic, wood, green waste (chopping down trees and brush cutting grasses) and domestic waste. Domestic waste will be generated from the employees on site during construction and the employees on site during operation. All workers will be transported to site on a daily basis and no workers will be housed on site. Waste storage and disposal will be addressed in the Construction & Operation EMP. Waste skips (as per the figure below) will be located on site (in the waste storage and recycling zone, adjacent to the material storage zone) during the construction and operation phase and they will be emptied on a regular basis (recycled) when they become full.

Roughly ten - fifteen chemical toilets will also be located on site during construction and

roughly 3 - 5 during the operation of the facility. These chemical toilets will be serviced and emptied on a weekly basis by a private contractor. The sewage will be transported to a nearby Waste Water Treatment Works for disposal and treatment.

Please refer to the figures **below as an example of how waste is proposed to be stored** and recycled on this site. These Figures where taken at the Letsasti Solar Facility, during construction of the facility, near Bloemfontein.

Figure 11: It is proposed to separate waste at source (to be recycled) and store it on site as per the image above that shows general waste, cardboard and plastic storage skips.

Figure 12 (a & b): Metal waste and saw dust and wooden pallets will also be a waste product that will require storage for recycling. Saw dust bags are used inside the boxes of panels during shipping to protect the solar panels. Wooden pallets (seen in figure above) are used to secure the products.

2.2.4 Water Requirements

The proposed PV Solar facility requires water in order to clean the solar panels. The project requires 8 litres of water per panel (module) per annum, outside of existing rainfall. At least ten 10 000 litre capacity tanks will be placed on site in order to store 100 000 litres of water at any given time. The water distribution system will distribute water from the ten 10 000 litre

water tanks to a high pressure hose and on to the solar panels. This proposed activity is not a "water intensive" activity. Only a limited amount of water is required in low rainfall periods to clean the modules so that they can operate at maximum capacity. It is estimated that for every cleaning session 18 tankers of water will be required (30 000 litre tankers).

Please refer to the non-binding confirmation of water use received from the National Department of Water Affairs attached under Annexure B, Appendix 7. It is proposed to abstract 1342m^3 of water per annum during the construction phase of the development and a further 671m^3 per annum during the operational phase from groundwater resources located on Portion 15 of Kameeldoorn 271 JP (Area B). The DWA are please to confirm whether they are going to issue the client with a General Authorisation for this water use registration in addition to a General Authorisation for construction activities that are proposed to take place within 500m from a National wetland (preferred) or if a Water Use License Application is proposed to be submitted.

2.2.5 Mounting of Panels

Two mounting system alternatives have been considered, namely a deep seated screw system and a small concrete foundation block. The impacts on agricultural resources and production of these two alternatives are considered equal, although the concrete option will require greater inputs during decommissioning in order to remove the concrete from the soil. The soil specialist should comment on whether or not a deep seated screw mounting system is feasible under the prevailing soil conditions. Due to the fact that impacts on agricultural resources of the two alternatives are considered equal (to be confirmed by soil specialist), it is likely that the panels will be mounted in a small concrete foundation block. Foundation holes will be mechanically excavated to a depth of about 30cm – 50cm. The concrete foundation will be poured and be left for up to a week to cure. Mounting structure choice will however be influenced by the technology advancement and pricing and this should therefore not be defined in the EA.

2.2.6 Proposed Decommissioning

The life span of a solar facility is 25 years. It is the intention of RE Capital 2 (Pty) Ltd to return the land back to its original state. Natural grasses will return and grazing activities may continue to take place. The modules will all be recycled at appropriate facilities and the concrete foundations will be removed and disposed of at a licensed landfill facility.

2.2.7 Zoning

The land is currently zoned for agricultural use. It is not proposed to change the land use zoning of the site. A consent use (special use) application (temporary rights) will be submitted to the local municipality. The proposed activity only has a lifespan of 25 years, after which the land may be used for agricultural activities once again. The agricultural land will therefore not be "lost" because the zoning of the land is not intended to change. Only temporary rights (consent use) will be applied for to use this land for a period of 25 years as a renewable energy facility.

2.2.8 Site Access

Please refer to the rough draft site plan (more detailed one will be available at a later stage) in Annexure A. Access to Area B and C is proposed from Lange Street from the substation location and not from the R49 National Road. The access roads will however need to accommodate trucks and may need to be upgraded (re-enforced with gravel). It is proposed to build internal roads and an access road to the site with a gravel base.

An existing gravel road is located on the southern boundary of Area B & C that will be used. The site access will be clearly demarcated in a detailed site plan that will be submitted as part of the Draft EIA. A land surveyor is currently surveying the site.

3. Alternatives

"Alternatives", in relation to a proposed activity, means different means of meeting the general purposes and requirements of the activity, which may include alternatives to –

(a) the property on which, or location where, it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

3.1 Location Alternatives

Area A, B and C, as per Figure 2 at the beginning of this Report, were the initial proposed sites put forward for assessment. It was however determined based on site visits in the planning stage of this proposed development that there may be archaeological and heritage sites of conservation significance in these three areas that may potentially become fatal flaws for developing these three sites. It was therefore determined that a Scoping –Phase HIA (Phase 1) should be undertaken in order to determine any fatal flaws. The Integrated Heritage Impact Assessment (Annexure E) concluded that there are 6 sites of medium – high archaeological importance (stone walled sites) on Area A mostly on the outcrop on the hill area in the middle of Area A that cannot be disturbed and that should be fenced in and they should form part of a Heritage Management Plan. It is therefore, in-effect, unfeasible to construct solar panels in this middle area due to the hilly surface, rock outcrops and sites of archaeological importance that cannot be disturbed. Only a portion on the north of Area A and a portion on the south of Area A are feasible areas (they may be put forward for a 5MW Facility in a separate EIA Process in the future). It was therefore decided to exclude Area A from the proposed site going forward into the EIA Phase of this propose 75MW development. Only two sites (site 12 & 13 in the HIA Figure 19) of conservation significance were identified on Area B and Area C. These sites will simply be fenced within the development and regarded as no-go zones. Detailed specialist assessments will now therefore be undertaken on Area B and Area C only and areas of low, low – medium, medium, medium -high and high environmental sensitivity will be mapped by each individual specialist.

Another location alternative was also originally considered in the pre-application planning phase, on the other site of the R49 National Road. This alternative option was later however deemed to be technically unfeasible due to the fact that it is the furthest from the substation and on the other side of the road. The cost associated with this alternative was deemed to be unfeasibly high so this alternative was not taken forward for comparative assessment and it will not be assessed further by the specialists.

3.2 Technology Alternatives

Two technology alternatives have been considered fore this application, as follows:

Technology Alternative T1 – Concentrated Photovoltaic Solar Farm (CPV)

CPV technology differs from conventional photovoltaic systems (PV), in that the CPV

Modules use different solar cells and include lenses which focus light energy in a more concentrated manner, hence harvesting more energy from the sun. The efficiency of the cells used provides benefits relating to capacity per module and reduced spatial requirements. CPV technology systems are much higher, thereby using less space, with the system reaching a maximum height of approximately 10m. CPV systems are generally used for large scale projects such as this one. Concentrated Solar Power generates solar thermal energy, or heat. This is done using series of mirrors in order to concentrate a large amount of solar energy into a small space. Unlike electricity, heat is quite easy to store in comparison with electricity. This heat is used to power a turbine or engine, which in turn produces electricity. CPV Installations require a large amount of water for cooling, unlike PV panels which only require water for cleaning purposes. By using CPV technology the impact on the environment will be greater largely due to the volumes of water that will be required to be trucked in on a regular basis and the 10m height of the modules. PV is also relatively easier to construct opposed to CPV.

Figure 13 (a & b): An example (from a different site) of a CPV Solar System (tower and high water requirements)

Technology Alternative T2 – Photovoltaic Solar Farm (PV) – The preferred and proposed alternative

Photovoltaic Solar Power is solar energy which is converted into electricity using photovoltaic solar cells. This is done through the use of specialized machinery. Semiconductors only conduct electricity when exposed to light or heat (as opposed to conductors, which always conduct electricity and insulators which never conduct electricity). The captured light moves along a circuit from positive-type semiconductors to negative-type semiconductors in order to create electric voltage. Power is collected through a structure comprised of many solar cells, usually a Solar Power Panel (also called a PV Module). PV Modules / Solar Panels can be combined into an "array" of panels in order to capture a greater amount of solar energy. Photovoltaic (PV) solar panels can either be fixed (rows of tables) or they can be constructed on a double axis tracking system. The fixed tilt solar technology (table installation) is the less expensive option but it has a much lower energy yield than the double axis tracking system (free standing panel installation). With the double axis tracking system technology the sun can be tracked on more than one axis allowing for maximum radiation over the entire solar module. The tracking (tracking of the sun) system will either be a fixed system or a tracker system. The PV panels will be mounted on either a single axis (one motor) or a dual axis (two motors) tracking system that will use sun sensors to follow the movements of the sun.

Figure 14 (a & b): An Example (from different sites) of a Photovoltaic Solar Farm (PV) – Double Axis Tracking System on Right (free standing panel installation), Single Axis Tracking System (five row table installation) on Left.

3.3. Power Line Route Alternatives

Two alternatives are proposed for the route of the 22Kv power line that is proposed between the new 88/33Kv internal substation to be constructed and the existing 132Kv substation at Zeerust as per Figure 15 below. This has been roughly draw at this stage and will be accurately drawn on the proposed site layout plan once the existing powerlines have also been surveyed and potted. Both power line alternatives are proposed above ground because of the high cost and disturbance to the environment (soil and vegetation) if installing it underground in this area.

- **Alternative 1:** The absolutely shortest distance from the Eskom substation to the proposed facility. All infrastructure (the solar facility and the power line) will be at least 100m away from the closest informal house and 20m outside of the Eskom servitude where the existing 132kv power lines are existing.

- **Alternative 2:** Installing the power line 20m outside of the existing power line servitude (either on the east or the west of the power line but east is preferred because it is closer to the substation which means less cabling and lower cost.

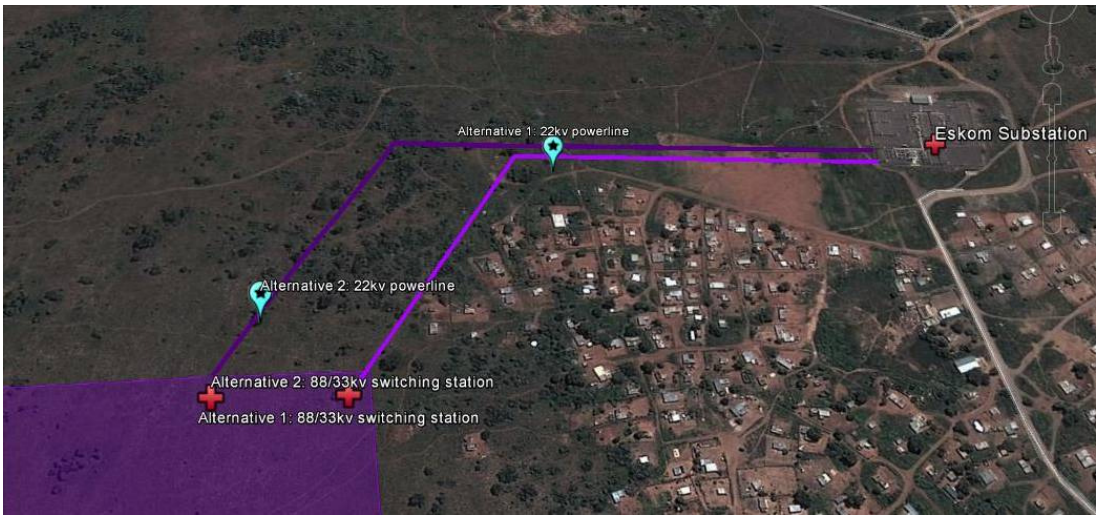

Figure 15: Rough drawing of the proposed two power line route alternatives

3.4 No-Go Alternative

The "No Go" alternative is the option of not constructing the PV Solar farm. Should this alternative be selected the site will more than likely remain as it is and be used for the grazing cattle. The soil characteristics on this site are not suitable for cultivation so this land can only be used either for grazing or for other housing development. If a renewable energy facility is not established on this site the positive socio economic (jobs) and environmental (alternative energy) benefits of this proposed renewable energy facility will not be achieved. The owners of the farm will then continue their current farming activities (grazing only) which does not produce high yield or profits. The no-go alternative will have zero negative impact on agricultural resources and production but will also not have the beneficial impact of additional farm income and the additional jobs that will be created if the project did go ahead.

The "no-go" alternative will however result in the visual environment staying the same with the natural character of the area contributing to the "sense of place". If the development proposal is not authorised most of the vegetation in the current natural parts will remain largely in tact which is clearly a positive factor.

4. The Affected Environment

4.1 Climate

Zeerust normally receives about 439mm of rain per year, with most rainfall occurring mainly during mid summer. It receives the lowest rainfall (0mm) in June and the highest (83mm) in January. The average midday temperatures for Zeerust range from 19.4°C in June to 30.8°C in January. The region is the coldest during July when the mercury drops to 0.6°C on average during the night.

4.2 Soil & Agriculture

A Soil Assessment Baseline Scoping Assessment was conducted by Mr. JH Venter who is an Agricultural Scientist (Hons degree) in Pasture Science. His Assessment only covered Area A (now excluded from this proposed site) for this activity and it also briefly considered another area across the road but this area (the area across the R49 road – east) is no longer being assessed as part of this EIA. It is however assumed that the soil potential findings on Area A will be similar to the soil potential findings on Area B & C. Mr. Venters Assessment of Site A (8 areas hand augered and sampled) concluded that the soil is very shallow in most of the surface area. The "koppie" located on Area A takes up 50% of Area A and the soil here is also very shallow. The deeper soil towards the railway line can be classified as Valsrivier soil type with non calcareous A and B horizons. The field test conducted indicated that the clay content can be between 25% and 30%. He is of the opinion that Area A can only be used for natural grazing for livestock due to the fact that the land is not suitable for irrigation land or dry lands. This land is not suitable for cultivation due to very shallow soils and rocky structure of the profile. In order for land to be suitable for irrigation the soil depth must be at least 1200mm with a clay percentage under 25% and the soil must be able to drain effectively. The soil depths of all 8 soil samples ranged between 0cm and 45cm (450mm) so this site is not suitable for cultivation and can only be used for grazing.

We can therefore conclude that the agricultural potential of the Area A is therefore Low and the impact to the soil is deemed to be Low. It is very likely that Area B and Area C have very similar results as to those obtained in Area A.

A detailed soil assessment will form part of the Draft EIA that will include Area B and Area C.

4.3 Flora & Fauna

The Vegetation located on Area A and on the majority of Area B is Zeerust Thornveld. This vegetation type is distributed from the Lobatsi River in the west via Zeerust, Groot Marico and Mabaalstad to the flats between the Pilanesberg and western end of the Magaliesberg in the east. This vegetation is found in altitudes ranging from 1000m – 1250m above sea level. Zeerust Thornveld is deciduous, open to dense, short and thorny woodland species dominated by *Acacias* with a herbaceous layer of mainly grasses on clay soils and also on and between rocky ridges. As can be seen from Figure 7 below, Zeerust Thornveld is LEAST THREATENED with a target of conservation of 19%. Less than 4% of this vegetation type is currently conserved in four different reserves. 16% of this vegetation type has been transformed due to cultivation. Erosion in areas where this vegetation grows is very low.

The vegetation type found on some of Area B and the whole of Area C, is Moot Plains Bushveld. This area has been mapped by SANBI and being a CBA 1 Area (to be confirmed on the ground due to inaccuracy of mapping). Moot Plains Bushveld is an open to

closed, often thorny Savanna dominated by various species of *Acacia* in the bottom valleys and plains as well as woodlands of varying height and density on the lower hillsides. Grasses also dominate the herbaceous layer. Moot Plains Bushveld has a VULNERABLE status. It has a conservation target of 19% and about 13% of it is currently conserved.

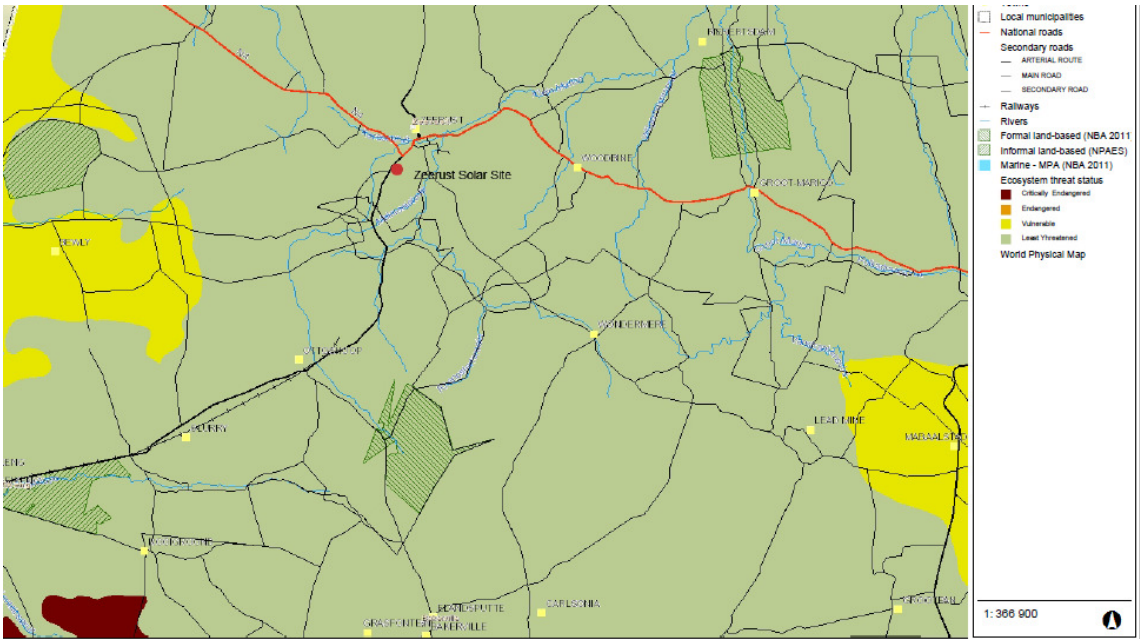

Figure 16: Ecosystem Status Map

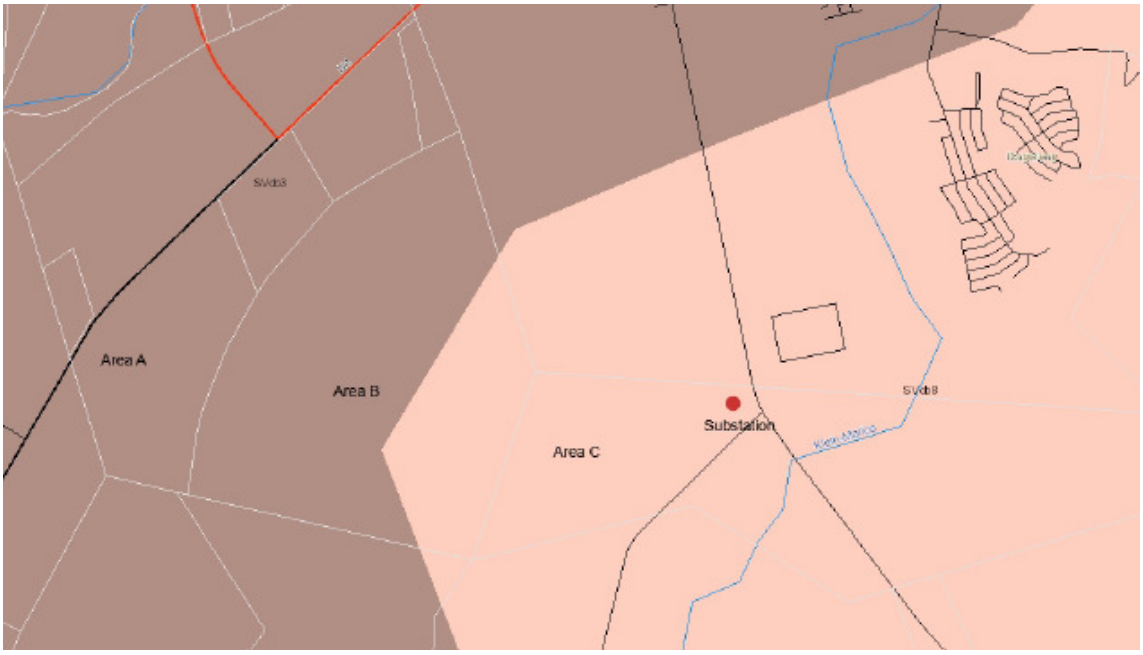

Figure 17: The Vegetation Types on Site (Zeerust Thornveld and Moot Plains Bushveld)

4.4 Water Resources

The Klein Marico River is located west of the site (can be seen in the images above). If you refer to the Topocadastral image it is evident that a drainage channel flows from south to north, with intermittent seasonal valley bottom wetlands (two shown on map). This drainage channel will eventually lead to the Klein Marico River further north. The proposed site has excluded these two watercourses and their associated drainage channel and the proposed site will take into account an appropriate 20m buffer zone from these seasonal watercourses.

The proposed site is located within the Crocodile (west) Marico Water Management Area. The Crocodile (West) Marico Water Management Area (WMA) lies primarily within the North West Province with parts of it in the northern region of Gauteng and the southwestern corner of the Limpopo Province. Along the north-western side, the WMA borders on Botswana.The Crocodile and Marico rivers are the two main rivers in this WMA, which at their confluence forms the Limpopo River that flows eastwards to the Indian Ocean. The Limpopo River is an international river that is shared by Botswana, Zimbabwe and Mozambique. The headwaters of the west flowing Molopo River, a tributary of the Orange River, also forms part of the WMA.

This site is located in the Marico sub-management area. The Marico sub-management area corresponds to the catchment of the Marico River. Main tributaries of the Marico River include the Klein and Groot Marico rivers. This sub-area forms the western part of the WMA. Major dams in this sub-catchment are the Marico-Bosveld Dam in the upper catchment and the Molatedi Dam further downstream. The town of Zeerust is found in this sub-management area with smaller settlements scattered throughout. The upper reaches of this catchment are not densely populated. The overall ecosystem status of the Klein Marico sub-management area is FAIR primarily due to the presence of the Klein Maricopoort Dam and the Kromellenboog dams. Both dams impact on the levels of water in the river and natural sedimentation patterns. The Riparian Zone Habitat Integrity is GOOD primarily because of the low levels of development in the area. At Oopgenoeg and Nahoek water abstraction has resulted in some wetlands drying up. The Riparian Vegetation Integrity is FAIR due to the presence of alien vegetation and the removal of some vegetation for agriculture. Fish Assemblage Integrity is POOR, only the most hardy of species are present due to reduced flows and localised poor water quality. The Macro-invertebrate Integrity is POOR due to the impact of the dams on water flow but primarily due to the impacts of reduced water quality especially near the town of Zeerust. The Water Quality in general is FAIR. Flows have intermediate levels of nutrients and there is some evidence of organic pollution.

4.5 Archaeology & Heritage

A baseline Archaeological Scoping Study (Phase 1 Heritage Assessment) was undertaken in July 2012 (Area A only) and updated in October 2013 (to include Areas B & C) Mr. A.J Pelser. He explained that Area A has been disturbed in the past by the construction of the railway, power lines and agricultural activities. Large sections of Area A do however remain undisturbed. A number of Late Iron Age features and sites, such as stone-walled remains, were identified and recorded. Seven (7) areas of archaeological significance were recorded on Area A, 2 of which lie just outside the proposed Area A. Please see the figure below, extracted from the HIA Integrated Report compiled in 2013. The Late Iron Age stone walled sites and features found at site 3 – 6 are all located on the side of a "small koppie" where outcrops are located. Mr. Pelser stated in his report that sites 1-6 are of Medium to High cultural significance. These areas should be fenced off and they should form part of a Heritage Management Plan. Site 7 was noted to be of a low heritage significance but this site should also be avoided. It was also noted in the baseline study that there could very well

be a subterranean presence of archaeological or historical sites (including graves).

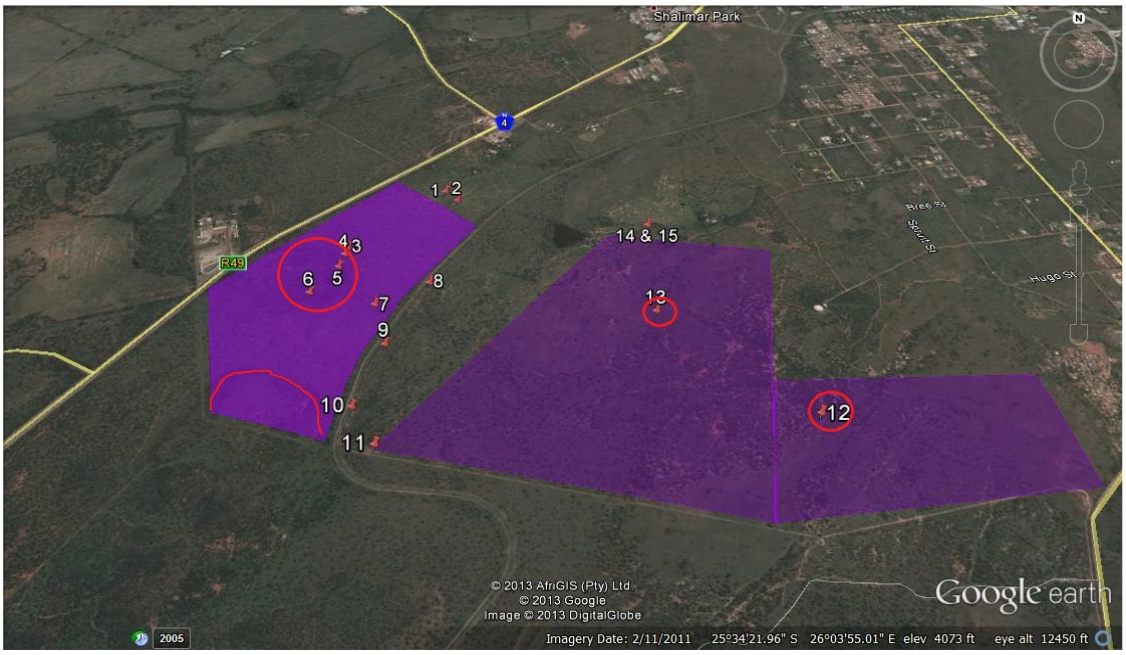

Figure 18: The sites of Archaeological significance on Area A, Area B and Area C (red circles indicated NO –GO Zones by the archaeologist.

Only 4 sites of archaeological significance were recorded on and adjacent to Area B and Area C, two of which are actually outside the proposed site border (15 & 15 as shown above). The two sites of archaeological significance (12 & 13) will be fenced in and regarded as no-go zones within the development. A Heritage Management Plan will be compiled for sites 12 – 15.

4.6 Socio Economic Environment

The 2011 Census data on Statistics South Africa states that the population of the Ramotshere Moiloa Local Municipality (formerly the Zeerust Local Municipality) is 842 699, with a population growth rate of 1% per annum. This Municipality has a very high unemployment rate of 33.7%. The main languages of Zeerust are Tswana (28.2%) and Afrikaans (55.1%). There are large cattle ranches in the area, as well as wheat, maize, tobacco and citrus fruit farms. There are also fluoriteand chromite mines in the vicinity. Tourism is also a developing industry.

Due to the very limited information available, other than that indicated in the paragraph above, we have included the District Municipality Socio Economic Profile here.

According to the Ngaka Modiri Molema District Municipality IDP (2010 / 2011) the district municipality has a total of 554,668 people living under the minimum living income, which is equivalent to 29% of the total number of minimum living income earners in the North-West province, thus, making it the district with the most underprivileged people in the NW Province. 33% of the minimum level income earners are in the Mafikeng Local Municipality, thus making it the Local Municipality with the largest underprivileged population. In comparison, 9% of below minimum living income earners are found in the Ratlou Local Municipality, making it the region with the least underprivileged population segment both in percentage and numbers. The biggest housing backlog is in the Ditsobotla Local Municipality. The Ngaka Modiri Molema District Municipality has a total of 157,036 unemployed people, which is

equivalent to 23% of the total number of unemployed people in the North-West province. The Mafikeng Local Municipality and the Ditsobotla Local Municipality are the regions with the highest number of people that have access to basic services. The Mafikeng Local Municipality has an unemployment figure of 38%. Making it the area with the largest unemployment figure in the district.11% of the unemployed people is located in the Tswaing Local Municipality, making it the region with the lowest unemployment figure.

A further characteristic is that less than 2.5% of the total population in the NMMDM has not received any form of tertiary education. According to the 2007 household survey a large number of people in the NMMDM area have not received any form of post-matric training or qualification. The highest levels of illiteracy are prevalent in the Ratlou Local Municipality where more than 31% of the population older than 5 years of age has not received any form of schooling. The comparative figure of the Ramotshere Moiloa and Tswaing Local Municipalities is approximately 27%, in the case of Ditsobotla, 24% and in Mafikeng roughly 20%. According to StatsSA (2005) this trend is further emphasized by the fact that the Ratlou and Tswaing Local Municipalities are the areas with the highest concentration of population who have only completed some primary education (approximately 30% of the total population is older than 5 years). The highest spatial concentration of education and skills levels is clearly in the Mafikeng Local Municipality area. It has the highest concentration of people who have completed their school education (approximately 10%) as well as those with some form of high education (approximately 3%). The proportion of population in the Ratlou Local Municipality with higher education is less than 1%.

5. Project Need and Desirability

Table 3: Need and Desirability

ID	Question	Motivation
1.	Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved Spatial Development Framework (SDF) agreed to by the relevant environmental authority?	Only Mafikeng municipality (within the District Municipalities) prepared and submitted a Spatial Development Framework with its IDP. Other municipalities were unable due to lack of capacity with regard to appropriate materials (spatial data). The site is mapped as Agriculture and it is located just outside the Zeerust City Centre. This is one of the most logical places for a solar power facility in the North West Province. It is located next to a railway line and the soil conditions are poor for farming making it an ideal site. The site is also located very nearby the N4 National Road which is a major transport corridor so materials will be able to get to the site either my train or by truck relatively easily.
2.	Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?	No. only 1 operational job is expected for every 5 MW. Therefore approximately 15 permanent jobs will be created for the local community who will be trained to operate this facility. During construction 5 operational jobs are expected for every 5MW so approximately 75 jobs will be created during the construction phase.
3.	Does the community/area need the activity and the associated land use concerned (is it a societal priority)?	Yes, the proposed renewable energy, PV Solar Facility, is not only a national and global priority but it is also a societal priority. The towns nearby all act as major hubs for both farming and mining hence, secure electricity supply is critical. The closer the source of energy (this renewable power facility) the better given that any 'black out' will not effect these towns. During the sunshine hours of the day, RE Capital can stimulate the energy demand in these towns, which in an inverse way holds great value and benefits to the people and business community.
4.	Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?	A limited amount of water will be required for cleaning purposes that is proposed to be abstracted from a borehole on the property. It is not expected that the proposed development will have

5.	Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality?	
6.	Is this project part of a national programme to address an issue of national concern or importance?	The present global trend towards renewable energy which is largely based on initiatives to reduce the dependency on fossil fuels, the emission of greenhouse gases and their impacts on climate change. South Africa has made a commitment to the promotion of renewable energy in the Johannesburg Declaration as part of the Johannesburg World Summit on Sustainable Development in 2002. Furthermore, South Africa has already ratified the United Nations Framework Convention on Climate Change (1992) and the Kyoto Protocol (1997), which creates international incentives to invest in emission reduction projects in developing countries such as South Africa. More recently, South Africa has submitted an emission mitigation pledge to the UNFCCC under the Copenhagen Accord (2009) which sets out emission reduction targets.
7.	Is the development the best practicable environmental option for this land/site? (The "best practicable environmental option" means the option that provides the most benefit and causes the least damage to the environment as a whole.)	Yes, location factors definitely do favour this proposed land use. The agricultural potential of this location is not favourable due to the fact that the area has very thin soil profiles and high clay percentages. The existing Zeerust substation, adjacent to the proposed activity is favourable in terms of geotechnical considerations and the fact that the substation and transmission towers already pose a visual intrusion in the landscape. In addition, the vegetation on this site is not of great significance.
8.	Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF as agreed to by the relevant authorities?	No.
9.	Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?	No.
10.	Do location factors favour this land use (associated with the activity applied for) at this place?	Please refer to comment no 7 above.

11.	How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	The site does have significant cultural and archaeological conservation areas that will not be disturbed (only two areas on this site). The ecosystem status of the vegetation on the site is LEAST THREATENED and VULNERABLE and it is therefore not regarded as being a sensitive environment. A 20m buffer zone will be provided from the wetland AND associated watercourse located adjacent to the site boundary (west). This drainage line flows away from the site, in a northerly direction. Area C (and a small part of Area B) has however been mapped by SANBI as a CBA 1 zone. It is however unclear why this area has been mapped as such given the status of the vegetation. This is to be confirmed in a Botanical Specialist Study. The Provincial authority (DEDET) must also comment on this.
12.	How will the development impact on people's health and wellbeing (e.g. in terms of noise, odours, visual character and sense of place, etc)?	No impact is expected to take place in terms of noise or odours (except very low noise during temporary construction phase). The proposed activity will have a visual impact but the impact will be of a very low significance because there are no nearby towns. The visual impact in terms of people's health and well being is therefore regarded as being low.
13.	Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?	No, this site is only being used for the grazing of livestock and not much profit is being obtained from this area, if any.
14.	Will the proposed land use result in unacceptable cumulative impacts?	No.

6. Public Participation Process

The Public Participation Process (PPP) forms an integral component of the EIA process and is designed to raise awareness around the proposal, provide I&APs with sufficient information and an opportunity to express concerns and exchange information. The PPP aids in identifying alternatives, as well as issues and concerns regarding the proposed project at an early stage. The objectives and details of the PPP followed are outlined below and are consistent with GN R543, Regulation 54 and guided by the DEA&DP (2010) Guideline on Public Participation.

6.1 Consultation with Authorities

6.1.1 Phase 1 Public Participation: Background Information Document Distribution (21 days)

The Background Information Document (BID), in hardcopy, in English and in Afrikaans, was posted to the following authorities and / or authoritative institutions that were provided with 21 days to register as I & AP's and to provide their initial comment:

- BirdLife South Africa;
- Ramotshere Moiloa Local Municipality
- Ngaka Modiri Molema District Municipality
- North West Government (DEDECT)
- National Department of Agriculture Forestry and Fisheries (DAFF)
- North West Regional Department of Water Affairs
- Civil Aviation Authority
- Wildlife and Environmental Society of South Africa
- North West – Department of Agriculture and Rural Development
- North West – Public Works, Road and Transport (DPWRT)
- SAHRA – North West
- Transnet
- Department of Environmental Affairs (DEA) – Biodiversity and Conservation Directorate
- South African National Biodiversity Institute
- North West - Department: Human Settlements, Public Safety & Laison

The only Authority that provided their comments on the initial 21 day BID circulation stage was SAHRA. They re-affirmed the importance of possible burial grounds and the significance of an Archaeological and Heritage Impact Assessment to be undertaken in the EIA Phase.

There was also concern from one of the adjacent landowners with regards to the boundaries of the proposed site being on their land.

The BID, and proof of the postage of the BID to all adjacent landowners is included in Annexure B, Appendix 2.

6.1.2 Phase 2 Public Participation: Draft Scoping Report Distribution (40 days)

The Draft Scoping Report was uploaded onto our website and was made available for a 40 day public and Authority commenting period from the 19th July 2013 – 30 August 2013.

Comment was received from the following Commenting Authorities:

- BirdLife South Africa;

- National Department of Water Affairs
- Civil Aviation Authority
- North West – Department of Agriculture and Rural Development
- SAHRA – North West
- Transnet
- Department of Environmental Affairs (DEA) – Biodiversity and Conservation Directorate
- SANRAL
- DAFF

There are therefore still vital comments required to be submitted from the two landowners, namely, Johannes Keulder and The Local Municipality, as well as more detailed comment from key I & AP's such as DAFF, BirdLife SA, the District Municipality and the North West Provincial Department (DEDECT).

6.2 Identification and Communication with Interested & Affected Parties (I & AP's)

A register of the identified I&APs has been opened and it will be maintained and updated throughout the process. It includes adjacent land-owners to the proposed site, organs of state that have jurisdiction on this type of proposed project, relevant district and local municipal officials, the municipal ward councilor and selected non-governmental organizations. Awareness around the project has therefore already been raised through:

- **Background Information Document (BID) Notification** (Appendix 2)- A BID notifying I&APs of the proposed activity and providing them with the opportunity to register as Interested & Affected Parties (I&AP's) and to provide any initial comments (21 day commenting period) they may have was posted to all individuals on the register on the 25th June 2013.
- **Site Poster** - A site poster (size A2) notifying I&APs of the proposed activity was displayed at the entrance gate to Area A as well as on the Zeerust Substation fence and at the local Zeerust Mall Notice Board. Proof of the placement of the site notice has been included in Appendix 3.
- **Newspaper Advertisement** - Newspaper advertisement, notifying I&APs of the proposed activity was placed in the Zeerust News on the 26th June 2013. Proof of publication of the advertisement has been included in Appendix 4.

Table 4: Register of Interested & Affected Parties

REGISTER OF INTERESTED AND AFFECTED PARTIES		
AUTHORITIES / COMPANY / PERSON	**CONTACT PERSON**	**POSTAL ADDRESS**
AUTHORITIES		
BirdLife South Africa	Dale Wright & Samantha Ralston	PO Box 515, Randburg, 2125 Tel: 011 7891122 **Fax: +27 (0)11 789 5188** Dale Cell: 072 562 3946 Email: westerncape@birdlife.org.za Email: advocacy@birdlife.org.za Samantha Email: energy@birdlife.org.za Mobile: 083 673 3948
Ramotshere Moiloa Local Municipality	Executive Secretary: Patricia Moumakwa Crosby Maema Neo Lemme	PO Box 92 Zeerust Cell: 076 435 9729 **Fax: 018 642 3886** Email: patriciamoumakwa@gmail.com crosby.maema@ramotshere.gov.za neo.lemme@ramotshere.gov.za
Ngaka Modiri Molema District Municipality	Cllr. K Paddy Mokotong	PO Box 550 Zeerust 2865 Tel: 018 381 9400 **Fax: 018 381 0561** Email: municipalmanager@nmmdm.gov.za
Department of Economic Development, Environment, Conservation and Tourism (DEDECT)	Ouma Skosana / Steven Mukhola	Cnr Provident & University Drive, Mmbatho 2735 **Fax: 011 389 5430** Email: OSkosana@nwpg.gov.za Tel: 018 389 5156 Email: SMukhola@nwpg.gov.za Tel: 018 389 5959
National Department of Agriculture Forestry and Fisheries (DAFF)	Dr N. Motete (Forestry and Natural Resources Management)	Private Bag x120 Pretoria 0001 Telephone no: 012 309 5718 Email:Nthabisengmo@daff.gov.za
National Department of Agriculture Forestry and Fisheries (DAFF)	Ms Mashudu Marubini (Delegate of the Minister) & Ms Thoko Buthelezi (Agriland Liaison)	Private Bag X120 Pretoria 0001 Fax: 012 329 5938 Email: MashuduMa@daff.gov.za Tel: 012 319 7619 Email: ThokoB@daff.gov.za Tel: 012 319 7634

National Department of Agriculture Forestry and Fisheries (DAFF)	Mr Andile Hawes (Policy, Planning and Monitoring and Evaluation)	Private Bag x120 Pretoria 0001 Tel: 012 319 6471 **Fax: 012 319 7001** Email:CPO@daff.gov.za
National Department of Agriculture Forestry and Fisheries (DAFF)	Directorate Land Use and Soil Management	Private Bag X120 Pretoria 0001 Tel: 012 319 7634 Fax: 012 329 5938 Email: nhlakad@daff.gov.za
North West Regional Department of Water Affairs	Mr. C Lobakeng Acting Chief Director: North West Wendy Ralekoa (Responsible Officer) M. Botha (Issuer of Non-binding letter) Takalani Khorombi (Provided comment)	Private Bag X5 MMABATHO 2735 Tel: 018 387 9547 / 9500 Cell: 082 875 4158 **Fax: 018 384 2095** Email: lobakengc@dwa.gov.za Email: ralekoaw@dwa.gov.za M Botha Private Bag X995 Pretoria 0001 Tel: 012 392 1308 Email: bothar@dwa.gov.za T Khorombi Tel: 018 387 9500 Email: Khorombit@dwa.gov.za
Civil Aviation Authority	Koos Pretorius / Lizelle Stroh	Private Bag X73 Halfway House 1685 Koos Pretorius Tel: 011 545 1066 Cell: 083 451 2657 Email: pretoriusk@caa.co.za Lizelle Stroh Tel: 011 545 1232 Cell: 083 461 6660 Email: lizellestroh@cca.co.za
Wildlife and Environmental Society of South Africa	Mr John Wesson (North West Regional Manager)	PO Box 435 Ferndale 2160 Tel (011) 462 5663 **Fax (011) 462 8364** Email info@wessanorth.co.za Email: ppretorius@wessanorth
North West – Department of Agriculture and Rural Development	Head of Department Dr. Poncho Mokaila	Private Bag X2039 Mmbatho 2735 Tel: 018 389 5146 / 5104 **Fax: 018 392 4377** Email: pmokaila@nwpg.gov.za Email: amafole@nwpg.gov.za

North West – Public Works, Road and Transport (DPWRT)	Mr van Wyk	Private Bag X2080 Mmbatho 2735 Tel: 018 388 1254 **Fax: 018 388 4547** Mr van Wyk Tel: 018 388 1391 Email: vanwykj@nwpg.gov.za
SAHRA – North West	Heritage Officer Itumeleng Masiteng	432 Paul Kruger Street Pretoria Tel: 012 320 8490 **Fax: 012 320 8486** Email: imasiteng@sahra.org.za
Transnet	Mr Richard Vallihu	P.O. Box 72501 Parkview South Africa 2122 Tel: 012 391 1301 Email: richard.vallihu@transnet.net
Department of Environmental Affairs (DEA) – Biodiversity and Conservation Directorate	Ms W Olivier	Private Bag X447 Pretoria 0001 South Africa Tel: +27 12 310 3314/5 Fax: +27 12 320 6620 **W. Olivier** Email: wolivier@environment.gov.za
South African National Biodiversity Institute	Mr. G. Smith	Private Bag X101 Pretoria 0001 South Africa Tel: 012 843 5187 Fax: 012 804 3211 Email: G.Smith@sanbi.org.za
SANRAL	Mr N Gomes Mr Klaus Schmid Dimitri Alben	**Mr Gomes** Private Bag X17 Lynwood Ridge 0040 Tel: 012 426 6219 Email: gomes@nra.co.za **Mr Schmid** Private Bag x17 Lynnwood Ridge 0040 Tel: 012 426 6247 Fax: 012 348 0883 Email: schmidk@nra.co.za **Dimitri Alben** Tel: 012 426 6203 Fax: 012 348 0883 Email: albend@nra.co.za

Eskom	Helen Bezuidenhout	PO Box 1091 Johannesburg 2001 Fax: 051 4042 627 Email: Helen.bezuidenhout@eskom.co.za
OTHER INTERESTED AND AFFECTED PARTIES (landowners and adjacent landowners)		
Johannes Keulder	RE/15/271 RE/31/271	P.O Box 325 Zeerust 2865 Cell: 083 950 6574
Maureen Scholtz	RE/277 2/277	P.O Box 6077 Mmbatho 2735 Email: mscholtz@mafonline.co.za
Mr. Willem Erasmus	RE/271 RE/48/271 RE/49/271 RE/44/271	P.O Box 596 Zeerust 2865 Cell: 083 654 9998 Tel: 018 642 5906 Email: werasmus@saol.com
Johann Theron	RE/272	P.O Box 479 Zeerust 2865 Cell: 082 874 8858 (Wife Rosemary) Email: kgosana@worldonline.co.za

6.3 Key Issues Identified by I & AP's during the "Scoping Phase"

Key Issues identified thus far include the following:

- The need to confirm from a botanist if any TOPS species or species that have a "protected species status" are located on site;
- The need to have a detailed site plan that must include the location of the watercourse and the wetlands and all the sites of archaeological significance with appropriate buffer areas from the watercourse (20m) and from the archaeological sites (5m buffer with a fence);
- The need to undertake a detailed soil assessment of the site;
- The need to confirm the proposed groundcover on site;
- The need to submit applications to the Civil Aviation Department;

SANRAL, the DEA (Biodiversity Department), Transnet and the DWA all indicated their support of the development and no fatal flaws were identified.

6.4 Opportunity for Public Review

This DSR & Plan of Study for EIA was made available on the SES website (www.sescc.net) for a 40 day review and commenting period. All adjacent landowners and identified I & AP's were contacted and notified of the availability of the DSR on our website and at our offices in Cape Town. The comments from I&APs were collated and responded to in a Comments and Response Report. This table has now been included in the Comments & Response Report (Annexure 2, Appendix 8) of the Final Scoping Report and Plan of Study (FSR & PoS)

for EIA. The FSR & PoS for EIA will now be made available for an additional 21 day review period before being submitted to the Competent Authorities for acceptance (DEA).

This Final Scoping Report will therefore be made available for public and Authority comment from the 7th November 2013 – 29th November 2013, after which it will be submitted to the DEA for decision making.

6.5 PPP During the Impact Assessment Phase

Once the FSR & PoS is submitted, specialist studies (if required by authorities in this case) are to commence as outlined in the PoSEIA. Public participation during the impact assessment phase of the EIA will revolve around a review of the findings of these studies as presented in the Draft Environmental Impact Report (EIR). The Draft EIR will be made available for a 40-day public commenting period and registered I&APs will be advised timeously of the availability of the report, how to obtain it, and the date and venue of an Open Meeting if required. I&APs will be encouraged to comment in writing (mail or email). All the comments raised during the comment period on the Draft EIR will be added to a Comments and Response Report that will accompany the Final EIR. The Final EIR will be made available for a final 21 day commenting period before it is submitted to Competent Authorities for a decision about the proposed project. All registered I&APs will be informed of the Competent Authorities' decision.

7. Identification of Key Impacts

Possible **negative impacts** that have been identified by the EAP and Interested & Affected Parties at this stage include the following:

- Change in land use character of the area;
- Loss indigenous vegetation;
- Impact on the movement and habitat of fauna (including birds) in the area;
- Impact on the visual aspects of the site;
- Loss of cultural heritage and archaeological finds on the site;
- Dust and erosion impacts as a result of the removal of grasses and vegetation;
- Pollution impacts as a result of the solid waste that will be produced on site;
- Soil impacts;
- Surface water impacts that the facility will have on the drainage line and the watercourse;
- Possibility of loss of protected species;

Positive Impacts that have been identified by the EAP and Interested Parties at this stage include the following:

- Socio - economic impacts due to job creation;
- Positive social impacts as energy security measures are put in place; and
- Renewable energy initiatives have a positive impact on air pollution (and predicted climate change impacts) as no fossil fuels are used for energy production;
- Skills development and job creation.

Due to the fact that the impacts listed above have been identified as possible impacts, the following specialist assessments will be conducted in order to identify the scale of the impacts, to reduce the negative impacts and to enhance the positive impacts:

- Fauna Specialist Assessment;
- Avi-faunal Specialist Assessment;
- Botanical Specialist Assessment;
- Phase 1 Heritage Specialist Assessment (including Palaeontology and Archaeology) – completed already;
- Visual Specialist Assessment; and
- Soil & Agricultural Potential Specialist Assessment.
- Freshwater Consultant Input (not a detailed assessment) - need to determine the boundaries of the high water mark of the drainage lines.

A Land Surveyor is also currently surveying the site so that detailed site plans can be produced and provided to the specialists listed above.

It also may be necessary for a Freshwater Consultant to delineate the National Wetland and associated drainage lines (leading away from the site, north, towards the wetland, that has been recorded on this site in order to determine the appropriate buffer area from the high water mark of the wetlands and the associated drainage lines (watercourses).

The specialist assessments listed above will be included in the Draft EIA Report that will be made available for a further 40 day commenting period.

8. Plan of Study for EIA (POSEIA)

This Plan of Study for the EIA is compiled in terms of Government Notice No R.543 of 18 June 2010 of the NEMA and its purpose is to ensure that the impact assessment phase of this EIA process satisfies the requirements of the NEMA. Accordingly, this Plan of Study for EIA outlines the tasks that will be undertaken and the anticipated process to meet the objectives for the EIA phase.

8.1 Anticipated Outcomes of the Impact Assessment Phase

The purpose of this phase is to provide or determine:

- An assessment of the environmental aspects likely to be affected by the proposed project;
- An assessment of the environmental aspects likely to be affected by any identified alternatives;
- An assessment of the extent, duration, intensity, probability and significance of the identified potential environmental impacts of the proposed project;
- A comparative assessment of the proposed land use and development alternatives in terms of their respective potential environmental impacts;
- Identify appropriate mitigation measures for each significant impact of the proposed project;
- Details of PPP followed during the course of the assessment and record of how the issues or impacts raised have been addressed;
- Identify gaps in knowledge and underlying assumptions or uncertainties encountered in compiling the required information;
- The adequacy of assessment methods,
- A description of the measures and procedures for monitoring and management of environmental impacts; and
- Technical and supporting information where available.

8.2 Tasks to be Undertaken

8.2.1 Authority Consultation

Consultation with the competent and commenting authorities identified during the scoping phase will continue throughout the duration of impact assessment phase. The authorities will also comment on whether they deem it necessary to conduct additional specialist assessments other than what is proposed already in this POSEIA.

It is vital that we still receive detailed comment from DAFF and the Local Municipality. Arrangements are currently in the pipeline to meet with the Local Municipality.

8.2.2 Project Description

Further technical and supporting information will be gathered to provide a more detailed project description. A detailed site layout plan will be compiled and submitted with the Draft BAR. Areas of the low, medium and high sensitivity will be indicated by the relevant specialist and the high areas of sensitivity will be avoided.

8.2.3 Impact Assessment

The following assessment methodology will be used by the Specialists that have been appointed. It has been adapted from the DEAT (2002) Information Series 5, Integrated Environmental Management Information Series on Impact Significance:

Table 5: Criteria for evaluation of impacts

Criteria	Rating	Description
Extent or spatial influence	High	Widespread. Beyond 10 km radius of site boundary. Regional /national /international scale.
	Medium	Local or within a 10 km radius of site
	Low	Site specific or within site boundary
Impact magnitude	High	Natural, social, or economic functions and activities of communities are severely disrupted to such an extent that these come to a halt. No mitigation measures are possible that could offset the impact, or mitigation is difficult, expensive, time-consuming or some combination of these. In the case of beneficial impacts, the impact is of a substantial order.
	Medium	Natural, social, or economic functions and activities of communities are disrupted, but can be continued (albeit in a different form). In the case of adverse impacts, mitigation is both feasible and fairly easily possible. Modification of the project design or alternative actions may be required. In the case of beneficial impacts, other means of achieving this benefit are about equal in time, cost and effort.
	Low	Natural, social, or economic functions and activities of communities are slightly altered. In the case of adverse impacts, mitigation is either easily achieved or little will be required. In the case of beneficial impacts, alternative means of achieving this benefit are likely to be easier, cheaper, more effective and less time-consuming.
	Very Low	Natural, social, or economic functions and activities of communities are negligibly altered. No mitigation is required.
	No Impact	Natural, social, or economic functions and activities of communities remain unaltered. Zero impact.
Duration	High (Long term)	Permanent Beyond decommissioning. Long term (More than 15 years)

Criteria	Rating	Description
	Medium (Medium term)	Reversible over time Lifespan of the project Medium term (5 - 15 years)
	Low (Short term)	Quickly reversible Less than the project lifespan Short term (0 - 5 years)

The significance of an impact can be considered as a combination of the above criteria and are derived in terms of the following definitions:

Table 6: Significance rating

Rating	Criteria combination
High	• High magnitude with a regional extent and long term duration • High magnitude with either a regional extent and medium term duration or a local extent and long term duration • Medium magnitude with a regional extent and long term duration
Medium	• High magnitude with a local extent and medium term duration • High magnitude with a regional extend and short term period or a site specific extent and long term duration • High magnitude with either a local extent and short term period duration or a site specific extent and medium term duration • Medium magnitude with any combination of extent and duration except site specific and short term period or regional and long term • Low magnitude with a regional extent and long term duration
Low	• High magnitude with a site specific extent and short term duration • Medium magnitude with a site specific extent and short term period duration • Low magnitude with any combination of extent and duration except site specific and short term period or regional and long term • Very low magnitude with a regional extent and long term duration
Very Low	• Low magnitude with a site specific extent and short term duration • Very low magnitude with any combination of extent and duration except regional and long term
Neutral	• Zero magnitude with any combination of extent and duration

The probability of the impact occurring is rated as set out below and the significance of an impact should always be considered in conjunction with said probability of the impact occurring.

Table 7: Probability of impact occurrence

Rating	Criteria combination
Definite:	More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.
Probable	Over 70% sure of a particular fact or of the likelihood of that impact occurring.
Possible	Only over 40% sure of a particular fact or of the likelihood of an impact occurring.
Improbable	Less than 40% sure of a particular fact or the likelihood of an impact occurring. No risk to public health.

8.2.4 Compilation of Environmental Impact Assessment Report

Based on the additional information and above assessment of impacts, a Draft EIR will be compiled to meet the content requirements as per regulation 31 of No. R. 543 under the NEMA Environmental Impact Assessment Regulations (18 June 2010) and will also include a draft Environmental Management Programme containing the aspects contemplated in regulation 33.

8.2.5 I & AP and Authority Review

The Draft EIA will be submitted to the Competent Authorities and then be made available in the public domain for review and comment for a 40 day period. Registered I&APs will be notified of the availability of this report by correspondence. Copies of the report will also be made available to commenting authorities for review and input.

The Final EIA will be made available for public comment for a further 21 days if significant changes are made to the report after the 40 day commenting period.

8.2.6 Authority Decision

On receipt of the final decision by the competent authorities, registered I&APs will be informed by correspondence of the decision and its associated terms and conditions.

8.3 Proposed Timeline

The proposed key activities and the provisional timetable required to achieve the objectives of the Environmental Impact Assessment process are summarized in Table 7-4 below.

It is expected to receive the detailed site plan by Wednesday 20th November 2013. The aim is also to complete the required specialist assessments this year before the start of the December holidays and before everyone goes on leave.

The specialist assessments will then form part of the Draft EIA (still to be compiled) that is planned to be made available for a 40 day public consultation period after the December holidays (no Public Participation is allowed within this period) from the 7th January 2013 until Monday 17th February 2013.

The Final EIA will then be made available for a final 21 days public and Authority Commenting Period from Monday 24th February 2013 – 18th March 2014.

We propose to submit the Final EIA for Authority decision making on the 21st March 2014.

The DEA have an absolute maximum time period before they issue the decision of 121 days once the Final EIA has been submitted.

As a worst case scenario we therefore expect to receive the Environmental Authorisation by no later than the 22nd July 2014 (too late this must be sooner in order to be safe for submission for next round). There is still a mandatory 21 day appeal phase once the EA has been issued.

The next round of BID's is expected to be submitted in early August so we please request that the DEA take this into consideration and try to reduce the amount of time they have to acknowledge reports, accept reports and to issue the EA, especially the 4 months that they have once the Final EIA has been issued.

In the spirit of co-operative governance, we hope to receive a decision on the proposed development by June 2014.

8.4 Terms of Reference for Specialist Studies

Specialists in their field of expertise will consider baseline data and identify and assess impacts according to predefined rating scales. Specialists will also suggest optional or essential ways in which to mitigate negative impacts and enhance positive impacts. Further, specialists will, where possible, take into consideration the cumulative effects associated with this and other projects which are either developed or in the process of being developed in the local area. The results of these specialist studies will be integrated into a Draft Environmental Impact Report. The Terms of Reference (ToR) proposed for the respective inputs are herewith presented below and stakeholders are encouraged to comment and provide input.

8.4.1 General Requirements

Specialists' reports must comply with Regulation 32 of Government Notice No. 543 published under sections 24(5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and whereby the following are to be included:

- The details and the expertise of the person who compiled the report;
- A declaration of the person's independence;
- An indication of the scope, the purpose and the audience for which the report was prepared;
- A description of the methodology employed in preparing the report or the carrying out the specialized process;
- A description of any assumptions made and any uncertainties or gaps in knowledge;
- A description of any consultation process that was undertaken during the course of carrying out the study as well as a summary and copies of any comments that were received during any consultation process;
- A description of the findings and the potential implications of such finding on the impact of the proposed activity, including all identified alternatives, on the environment;
- Recommendations in respect of any mitigation measures that should be considered by the applicant and the competent authority; and
- Any other information requested by the competent authority.

In addition to the above, specialists are expected to:

- Review the Scoping Report, with specific reference to the Comments and Response Report to familiarize with all relevant issues or concerns relevant to their field of expertise;
- In addition to the impacts listed in this Scoping Report, identify any issue or aspect that needs to be assessed and provide expert opinion on any issue in their field of expertise that they deem necessary in order to avoid potential detrimental impacts;
- Assess the degree and extent of impacts employing the criteria and methodology set out in this Scoping Report of all identified impacts and issues that the preferred project activity and its proposed alternatives, **including that of the no-go alternative**, may have;
- Identify and list all legislation and permit requirements that are relevant to the development proposal in context of the study;
- Reference all sources of information and literature consulted; and
- Include an executive summary to the report.

8.4.2 Expected deliverables

The specialist is expected to prepare a report that addresses the scope of the work as set out above. The report should be prepared in a suitable font (such as Arial 12) and submitted to *SES* in draft form. If accepted by SES and the client, 8 colour hard colour copies will be required by SES and one electronic copy in both word and pdf formats.

9. Findings and Recommendations

RE Capital 2 (Pty) Ltd propose to construct a a renewable energy, photovoltaic (PV) solar farm, a 22Kv overland powerline and a new internal substation on Portion 15 of the Farm 271 –JS (Area B) and on the Farm Kruisrivier No. 270 (Area C), Zeerust, North West Province. The proposed site is approximately 150Ha and it is "agricultural zoned" land currently being used for grazing. This Final Scoping Report has provided a description of the project and the manner in which it will affect the biophysical and socio-economic environment of the study area.

The objective of the scoping phase was to:

- Provide a comprehensive concept and a common understanding of the proposed project with the authorities and I&APs;
- Identify I&APs and notify them of the proposal, the alternatives considered and the EIA process;
- Identify any fatal flaws in development (such as developing Area A);
- Identify key issues and potential impacts associated with the proposed project.

The key results of the Scoping phase are as follows:

- Various alternatives have been screened and the preferred option identified;
- Positive and negative impacts have been anticipated. SES is however of the opinion that further detailed specialist impact assessments are required. If the authorities are of the opinion that additional specialist assessment is required (in addition to the ones listed here) they will indicate this in their comments on the Final Scoping Report.
- The Plan of Study (PoS) for the EIA describes the proposed way in which the impact assessment phase will progress. The aim of the assessment phase will be to ensure that the positive impacts are enhanced and the negative impacts are eliminated or mitigated where practically possible.
- The Scoping Phase has resulted in the identification of the following specialist studies:

    - Fauna Specialist Assessment;
    - Avi-faunal Specialist Assessment;
    - Botanical Specialist Assessment;
    - Phase 1 Heritage Specialist Assessment (including Palaeontology and Archaeology) – completed already;
    - Visual Specialist Assessment; and
    - Soil & Agricultural Potential Specialist Assessment.
    - Freshwater Consultant Input (not a detailed assessment) - need to determine the boundaries of the high water mark of the drainage lines.

A freshwater consultant may be appointed in order to establish the boundaries of the two wetlands on site that were not visible at the site assessment that was conducted in one of the driest months of the year.

A detailed site plan must be compiled once a Land Surveyor has surveyed the contours of the site (Area B & C) and the natural features on and surrounding the site must also be included in the site plan with buffer areas (20m from watercourse and 5m surrounding archaeological sites).

Based on the initial findings from the scoping phase, it is the opinion of the EAP that the proposed facility will not result in any fatal flaws in terms of the bio-physical and socio-economic environment.

The potential negative impacts identified during the Scoping Phase will be further assessed to ensure that these impacts are of low significance to the overall area or that these may be mitigated to acceptable levels.

Based on input received thus far in the EIA Process the Authorities and the public are in support of the development.