

**3.1 THE EIA PROCESS**

EIA is a systematic process that identifies and evaluates the potential impacts (positive and negative) that a proposed project may have on the bio-physical and socio-economic environment and identifies mitigation measures that need to be implemented in order to avoid, minimise or reduce negative impacts and enhance positive impacts. The overall EIA process required for developments in South Africa is shown schematically in *Figure 3.1*. The EIA is not fully a linear process, but one where several stages are carried out in parallel and where the assumptions and conclusions are revisited and modified as the project progresses. The following sections provide additional detail regarding the key stages in the EIA process. These stages are:

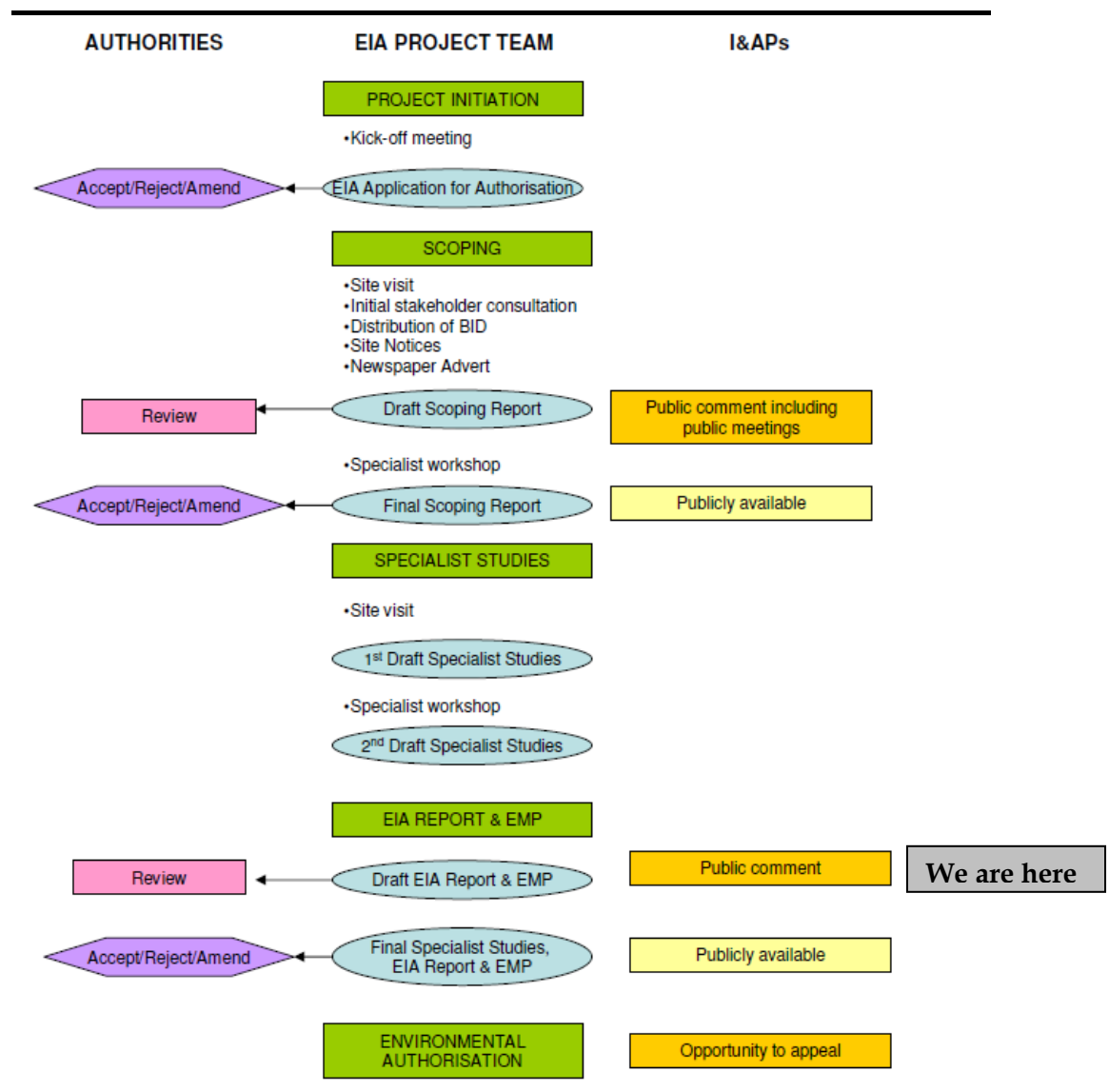
- project initiation;
- scoping study phase; and
- integration and assessment phase.

**3.2 PROJECT INITIATION PHASE**

The project initiation phase began with a project inception meeting followed by a review of available and relevant background information. Key activities during this phase of the project included the following:

- Submission of an EIA Application to DEA on 01 February 2011 and receipt of the DEA reference number (12/12/20/2170) for the project on 15 February 2011;
- An initial site visit by ERM on 07 March 2011;
- Compilation of a preliminary database of neighbouring landowners, authorities (local and provincial), Non-Governmental Organisations and other key stakeholders into a database of registered I&APs continues to be expanded during the ongoing EIA process; and
- Compilation of a Background Information Document (BID) for distribution to I&APs.

Figure 3.1 EIA Process Flow Diagram



### 3.2.1 Scoping Phase

Environmental scoping has several important functions aimed at facilitating decision-making. These include the following:

- providing a description of the proposed project and associated activities;
- reviewing existing information to gain an understanding of the baseline environmental conditions;
- identifying any gaps in information and uncertainties;
- investigating and screening of alternatives;
- obtaining input from I&APs about their issues and concerns;
- identifying and assessing potential environmental and social impacts associated with the project; and
- identifying potential mitigation and management measures.

Accordingly, the Scoping Report provided a detailed overview of the project, the associated Public Participation Process, and outlined the proposed EIA

methodology. It also included a preliminary identification and evaluation of potential impacts which was presented together with a Plan of Study for the EIA. The Draft Scoping Report was released for a 40 day public review period (26 June to 5 July 2011) prior to submission to the DEA. The Scoping Report was received by the DEA on 14 July 2011 and ERM received acceptance of the Scoping Report by the DEA on 28 July 2011 (*Annex D*).

### *Scoping Phase Public Participation*

The tasks relating to public participation during the Scoping Phase are summarised in *Table 3.1*.

**Table 3.1** *Public Participation Tasks: Scoping Phase*

<b>Activity</b>	<b>Description and Purpose</b>
Preparation of a preliminary stakeholder database	A preliminary database has been compiled of neighbouring landowners, authorities (local and provincial), Non-Governmental Organisations and other key stakeholders. This database of registered I&APs has been and will continue to be expanded during the EIA process.
Erection of site notices	On-site notices were placed at the site in 07 March 2011.
Newspaper advertisements published	The project was advertised in the <i>Die Gembok</i> (Afrikaans and English) on 18 March 2011. The advertisements informed the public of the project and requested them to register as I&APs if they would like to participate in the EIA process. I&APs that responded to the advertisements were included on the project database.
Distribution of a Background Information Document (BID)	A BID was compiled and distributed to I&APs. The purpose of the BID was to convey information on this project and to invited I&APs to register their interest in the project.
Release of the Draft Scoping Report for stakeholder comment	The Draft Scoping Report was released for a 40-day public and authority comment period (26 June to 5 July 2011). A notification letter was sent to all registered and identified I&APs to inform them of the release of the report and where the report could be reviewed.
Preparation of an ongoing Comments and Response Report	Throughout the EIA process to date, issues and concerns raised by I&APs and authorities, and communicated to ERM have been collected and recorded in a Comments and Response Report which will be included in this EIR ( <i>Annex D</i> ).
Public Meeting	A public meeting was held during the Scoping Commenting Period on 28 June 2011 to afford I&APs and the general public the opportunity to comment on the project and engage with the EIA team on the Scoping Report.
Preparation and release of the Final Scoping Report	All comments received on the Draft Scoping Report were acknowledged and incorporated into the Final Scoping Report. The Final Scoping Report was submitted to the DEA for approval. A notification letter was sent to all registered and identified I&APs to inform them of the availability of the Final Scoping Report on 15 July 2011.

### *Authority Consultation and Involvement*

Authority consultation and involvement up until the release of the Scoping Report included:

- Submission of an EIA Application for Authorisation form to DEA on 01 February 2011. DEA's Acknowledgement of Receipt and approval to

proceed with the Scoping Study was received on 15 February 2011, DEA Reference 12/12/20/2170.

- A Draft Scoping Report was submitted to the DEA Case Officer and authority stakeholders and I&APs were notified of the release of the report for comment. The DEA acknowledged receipt of the Draft Scoping Report on 09 June 2011.
- On 22 June 2011, the DEA requested a list and contact details of all the authorities that the Draft Scoping Report was submitted to.
- After the close of the commenting period, the Final Scoping Report was submitted to the DEA on 14 July 2011 and ERM received acceptance of the Scoping Report by the DEA on 28 July 2011 (*Annex D*).

The next key interaction with DEA will be the submission of the Final EIR and EMP for consideration of environmental authorisation.

### 3.2.2 *Integration and Assessment*

The final phase of the EIA is the Integration and Assessment Phase, which is described in detail in the Plan of Study for EIA and included in the Scoping Report. A synthesis of the specialist studies, which addresses the key issues identified during the Scoping Phase, is documented in this Draft EIR. Relevant technical and specialist studies are included as appendices to this report.

The Draft EIR will be made available to I&APs for a 30-day comment period and a notification letter will be sent to all registered and identified I&APs to inform them of the release of the Draft EIR and where the report can be reviewed. The Draft EIR will be made available to authorities for a 40-day comment period. Comments received on the Draft EIR will be assimilated and the EIA project team will provide appropriate responses to all comments. A Comments and Responses Report will be appended to the Final EIR, which will be submitted to DEA for decision-making.

#### *Specialist Studies*

During the Specialist Study phase, the appointed specialists gathered data relevant to identifying and assessing environmental impacts that might occur as a result of the proposed project. They assisted the project team in assessing potential impacts according to a predefined assessment methodology included in the Scoping Report. Specialists have also suggested ways in which negative impacts could be mitigated and benefits could be enhanced.

The independent specialists responsible for the specialist studies are listed in *Table 3.2*.

**Table 3.2 Independent Specialist Studies and Appointed Specialists**

Specialist Study	Name and Organisation	Qualifications
Hydrology and Erosion Potential	Mike van Wieringen (M.van Wieringen & Associates)	Professional Engineering, Professional Natural Science
Botany and Terrestrial Ecology	Simon Todd (Simon Todd Consulting)	MSc Conservation Biology, University of Cape Town
Bird study	Andrew Jenkins (AVISENSE Ornithological Consulting)	PhD Zoology, University of Cape Town
Archaeological, Heritage and Palaeontology study	Tim Hart (ACO Associates cc.)	PhD Archaeology, University of Cape Town
	David Halkett (ACO Associates cc.)	MA Archaeology, University of Cape Town BA Hons Archaeology, University of Cape Town
Landscape and Visual	Stephen Stead (Visual Resource Management Africa cc)	B.A (Hons) Environmental Sciences: Geography, University of KwaZulu Natal (Pietermaritzburg)
Socio-economic	Kerryn McKune Desai (ERM)	MA Geography of Third World Development Royal Holloway, University of London BA Hons Environmental & Geographical Science, University of Cape Town

The specialist reports and declarations of each specialist are included in *Annex F – J* with the exception of the socio-economic study undertaken by ERM’s social specialist Kerryn McKune Desai which is presented in *Chapters 6 and 11* of this EIR.

*Environmental Impact Report (EIR)*

A synthesis of information, which addresses the key issues and opportunities identified during the EIA process, has been documented in this Draft EIR. Recommendations on the mitigation of adverse impacts and the enhancement of positive impacts associated with the proposed project are included. These mitigation measures / enhancements are translated into specific actions in the draft Environmental Management Programme (EMP) (*Annex K*).

*Public Participation*

The tasks outlined in *Table 3.3* relating to public participation have been and will be further undertaken as part of the EIA phase.

**Table 3.3** *Public Participation Tasks: Impact Assessment Phase*

<b>Activity</b>	<b>Description and Purpose</b>
Release of the Draft EIR for stakeholder comment	This Draft EIR and EMP have been released for a comment period ending on 5 <sup>th</sup> December 2011. A notification letter was sent to all registered and identified I&APs to inform them of the release of the report and where the report could be reviewed. In order to make the project documentation more accessible to the largely Afrikaans speaking community the Non-Technical Summary (NTS) was translated into Afrikaans and provided to stakeholders on request. The report has also been submitted to DEA and Commenting Authorities to obtain their input and comment on the Draft EIR.
Preparation and release of the Final EIR	Comments received on the Draft EIR and EMP will be assimilated and the EIA project team will provide an appropriate response to comments in the Comments and Responses Report. The Final EIR will be submitted to the DEA for approval. A notification letter will be sent to registered I&APs to inform them of the availability of the Final EIR.
Public Notification of DEA Decision	Once the Final EIR is submitted to DEA, they will review the project information and either approve or decline the application for environmental authorisation. Once ERM is informed of DEA’s decision, IAPs will be notified of the decision and their right to appeal.

AES are committed to engaging with local communities and stakeholders throughout construction and operation of the project.

*Authority Consultation and Involvement*

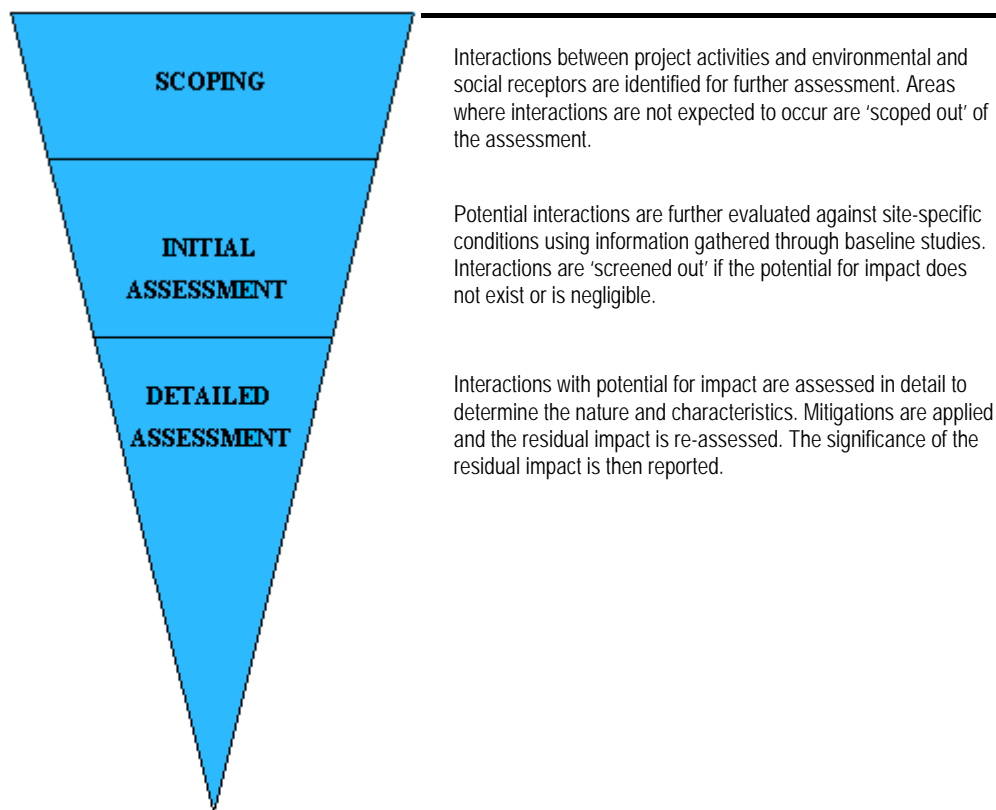
The Northern Cape Department of Environment and Nature Conservation (DENC), the provincial commenting authority, has been engaged for their comments on the Draft EIR as have other commenting authorities, including but not limited to the Heritage Northern Cape and the Department of Agriculture.

**3.3** *IMPACT ASSESSMENT METHODOLOGY*

**3.3.1** *Impact Assessment Process*

The following diagram (*Figure 3.2*) describes the impact identification and assessment process through screening, scoping and detailed impact assessment. The methodology for detailed impact assessment is outlined in *Section 3.3.2*, below.

Figure 3.2 Impact Assessment Process



### 3.3.2 Impact Assessment Methodology

The purpose of impact assessment and mitigation is to identify and evaluate the significance of potential impacts on identified receptors and resources according to defined assessment criteria and to develop and describe measures that will be taken to avoid or minimise any potential adverse effects and to enhance potential benefits.

#### Impact Types and Definitions

An impact is any change to a resource or receptor brought about by the presence of a project component or by the execution of a project related activity. The evaluation of baseline data provides crucial information for the process of evaluating and describing how the project could affect the bio-physical and socio-economic environment.

Impacts are described as a number of different impact types, summarised in Table 3.4. Impacts are also described as *associated* are those that will occur and *potential* are those that may occur.

**Table 3.4** *Impact Nature and Type*

Nature or Type	Definition
<b>Positive</b>	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
<b>Negative</b>	An impact that is considered to represent an adverse change from the baseline, or introduces a new undesirable factor.
<b>Direct impact</b>	Impacts that result from a direct interaction between a planned project activity and the receiving environment/receptors (e.g. between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
<b>Indirect impact</b>	Impacts that result from other activities that are encouraged to happen as a consequence of the Project (e.g. in-migration for employment placing a demand on resources).
<b>Cumulative impact</b>	Impacts that act together with other impacts (including those from concurrent or planned future third party activities) to affect the same resources and/or receptors as the Project.

*Assessing Significance*

Impacts are described in terms of ‘*significance*’. Significance is a function of the **magnitude** of the impact and the **likelihood** of the impact occurring. Impact magnitude (sometimes termed *severity*) is a function of the **extent, duration and intensity** of the impact. The criteria used to determine significance are summarised in *Table 3.5*. Once an assessment is made of the magnitude and likelihood, the impact significance is rated through a matrix process as shown in *Table 3.6*.

Significance of an impact is qualified through a statement of the **degree of confidence**. Confidence in the prediction is a function of uncertainties, for example, where information is insufficient to assess the impact, then the degree of confidence is low. Degree of confidence is expressed as low, medium or high.

**Table 3.5** *Significance Criteria*

<i>Impact Magnitude</i>	
<b>Extent</b>	<p><b>On-site</b> – impacts that are limited to the boundaries of the site.</p> <p><b>Local</b> – impacts that affect an area in a radius of 20km around the development site.</p> <p><b>Regional</b> – impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem.</p> <p><b>National</b> – impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences.</p>
<b>Duration</b>	<p><b>Temporary</b> – impacts are predicted to be of short duration and intermittent/occasional.</p> <p><b>Short-term</b> – impacts that are predicted to last only for the duration of the construction period.</p> <p><b>Long-term</b> – impacts that will continue for the life of the Project, but ceases when the Project stops operating.</p> <p><b>Permanent</b> – impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the Project lifetime.</p>
<b>Intensity</b>	BIOPHYSICAL ENVIRONMENT: <i>Intensity can be considered in terms of the sensitivity of the biodiversity receptor (ie. habitats, species or</i>



	<p>communities).</p> <p><b>Negligible</b> - the impact on the environment is not detectable.  <b>Low</b> - the impact affects the environment in such a way that natural functions and processes are not affected.  <b>Medium</b> - where the affected environment is altered but natural functions and processes continue, albeit in a modified way.  <b>High</b> - where natural functions or processes are altered to the extent that it will temporarily or permanently cease.</p> <p><i>Where appropriate, national and/or international standards are to be used as a measure of the impact. Specialist studies should attempt to quantify the magnitude of impacts and outline the rationale used.</i></p> <hr/> <p>SOCIO-ECONOMIC ENVIRONMENT: <i>Intensity can be considered in terms of the ability of project affected people/communities to adapt to changes brought about by the Project.</i></p> <p><b>Negligible</b> - there is no perceptible change to people's livelihood  <b>Low</b> - People/communities are able to adapt with relative ease and maintain pre-impact livelihoods.  <b>Medium</b> - Able to adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support.  <b>High</b> - Those affected will not be able to adapt to changes and continue to maintain-pre impact livelihoods.</p>
<b>Likelihood - the likelihood that an impact will occur</b>	
<b>Unlikely</b>	The impact is unlikely to occur.
<b>Likely</b>	The impact is likely to occur under most conditions.
<b>Definite</b>	The impact will occur.

Once a rating is determined for magnitude and likelihood, the following matrix can be used to determine the impact significance. *Table 3.7* shows the various colours used to distinguish both positive and negative significance levels.

**Table 3.6** *Significance Rating Matrix*

		SIGNIFICANCE		
		LIKELIHOOD		
		Unlikely	Likely	Definite
MAGNITUDE	Negligible	Negligible	Negligible	Minor
	Low	Negligible	Minor	Minor
	Medium	Minor	Moderate	Moderate
	High	Moderate	Major	Major

**Table 3.7** *Significance Colour Scale*

Negative ratings	Positive ratings
Negligible	Negligible
Minor	Minor
Moderate	Moderate
Major	Major

In Table 3.8, the various definitions for significance of an impact are given.

**Table 3.8** *Significance Definitions*

<b>Significance definitions</b>	
<b>Negligible significance</b>	An impact of negligible significance (or an insignificant impact) is where a resource or receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be 'negligible' or 'imperceptible' or is indistinguishable from natural background variations.
<b>Minor significance</b>	An impact of minor significance is one where an effect will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value.
<b>Moderate significance</b>	An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that 'moderate' impacts have to be reduced to 'minor' impacts, but that moderate impacts are being managed effectively and efficiently.
<b>Major significance</b>	An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. A goal of the EIA process is to get to a position where the Project does not have any major residual impacts, certainly not ones that would endure into the long term or extend over a large area. However, for some aspects there may be major residual impacts after all practicable mitigation options have been exhausted (i.e. ALARP has been applied). An example might be the visual impact of a development. It is then the function of regulators and stakeholders to weigh such negative factors against the positive factors such as employment, in coming to a decision on the Project.

Once the significance of the impact has been determined, it is important to qualify the **degree of confidence** in the assessment.

*Mitigation Measures and Residual Impacts*

For activities with significant impacts, the EIA process is required to identify suitable and practical mitigation measures that can be implemented. The implementation of the mitigations is ensured through compliance with the EMP. After first assigning significance in the absence of mitigation, each impact is re-evaluated assuming the appropriate mitigation measure/s is/are effectively applied, and this results in a significance rating for the residual impact.

**3.4 IDENTIFICATION OF MITIGATION MEASURES**

The project team with the input of the client, has identified suitable and practical mitigation measures that are implementable and agreed to mitigate the impacts identified as being significant. Mitigation that can be incorporated into the project design in order to avoid or reduce the negative impacts or enhance the positive impacts have been defined and require final agreement with the client as these are likely to form the basis for any conditional approvals by DEA.

## 3.5 SPECIALIST STUDY METHODOLOGY

### 3.5.1 *Vegetation and Terrestrial Ecology*

A desk-based study was carried out to identify flora and fauna species likely to be found within the study area. A site visit was undertaken on 13 and 14 May 2011 to assess the flora and fauna (mammals, reptiles and amphibians) of the site. The site was walked and plant species observed were recorded and where necessary, photographed for verification and documentation purposes. The various habitats were delineated on a satellite image of the site. Particular attention was given to potentially sensitive habitats or areas that appeared to be species-rich or harbour different or unique species, such as drainage areas and rocky ridges. Reptiles, amphibians and mammals which were observed were recorded as was any characteristic evidence of presence or activity such as scat, diggings, burrows etc. Within certain habitats such as rocky outcrops, the area was actively searched for reptile species characteristic of these areas or species of conservation concern which were identified beforehand as potentially occurring at the site.

Sensitivity maps of the study area were compiled based upon the findings of the site visit and available literature. The impact assessment phase involved the determination and evaluation of the nature of likely impacts of the development and recommendations on mitigation.

### 3.5.2 *Avifauna*

The study involved a site visit on 21 and 30 May 2011 to directly assess the habitats present within the inclusive impact zone, and to determine the *in situ* avifauna and identify any known or potential bird flight corridors present in the area. The on-site information was integrated with the bird atlas (SABAP 1 & 2) and other relevant bird data available for the general area in order to develop an inclusive, annotated list of the avifauna expected to occur on the site (expanding on an initial list compiled at the scoping phase). Areas identified to be important to birds were identified and mapped. Particular attention was given to Red-listed, endemic, restricted-range and known, collision, displacement or disturbance-prone species on each list and they were flagged for particular attention in evaluating the risks posed by such a development. The impact assessment phase involved the determination of the nature of likely impacts of the development and recommendations on mitigation.

### 3.5.3 *Archaeology, Palaeontology and Cultural Heritage*

#### *Archaeology and Heritage*

A desktop study was carried out on publicly available scientific publications to determine the archaeological history of the study area. In addition, an archaeological and heritage field survey was undertaken on 04 and 05 June 2011. Archaeological materials and structures were inventoried, with GPS positions, with approximate ages and descriptions recorded, as necessary.

Existing heritage structures in the Study Area were identified and inventoried, with their GPS positions, age and descriptions recorded. The impact assessment phase involved the determination of the nature of likely impacts of the development and recommendations on mitigation.

#### *Palaeontology*

A desktop study was undertaken assessing the potentially fossiliferous rock units (groups, formations etc) represented within the study area, determined from geological maps. The known fossil heritage within each rock unit is inventoried from the published scientific literature, previous paleontological impact studies in the same region, and the author's field experience. A paleontological field survey was not deemed necessary. Finally the impact assessment phase involved the determination of the nature of likely impacts of the development and recommendations on mitigation.

#### **3.5.4** *Visual*

A site visit was undertaken on 31 May 2011 to identify the visual resources of the area and characterise the landscape character where the proposed solar power plant is to be located. This included identification of sensitive viewpoints. Photographs were taken from these viewpoints both for records, and for use in determining the potential visibility of the solar power plant from sensitive viewpoints. Photomontages were produced showing solar panels superimposed on the panoramic photographs. These photomontages were used to assist with determining the nature of likely impacts of the development and recommendations on mitigation.

#### **3.5.5** *Hydrology and Erosion*

The investigation comprised a desk study of available literature followed by a two day visual survey on site. The desk study reviewed, the South African Council for Geoscience 1:250 000 geological map and memorandum, 1:50 000 topocadastral maps, and Google Earth images as well as a preliminary geological report for a nearby farm provided by ERM.

Air-photo interpretation of the colour Google Earth image was carried out prior to visiting the site and re-assessed after visiting the site. On site, the site was traversed by vehicle and on foot. Soil types, rock outcrops, vegetation patterns, the drainage regime and any other indicators relating to ground and water conditions were noted and mapped. The investigation reflects surface observations only. All sub-surface conditions are consequently interpretive and predictive and need to be confirmed or disproved by sampling and excavation or probing. A preliminary impact assessment was undertaken.

#### **3.5.6** *Socio-economic*

The socio-economic specialist study was undertaken by an ERM social specialist, Kerryne McKune Desai. The study began with the compilation of a baseline description. The baseline study was based on a combination of

primary and secondary information available for the district and local area. The secondary information review included the following data sources:

- Integrated Development Plan: Siyanda District Municipality 2007 -2011;
- Statistic South Africa 2001 Census;
- DMA: A Case Study of Siyanda District Municipality (Northern Cape), 2003;
- Integrated Economic Development Plan: Siyanda District Municipality, 2006;
- Statistics South Africa Community Survey 2007; and
- Publications of the Demarcation Board of South Africa.

The primary data used for the socio-economic specialist study was derived from semi-structured, qualitative interviews (face to face interviews and telephonic interviews) and feedback received through the public consultation process. The interviewees include the directly affected landowner, local residents, government officials and others. *Table 3.9* provides a list of respondents for primary data collection. Comments received thus far during the public consultation process have been incorporated into the socio-economic baseline and the socio-economic impact assessment (*Chapters 6 and 12 respectively*).

**Table 3.9** *Primary Data Collection, Respondents*

<b>Respondent</b>	<b>Designation</b>	<b>Date of Interview</b>
Chris Fourie	Land Owner	11 July 2011
Abrie Coetzee	Neighbouring Landowner	25 July 2011
Piet Buys	Neighbouring Landowner	25 July 2011
Michael Stoeltzing	Neighbouring Landowner	14 July 2011
Elma Jordaan	Sister in Charge at the CHC: Kenhardt	14 July 2011
Many Titus	PR Councillor: Kenhardt	14 July 2011
S Jacob	Speaker: Kenhardt	14 July 2011
Rowy Olly	Mayor of Kenhardt	14 July 2011
Christa Mengrooff	CDW: Kenhardt	14 July 2011
Edith Williams	Local resident: Kenhardt	14 July 2011
Elbie Visser	Local resident: Kenhardt	14 July 2011
Cllr Styles	Ward 9 Councillor: Kenhardt	14 July 2011
Charlotte Titus	IDP/LED Officer: Kai Garip LM	12 July 2011
Andrie Mateus	Coordinator: Emerging Farmers	13 July 2011

The limitations of the baseline study are that the secondary information used, may be outdated and therefore not provide an accurate picture of the local municipality's current situation.

The impact assessment phase incorporated the identification and assessment of socio-economic impacts (direct, indirect and cumulative) that may result from the construction and operation phases of the project. These impacts were identified and assessed based on the data gathered from both the primary and secondary sources <sup>(1)</sup> past PV projects and professional expertise.

(1) The secondary data is not current and subsequent changes in the demographic profile should be considered.

Mitigation measures that address the local context and needs have been recommended.

### 3.6

#### *ASSUMPTIONS AND LIMITATIONS*

An EIA is a process that aims to identify and anticipate possible impacts based on past and present baseline information. As the EIR deals with the future there is, inevitably, always some uncertainty about what will actually happen. Impact predictions have been made based on field surveys and with the best data, methods and scientific knowledge available at this time. However, some uncertainties could not be entirely resolved. Where significant uncertainty remains in the impact assessment, this is acknowledged and the level of scale is provided.

In line with best practice, this EIR has adopted a precautionary approach to the identification and assessment of impacts. Where it has not been possible to make direct predictions of the likely level of impact, limits on the maximum likely impact have been reported and the design and implementation of the project (including the use of appropriate mitigation measures) will ensure that these are not exceeded. Where the magnitude of impacts cannot be predicted with certainty, the team of specialists has used professional experience and available scientific research from solar power facilities worldwide to judge whether a significant impact is likely to occur or not. Throughout the assessment this conservative approach has been adopted to the allocation of significance.

#### 3.6.1

##### *Gaps and Uncertainties*

Inevitably knowledge gaps remain. For instance, there is an incomplete understanding of cumulative impacts as it is not known how many of the proposed solar power plants in the vicinity of Olyven Kolk Farm will be granted authorisation and selected as projected in the IPP procurement process.

##### *Gaps in Project Description*

- Location of solar arrays- the assessment is based on a preferred and final layout based on revision of earlier layouts to accommodate environmental sensitivities. Final layout has been confirmed, however precise locations of the solar arrays may be micrositied to allow for more detailed geotechnical studies, and that this will seek to ensure that all locations remain in areas of low sensitivity as defined by this study and that the specialists will sign off the revised positions.
- Location of borrow pit- it has not yet been determined if rock or soil material will be taken from the existing borrow pit on site or from another within close proximity to the site if required.
- Temporary construction camp- it has not yet been determined whether a construction camp is required for the construction phase of the

development. An alternative being considered for the construction camp accommodating workers in Kenhardt and the use of worker transport shuttles to/from Kenhardt.

- It is not yet clear, if the sections of the power plant south and north of the railway will be connected by an overhead line or by an underground cable, using the existing culverts under the railway where possible.

#### *Gaps in Baseline Information*

- Limited understanding of the locations of bat roosting caves and migration routes in South Africa are poorly known and not well documented.

#### *Gaps in Understanding of Impacts*

- It should be noted that as large scale impact solar power plants are new to South Africa, the impacts associated with them have not been scientifically researched in the country, and therefore the specialists have used the precautionary principal where necessary in undertaking their respective impact assessments.