DRAFT SCOPING REPORT

Draft Scoping Report for the proposed development of the Vhuvhili Solar Photovoltaic (PV) Facility near Secunda in the Mpumalanga Province.

CHAPTER 7:

Plan of Study for EIA

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7. PLAN OF STUDY FOR THE EIA

This chapter presents the Plan of Study for the Environmental Impact Assessment (PSEIA), which sets out the process to be followed in the Environmental Impact Assessment (EIA) Phase as required by the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) EIA Regulations, as amended. The PSEIA is based on the outcomes of the Scoping Phase (to date) and provides the Terms of Reference (ToR) for the specialist assessments that have been identified, the alternatives that will be considered and assessed, as well as the public participation process (PPP) that will be undertaken during the EIA Phase.

7.1 Purpose of EIA and Requirements of the EIA Regulations

As captured in Section 2 of Appendix 3 of the 2014 NEMA EIA Regulations (as amended), which specifies the content requirements for EIA Reports, "the purpose of the EIA Phase is to, through a consultative process:

- Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- Describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the development footprint on the approved site as contemplated in the accepted scoping report;
- Identify the location of the development footprint within the approved site as contemplated in the accepted scoping report based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- Determine the—
    i. nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
    ii. degree to which these impacts—
    (aa) can be reversed;
    (bb) may cause irreplaceable loss of resources, and
    (cc) can be avoided, managed or mitigated;
- Identify the most ideal location for the activity within the development footprint of the approved site as contemplated in the accepted scoping report based on the lowest level of environmental sensitivity identified during the assessment;
- Identify, assess and rank the potential impacts that the activity will impose on the development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity;
- Identify suitable measures to avoid, manage or mitigate identified impacts; and
- Identify residual risks that need to be managed and monitored."

The EIA Phase consists of three parallel and overlapping processes:

- Central assessment process through which inputs are integrated and presented in an EIA Report that is submitted for approval to the Mpumalanga DARDLEA and other commenting authorities (Sections 7.2, 7.3 and 7.4 of this chapter);
- Undertaking of a PPP whereby findings of the EIA Phase are communicated and discussed with Interested and Affected Parties (I&APs) and responses are documented (Section 7.3 of this chapter); and
- Undertaking of specialist assessments that provide additional information/assessments required to address the issues raised in the Scoping Phase (Sections 7.5, 7.6 and 7.8 of this chapter).

Table 7.1 below shows the requirements for the PSEIA in accordance with Appendix 2 (2) (1) (h) of the 2014 NEMA EIA Regulations, as amended.

Table 7.1: Requirements for the Plan of Study for EIA in accordance with the 2014 NEMA EIA Regulations, as amended

Section of the EIA Regulations: Appendix 2 (2) (1) (h)	Requirements for a PSEIA in the Scoping Report in terms of Appendix 2 of the 2014 NEMA EIA Regulations, as amended (GN R326)	Section of this Chapter of the PSEIA in which the required information is discussed
h	A plan of study for undertaking the EIA process to be undertaken, including –	
i	a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Section 7.7
ii	a description of the aspects to be assessed as part of the environmental impact assessment process;	Section 7.6
iii	aspects to be assessed by specialists;	Section 7.6 and Section 7.8
iv	a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;	Section 7.5
v	a description of the proposed method of assessing duration and significance;	Section 7.5
vi	an indication of the stages at which the Competent Authority will be consulted;	Section 7.4
vii	particulars of the public participation process that will be conducted during the environmental impact assessment process;	Section 7.3
viii	a description of the tasks that will be undertaken as part of the environmental impact assessment process; and	Section 7.2, Section 7.3, Section 7.6 and Section 7.8.
ix	identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Section 7.8 (note that Chapter 6 includes high-level management actions identified during the Scoping Phase. Section 7.8 of this chapter highlights which specialist studies will include such measures)

7.2 Overview of Approach to Preparing the EIA Report and EMPr

The specialist studies are being undertaken based on compliance with relevant legislation and based on the Terms of Reference indicated in Section 7.8 of this chapter. The results of the specialist assessments and other relevant project information and research undertaken for the proposed Vhuvhili SEF Project will be integrated into the Draft EIA Report. The Draft EIA Report will be released for a 30-day I&AP and authority comment period, as outlined in Sections 7.3 and 7.4 of this chapter. I&APs registered on the project database will be notified in writing of the release of the Draft EIA Report for comment.

Comments raised, through written correspondence (emails and comments), will be captured in a Comments and Responses Report for inclusion in the Final EIA Report that will be submitted to the Mpumalanga DARDLEA for decision-making. Refer to Section 7.3.2 for additional information regarding this process.

The Draft and Final EIA Reports will include an Environmental Management Programme (EMPr), which will be prepared in compliance with the relevant regulations. The content of an EMPr must either contain the information set out in Appendix 4 of the 2014 NEMA EIA Regulations, as amended, or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. As part of the 2016 Electrical Grid Infrastructure (EGI) Strategic Environmental Assessment (SEA), a generic EMPr was compiled for the development and expansion of (a) overhead electricity transmission and distribution infrastructure; and (b) substation infrastructure for the transmission and distribution of electricity. On 2 March 2018, these two Generic EMPrs were gazetted in Government Gazette 41473, GN 162 and GN 163, for public comment for a period of 45 days. On 22 March 2019, these two Generic EMPrs were gazetted for implementation, in Government Gazette 42323, GN 435. The EMPrs that will be compiled for the proposed Vhuvhili SEF will therefore comply with Appendix 4 of the 2014 NEMA EIA Regulations (as amended), as well as the requirements of the gazetted EMPr for substation infrastructure (Gazette 42323, GN 435), as indicated below:

- Part 1 of the EMPr will cover all infrastructure at the proposed Vhuvhili SEF, excluding the on-site substation complex, in compliance with Appendix 4 of the 2014 NEMA EIA Regulations (as amended); and
- Part 2 of the EMPr will cover the on-site substation complex, in compliance with the Generic EMPr for substation infrastructure.

It is understood that the Generic EMPr for the development and expansion of (a) overhead electricity transmission and distribution infrastructure will not apply to the Vhuvhili SEF as the medium-voltage power lines within the footprint of the Solar PV Facility are planned to be underground and have a capacity of 22 to 33 kV. The Generic EMPr for power lines only applies to aboveground power lines and those that have a capacity of more than 33 kV (i.e., triggering Listed Activity 11 of GN 327 or Listed Activity 9 of GN 325).

The proposed overhead power line and associated EGI for the proposed Vhuvhili SEF project will be subject to a separate Application and BA/EIA process. Therefore, the Generic EMPr for power lines will

be compiled as part of the separate EA process that will be undertaken and will not be included for this application.

The EMPrs will be based broadly on the environmental management philosophy presented in the ISO 14001 standard, which embodies an approach of continual improvement. Actions in the EMPr will be drawn primarily from the management actions in the specialist assessments for the construction and operational phases of the project. If the project components are decommissioned or re-developed this will need to be done in accordance with the relevant environmental standards and clean-up/remediation requirements applicable at the time. However, general management actions for the decommissioning phase will be provided.

7.3 Public Participation Process

The PPP in the EIA Phase will be undertaken in compliance with Chapter 6 of the 2014 NEMA EIA Regulations (as amended). The need for a Public Participation Plan was originally stipulated in the directives published in Government Gazette 43412, GN R650 on 5 June 2020, regarding measures to address, prevent and combat the spread of COVID-19 relating to national environmental management permits and licences. GN 650 is applicable to Alert Level 3 and was repealed by GN 970. GN 970, published on 9 September 2020, contains directions regarding measures to address, prevent and combat the spread of COVID-19 relating to national environmental management permits and licences, and it applies for the period of the national state of disaster. However, GN 650 is repealed, and it is understood that it is no longer required to submit a Public Participation Plan to the CA for approval. This has been confirmed with the Mpumalanga DARDLEA at the pre-application meeting which was held on 23 May 2022.

The key steps in the PPP for the EIA Phase are described below.

The PPP for the Scoping Phase is described in detail in Chapter 4 of this Scoping Report.

7.3.1 Task 1 – I&AP Review of the EIA Report and EMPr

The first stage in the process will entail the release of the Draft EIA Report for a 30-day I&AP and stakeholder comment period. As discussed in Chapter 4, an initial database of I&APs (including key stakeholders and Organs of State) was developed prior to the commencement of the S&EIA process, and advertising the EA process in the local print media, in line with Regulation 41 (2) (c) of GN R326. Appendix D of this Scoping Report includes a copy of the I&AP database, which includes key stakeholders and all I&APs that have been added to the electronic project database, to date.

While I&APs have been encouraged to register their interest in the project from the start of the process, following the public announcements, the identification and registration of I&APs is ongoing for the duration of the study. As a result, I&AP details will be captured and automatically updated as and when information is distributed to or received from I&APs as per Regulation 42 of the GN R326, in terms of the electronic database. I&APs will only be removed or de-registered from the database, upon request.

Relevant stakeholders, Organs of State and I&APs will be informed of the review period in the following manner:

- **Database Maintenance:** As indicated above, in line with Regulation 42 of GN R326, an initial database of potential I&APs was developed for the S&EIA processes, and will be updated throughout the process (Appendix D). The updated database will be used to provide written notification of the release of the Draft EIA Report for comment.
- **Advertisements to Register Interest:** An advertisement will be placed in Afrikaans and English in at least one local newspaper (i.e., "The Ridge Times") at the commencement of the 30-day comment period for the Draft EIA Report. A copy of the content of the advertisement will be included as an Appendix in the Draft EIA Report, with proof of placement included in the Final EIA Report.
- **Letter 2[1] to I&APs (Outcome of decision-making on Final Scoping Report (FSR) and commencement of EIA Phase**): Written notification of the outcome of decision-making on the FSR and the commencement of the EIA Phase (i.e., Letter 2) will be sent to all I&APs and Organs of State included on the updated project database via email, where email addresses are available. This letter will be sent once the outcome of decision making on the FSR is received by the CA (i.e., at most 43 days after acknowledgment of receipt of the Draft Scoping Report by CA). Letter 2 will include notification of the commencement of the EIA Phase for the proposed project, and it will be written in the English language. Proof of email, as well as copies of the Letter 2 and emails sent will be included in the Draft EIA Report that will be submitted to be released for a 30-day review period.
- **Letter 3 to I&APs (Availability of the Draft EIA Report for public comment):** Written notification of the availability of the Draft EIA Report (i.e., Letter 3) will be sent to all I&APs and Organs of State included on the updated project database via email, where email addresses are available. This letter will be sent at the commencement of the 30-day comment period on the Draft EIA Report and will include information on the proposed projects and notification of the release and availability of the report. Letter 3 will be written in the English language. Proof of email, as well as copies of the Letter 3 and emails sent will be included in the Final EIA Report that will be submitted to the DFFE for decision-making.
- **Text Messaging:** SMS texts will also be sent to all I&APs on the updated project database, where cell phone numbers are available, to inform them of the proposed projects and how to access the Draft EIA Report.
- **Local Networks**: Where possible, communication will be made with the Municipal Ward Councillor's (Ward 5) and/or similar community forums to request that they send notifications of the project, availability of the report and an Executive Summary via their local networks (such as WhatsApp groups, Neighbourhood Watch groups, other social media mechanisms etc.).
- **30-day Comment Period:** As noted above, potential I&APs, including authorities and Organs of State will be notified via Letter 3, of the 30-day comment and registration period within which to submit comments on the Draft EIA Report.

[1] Note that Letter 1 is addressed in Chapter 4 of this Draft Scoping Report and apply to the Scoping Phase.

- **Executive Summary**: An Executive Summary of the Draft EIA Report will also be emailed to I&APs on the database, where email addresses are available, together with Letter 3, and uploaded to the project website and alternative web-platforms.
- **Availability of Information:** The Draft EIA Report will be uploaded to the project website (i.e., https://www.csir.co.za/environmental-impact-assessment) for I&APs to access it. As a supplementary mechanism, the Draft EIA Report will also be uploaded to other alternative web-platforms such as Dropbox or Google Drive. If an I&AP cannot access the report via the project website, via the alternative web-platforms such as Dropbox or Google Drive, and if additional information is required (other than what is provided in the Executive Summary), then the I&AP can contact the EAP, who will then make an electronic copy available (where feasibly possible).

7.3.2 Task 2 – Comments and Responses Report

A key component of the S&EIA process is documenting and responding to the comments received from I&APs and the authorities. Copies of all written comments received during the review of the Draft EIA Report will be compiled into a Comments and Responses Report for inclusion in an appendix to the Final EIA Report that will be submitted to the Mpumalanga DARDLEA for decision-making. The Comments and Responses Report will indicate the nature of the comment, as well as when and who raised the comment. The comments received will be considered by the EIA team and appropriate responses provided by the relevant member of the EIA team, the Project Developer and/or specialists. The response provided will indicate how the comment received has been dealt with in the EIA Process and considered in the Final EIA Report and in the project design or EMPrs. Should the comment received fall beyond the scope of this EIA, clear reasoning will be provided.

7.3.3 Task 3 – Compilation of the Final EIA Report for Submission to the Mpumalanga DARDLEA

Following the 30-day commenting period of the Draft EIA Report and incorporation of the comments received into the reports, the Final EIA Report will be submitted to the Mpumalanga DARDLEA for decision-making in line with Regulation 23 (1) (a) of the 2014 NEMA EIA Regulations, as amended. A hard copy and an electronic copy of the report will be submitted to the Mpumalanga DARDLEA via courier, as recommended by the Mpumalanga DARDLEA.

In line with best practice, I&APs on the project database will be notified via **Letter 4** via email (where email addresses are available) of the submission of the Final EIA Report to the Mpumalanga DARDLEA for decision-making. To ensure ongoing access to information, a copy of the Final EIA Report that have been submitted for decision-making and the Comments and Response Report (detailing comments received during the EIA Phase and responses thereto) will be placed on the project website (i.e., https://www.csir.co.za/environmental-impact-assessment). As a supplementary mechanism, the Final EIA Report will also be uploaded to other alternative web-platforms such as Dropbox or Google Drive.

The Final EIA Report, which have been submitted for decision-making to the Mpumalanga DARDLEA, will include proof of the PPP that was undertaken to inform Organs of State, Stakeholders and I&APs of the availability of the Draft EIA Report for the 30-day comment period (as explained above).

The Mpumalanga DARDLEA will have 107 days (from receipt of the Final EIA Report) to either grant or refuse EA (in line with Regulation 24 (1) of the 2014 NEMA EIA Regulations, as amended).

7.3.4 Task 4 – Environmental Authorisation (EA) and Appeal Process

Subsequent to the decision-making phase, if EA is granted by the Mpumalanga DARDLEA for the proposed project, all registered I&APs, Organs of State and Stakeholders on the project database will receive notification of the issuing of the EA and the associated appeal period. The 2014 NEMA EIA Regulations, as amended (i.e., Regulation 4 (1)) states that after the Competent Authority has reached a decision, it must inform the Project Applicant of the decision, in writing, within 5 days of such decision. Regulation 4 (2) of the 2014 NEMA EIA Regulations, as amended, stipulates that I&APs need to be informed of the EA and associated appeal period within 14 days of the date of the decision. All registered I&APs will be informed of the outcome of the EA and the appeal procedure, as well as the respective timelines.

The distribution of the EA (should such authorisation be granted by the Mpumalanga DARDLEA), as well as the notification of the appeal period, will include a letter (i.e., **Letter 5** (Release of EA and Notification of Opportunity to Appeal)) to be sent via email to all registered I&APs, Stakeholders and Organs of State on the project database, where email addresses are available. The letter will include information on the appeal period, as well as details regarding where to obtain a copy of the EA. A copy of the EA will also be emailed with Letter 5. The EA will also be uploaded to the project website (i.e., https://www.csir.co.za/environmental-impact-assessment), and a similar supplementary mechanism (as explained above). SMS texts will also be sent to all I&APs on the database, where cell phone numbers are available, to inform them of the EA (should they be granted).

7.4 Authority Consultation during the EIA Phase

Authority consultation is integrated into the PPP, with additional meetings held on online platforms with the lead authorities, where necessary. It is proposed that the CA (Mpumalanga DARDLEA) as well as other lead authorities will be consulted at various stages during the EIA Process, if required. At this stage, the following authorities have been identified for the purpose of this EIA Process (additional authorities might be added to this list as the EIA Process proceeds):

- Mpumalanga DARDLEA;
- Mpumalanga Tourism and Parks Agency (MTPA);
- National DFFE;
- Govan Mbeki Local Municipality;
- Gert Sibande District Municipality;
- Birdlife South Africa;
- Department of Agriculture, Land Reform and Rural Development (DALRRD);

- Department of Mineral Resources & Energy (DMRE);
- DFFE: Biodiversity and Conservation Directorate;
- Earthlife Africa;
- Endangered Wildlife Trust;
- Eskom Holdings SOC Ltd;
- South African Heritage Resources Agency (SAHRA);
- Mpumalanga Provincial Heritage Resource Authority (MPHRA);
- Department of Water and Sanitation; (DWS)
- National Energy Regulator of South Africa (NERSA);
- South African National Roads Authority (SANRAL);
- South African Civil Aviation Authority (CAA);
- South African Local Government Association (SALGA) (Mpumalanga);
- South African National Parks (SANParks);
- Independent Communications Authority of South Africa (ICASA);
- Square Kilometer Array (SKA) office;
- South African Radio Astronomy Observatory (SARAO);
- Transnet SOC Ltd; and
- Wildlife and Environmental Society of South Africa (WESSA).

The authority consultation process for the EIA Phase is outlined in Table 7.2 below.

Table 7.2: Authority Communication Schedule

STAGE IN EIA PHASE	FORM OF CONSULTATION
During the EIA Process	Site visit with authorities (including Mpumalanga DARDLEA), if required.
During preparation of EIA Report	Communication (via email or online platforms (i.e., Microsoft Teams) with the Mpumalanga DARDLEA on the outcome of Specialist Studies, if required.
On submission of EIA Report for decision-making	Online meetings with dedicated departments, if requested by the Mpumalanga DARDLEA, with jurisdiction over particular aspects of the project (e.g. Local Authority) and potentially including relevant specialists.

7.5 Approach to the Impact Assessment Methodology and Specialist Assessments

This section outlines the assessment methodology and legal context for specialist assessments, as recommended by the then Department of Environmental Affairs (DEA) 2006 Guideline on Assessment of Impacts.

7.5.1 Impact Assessment Methodology

The Impact Assessment Methodology has been aligned with the requirements for EIA Report as stipulated in Appendix 3 (3) (1) (j) of the 2014 NEMA EIA Regulations, as amended, which states the following:

"An environmental impact assessment report must contain the information that is necessary for the Competent Authority to consider and come to a decision on the application, and must include an assessment of each identified potentially significant impact and risk, including-

(i) cumulative impacts;
(ii) the nature, significance and consequences of the impact and risk;
(iii) the extent and duration of the impact and risk;
(iv) the probability of the impact and risk occurring;
(v) the degree to which the impact and risk can be reversed;
(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and
(vii) the degree to which the impact and risk can be mitigated".

The identification of potential impacts includes impacts that may occur during the construction, operational and decommissioning phases of the development. The assessment of impacts includes direct, indirect as well as cumulative impacts. In order to identify potential impacts (both positive and negative) it is important that the nature of the proposed project is well understood so that the impacts associated with the project can be assessed. The process of identification and assessment of impacts will include:

- Determining the current environmental conditions in sufficient detail so that there is a baseline against which impacts can be identified and measured;
- Determining future changes to the environment that will occur if the activity does not proceed;
- Develop an understanding of the activity in sufficient detail to understand its consequences; and
- The identification of significant impacts, which are likely to occur if the activity is undertaken.

As per the then Department of Environmental Affairs and Tourism (DEAT) Guideline 5: Assessment of Alternatives and Impacts, the following methodology is applied to the prediction and assessment of impacts and risks. Potential impacts and risks have been rated in terms of direct, indirect and cumulative impacts:

- **Direct impacts** are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.
- **Indirect impacts** of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest

immediately when the activity is undertaken or which occur at a different place as a result of the activity.

- **Cumulative impacts** are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

The cumulative impacts will be assessed by identifying other renewable energy projects that are in different stages of planning and/or development within 50 km of the proposed Vhuvhili SEF.

The approach for the EIA phase is that the assessment will include renewable energy (i.e., Wind and Solar PV) projects within a 50 km radius that have received an EA, or has a BA/EIA in progress at the start of the Scoping phase, i.e., at May 2022. The information has been sourced from the National DFFE Renewable Energy EIA Application (REEA) database, 2022, Quarter 1 as well as from the South African Heritage Resources Information System (SAHRIS). Table 7.3 provides more details of these projects.

Figure 7.1 provides an illustration of the projects that will be considered in the cumulative impact assessment which will be included in the EIA phase.

Table 7.3: Proposed solar PV facilities located within 50 km of the proposed Vhuvhili SEF, that will be considered in the Cumulative Assessment in the EIA phase (Source: DFFE REEA Quarter 1, 2022; SAHRIS)

DFFE REFERENCE	TECHNOLOGY	MW/KV	STATUS	PROJECT TITLE	EIA REGULATIONS	ASSESSMENT PROCESS	APPLICANT	EAP	LOCAL MUNICIPALITY	DISTRICT MUNICIPALITY
• DEA/EIA/0000991/2012	Solar PV	9.5	In process	• Proposed Forzando North Coal Mine Photovoltaic Solar Facility in Emalahleni Local Municipality, Mpumalanga Province	2010	Basic Assessment	Total Coal South Africa (Pty) Ltd	GCS (Pty) Ltd	Govan Mbeki Local Municipality	Gert Sibande District Municipality
• DEA/EIA/0002646/2014	Solar PV	66	Approved	• Proposed Tutuka Solar Photovoltaic (PV) Energy Facility and Its associated Infrastructure near Standerton within Lekwa, Mpumalanga Province	2010	Scoping and EIA	Eskom Holdings SOC Limited	Savannah Environmental Consultants (Pty) Ltd	Lekwa Local Municipality	Gert Sibande District Municipality
• SE3238	Solar PV	19.99	In process	• Becrux Solar Photovoltaic (PV) Energy Facilit, Mpumalanga Province	2014	Basic Assessment	Becrux Solar PV Project One (Pty) Ltd	Savannah Environmental Consultants (Pty) Ltd	Govan Mbeki Local Municipality	Gert Sibande District Municipality

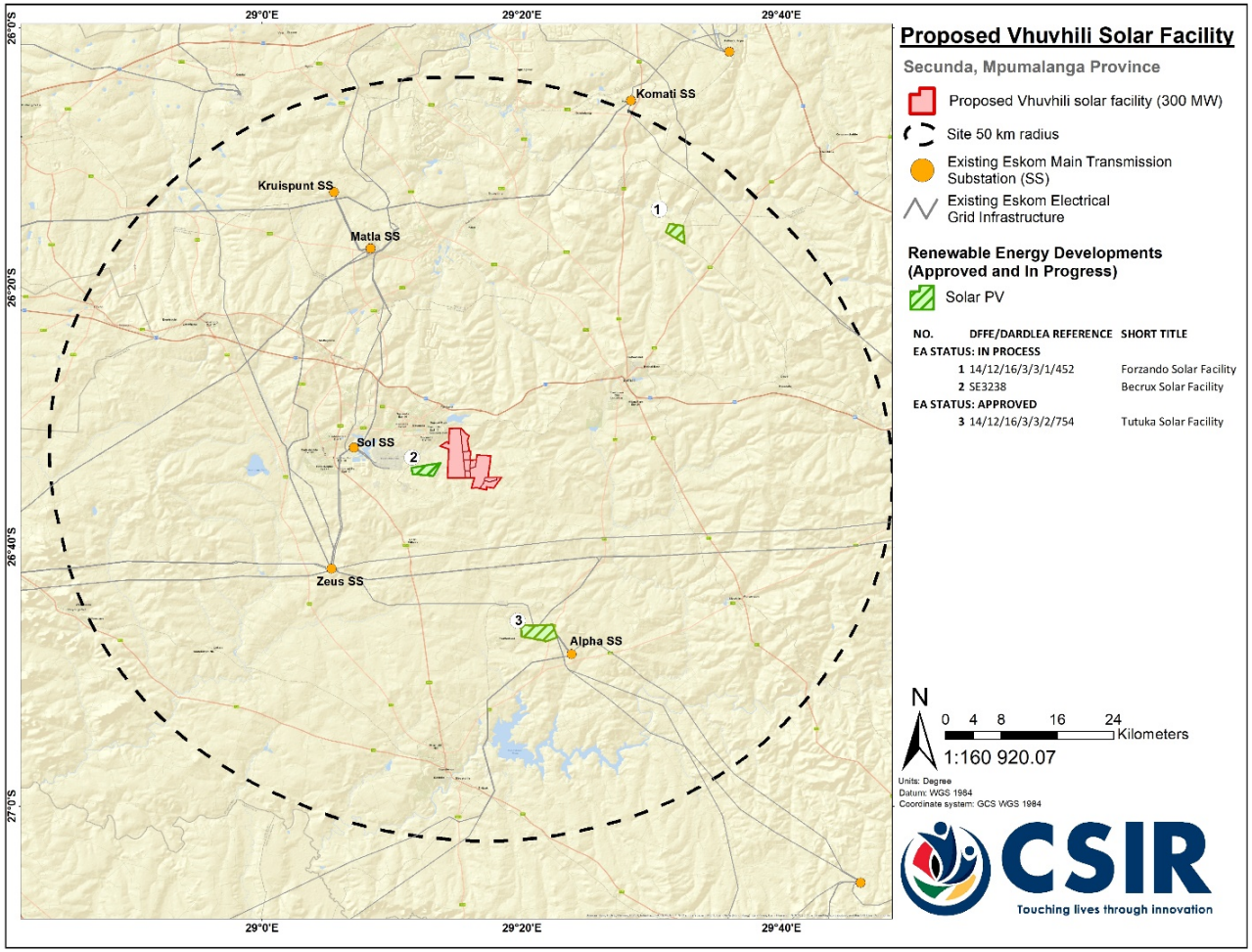

Figure 7.1: Renewable Energy projects within the 50 km radius that will considered for the Cumulative Impact Assessment to be included in the EIA phase (Source: DFEE REEA Quarter 1 2022; SAHRIS).

In addition to the above, the Impact Assessment Methodology includes the following aspects:

Nature of impact - this reviews the type of effect that a proposed activity will have on the environment and should include "what will be affected and how?"

Status - Whether the impact on the overall environment (social, biophysical and economic) will be:

- Positive - environment overall will benefit from the impact;
- Negative - environment overall will be adversely affected by the impact; or
- Neutral - environment overall will not be affected.

Spatial extent – The size of the area that will be affected by the impact:

- Site specific;
- Local (<10 km from site);
- Regional (<100 km of site);
- National; or
- International (e.g. Greenhouse Gas emissions or migrant birds).

Duration – The timeframe during which the impact/risk will be experienced:

- Very short term (instantaneous);
- Short term (less than 1 year);
- Medium term (1 to 10 years);
- Long term (the impact will cease after the operational life of the activity (i.e., the impact or risk will occur for the project duration)); or
- Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient (i.e., the impact will occur beyond the project decommissioning)).

Consequence – The anticipated severity of the impact/risk:

- Extreme (extreme alteration of natural systems, patterns or processes, i.e., where environmental functions and processes are altered such that they permanently cease);
- Severe (severe alteration of natural systems, patterns or processes, i.e., where environmental functions and processes are altered such that they temporarily or permanently cease);
- Substantial (substantial alteration of natural systems, patterns or processes, i.e., where environmental functions and processes are altered such that they temporarily or permanently cease);
- Moderate (notable alteration of natural systems, patterns or processes, i.e., where the environment continues to function but in a modified manner); or
- Slight (negligible alteration of natural systems, patterns or processes, i.e., where no natural systems/environmental functions, patterns, or processes are affected).

Reversibility of the Impacts - the extent to which the impacts are reversible assuming that the project has reached the end of its life cycle (decommissioning phase) will be:

- High reversibility of impacts (impact is highly reversible at end of project life, i.e., this is the most favourable assessment for the environment). For example, the nuisance factor caused by noise impacts associated with the operational phase of an exporting terminal can be considered to be highly reversible at the end of the project life);
- Moderate reversibility of impacts;
- Low reversibility of impacts; or
- Impacts are non-reversible (impact is permanent, i.e., this is the least favourable assessment for the environment). The impact is permanent. For example, the loss of a palaeontological resource on the site caused by building foundations could be non-reversible).

Irreplaceability of Resource Loss caused by impacts – the degree to which the impact causes irreplaceable loss of resources assuming that the project has reached the end of its life cycle (decommissioning phase) will be:

- High irreplaceability of resources (project will destroy unique resources that cannot be replaced, i.e., this is the least favourable assessment for the environment);
- Moderate irreplaceability of resources;
- Low irreplaceability of resources; or
- Resources are replaceable (the affected resource is easy to replace/rehabilitate, i.e., this is the most favourable assessment for the environment).

Using the criteria above, the impacts/risk will further be assessed in terms of the following:

Probability – The probability of the impact occurring:

- Extremely unlikely (little to no chance of occurring);
- Very unlikely (<30% chance of occurring);
- Unlikely (30-30% chance of occurring)
- Likely (51 – 90% chance of occurring); or
- Very likely (>90% chance of occurring regardless of prevention measures).

To determine the significance of an identified impact/risk, the consequence is multiplied by probability (qualitatively as shown in Figure 7.2 below). The significance is rated qualitatively against a predefined set of criteria (i.e., probability and consequence) as indicated in Figure 7.2. The approach incorporates internationally recognised methods from the Intergovernmental Panel on Climate Change (IPCC) (2014) assessment of the effects of climate change and is based on an interpretation of existing information in relation to the proposed activity, to generate an integrated picture of the risks related to a specified activity in a given location, with and without mitigation. Risk is assessed for each significant stressor (e.g. physical disturbance), on each different type of receiving entity (e.g. the municipal capacity, a sensitive wetland), qualitatively (very low, low, moderate, high, very high) against a predefined set of criteria (as shown in Figure 7.2 below).

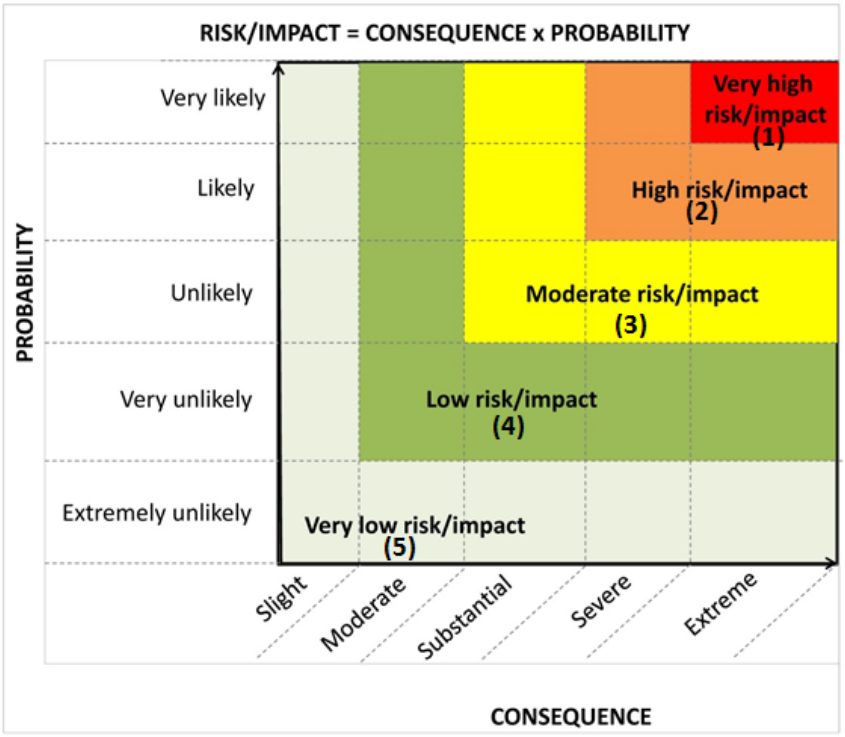

Figure 7.2: Guide to assessing risk/impact significance as a result of consequence and probability

Significance – Will the impact cause a notable alteration of the environment?

- Very low (the risk/impact may result in very minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);
- Low (the risk/impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);
- Moderate (the risk/impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated);
- High (the risk/impacts will result in a considerable alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making); or
- Very high (the risk/impacts will result in very major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making (i.e., the project cannot be authorised unless major changes to the engineering design are carried out to reduce the significance rating)).

With the implementation of mitigation measures, the residual impacts/risks must be ranked as follows in terms of significance (based on Figure 7.2):

- Very low = 5;
- Low = 4;
- Moderate = 3;
- High = 2; and
- Very high = 1.

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

- Low;
- Medium; or
- High.

Other aspects to be taken into consideration in the assessment of impact significance are:

- Impacts are to be evaluated for the construction, operational and decommissioning phases of the development. The assessment of impacts for the decommissioning phase will be brief, as there is limited understanding at this stage of what this might entail. The relevant rehabilitation guidelines and legal requirements applicable at the time will need to be applied;
- Impacts will be evaluated with and without mitigation in order to determine the effectiveness of mitigation measures on reducing the significance of a particular impact;
- The impact evaluation will, where possible, take into consideration the cumulative effects associated with this and other Wind and Solar PV facilities/projects which are either developed or in the process of being developed in the local area (i.e., within 50 km from the proposed Vhuvhili SEF project); and
- The impact assessment will attempt to quantify the magnitude of potential impacts (direct, indirect and cumulative effects) and outline the rationale used. Where appropriate, national standards are to be used as a measure of the level of impact.

Impacts will then be collated into the EMPr and these will include the following:

- Quantifiable standards for measuring and monitoring mitigatory measures and enhancements will be set. This will include a programme for monitoring and reviewing the recommendations to ensure their ongoing effectiveness;
- Identifying negative impacts and prescribing mitigation measures to avoid or reduce negative impacts. Where no mitigatory measures are possible this will be stated; and
- Positive impacts will be identified and augmentation measures will be identified to potentially enhance positive impacts where possible.

Table 7.4 below will be used by the specialists for the rating of impacts, and repeated for the Construction, Operational and Decommissioning Phases.

Table 7.4: Example of Table for Assessment of Impacts/Risks

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
CONSTRUCTION PHASE						
Habitat and species loss as a result of clearance of vegetation for the PV Facility	***Status***	*Negative*	*Moderate (3)*	*Plant search and rescue (EMPr)*	*Low (4)*	*Medium*
	Spatial Extent	*Site Specific*				
	Duration	*Long-term*				
	Consequence	*Substantial*				
	Probability	*Very likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				

7.6 Issues or Impacts to be assessed as part of the EIA Process

The issues and impacts presented in this Section have been identified based on scoping level assessment of the environmental status quo of the receiving environment (environmental, social and heritage features present on site – as discussed in Chapter 3 of this Scoping Report) and input from specialists that form part of the EIA project team. These issues and impacts will be assessed in further detail during the EIA Phase through the specialist assessments and are included in Chapter 6 of this Scoping Report; however, they have been summarised below in Table 7.5 for ease of reference. It must be noted that additional issues may be raised during the Scoping Phase, which could potentially be assessed during the EIA Phase. It is emphasised that this chapter and the Scoping Report in general provide preliminary impacts, sensitivities and impact significance ratings which will be updated and finalised, as relevant, and presented in more detail in the detailed Specialist studies and in the EIA Report.

Table 7.5: Summary of Issues to be addressed during the EIA Phase as part of the specialist assessments / input

Specialist Assessment / Input	Key issues to be addressed
Agriculture and Soils	**Construction Phase:** ▪ Loss of agricultural potential by occupation of land. ▪ Loss of agricultural potential by soil degradation. **Operational Phase:** ▪ Agricultural potential enhancement through increased financial security for farming operations *(positive impact).* **Decommissioning Phase:** ▪ Agricultural potential loss by soil degradation.
Aquatic Biodiversity and Species	**Construction, Operational and Decommissioning Phases:** ▪ Alteration in flow regime. ▪ Changes in sediment regimes. ▪ Introduction and spread of alien vegetation. ▪ Loss and disturbance of riparian/watercourse habitat and vegetation. ▪ Alteration in water quality due to pollution. ▪ Loss of aquatic biota.
Terrestrial Biodiversity and Species	**Construction Phase:** ▪ The clearing of natural vegetation. ▪ The loss of threatened, protected, CITES listed and/or endemic plants/animals. ▪ Loss of faunal habitat. ▪ Direct faunal mortalities due to construction and increased traffic. ▪ Increased dust deposition. ▪ Increased human activity, noise and light levels. ▪ Establishment of alien vegetation. ▪ Increased water run-off and erosion. ▪ Changes in animal behaviour. **Operational Phase:** ▪ Direct faunal mortalities. ▪ Establishment of alien vegetation. ▪ Increased water run-off and erosion. ▪ Changes in animal behaviour. **Decommissioning Phase:** ▪ Establishment of alien vegetation. ▪ Increased water run-off and erosion.
Avifauna Impact Assessment	**Construction Phase:** ▪ Displacement due to disturbance and habitat transformation associated with the construction of the solar PV plants and associated infrastructure.

Specialist Assessment / Input	Key issues to be addressed
	Operational Phase: ▪ Displacement due to habitat transformation associated with the presence of the solar panels. ▪ Collisions with the solar panels. ▪ Entrapment in perimeter fences. ▪ Electrocutions in the onsite substations. **Decommissioning Phase:** ▪ Displacement due to disturbance associated with the decommissioning of the solar PV plants and associated infrastructure.
Heritage Impact Assessment (including Archaeology and Cultural Landscape)	**Construction Phase** ▪ Potential impacts on archaeological remains. ▪ Potential impacts on graves. ▪ Potential impacts on the cultural landscape. **Operational Phase** ▪ Impacts to the cultural landscape. **Decommissioning Phase** ▪ Impacts to the cultural landscape.
Palaeontology Impact Assessment	**Construction and Decommissioning Phases:** ▪ Damage and/or destruction of scientifically valuable fossils preserved at or beneath the ground due to surface clearance or excavations. **Operational Phase:** Note: No impacts identified for the Operational Phase.
Socio-Economic Assessment	**Construction Phase:** ▪ Creation of employment and business opportunities during the construction phase, and the opportunity for skills development and on-site training. ▪ Potential impacts on family structures and social networks associated with the presence of construction workers. ▪ Potential impacts on family structures, social networks and community services associated with the influx of job seekers. ▪ Potential risk to farmers and farm workers, livestock and damage to farm infrastructure associated with the presence and activities of construction workers on site. ▪ Potential loss of livestock, crops and houses, damage to farm infrastructure and threat to human life associated with increased incidence of grass fires. ▪ Potential noise, dust and safety impacts associated with construction related activities. ▪ Impact on productive farmland. **Operational Phase:**

Specialist Assessment / Input	Key issues to be addressed
	▪ The establishment of infrastructure to improve energy security and support the renewable sector. ▪ Creation of employment opportunities. ▪ Generation of additional income for affected landowners. ▪ Visual impacts and associated impacts on rural sense of place. ▪ Impact on property values. ▪ Impact on existing and future tourism operations. **Decommissioning Phase:** ▪ Social impacts associated with retrenchment including loss of jobs, and source of income. ▪ Creation of temporary employment opportunities, which would represent a positive temporary impact.
Visual Impact Assessment	**Construction Phase:** ▪ Potential alteration of the visual character and sense of place resulting from construction activities. ▪ Potential visual intrusion resulting from large construction vehicles and equipment. ▪ Potential visual effect of construction laydown areas and material stockpiles. ▪ Potential impacts of increased dust emissions from construction activities and related traffic. ▪ Potential visual scarring of the landscape as a result of site clearance and earthworks. ▪ Potential visual pollution resulting from littering on the construction site. **Operational Phase:** ▪ Potential alteration of the visual character and sense of place. ▪ Potential visual intrusion resulting from the presence of PV arrays, particularly in more natural undisturbed settings. ▪ Potential visual clutter caused by substation and other associated infrastructure on-site. ▪ Potential impacts of increased dust emissions from maintenance vehicles accessing the site via gravel roads. ▪ Potential visual scarring of the landscape as a result of site clearance and earthworks. ▪ Potential glint and glare impacts on passing motorists and nearby receptors. ▪ Potential visual impact on the night-time visual environment. **Decommissioning Phase:** ▪ Potential visual intrusion resulting from vehicles and equipment involved in the decommissioning process. ▪ Potential impacts of increased dust emissions resulting from decommissioning activities and related traffic. ▪ Potential visual scarring of the landscape as a result of decommissioning activities. ▪ Potential visual intrusion of any remaining infrastructure on the site.

Specialist Assessment / Input	Key issues to be addressed
Traffic Impact Assessment	**Construction, Operational and Decommissioning Phases:** ▪ Increase in traffic and associated noise, dust and exhaust pollution due to traffic.
Battery Energy Storage Facility	**The following issues are for consideration for the proposed BESS:** ▪ Toxic smoke and fires/explosions and proximity to occupied residences. ▪ Suitable secondary spill containment for the large volume of electrolyte.

7.7 Alternatives to be assessed in the EIA Phase

A description of the alternatives that will be assessed or considered during the EIA Phase is provided in Chapter 5 of this Scoping Report. However, they have been summarised below for ease of reference:

- **No-go Alternative:**
  - The no-go alternative assumes that the proposed project will not go ahead i.e., it is the option of not developing the proposed Vhuvhili SEF project. This alternative would result in no environmental impacts from the proposed project on the site or surrounding local area. It will provide a baseline against which other alternatives will be compared and considered during the EIA Phase. The no-go alternative will be assessed by all the specialists on the project team.
- **Land Use Alternative:**
  - The Agricultural Assessment (Appendix G.1) states that the site is in a grain farming agricultural region, but the soils vary in their suitability for crop production. Because of the favourable climate and the potentially high grain yields, farmers in the area, and particularly a large-scale farmer on whose land the site is located, utilise all suitable soil for grain production. Only soil that is not suitable for grain production is used for cattle grazing. Limitations that render the soil unsuitable for grain production are depth limitations due to rock or dense clay in the subsoil, and the limited drainage associated with the dense, poorly drained clay layers in the subsoil.

    The footprint of the Vhuvhili SEF has been deliberately laid out so that it avoids the areas that have suitable soils and are therefore used for grain production. The grazing lands are rooigras (*Themeda triandra*) grasslands. Grass fields are burned or mowed from time to time.

    Most of the farm portions on which the proposed Vhuvhili SEF is located, form only a small part of a much bigger farming operation that utilises many different farms with a total cropland of approximately 6,000 hectares and cattle grazing of around 7,000 to 8,000 hectares (Lanz, 2022).

    The proposed Vhuvhili SEF project will generate an additional income stream to the landowners and thus offers some positive impact on agriculture by way of improved financial

security for farming operations, as well as wider, societal benefits (Lanz, 2022). Based on this, the proposed Vhuvhili SEF project is viable and from the EIA process perspective, it is preferred. However, it is important to note that there are no flaws from an agricultural perspective and that the proposed Vhuvhili SEF project is not seen as a significant impact to the current farming practices on site.

The Agricultural specialist concluded in his report (Appendix D.1) that the proposed development will not have an unacceptable negative impact on the agricultural production capability of the site. According to the land capability rating for the site, which includes a land capability value of 8, any solar facility will not be within the allowable development limits. However, a land capability of 8 is disputed for the proposed agricultural footprint of the development, and the facility is therefore within the allowable limits. The evidence for this is detailed in the Agricultural Assessment included in Appendix D.1 of this report.

- **Type of Activity Alternative:**
  - This relates to the generation of electricity from a renewable energy source, and in this particular case, from solar PV energy. The **generation of electricity from a renewable energy source** was the only activity considered by the Project Developer, and thus considered in this Draft Scoping Report (DSR). No other activity types were considered or deemed appropriate based on the expertise of the Project Developer.
- **Renewable Energy Alternatives:**
  - The development of Solar PV is the preferred and only renewable energy technology to be assessed as part of the EIA Phase, as the site has a very good solar resource availability (i.e., it has a Global Horizontal Irradiation (GHI) of 2 000 – 2 200 kWh/m^2), and the local conditions are favourable.
  - Hydro Power and Biomass Energy are deemed unsuitable.
  - The study area does have good wind resources (i.e., 700 W/m^2), however other sites might have better wind resources. In addition, based on the findings of the initial Screening Studies undertaken by ENERTRAG the development of wind energy would have a higher visual impact as the residential areas within the towns of Secunda and Trichardt are located within the Vhuvhili SEF study area. There would be limited space available based on the Very High and High sensitivities.
- **Preferred Site and Development Footprints within the Study Area:**
  - The preferred site for the proposed Vhuvhili SEF project extends over the following farm portions:

Farm name	Farm No.	Farm Portion	SG code
GROOTVLEI	584	RE	T0IS000000000058400000
GROOTVLEI	293	23	T0IS000000000029300023
GROOTVLEI	293	18	T0IS000000000029300018
GROOTVLEI	293	20	T0IS000000000029300020
GROOTVLEI	293	21	T0IS000000000029300021
POVERTY ACRES	585	RE	T0IS000000000058500000
VLAKSPRUIT	292	22	T0IS000000000029200022
VLAKSPRUIT	292	21	T0IS000000000029200021

- The development footprint within the proposed project site has been determined through a screening exercise of the project site undertaken in 2020 on a desktop basis, as well as a screening and site verification exercise undertaken by the Agricultural specialist, Mr. Johann Lanz, as well as inputs from the current specialist team (specialist inputs have been provided during the Scoping Phase and are included in Appendix G of this Scoping Report), and through consultation with the affected landowners to identify sensitive areas that should preferably be avoided and thus are excluded from development (i.e., 'no-go' areas). The findings of the Scoping Level Specialist Assessments were used to determine the Revised Scoping Buildable Areas, which extend approximately 650 ha (i.e., approximately 21% of the combined area (i.e., 3 115 ha) of the affected farm portions listed above). The preferred project layout will be confirmed following the input from the various specialists during the EIA Phase

- **Technology Alternatives:**
  - It is proposed that Lithium Battery Technologies, such as Lithium-Ion Phosphate, Lithium Nickel Manganese Cobalt oxides or Vanadium Redox flow technologies be considered as the preferred battery technology, however, the specific technology will only be determined following Engineering, Procurement and Construction (EPC) procurement:
  - These different BESS technologies will therefore be taken forward for further assessment in the BESS Risk Assessment to be undertaken by ISHECON in the EIA phase.

It is important to note that where alternatives are not feasible or will not be assessed, a motivation has been provided in Chapter 5 of this Scoping Report. The preferred alternatives will be assessed during the EIA Phase.

7.8 Terms of Reference for the Specialist Assessments

The ToRs for the Specialist Assessments will essentially consist of the generic assessment requirements and the specific issues identified for each discipline. The ToRs will be updated to include relevant comments received from I&APs and authorities during the 30-day commenting period of the Draft Scoping Report.

The following Specialist Assessments have been identified following consultation with the National Environmental Screening Tool[2] to determine a baseline description of the prevalent environmental sensitivities within the proposed project site and based on an understanding of potential issues associated with Solar PV projects. The ToR for each Specialist Assessment is discussed in detail below. The Specialist Assessments and associated Specialists are indicated in Table 7.6 below. Additional Specialist Assessments could possibly be commissioned as a result of concerns raised during the Scoping Phase.

Table 7.6: Specialist Assessments and associated Specialist Consultants commissioned to assess the environmental sensitivities in the EIA Phase

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN
Environmental Management Services (CSIR)		
Paul Lochner *(Registered EAP (2019/745))*	CSIR	Technical Advisor and Quality Assurance
Minnelise Levendal (*Pr.Sci.Nat.)*	CSIR	Project Manager and EAP
Dhiveshni Moodley *(Cand.Sci.Nat.)*	CSIR	Project Officer and GIS Specialist
Specialists		
Johann Lanz (*Pr.Sci.Nat.)*	Private	Agriculture and Soils Compliance Statement
Dr Noel van Rooyen *(Pr.Sci.Nat.)*	Ekotrust cc	Terrestrial Biodiversity and Species Impact Assessment
Lorainmari den Boogert (Pr.Sci.Nat.), Antoinette Bootsma Nee van Wyk (Pr.Sci.Nat.), Rudi Bezuidenhoudt (Pr.Sci.Nat.) and André Strydom	Iggdrasil Scientific Services & Limosella Consulting	Aquatic Biodiversity and Species Impact Assessment
Chris van Rooyen and Albert Froneman (*Pr.Sci.Nat.)*	Chris van Rooyen Consulting	Avifauna Impact Assessment
Kerry Schwartz	SiVEST SA (Pty) Ltd	Visual Impact Assessment
Dr Jayson Orton	ASHA Consulting (Pty) Ltd	Heritage Impact Assessment (Archaeology and Cultural Landscape)
Professor Marion Bamford	Private	Palaeontology Site Sensitivity Verification Report
Tony Barbour	Tony Barbour Environmental Consulting	Socio-Economic Impact Assessment
Avheani Ramawa and Iris Wink *(Pr Tech Eng)*	JG Afrika (Pty) Ltd	Traffic Impact Assessment
Debbie Mitchell *(Pr Eng)*	Ishecon cc	Battery Storage High Level Safety, Health and Environment Risk Assessment
Sandile Nkosi	WSP Golder	Geotechnical Desktop Study
Minnelise Levendal (*Pr.Sci.Nat.*) and Rohaida Abed *(Pr.Sci.Nat.)*	CSIR	Civil Aviation Site Sensitivity Verification and, where required, Compliance Statement **(**Note: TBC)
Minnelise Levendal (Pr.Sci.Nat.) and Rohaida Abed (Pr.Sci.Nat.)	CSIR	Defence Site Sensitivity Verification

[2] The National Screening Tool can be accessed at https://screening.environment.gov.za/screeningtool/#/pages/welcome

The requirements for Specialist Assessments are specified in Appendix 6 of the 2014 NEMA EIA Regulations, as amended, as well as, where relevant, the Assessment Protocols that were published on 20 March 2020, in Government Gazette 43110, GN R320; and on 30 October 2020 in Government Gazette 43855, GN R1150. These protocols stipulate the procedures for the assessment and Minimum Reporting Criteria for identified Environmental Themes in terms of Sections 24 (5) (A) and (H) as well as 44 of the NEMA, when applying for EA.

The Assessment Protocols in GN R320 include the following sections:

- **Part A**: This includes the Site Sensitivity Verification requirements where a Specialist Assessment is required but no Specific Assessment Protocol has been prescribed. The current use of the land and the environmental sensitivity of the site under consideration identified by the National Web-Based Screening Tool, where determined, must be verified and confirmed by undertaking a Site Sensitivity Verification. The Site Sensitivity Verification must be compiled and included as an appendix to the Specialist Assessment. However, in certain instances, there are no sensitivity layers on the Screening Tool for a particular Specialist Assessment. For example, as at November 2021, there are no sensitivity layers on the National Web-Based Screening Tool for socio-economic and traffic features. For all Specialist Assessments that fall within the ambit of Part A of GN R320, Appendix 6 of the 2014 NEMA EIA Regulations, as amended, must be complied with.
- **Part B**: This includes the Site Sensitivity Verification requirements as well as the Assessment and Minimum Reporting Criteria where a Specialist Assessment is required and a specific Assessment Protocol has been prescribed. The following prescribed protocols are relevant to this S&EIA:
    - **Agriculture**: Site Sensitivity Verification Report required and specific Assessment Protocol to be followed. This applies to all onshore wind and/or solar PV energy activities requiring EA;
    - **Terrestrial Biodiversity**: Site Sensitivity Verification Report required and specific Assessment Protocol to be followed. This applies to all activities requiring EA (based on the classification identified by the Screening Tool);
    - **Aquatic Biodiversity**: Site Sensitivity Verification Report required and specific Assessment Protocol to be followed. This applies to all activities requiring EA (based on the classification identified by the Screening Tool);
    - **Civil Aviation**: Site Sensitivity Verification Report required and specific Assessment Protocol to be followed. This applies to all activities requiring EA (based on the classification identified by the Screening Tool); and
    - **Defence**: Site Sensitivity Verification Report required and specific Assessment Protocol to be followed. This applies to all activities requiring EA (based on the classification identified by the Screening Tool); and

The Assessment Protocols in GN R1150 include the following sections which are applicable to the proposed project:

- **Terrestrial animal species**: Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial animal species.

- **Terrestrial plant species**: Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial plant species.

7.8.1 Agricultural Assessment

The Agricultural Assessment must comply with the Assessment Protocols that were published on 20 March 2020, in Government Gazette 43110, GN R320. This specifically includes the Agriculture Protocol that applies to all onshore wind and/or solar PV energy activities requiring EA. This protocol replaces the requirements of Appendix 6 of the 2014 NEMA EIA Regulations, as amended.

The site includes land that is classified by the national web-based environmental screening tool as high sensitivity for impacts on agricultural resources. The level of agricultural assessment required in terms of the protocol (and hence in terms of NEMA) is therefore an Agricultural Agro-Ecosystem Specialist Assessment. The terms of reference for such an assessment, as stipulated in the protocol, are listed below. The protocol also requires that a Site Sensitivity Verification be done.

1. The assessment must be undertaken by a soil scientist or agricultural specialist registered with the South African Council for Natural Scientific Professions (SACNASP).
2. The assessment must be undertaken on the preferred site and within the proposed development footprint.
3. The assessment must be undertaken based on a site inspection as well as an investigation of the current production figures, where the land is under cultivation or has been within the past 5 years, and must identify:
    1. the extent of the impact of the proposed development on the agricultural resources;
    2. whether or not the proposed development will have an unacceptable negative impact on the agricultural production capability of the site, and in the event where it does, whether such a negative impact is outweighed by the positive impact of the proposed development on agricultural resources.
4. The status quo of the site must be described, including the following aspects which must be considered as a minimum in the baseline description of the agro-ecosystem:
    1. The soil form/s, soil depth (effective and total soil depth), top and sub-soil clay percentage, terrain unit and slope;
    2. Where applicable, the vegetation composition, available water sources as well as agro-climatic information;
    3. The current productivity of the land based on production figures for all agricultural activities undertaken on the land for the past 5 years, expressed as an annual figure and broken down into production units;
    4. The current employment figures (both permanent and casual) for the land for the past 3 years, expressed as an annual figure;
    5. Existing impacts on the site, located on a map where relevant (e.g. erosion, alien vegetation, non-agricultural infrastructure, waste, etc).
5. Assessment of Impacts, including the following which must be considered as a minimum in the predicted impact of the proposed development on the agro-ecosystem:

1. Change in productivity for all agricultural activities based on the figures of the past 5 years, expressed as an annual figure and broken down into production units;
2. Change in employment figures (both permanent and casual) for the past 5 years expressed as an annual figure;
3. Any alternative development footprints within the preferred site which would be of "medium" or "low" sensitivity for agricultural resources as identified by the screening tool and verified through the site sensitivity verification.

6. The findings of the Agricultural Agro-Ecosystem Specialist Assessment must be written up in an Agricultural Agro-Ecosystem Specialist Report that contains as a minimum the following information:
   1. Details and relevant experience as well as the SACNASP registration number of the soil scientist or agricultural specialist preparing the assessment including a curriculum vita;
   2. A signed statement of independence by the specialist;
   3. The duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
   4. A description of the methodology used to undertake the on-site assessment inclusive of the equipment and models used, as relevant;
   5. A map showing the proposed development footprint (including supporting infrastructure) with a 50 m buffered development envelope, overlaid on the agricultural sensitivity map generated by the screening tool;
   6. An indication of the potential losses in production and employment from the change of the agricultural use of the land as a result of the proposed development;
   7. an indication of possible long-term benefits that will be generated by the project in comparison to the benefits of the agricultural activities on the affected land;
   8. Additional environmental impacts expected from the proposed development based on the current status quo of the land including erosion, alien vegetation, waste, etc.;
   9. Information on the current agricultural activities being undertaken on adjacent land parcels;
   10. a motivation must be provided if there were development footprints identified as per point 5.3 above that were identified as having a medium or low agricultural sensitivity and that were not considered appropriate;
   11. Confirmation from the soil scientist or agricultural specialist that all reasonable measures have been considered in the micro-siting of the proposed development to minimise fragmentation and disturbance of agricultural activities;
   12. A substantiated statement from the soil scientist or agricultural specialist with regards to agricultural resources on the acceptability or not of the proposed development and a recommendation on the approval or not of the proposed development;
   13. Any conditions to which this statement is subjected;
   14. Where identified, proposed impact management outcomes or any monitoring requirements for inclusion in the Environmental Management Programme (EMPr);
   15. A description of the assumptions made and any uncertainties or gaps in knowledge or data.
   16. calculations of the physical development footprint area for each land parcel as well as the total physical development footprint area of the proposed development (including supporting

infrastructure);

17. confirmation whether the development footprint is in line with the allowable development limits set in Table 1 above, including where applicable any deviation from the set development limits and motivation to support the deviation, including:
    a. where relevant, reasons why the proposed development footprint is required to exceed the limit;

    b. where relevant, reasons why this exceedance will be in the national interest; and

    c. where relevant, reasons why there are no alternative options available including evidence of alternatives considered; and

a map showing the renewable energy facilities within a 50km radius of the proposed development

The Specialist is also required to:

- Incorporate and address all relevant comments and concerns raised by the stakeholders, commenting authorities and I&APs prior to submitting the Final EIA Report to the Competent Authority for decision-making; and
- Review the EMPr for the Generic EMPr for Substations (GN R435) and confirm if there are any specific environmental sensitivities or attributes present on the project site and any resultant site-specific impact management outcomes and actions that are not included in the pre-approved generic EMPr for substations. If so, a list of the required specific impact management outcomes and actions must be provided.

7.8.2 Terrestrial Biodiversity and Species Impact Assessment

The Terrestrial Biodiversity Specialist is required to compile a Specialist Assessment in adherence to the following gazetted Environmental Assessment Protocols, which replace the requirements of Appendix 6 of the 2014 NEMA EIA Regulations, as amended:

- Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on Terrestrial Biodiversity (GG 43110 / GN R320, 20 March 2020);
- Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species (GG 43855 / GN R1150, 30 October 2020);
- Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species (GG 43855 / GN R1150, 30 October 2020).

The Specialist has conducted a site visit and fieldwork in December 2021 (during the main rainy season when approximately 86% of the annual rainfall occurs) to identify the level of sensitivity assigned to the project study area, and to verify and confirm this sensitivity and land use as per the National Web-Based Screening Tool. Based on the findings from the site visit and the Site Sensitivity Verification Report including the Scoping Level Specialist Assessment (included in Appendix G.2 of this Draft Scoping Report) prepared by the Specialist, it was confirmed that a Terrestrial Biodiversity Specialist Assessment Report, Terrestrial

Plant Species Specialist Assessment Report, and Terrestrial Animal Species Compliance Statement (the input complying with the content requirements of the abovementioned protocols) are required during the EIA Phase.

The Terrestrial Biodiversity and Plant Species Specialist Assessment, and Terrestrial Animal Species Compliance Statement, are to be based on existing information, national and provincial databases, and professional experience and fieldwork conducted by the Specialist, as considered necessary and in accordance with relevant legislated requirements. The Assessment Report and Compliance Statement must also be in adherence to any additional relevant legislation and guidelines that may be deemed necessary. One combined report was provided to address the Terrestrial Biodiversity and Species and the Terrestrial Plant Species Protocols (please refer to Appendix G.2). The report also addressed faunal species and includes a Site Sensitivity Verification report for the Terrestrial Animal Species Themes.

However, the Avifauna specialist on the specialist team conducted an Avifauna Assessment based on the Terrestrial Animal Species Protocols (please refer to Appendix G.4).

The Terrestrial Biodiversity and Plant Species Specialist Assessment will include the following:

- Contact details of the specialist, their SACNASP registration number, their field of expertise and a Curriculum Vitae;
- A signed statement of independence by the specialist;
- Liaison with the South African National Biodiversity Institute (SANBI) to obtain information on any sensitive species flagged in the National Web-Based Screening Tool (where species names are obscured / only numbered);
- A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;
- Description of the terrestrial ecology and ecosystem features of the project site, with focus on features that are to be potentially impacted by the proposed project. The description will include the major habitat forms within the study area, giving due consideration to terrestrial fauna and flora;
- Determination, description and mapping of the baseline environmental condition and sensitivity of the study area. Specification of development setbacks or buffers required, and clear motivations for these recommendations. Include a description of the extent of disturbance and transformation of the site;
- Provide review input on the preferred infrastructure layout following the sensitivity analysis and layout identification.
- A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);
- Consideration of seasonal changes and long-term trends, such as due to climate change;
- Identification of any species of conservation concern (SCC) or protected species on site (e.g. protected tree and provincially protected species);
- Assessment of local and regional biodiversity conservation planning relevant to the project area;

- Identification and assessment of the potential direct, indirect and cumulative impacts of the proposed developments on terrestrial biodiversity and species:
    - Cumulative impacts to be assessed by considering renewable energy projects and other applicable (and relevant) projects within 50 km of the proposed project (refer to Table 7.3 above).
    - Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the project. The Impact Assessment Methodology to be followed is contained in Section 7.5.1 of this Chapter.
- A substantiated statement indicating the acceptability of the proposed development and a recommendation if the development should go ahead or not any conditions to which this statement is subjected;
- A description of assumptions and limitations in the report and any uncertainties or gaps in knowledge or data;
- A statement of the timing and intensity of site inspection observations (linked to GN 320);
- A description of the mean density of observations/number of samples sites per unit area of site inspection observations, where possible, as noted in the Species Environmental Assessment Guideline;
- A section indicating how the National Web-Based Screening Tool was interrogated and whether classification of the site is accurate or not, in terms of sensitivity and land-use. If not, it must be motivated why the classification is not accurate;
- Identification of any additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof;
- Assessment of the project alternatives and identification of a preferred alternative with motivation for this selection;
- Provision of recommendations with regards to potential monitoring programmes;
- Determine mitigation and/or management measures, which could be implemented to as far as possible, reduce the effect of negative impacts and enhance the effect of positive impacts. Also, identify best practice management actions, monitoring requirements, and rehabilitation guidelines for all identified impacts. This will be included in the EMPr, which will be appended to the Draft and Final EIA Reports.

The Terrestrial Animal Species Compliance Statement will be prepared by a specialist registered with SACNASP (with expertise in the field of Zoological Science or Ecological Science) and will include the following:

- The compliance statement will be applicable to the study area; confirm that the study area is of “low” sensitivity for terrestrial animal species; and indicate whether or not the proposed development will have any impact on SCC.
- Contact details and relevant experience as well as the SACNASP registration number of the specialist, including a curriculum vitae;
- Signed statement of independence by the specialist;
- Statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;

- A description of the methodology used to undertake the site survey and to prepare the compliance statement, including equipment and modelling used where relevant;
- The mean density of observations/ number of samples sites per unit area, where possible, as noted in the Species Environmental Assessment Guideline;
- Where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr, which will be appended to the Draft and Final EIA Reports;
- A description of the assumptions made and any uncertainties or gaps in knowledge or data; and
- Any conditions to which the compliance statement is subjected.

The Specialist is also required to:

- Incorporate and address all relevant comments and concerns raised by the stakeholders, commenting authorities and I&APs prior to submitting the Final EIA Report to the Competent Authority for decision-making; and
- Review the Generic EMPr for Substations (GN R435) and confirm if there are any specific environmental sensitivities or attributes present on the project site and any resultant site-specific impact management outcomes and actions that are not included in the pre-approved generic EMPr (Part B – Section 1). If so, a list of the required specific impact management outcomes and actions must be provided.

7.8.3 Aquatic Biodiversity and Species Impact Assessment

The Aquatic Biodiversity Specialist is required to compile a Specialist Assessment in adherence to the gazetted Environmental Assessment Protocols, specifically the 'Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on Aquatic Biodiversity' (GG 43110 / GN R320, 20 March 2020). This protocol replaces the requirements of Appendix 6 of the 2014 NEMA EIA Regulations, as amended.

The site visit was conducted in the week of the 1st to the 4th of February 2022 by the wetland specialist, Rudi Bezuidenhoudt. The aquatic specialist, Andre Strydom, conducted the site visits in January (3rd to 7th) but not all sites could be sampled due to access issues. An additional site visit was conducted on 3-5th of February but the aquatic ecosystems were in flood and hence the survey aborted. The final site visit was conducted on the 22nd to 24th of February 2022. The surveys were therefore conducted in the summer or high flow season. No dry season surveys were conducted as part of the assessment.

The site visits were conducted by the specialists, in order to identify the level of sensitivity assigned to the project study area, and to verify and confirm this sensitivity and land use as per the National Web-Based Screening Tool. Based on the findings from the site visit and the Site Sensitivity Verification Report including the Scoping Level Specialist Assessment (included in Appendix G.3 of this Draft Scoping Report) prepared by the Specialist in accordance with the requirements documented in the Assessment Protocol (GG 43110 / GN R320 of 20 March 2020), it was confirmed that an Aquatic Biodiversity and Species Impact Assessment (the input complying with the content requirements of the said Aquatic Biodiversity Protocol) is required during the EIA Phase.

The Aquatic Biodiversity and Species Impact Assessment is to be based on existing information, national and provincial databases, and professional experience and fieldwork conducted by the Specialist, as considered necessary and in accordance with relevant legislated requirements (e.g. GN 320). The Impact Assessment Report must also be in adherence to any additional relevant legislation and guidelines that may be deemed necessary.

The Aquatic Biodiversity and Species Impact Assessment will include the following:

- Description of the aquatic biodiversity and ecosystems of the project site, with focus on features that are to be potentially impacted by the proposed project. The description should include the aquatic ecosystem types, presence of aquatic species, the major habitat forms giving due consideration to the composition of aquatic species communities, their habitat, distribution and movement patterns within the study area;
- Describe the extent of disturbance and transformation of the site, as necessary;
- Specification of development setbacks or buffers required, and provide clear motivations for these recommendations, including a description of the location of areas not suitable for development and to be avoided during construction and operation, where relevant;
- Indication of the historic ecological condition (reference) and the Present Ecological State (PES) of identified aquatic features (in- stream, riparian and floodplain habitat), and on site that are to be potentially impacted by the proposed project i.e., possible changes to the channel and flow regime (surface and groundwater); and comment on the recommended ecological condition of aquatic habitats to be achieved within the project area;
- A map (if possible) describing the ecosystem processes that operate in relation to the aquatic ecosystems on and immediately adjacent to the project site (e.g. movement of surface and subsurface water, recharge, discharge, sediment transport, etc);
- Identify and delineate wetlands that may occur on the sites, using the relevant protocols established;
- A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;
- An indication of the national and provincial priority status of the aquatic ecosystem, including a description of the criteria for the given status (i.e., if the site includes a wetland or a river freshwater ecosystem priority area or sub catchment, a strategic water source area, whether or not they are free -flowing rivers, wetland clusters, a critical biodiversity or ecologically sensitive area);
- Consideration of seasonal changes and long-term trends, such as due to climate change;
- Identify any SCC or protected species on site;
- Compilation of a Risk Matrix (Appendix A to GN R309 of 2016) and determining whether an application for Water Use Authorisation (e.g., General Authorisation or Water Use License) is required and if so, determining the requirements thereof;
- Assessment of local and regional biodiversity conservation planning relevant to the project area;
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on aquatic biodiversity and species:

  - Cumulative impacts to be assessed by considering renewable energy projects and other applicable (and relevant) projects within 50 km of the proposed projects (refer to Table 7.3 above).
  - Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the project. The Impact Assessment Methodology to be followed is contained in Section 7.5.1 of this Chapter.
- An impact statement indicating the acceptability of the proposed development and a recommendation if the development should go ahead or not;
- A description of the assumptions made, any uncertainties or gaps in knowledge or data, and limitations in the report;
- A section indicating how the National Web-Based Screening Tool was interrogated and whether classification of the site is accurate or not. If not, it must be motivated why the classification is not accurate;
- The threat status of the ecosystem and species as identified by the screening tool;
- Identification of any additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof;
- Assessment of the project alternatives and identification of a preferred alternative with motivation for this selection;
- Contact details of the specialist, their SACNASP registration number, their field of expertise and a Curriculum Vitae;
- A signed statement of independence by the specialist;
- Provision of recommendations with regards to potential monitoring programmes; and
- Determine mitigation and/or management measures, which could be implemented to as far as possible, reduce the effect of negative impacts and enhance the effect of positive impacts. Also, identify best practice management actions, monitoring requirements, and rehabilitation guidelines for all identified impacts. This will be included in the EMPr, which will be appended to the Draft and Final EIA Reports.

The Specialist is also required to:

- Incorporate and address all relevant comments and concerns raised by the stakeholders, commenting authorities and I&APs prior to submitting the Final EIA Report to the Competent Authority for decision-making; and
- Review the Generic EMPr for Substations (GN R435) and confirm if there are any specific environmental sensitivities or attributes present on the project site and any resultant site-specific impact management outcomes and actions that are not included in the pre-approved generic EMPr (Part B – Section 1). If so, a list of the required specific impact management outcomes and actions must be provided.

7.8.4 Avifauna Impact Assessment

The Avifauna Specialist is required to compile a Specialist Assessment in adherence to the gazetted Environmental Assessment Protocols, specifically the protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species (GG 43855 / GN

R1150, 30 October 2020. This protocol replaces the requirements of Appendix 6 of the 2014 NEMA EIA Regulations, as amended. The Avifauna Assessment will also be undertaken in terms of the following:

- Guidelines for the Implementation of the Terrestrial Flora and Terrestrial Fauna Species Protocols for EIAs in South Africa produced by the SANBI on behalf of the Department of Environment, Forestry and Fisheries (2020); and
- The BirdLife South Africa (BLSA) Guidelines for assessing and monitoring the impact of solar power generating facilities on birds in southern Africa[3] to determine the level of survey effort that is required.

The specialist conducted a pre-construction monitoring programme at the proposed project site. The pre-construction avifaunal monitoring programme is following an adapted Regime 2 protocol as defined in the Birds and Solar Energy Best Practice Guidelines (Jenkins *et al.* 2017) which require three surveys over a six- month period. Three site visits were undertaken as follow:

- First Site Visit – 22 – 26 July 2021;
- Second Site Visit – 04 December 2021; and
- Third Site Visit - 05 – 08 January 2022.

Based on the findings from the site visit and the Site Sensitivity Verification Report including the Scoping Level Specialist Assessment (included in Appendix G.4 of this Draft Scoping Report) prepared by the Specialist, it was confirmed that an Avifauna Specialist Assessment Report (the input complying with the content requirements of GN1150 and the above-mentioned guidelines, where possible) is required during the EIA Phase.

The Avifauna Specialist Assessment will be based on existing information, national and provincial databases, and professional experience and fieldwork conducted by the Specialist, as considered necessary and in accordance with relevant legislated requirements. The Assessment Report must also be in adherence to any additional relevant legislation and guidelines that may be deemed necessary.

Although the general bird community is considered, this assessment will focus on the priority species, specifically those considered to be more sensitive to solar energy development related impacts.

The Avifauna Impact Assessment will include the following tasks:

- Finalise the findings and outcomes of the pre-construction avifaunal monitoring programme that was conducted over a period of six months in accordance with the BLSA guideline for Solar PV developments (i.e., Regime 2);
- Determination, description and mapping of the baseline environmental condition and sensitivity of the study area in terms of avifaunal features such as habitat use, roosting, feeding and nesting/breeding.

[3] BirdLife South Africa by Jenkins, A.R., Ralston-Patton, Smit- Robinson, A.H. 2017.

- Specification of development setbacks or buffers required, and provide clear motivations for these recommendations, including a description of the location of areas not suitable for development and to be avoided during construction and operation, where relevant;
- Provide review input on the preferred infrastructure layout following the sensitivity analysis and layout identification (to identify location of areas not suitable for development and to be avoided during construction where relevant);
- Describe the affected environment from an avifaunal perspective, including consideration of the surrounding habitats and avifaunal features (e.g. Ramsar sites, Important Bird Areas, wetlands, migration routes, feeding, roosting and nesting areas, etc.);
- Describe and map bird habitats on the site, based on on-site monitoring, desk-top review, collation of available information, studies in the local area and previous experience. The assessment must also consider the maps generated by the National Screening Tool;
- A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- A description of the methodology used to undertake the site sensitivity verification, impact assessment and site inspection, including equipment and modelling used where relevant;
- Details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;
- Identification and assessment of the potential direct, indirect and cumulative impacts of the proposed development on birds:
    - Cumulative impacts to be assessed by considering renewable energy projects and other applicable (and relevant) projects within 50 km of the proposed projects (refer to Table 7.3 above).
    - Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the project. The Impact Assessment Methodology to be followed is contained in Section 7.5.1 of this Chapter.
- An reasoned opinion, based on the findings of the specialist assessment, indicating the acceptability of the proposed development and a recommendation if the development should go ahead or not; and any conditions to which the opinion is subjected if relevant;
- A description of the assumptions made, any uncertainties or gaps in knowledge or data, and limitations in the report;
- A section indicating how the National Web-Based Screening Tool was interrogated and whether classification of the site is accurate or not. If not, it must be motivated why the classification is not accurate;
- Identification of any additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof;
- Assessment of the project alternatives and identification of a preferred alternative with motivation for this selection;
- Specialist signed Statement of Independence and Curriculum Vitae;
- Recommendations for mitigation of impacts to acceptable levels (where possible) and potential monitoring programmes.
- Determine mitigation and/or management measures (including monitoring if required) which could be implemented to as far as possible reduce the effect of negative impacts and enhance the

effect of positive impacts. Also, identify best practice management actions, monitoring requirements, and rehabilitation guidelines for all identified impacts. This will be included in the EMPr, which will be appended to the Draft and Final EIA Reports.

The Specialist is also required to:

- Incorporate and address all relevant comments and concerns raised by the stakeholders, commenting authorities and I&APs prior to submitting the Final EIA Report to the Competent Authority for decision-making; and
- Review the Generic EMPr for Substations (GN R435) and confirm if there are any specific environmental sensitivities or attributes present on the project site and any resultant site-specific impact management outcomes and actions that are not included in the pre-approved generic EMPr (Part B – Section 1). If so, a list of the required specific impact management outcomes and actions must be provided.

7.8.5 Heritage Impact Assessment

The Heritage Specialist is required to undertake a Specialist Assessment in adherence to the gazetted Environmental Assessment Protocols, specifically with 'Part A - General Protocol for the Site Sensitivity Verification and Minimum Report Content Requirements where a Specialist Assessment is required but no specific Environmental Theme Protocol has been prescribed' (GG 43110 / GNR 320, 20 March 2020).

The Specialist conducted a site visit and field surveys during 10 & 13 November 2021 in order to identify the level of sensitivity assigned to the project area, and to verify and confirm this sensitivity and land use as per the National Web-Based Screening Tool. Based on the findings of the site visit, a Site Sensitivity Verification report (included as Appendix G.6) was prepared in accordance with GNR 320.

The Heritage Impact Assessment (HIA) Report will be compiled in adherence to Appendix 6 of the 2014 NEMA EIA Regulations, as amended. The HIA must also comply with the requirements of SAHRA. The HIA must also be in adherence to any other additional relevant legislation and guidelines that may be deemed necessary, if applicable.

The Heritage Impact Assessment must include the following:

- Description and assessment of the heritage features of the sites and surrounding area. This is to be based on desktop reviews, fieldwork, available databases and findings from other heritage studies in the area, where relevant. Reference to the grade of heritage feature and any heritage status the feature may have been awarded will be included (where possible);
- Specification of development setbacks or buffers required, and clear motivations for these recommendations;
- Provide review input on the preferred infrastructure layout following the sensitivity analysis and layout identification;
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed developments on the full scope of heritage features, including archaeology and the cultural-historical landscape, as required by heritage legislation:

  - Cumulative impacts to be assessed by considering renewable energy projects and other applicable (and relevant) projects within 50 km of the proposed projects (refer to Tables 7.3 above).
  - Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the project. The Impact Assessment Methodology to be followed is contained in Section 7.5.1 of this Chapter.
- Liaison with the relevant authorities (i.e., SAHRA) and the Mpumalanga Provincial Heritage Resource Authority (MPHRA) in order to obtain a letter of approval, comments or a Permit in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), including Regulations issued thereunder, as necessary. This also includes meeting the reporting requirements of SAHRA.
- A reasoned opinion indicating the acceptability of the proposed development and a recommendation if the development should go ahead or not;
- A description of assumptions and limitations in the report;
- A section indicating how the National Web-Based Screening Tool was interrogated and whether classification of the site is accurate or not. If not, it must be motivated why the classification is not accurate;
- Identification of any additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof;
- Assessment of the project alternatives and identification of a preferred alternative with motivation for this selection;
- Specialist Declaration of Independence and Curriculum Vitae;
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures, which could be implemented to as far as possible, reduce the effect of negative impacts and enhance the effect of positive impacts. Also, identify best practice management actions, monitoring requirements, and rehabilitation guidelines for all identified impacts. This will be included in the EMPr, which will be appended to the Draft and Final EIA Reports.

The Specialist is also required to:

- Incorporate and address all relevant comments and concerns raised by the stakeholders, commenting authorities and I&APs prior to submitting the Final EIA Report to the Competent Authority for decision-making; and
- Review the Generic EMPr for Substations (GN R435) and confirm if there are any specific environmental sensitivities or attributes present on the project site and any resultant site-specific impact management outcomes and actions that are not included in the pre-approved generic EMPr (Part B – Section 1). If so, a list of the required specific impact management outcomes and actions must be provided.

7.8.6 Palaeontology Impact Assessment

The Palaeontologist is required to undertake a Specialist Assessment in adherence to the gazetted Environmental Assessment Protocols, specifically with 'Part A - General Protocol for the Site Sensitivity

Verification and Minimum Report Content Requirements where a Specialist Assessment is required but no specific Environmental Theme Protocol has been prescribed' (GG 43110 / GNR 320, 20 March 2020).

The Palaeontologist (Prof. Marion Bamford) conducted a site visit to an adjacent farm on 26 October 2021. The adjacent farm Goedenoeg 290 was surveyed for the Becrux SEF project (Bamford in CTS21_215_Savannah_Secunda_PVs). Prof. Bamford concluded that no fossils of any kind were seen during the site visit. The recently ploughed agricultural land has deep, dark soils, more or less flat topography, and no rocky outcrops.

This site visit was used to identify the level of sensitivity assigned to the project area, and to verify and confirm this sensitivity and land use as per the National Web-Based Screening Tool. Based on the findings of the site visit, a Site Sensitivity Verification report (included as Appendix G.8) was prepared in accordance with Part A of the aforementioned Assessment Protocols (GG 43110 / GNR 320, 20 March 2020).

As documented in the Environmental Assessment Protocols (GG 43110 / GNR 320, 20 March 2020);
"*where a specialist assessment is required and no specific environmental theme protocol has been prescribed, the required level of assessment must be based on the findings of the site sensitivity verification and must comply with Appendix 6 of the EIA Regulations."*

The DFFE screening tool report map for palaeontology indicates a combination of medium and very high sensitivity both within the project area and in the wider surroundings (Appendix G.8). Prof. Bamford indicates that the red areas are indeed very highly sensitive because the rocks are Vryheid Formation and could have fossils of the Glossopteris flora. The orange areas, however, are not sensitive since they are largely dolerite (zero sensitivity) but with some overlying fluvial sediments dolerite along the river and its tributaries in the centre of the site and which would be moderately sensitive). She thus disputes the screening tool map in that the stated sensitivity is too high over some parts and correct in others. No fossils were seen in the study area and the substrate is sandy which precludes any being visible at the surface.

Prof Bamford indicated that since the site visit by the archaeologist for this project confirmed that the land has been ploughed and planted in the last few decades, it is unlikely that any fossils will be seen before excavations commences. Therefore, a desktop study with a Fossil Chance Find Protocol that should be added to the EMPr, is strongly recommended.

7.8.7Socio-Economic Impact Assessment

The Socio-Economic Specialist is required to undertake a Specialist Assessment in adherence to Appendix 6 of the 2014 NEMA EIA Regulations, as amended, as well as to any other additional relevant legislation and guidelines that may be deemed necessary, if applicable.

As at May 2022, the National Web-Based Screening Tool does not include any sensitivity layers relating to socio-economic information; therefore, a Site Sensitivity Verification is technically not possible. Scoping level inputs provided by the Socio-Economic Specialist are included as Appendix G.9 to this Scoping Report.

The Socio-Economic Impact Assessment must include the following:

- Describe the socio-economic context of the study area, focusing on aspects that are potentially affected by the proposed project, and taking into consideration the current situation as well as the local trends, the local planning (Integrated Development Plans and Spatial Development Frameworks), and other developments in the area;
- Identify the potential social and economic impacts (including benefits) associated with the proposed project, including inter alia impacts associated with loss of farmland (grazing), contribution to economic growth and job creation, training and skills development opportunities, quality of life, local community income and influx of workers / job seekers;
- Consider social issues such as potential in-migration of job seekers, opportunities offered by training and skills development, phasing of employment over the duration of the REIPPPP program, cumulative effects with other REIPPPP projects in the local area, implications for local planning and resource use;
- Apply a variety of appropriate options for sourcing information, such as review of analogous studies, available databases and social indicators, use of interviews with key stakeholders such as local communities, local landowners and government officials (local and regional), etc., where possible, to inform the assessment;
- Evaluate the implications of the social investment programme associated with REIPPPP projects on the local socio-economic context;
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a socio-economic perspective:
    - Cumulative impacts to be assessed by considering renewable energy projects and other applicable (and relevant) projects within 50 km of the proposed projects (refer to Table 7.3 above).
    - Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the project. The Impact Assessment Methodology to be followed is contained in Section 7.5.1 of this Chapter.
- A reasoned opinion indicating the acceptability of the proposed development and a recommendation if the development should go ahead or not;
- A description of assumptions and limitations in the report;
- Identification of additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof, if any;
- Specialist Declaration of Independence and Curriculum Vitae;
- Provide recommendations with regards to potential monitoring programmes; and
- Determine mitigation and/or management measures, which could be implemented to as far as possible, reduce the effect of negative impacts and enhance the effect of positive impacts. Also, identify best practice management actions, monitoring requirements, and rehabilitation guidelines for all identified impacts. This will be included in the EMPr, which will be appended to the EIA Report.

The Specialist is also required to:

- Incorporate and address all relevant comments and concerns raised by the stakeholders, commenting authorities and I&APs prior to submitting the Final EIA Report to the Competent Authority for decision-making.

- Review the Generic EMPr for Substations (GN R435) and confirm if there are any specific environmental sensitivities or attributes present on the project site and any resultant site-specific impact management outcomes and actions that are not included in the pre-approved generic EMPr (Part B – Section 1). If so, a list of the required specific impact management outcomes and actions must be provided.

7.8.8 Traffic Impact Assessment

The Traffic Specialist is required to undertake a Specialist Assessment in adherence to Appendix 6 of the 2014 NEMA EIA Regulations, as amended, as well as to any other additional relevant legislation and guidelines that may be deemed necessary, if applicable.

As at May 2022, the National Web-Based Screening Tool does not include any sensitivity layers relating to traffic information; therefore, a Site Sensitivity Verification is technically not possible. Scoping level inputs provided by the Traffic Specialist are included as Appendix G.10 to this Scoping Report.

The Traffic Impact Assessment must include the following tasks:

- Description of the identified traffic features including the surrounding road network and potential traffic disturbances of the local area;
- Assessment of the preferred project layout and how it relates to traffic impact;
- Specification of development setbacks or buffers required, and clear motivations for these recommendations;
- Identification and assessment of the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a traffic perspective;
    - Cumulative impacts to be assessed by considering renewable energy projects and other applicable (and relevant) projects within 30 km of the proposed projects (refer to Table 7.3 above).
    - Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the project. The Impact Assessment Methodology to be followed is contained in Section 7.5.1 of this Chapter.
- Determine the National and Local haulage routes between port of entry/manufacturer and site;
- Determine the Trip generation for the proposed development during construction and operation;
- Assessment of proposed internal roads and site access points;
- Assessment of freight requirements and permitting needed for abnormal loads;
- A description of assumptions and limitations in the report;
- A reasoned opinion indicating the acceptability of the proposed development and a recommendation if the development should go ahead or not;
- Identification of any additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof;
- Specialist Declaration of Independence and Curriculum Vitae;
- Provide recommendations with regards to potential monitoring programmes; and

- Determine mitigation and/or management measures, which could be implemented to as far as possible, reduce the effect of negative impacts and enhance the effect of positive impacts. Also, identify best practice management actions, monitoring requirements, and rehabilitation guidelines for all identified impacts. This will be included in the EMPr, which will be appended to the Draft and Final EIA Reports.

The Specialist is also required to:

- Incorporate and address all relevant comments and concerns raised by the stakeholders, commenting authorities and I&APs prior to submitting the Final EIA Report to the Competent Authority for decision-making; and
- Review the Generic EMPr for Substations (GN R435) and confirm if there are any specific environmental sensitivities or attributes present on the project site and any resultant site-specific impact management outcomes and actions that are not included in the pre-approved generic EMPr (Part B – Section 1). If so, a list of the required specific impact management outcomes and actions must be provided.

7.8.9 Visual Impact Assessment

The Visual Specialist is required to undertake a Specialist Assessment in adherence to the gazetted Environmental Assessment Protocols, specifically with 'Part A - General Protocol for the Site Sensitivity Verification and Minimum Report Content Requirements where a Specialist Assessment is required but no specific Environmental Theme Protocol has been prescribed' (GG 43110 / GNR 320, 20 March 2020).

The Specialist conducted a site visit from 25 – 26 January 2022 to identify the level of sensitivity assigned to the project area, and to verify and confirm this sensitivity and land use as per the National Web-Based Screening Tool.

The Visual Impact Assessment (VIA) Report must be compiled in adherence to Appendix 6 of the 2014 NEMA EIA Regulations, as amended, as well as to any other additional relevant legislation and guidelines that may be deemed necessary, if applicable.

The Visual Impact Assessment must include the following:

- Determination, description and mapping of the baseline environmental condition and sensitivity of the study area. Specify set-backs or buffers, and provide clear reasons for these recommendations.
- Description of the visual character and visual absorption capacity of the local area. Any significant visual features or visual disturbances must be identified, modelled and mapped, as well as any sensitive visual receptors within the proposed project area or within viewsheds of the proposed project;
- Assessment of the preferred project layout following the site sensitivity verification and layout identification;
- Viewshed for various elements of the proposed development must be calculated, defined and presented, and the varying sensitivities of these viewsheds must be highlighted;

- Mapping of visual sensitivity of the site taking into consideration visual receptors outside the site, and sensitivity to development on the site for potentially affected visual receptors of "very high" sensitivity. Specification of development setbacks or buffers required, and provide clear motivations for these recommendations;
- Identification and assessment of the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a visual perspective;
    - Cumulative impacts to be assessed by considering renewable energy projects and other applicable (and relevant) projects within 50 km of the proposed projects (refer to Table 7.3 above).
    - Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the project. The Impact Assessment Methodology to be followed is contained in Section 7.5.1 of this Chapter.
- Maps depicting viewsheds or line of sight across the sites should be generated and included in the VIA Report. These maps must indicate current viewsheds/visual landscape/obstructions, as well as expected visual impacts during the construction, operational and decommissioning phases of the proposed project.
- A reasoned opinion indicating the acceptability of the proposed development and a recommendation if the development should go ahead or not;
- A description of assumptions and limitations in the report;
- A section indicating how the National Web-Based Screening Tool was interrogated and whether classification of the site is accurate or not. If not, it must be motivated why the classification is not accurate;
- Identification of any additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof;
- Specialist Declaration of Independence and Curriculum Vitae;
- Provide recommendations with regards to potential monitoring programmes; and
- Determine mitigation and/or management measures, which could be implemented to as far as possible, reduce the effect of negative impacts and enhance the effect of positive impacts. Also, identify best practice management actions, monitoring requirements, and rehabilitation guidelines for all identified impacts. This will be included in the EMPr, which will be appended to the EIA Report.

The Specialist is also required to:

- Incorporate and address all relevant comments and concerns raised by the stakeholders, commenting authorities and I&APs prior to submitting the Final EIA Report to the Competent Authority for decision-making; and
- Review the Generic EMPr for Substations (GN R435) and confirm if there are any specific environmental sensitivities or attributes present on the project site and any resultant site-specific impact management outcomes and actions that are not included in the pre-approved generic EMPr (Part B – Section 1). If so, a list of the required specific impact management outcomes and actions must be provided.

7.8.10 High Level Safety, Health, and Environment Risk Assessment for the Battery Energy Storage Systems

As indicated in the previous chapters, a High-Level Safety, Health, and Environment Risk Assessment will be undertaken to study the risks associated with the proposed Battery Energy Storage Systems (BESS) to be installed at the proposed Vhuvhili SEF. The Risk Assessment serves as a **technical report**, and thus Appendix 6 of the 2014 NEMA EIA Regulations (as amended) will thus **not** be applicable.

The Terms of Reference for the desktop assessment that will be completed during the EIA Phase of the project include:

- A description of the region and local features;
- A study of the battery technologies to be used;
- Identification of sensitive receptors in the area;
- Assessing (identifying and rating) the potential impacts on the health and safety of employees, contractors and public persons;
- Identification of relevant legislation and legal requirements; and
- Providing recommendations on possible preventative and mitigation measures for inclusion in the EMPR.

Refer to Appendix G.11 of this Scoping Report for the Scoping High Level Safety, Health, and Environment Risk Assessment, which describes the proposed methodology for the assessment during the EIA Phase.

7.8.11 Desktop Geotechnical study

A Desktop Geotechnical Assessment will be undertaken in the EIA phase and will be included in the EIA reports. The primary objective of the desktop assessment is to summarise the geology of the area, including the likely distribution of potential geotechnical challenges related to the underlying geology for the proposed Vhuvhili SEF study site. The Geotechnical study serves as a **technical report**, and thus Appendix 6 of the 2014 NEMA EIA Regulations (as amended) will thus **not** be applicable.

The Terms of Reference for the desktop assessment that will be completed during the EIA Phase of the project include:

- Determine whether problem soils and/or geohazards are present across the site.
- Evaluate the geological and geotechnical conditions and their influence on the founding conditions.
- Assess potential uses for materials present on-site and possible incorporation of such materials in construction activities.
- Delineate geological features of interest, e.g., steep slopes, outcrops, faults, lineaments, and/or steep slopes, that may have an impact on the development.
- Assess the influence of the groundwater on construction and development.

7.8.12 Defence

Defence Assessments are required to comply with the gazetted Environmental Assessment Protocols, specifically the 'Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on Defence Installations" (GG 43110 / GN R320, 20 March 2020). As indicated in Chapter 3 and Chapter 4 of this Scoping Report, the entire area of interest for the proposed Vhuvhili SEF Project site is classified as 'low' sensitivity on the National Web-Based Screening Tool. Therefore, in line with GN R320, only a site sensitivity verification is necessary to confirm the site as a low sensitivity. However, this low sensitivity still needs to be verified and confirmed by means of a site visit during the EIA Phase. If the verified sensitivity appears to be medium, high or very high sensitivity, then a Compliance Statement will be required. If the verified sensitivity appears to be low, then no further requirements are necessary, except for the site sensitivity verification confirming the low sensitivity.

If a Compliance Statement is required, it will be applicable to the preferred site and proposed development footprint, and will include the following main aspects (where possible):

- Contact details of the EAP or the specialist, their relevant qualifications and expertise in preparing the statement, and a curriculum vitae;
- A signed statement of independence by the EAP or specialist compiling the statement;
- A map showing the proposed development footprint (including supporting infrastructure) overlaid on the defence sensitivity map generated by the Screening Tool;
- Where possible, a comment, from the Department of Defence confirming no unacceptable impact on military areas of interest; or requesting for further studies to be undertaken, which if required, will be appended to the Compliance Statement. The further studies, if required, must be in accordance with the requirements stipulated by the Department of Defence;
- Description of the nature of the applicable defence installations;
- Confirm the sensitivity rating for the site i.e., a section indicating how the National Web-Based Screening Tool was interrogated and whether classification of the site is accurate or not, with reasons;
- A statement indicating whether or not the proposed development will have an unacceptable impact on defence installations;
- A description of assumptions and limitations; and
- Identification of any additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof.

7.8.13 Civil Aviation

Civil Aviation Assessments are required to comply with the gazetted Environmental Assessment Protocols, specifically the 'Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on Civil Aviation Installations" (GG 43110 / GN R320, 20 March 2020). However, as indicated in Chapter 3 and Chapter 4 of this Scoping Report, the findings from the National Web-Based Screening Tool have indicated that the proposed Vhuvhili SEF site has a medium sensitivity with the classification of "within 8 km of another civil aviation aerodrome" for some areas of the project site, with the rest of the project site being of low sensitivity. However, this sensitivity still needs to be verified and

confirmed by means of a site visit during the EIA Phase. If the verified sensitivity appears to be medium, high or very high sensitivity, then a Compliance Statement will be required. If the verified sensitivity appears to be low, then no further requirements are necessary, except for the site sensitivity verification confirming the low sensitivity.

If a Compliance Statement is required, it will be applicable to the preferred site and proposed development footprint, and will include the following main aspects (where possible):

- Contact details of the EAP or the specialist, their relevant qualifications and expertise in preparing the statement, and a Curriculum Vitae;
- A signed statement of independence by the EAP or specialist compiling the statement;
- A map showing the proposed development footprint (including supporting infrastructure) overlaid on the civil aviation sensitivity map generated by the Screening Tool);
- Where possible, a comment, from the South African Civil Aviation Authority (SACAA), which may include inputs from the Obstacle Evaluation Committee (OEC), if appropriate, confirming that there will be no unacceptable impact on civil aviation installations; or requesting for further studies to be undertaken, which if required, will be appended to the Compliance Statement;
- Description of the nature of the civil aviation installations applicable to the proposed project;
- A statement indicating whether the proposed project will have an unacceptable impact on the relevant civil aviation installation;
- A description of assumptions and limitations;
- Confirm the sensitivity rating for the site i.e., a section indicating how the National Web-Based Screening Tool was interrogated and whether classification of the site is accurate or not, with reasons; and
- Identification of any additional protocols, licensing and/or permitting requirements that are relevant to the project and the implications thereof.