JUWI South Africa (Pty) Ltd

Mayogi Solar Energy Facility and Associated Infrastructure near Kirkwood, Eastern Cape Province

Visual Scoping Report

DFFE Reference: TBC
Report Prepared by: Kelly Armstrong and Chris Dalgliesh
Issue Date: **4 August 2023**
Version No.: 2

JUWI South Africa (Pty) Ltd

Mayogi Solar Energy Facility and Associated Infrastructure near Kirkwood, Eastern Cape Province

Visual Scoping Report

EXECUTIVE SUMMARY

JUWI South Africa (Pty) Ltd (juwi), proposes to develop two 75 MW Solar Energy Facilities (SEFs), each with an on-site substation and Battery Energy Storage System (BESS) on Farm 692 Kirkwood, near Kirkwood, in the Eastern Cape Province (the project). The project will occupy up to 504 ha with SEF 1 occupying up to ~273 ha and SEF 2 occupying up to ~231 ha. Each SEF will connect to their respective 33 / 132 kV on-site substation, from where power will be evacuated to the existing Skilpad substation located on the property.

SRK Consulting (South Africa) (Pty) Ltd has been appointed by SiVEST (SA) (Pty) Ltd (SiVEST) to undertake the Visual Impact Assessment (including Glint and Glare modelling[1]) to inform the Environmental Impact Assessment (EIA) process required in terms of the National Environmental Management Act 107 of 1998 (NEMA), conducted by SiVEST.

The project is located in the Sundays River Valley on a gently sloping portion of a larger property. No watercourses are mapped on the site, although the Kariega, Holbak and Bezuidenhouts Rivers (tributaries of the Sundays [or Sondags] River) and Sundays River drain wider area. The visual quality is defined by the predominantly rural agricultural environment characterised by grazing farmland, patchwork of orchards and small nodes of development, and can therefore be described as a modified rural landscape.

The visual quality of the area is experienced through the rolling views across the Sundays River Valley which can be described as having a long closed landscape. Visual receptors were identified based on surrounding land uses and include farmstead residents, R75 and farm road motorists and recreational receptors visiting the Mayogi Farmstall, Daniell Cheetah project and private game reserves located around the project area. The sense of place of the surrounding area is strongly influenced by the surrounding land use, which can generally be described as a rural agricultural area. The sense of place is not particularly distinct from the rest of the wider region and is not overly unique.

The project is expected to be exposed within 1 km of the site. Beyond 1 km the intervening topography and distance influence the exposure, with visibility expected up to 4 km to the north, south-east and south-west. The project will also be visible along a ~6 km section of the R75 adjacent to the site. The visual exposure of the proposed infrastructure is thus deemed moderate.

The VAC of the area for the project is low, particularly in the foreground due to the low growing vegetation that has limited screening potential. However, the undulating landscape in the surrounding area increases the VAC of the area for the project in the middle and background to some degree.

[1] Glint and glare modelling results and impacts will be included in the Visual Impact Assessment.

The high sensitivity of the visual receptors in close proximity to the project, e.g. recreational receptors, is moderated by the large number of motorists with fleeting views and residential receptors located some distance from the site. The sensitivity of the viewers or visual receptors potentially affected by the visual impact of the project is considered to be moderate as the project will be visible in the foreground and middleground to surrounding receptors and screened to receptors located some distance away (>1 km).

No other SEFs or Wind Energy Facilities (WEFs) are located within ~ 20 km of the site and the predominate land use surrounding the site is rural. The PV arrays are therefore expected to be very different and incongruent with the existing land use and vary significantly from the scale and size of the infrastructure in the area around the site. The on-site substations and 33 kV and 132 kV powerline infrastructure is expected to be more consistent with type, scale and size of the existing infrastructure within the landscape. Nevertheless, the project is deemed to have a low integrity with the surrounding landscape.

Impacts of the project will be associated with visual intrusion and visual quality and have been described in this report. The impacts will be assessed in the VIA.

Construction (and decommissioning) activities associated with the project such as earthworks, which can generate dust, and from construction infrastructure, plant and materials on site are anticipated to be visually intrusive.

During the operational phase, the PV arrays are anticipated to interrupt and/or degrade views, and therefore negatively impact the sense of place and present as a visual intrusion across the landscape. The BESS', 132 kV powerlines and on-site substations will increase visual clutter and be experienced as visual intrusions across the landscape. Lighting will be installed around the substations and the O&M buildings. Lighting around the substations and O&M buildings will generate nightglow, altering the sense of place and visual quality.

Key mitigation measures associated with these impacts will be included in the VIA report.

Four approved WEFs and associated grid connection infrastructure projects are located within a 35 km radius of the proposed project site are listed on the DFFE South African Renewable Energy EIA Application Database (DFFE, 2022). No SEF projects within 35 km of the site are listed on the DFFE South African Renewable Energy EIA Application Database. The Mayogi SEFs and the other three proposed facilities have large development footprints, but are far apart and do not constitute a spatially concentrated, high density network of renewable energy facilities, which mitigates cumulative impacts.

Based on the assessment to follow in the VIA, the specialist will provide an opinion relating to the visual impacts of the project and their acceptability.

NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT REGULATIONS, 2014 (AS AMENDED) - REQUIREMENTS FOR SPECIALIST REPORTS (APPENDIX 6)

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	**Section of Report**
1. (1) A specialist report prepared in terms of these Regulations must contain- a) details of- i. the specialist who prepared the report; and ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	1.3
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Page 6
c) an indication of the scope of, and the purpose for which, the report was prepared;	13
(cA) an indication of the quality and age of base data used for the specialist report;	1.4.1
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	5 and 6
d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	1.4.1
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	1.4
f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	6 and 7
g) an identification of any areas to be avoided, including buffers;	7
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	N/A
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	2
j) a description of the findings and potential implications of such findings on the impact of the proposed activity, (including identified alternatives on the environment) or activities;	7 and 8

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	**Section of Report**
k) any mitigation measures for inclusion in the EMPr;	To be included in the VIA
l) any conditions for inclusion in the environmental authorisation;	To be included in the VIA
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	To be included in the VIA
n) a reasoned opinion- i. (as to) whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	To be included in the VIA
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	N/A
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	N/A
q) any other information requested by the competent authority.	N/A
2) Where a government notice *gazetted* by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	N/A

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Mayogi Solar Energy Facility and Associated Infrastructure near Kirkwood, Eastern Cape Province

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.environment.gov.za/documents/forms.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name:	SRK Consulting (South Africa) (Pty) Ltd			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	1	Percentage Procurement recognition	135%
Specialist name:	Kelly Armstrong			
Specialist Qualifications:	BSocSc (Hons) Environmental Science			
Professional affiliation/registration:	Registered EAP (EAPASA) (2019/1167)			
Physical address:	183 Main Road, Albion Spring Close, Rondebosch, 7700			
Postal address:	Postnet Suite #206, P. Bag X18, Rondebosch, 7701			
Postal code:	7700	Cell:	076 114 9254	
Telephone:	021 659 3060	Fax:	086 530 7003	
E-mail:	karmstrong@srk.co.za			

2. DECLARATION BY THE SPECIALIST

I, ____Kelly Armstrong_____, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

SRK Consulting (South Africa) (Pty) Ltd

Name of Company:

Date:

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, _____ Kelly Armstrong _____, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Specialist

SRK Consulting (South Africa) (Pty) Ltd

Name of Company

Date

Signature of the Commissioner of Oaths

Date

JUWI South Africa (Pty) Ltd

Mayogi Solar Energy Facility and Associated Infrastructure near Kirkwood, Eastern Cape Province

Visual Scoping Report

Contents

List of Tables

List of Figures

List of Appendices

Glossary of Terms

This list contains definitions of symbols, units, abbreviations, and terminology that may be unfamiliar to the reader.

Landscape Integrity	The compatibility of the development/visual intrusion with the existing landscape.
Sense of Place	The identity of a place related to uniqueness and/or distinctiveness. Sometimes referred to as genius loci meaning 'spirit of the place'.
Viewshed	The topographically defined area from which the project could be visible.
Visibility	The area from which the project components would actually be visible and which depends upon topography, vegetation cover, built structures and distance.
Visual Absorption Capacity	The potential for the area to conceal the proposed development.
Visual Character	The elements that make up the landscape including geology, vegetation and land-use of the area.
Visual Exposure	The zone of visual influence or viewshed. Visual exposure tends to diminish exponentially with distance.
Visual Impact	A change to the existing visual, aesthetic or scenic environment, either adverse or beneficial, that is directly or indirectly due to the development of the project and its associated activities.
Visual Intrusion	The effect of the artificial insertion (construction) of an object into a landscape, typically – but not always - reducing the visual quality of the environment, and sense of place.
Visual Obtrusion (or Obstruction)	The effect of the artificial insertion (construction) of an object into a landscape, typically blocking and/or foreshortening views.
Visual Quality	The experience of the environment with its particular natural and cultural attributes.
Visual Receptors	Potential viewers (individuals or communities) who are subjected to the visual influence of a project.

List of Abbreviations

BESS	Battery Energy Storage System
DEA&DP	Department of Environmental Affairs and Development Planning
DFFE	Department of Forestry, Fisheries and the Environment
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
Juwi	JUWI South Africa (Pty) Ltd
mamsl	Metres Above Mean Sea Level
NEMA	National Environmental Management Act 107 of 1998
O&M	Operation and Maintenance
PV	Photovoltaic
S&EIR	Scoping and Environmental Impact Report
SEF	Solar Energy Facility
SiVEST	SiVEST (SA) (Pty) Ltd
SRK	SRK Consulting (South Africa) (Pty) Ltd
ToR	Terms of Reference
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment
VP	Viewpoint
WEF	Wind Energy Facility

JUWI South Africa (Pty) Ltd

Mayogi Solar Energy Facility and Associated Infrastructure near Kirkwood, Eastern Cape Province

Visual Scoping Report

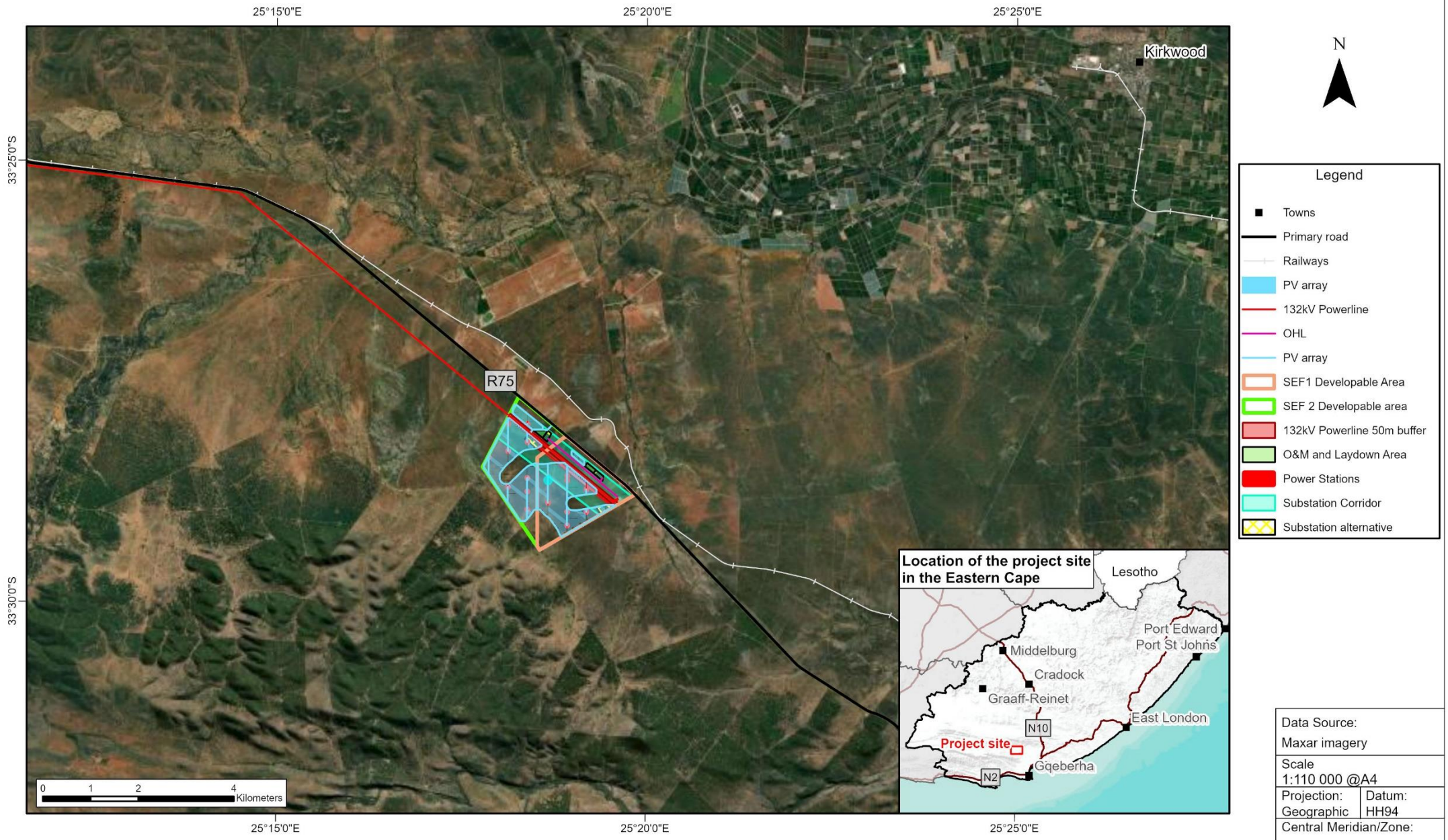
1. INTRODUCTION

JUWI South Africa (Pty) Ltd (juwi), proposes to develop two Solar Energy Facilities (SEFs) each with a generation capacity of 75 MW, and each with an on-site substation and Battery Energy Storage System (BESS) (the project). The project will be located on Farm 692 Kirkwood, near Kirkwood, in the Eastern Cape (Figure 1-1) –. The project will occupy up to 504 ha with SEF 1 occupying up to ~273 ha and SEF 2 up to 231 ha. The SEF will connect to the respective 33 / 132 kV on-site substations, from where power will be evacuated to the existing Skilpad Substation located on the property (Figure 1-1).

SRK Consulting (South Africa) (Pty) Ltd (SRK) has been appointed by SiVEST (SA) (Pty) Ltd (SiVEST), on behalf of juwi, to undertake the Visual Impact Assessment (VIA) to inform the required Scoping and Environmental Impact Reporting (S&EIR) process required in terms of the National Environmental Management Act 107 of 1998 (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2014, conducted by SiVEST.

1.1 Scope and Objectives

The primary aims of the study are to describe the visual baseline, assess the visual impacts of the project and identify effective and practicable mitigation measures. This Visual Scoping Report informs the Scoping Process, and the VIA, which will be compiled after this report, informs the EIA process.



Data Source:	Maxar imagery
Scale	1:110 000 @A4
Projection: Geographic	Datum: HH94
Central Meridian/Zone:	
Date: 28/07/2023	Compiled by: MAHH
Project No. 591856	Fig No. 1-1

srk consulting

MAYOGI SEF
LOCALITY MAP

Path: C:\Users\mahh\OneDrive - SRK Consulting\8GIS\GISPROJ\PRO\2023\591856_MAYOGI.aprx\SEF2_Locality_A4L_20230516

Revision: A Date: 28 07 2023

1.2 Terms of Reference

The Terms of Reference (ToR) for the VIA are as follows:

- Describe the baseline visual characteristics of the study area, including landform, visual character and sense of place, and place this in a regional context;
- Identify potential impacts of the project on the visual environment through analysis and synthesis of the following factors:
    - Visual exposure;
    - Visual absorption capacity (VAC);
    - Sensitivity of viewers (visual receptors);
    - Viewing distance and visibility;
    - Landscape integrity; and
    - Solar reflection (glint and glare)[2];
- Map sensitive areas to inform the location of the SEF;
- Conduct glare modelling and associated analysis for the proposed SEFs;
- Assess potential the impacts of the project on the visual environment and sense of place using SiVEST's impact assessment methodology (see Appendix B);
- Identify and assess the direct, indirect and cumulative impacts (pre- and post-mitigation) of the proposed project (and alternatives, if applicable) on visual resources in relation to other proposed and existing developments in the surrounding area;
- Compile a report compliant with Appendix 6 of the EIA Regulations and any relevant legislation and guidelines; and
- Recommend practicable mitigation measures to avoid and/or minimise impacts and/or optimise benefits.

1.3 Specialist Credentials

The VIA was conducted by professional personnel listed in Table 1-1.

Table 1-1: VIA personnel

Staff	Role	Qualification
Christopher Dalgliesh	Project Director	Chris Dalgliesh is a Partner and Principal Environmental Consultant with over 36 years' experience, primarily in South Africa, Southern Africa, West Africa and South America (Suriname). Chris has worked on a wide range of projects, notably in the natural resources, Oil & Gas, waste, infrastructure (including rail and ports) and industrial sectors. He has managed and regularly reviews Visual Impact Assessments. He has directed and managed numerous Environmental and Social Impact Assessments (ESIAs) and associated management plans, in accordance with international standards. He regularly provides high level review of ESIAs, frequently directs Environmental and Social Due Diligence

[2] The glint and glare modelling findings and impacts will be included in the Visual Impact Assessment Report.

Staff	Role	Qualification
		studies for lenders, and also has a depth of experience in Strategic Environmental Assessment (SEA), State of Environment Reporting and Resource Economics. He holds a BBusSci (Hons) and M Phil (Env) and is a registered Environmental Assessment Practitioner (EAP).
Kelly Armstrong	Specialist Consultant	Kelly Armstrong is an Environmental Consultant at SRK Consulting. She has five years' experience in managing Basic Assessment, Environmental Impact Assessment and Water Use Authorisation processes and acting as an Environmental Control Officer (ECO) in the renewable energy, residential, aquaculture, marine and mining sectors. She also manages and contributes to Visual Impact Assessments for infrastructure, renewable energy and mining projects. Kelly holds a BSocSc (Hons) in Environmental and Geographical Studies from the University of Cape Town and is a registered EAP.

1.4 Methodology

Visual impacts are a function of the physical transformation of a landscape on account of the introduced development, and the experiential perceptions of viewers. The following method was used to assess the visual context (baseline) and preliminary impacts for the project:

1. Describe the project using information supplied by juwi and SiVEST;
2. Collect and review visual data, including data on topography, vegetation cover, land-use and other background information;
3. Undertake fieldwork, comprising a reconnaissance of the study area, particularly the project site and key viewpoints. The objectives of the fieldwork were to:
    - Familiarise the specialist with the site and its surroundings;
    - Identify key viewpoints / corridors; and
    - Determine and groundtruth the existing visual character and quality in order to understand the sensitivity of the landscape.

    Visual 'sampling' using photography was undertaken to illustrate the likely zone of influence and visibility. The location of the viewpoints was recorded with a GPS;
4. Identify sensitive receptors;
5. At key viewpoints determine the likely distance at which visual impacts will become indistinguishable; and
6. Determine the visual zone of influence or exposure by superimposing the proposed development on aerial imagery, and verified during the site visit.

The following method will be used to assess the visual impact of the project in the VIA report:

1. Rate impacts on the visual environment and sense of place based on professional opinion and the prescribed impact rating methodology;
2. Recommend practicable mitigation measures to avoid and/or minimise impacts; and
3. Provide environmental management measures to be included in the Environmental Management Programme (EMPr) for the project.

1.4.1 Site Visit and Data Acquisition

A site visit was undertaken on 17 November 2022. The site visit duration and timing were appropriate to provide the specialist with a representative impression of the site and surroundings.

The following additional information sources were used:

- Maps indicating the location and layout of the project;
- Topographic data, including spatial files with 5 m contours obtained from the Department of Rural Development and Land Reform;
- Aerial images; and
- Other available data on geology, vegetation, land use, receptors etc.

The information is sufficiently recent and detailed to provide appropriate inputs into the VIA.

2. ASSUMPTIONS AND LIMITATIONS

As is standard practice, the study is based on a number of assumptions and is subject to certain limitations, which should be borne in mind when considering information presented in this report. These assumptions and limitations include:

- VIA is not, by nature, a purely objective, quantitative process, and depends to some extent on subjective judgments. Where subjective judgments are required, appropriate criteria and motivations for these have been clearly stated;
- The study is based on technical information supplied to SRK, which is assumed to be accurate. This includes the proposed locations, dimensions and layouts of the project components;
- The modelled viewshed is confined to the area within 5 km radius of the site, as the visual impact beyond this distance is considered negligible; and
- This study does not provide motivation for or against the project, but rather seeks to give insight into the visual character and quality of the area, its VAC and the potential visual impacts of the project.

The findings of the VIA are not expected to be affected by these assumptions and limitations.

3. TECHNICAL DESCRIPTION

This section provides a concise description of the proposed project as provided at the time of assessment, focusing on elements relevant to the Visual Scoping Report. The general project description may still be refined, and a more detailed description is provided in the Scoping Report and/or EIA Report for the project. The VIA will be revised upon receipt of a refined project description.

3.1 Project Location

The project is located ~13 km south-west of Kirkwood in the Sundays Valley Local Municipality in the Sarah Baartman District Municipality, Eastern Cape Province. The project will comprise the construction and operation of a two 75 MW SEFs on Farm 692 Kirkwood. The R75 road borders Farm 692 to the north-east (Figure 1-1).

3.1.1 Location Alternatives

No other location alternatives are expected to be assessed in the EIA.

This site is preferred due to the following:

- Suitable climate, conditions and topography; and
- Proximity to the substation on the property.

3.1.2 Layout Alternatives

The layouts of the two SEFs have been informed by the areas of high environmental sensitivity identified by the specialists.

Juwi has identified a ~750 m corridor that extends from the north-western boundary to the south-eastern boundary of the site for the placement of the associated infrastructure (i.e. the on-site substations, operation and maintenance (O&M) buildings, BESS' and laydown areas – see Figure 3-1). The proposed associated infrastructure within this corridor will also be assessed. In addition, two on-site substation location alternatives, per SEF, within this corridor have been identified for assessment (Figure 3-1).

3.2 Project Description

The two 75 MW Mayogi SEFs will each comprise arrays of Photovoltaic (PV) panels, a BESS and associated infrastructure. Preliminary SEF components include:

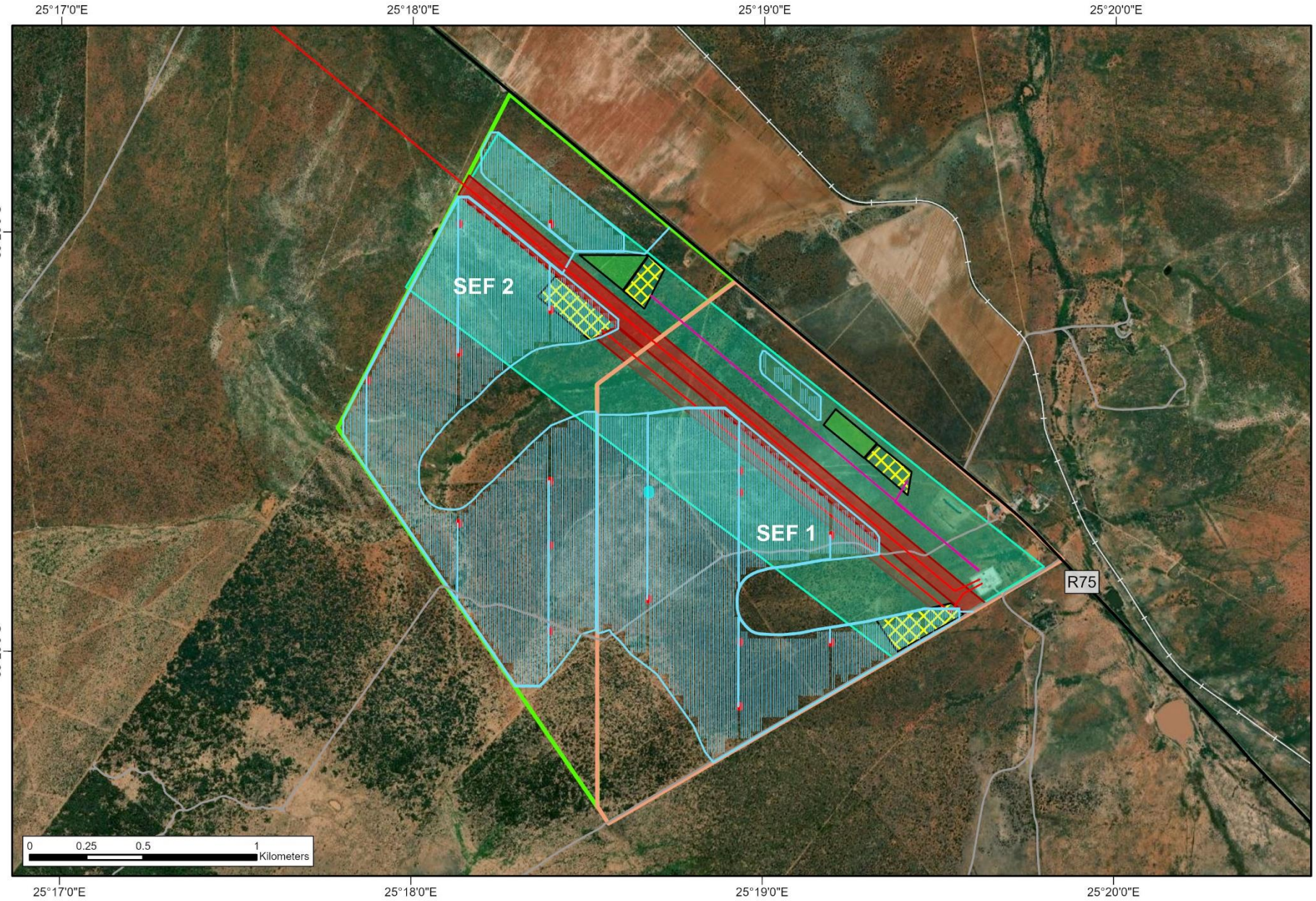
- PV modules and fixed or single axis tracking mounting structures;
- On-site substation and BESS (combined footprint of ~2 ha);
- Associated stormwater management infrastructure;
- Site and internal access roads (up to 8 m wide);
- Temporary construction camp and laydown area (~2 ha) during the construction phase;
- O&M buildings including offices, storeroom, ablution facilities etc. (up to 0.1 ha);
- Grid connection infrastructure including medium-voltage cabling between the project components and the facility substation (underground cabling will be used where practical [up to 33 kV]); and
- Perimeter fencing.

An on-site substation (including switching stations) and 132 kV powerlines to evacuate power produced will also be constructed for each SEF.

The IPP-side of the on-site substations will step up power from 33 kV to 132 kV. The power will then be evacuated to the national grid by the proposed 132 kV powerlines that connect the switching station side of the on-site substations to the existing Skilpad Substation.

3.2.1 No Go Alternative

The 'No-Go' alternative is the option of not undertaking the proposed SEF and grid connection project. Hence, if the 'no-go' option is implemented, there would be no development. This alternative would result in no environmental impacts on the site or the surrounding local area. It provides the baseline against which other alternatives are compared and will be considered throughout the report.



srk consulting

MAYOGI SEF
SITE MAP

Data Source: Maxar imagery	
Scale 1:25 000 @A4	
Projection: Geographic	Datum: HH94
Central Meridian/Zone:	
Date: 28/07/2023	Compiled by: MAHH
Project No. 591856	Fig No. 3-1

Path: C:\Users\mahh\OneDrive - SRK Consulting\8GIS\GISPROJ\PRO\2023\591856_MAYOGI.aprx\SEF2_SiteMap_A4L_20230519

Revision: A Date: 28 07 2023

4. LEGAL REQUIREMENTS AND GUIDELINES

Relevant guidelines that provide direction for visual assessment include the Department of Environmental Affairs and Development Planning's (DEA&DP) "Guideline for Involving Visual and Aesthetic Specialists in EIA Processes" (DEA&DP, 2005) and the Landscape Institute's "Guidelines for Landscape and Visual Impact Assessments" (2013), which have been considered in this VIA.

DEA&DP's Guideline (2005) identifies typical components of a visual study:

- Identification of issues and values relating to visual, aesthetic and scenic resources through involvement of stakeholders;
- Identification of landscape types, landscape character and sense of place, generally based on geology, landforms, vegetation cover and land use patterns;
- Identification of viewsheds, view catchment area and the zone of visual influence, generally based on topography;
- Identification of important viewpoints and view corridors within the affected environment, including sensitive receptors;
- Indication of distance radii from the proposed project to the various viewpoints and receptors;
- Determination of the VAC of the landscape, usually based on topography, vegetation cover or urban fabric in the area;
- Determination of the relative visibility, or visual intrusion, of the proposed project;
- Determination of the relative compatibility or conflict of the project with the surroundings; and
- A comparison of the existing situation with the probable effect of the proposed project.

Projects that warrant a visual specialist study include those:

- Located in a receiving environment with:
    - Protection status, such as national parks or nature reserves;
    - Proclaimed heritage sites or scenic routes;
    - Intact wilderness qualities, or pristine ecosystems;
    - Intact or outstanding rural or townscape qualities;
    - A recognized special character or sense of place;
    - Outside a defined urban edge line;
    - Sites of cultural or religious significance;
    - Important tourism or recreation value;
    - Important vistas or scenic corridors;
    - Visually prominent ridgelines or skylines; and/or
- Where the project is:
    - High intensity, including large-scale infrastructure;
    - A change in land use from the prevailing use;
    - In conflict with an adopted plan or vision;
    - A significant change to the fabric and character of the area;
    - A significant change to the townscape or streetscape;
    - A possible visual intrusion in the landscape; or
    - Obstructing views of others in the area.

In terms of the guideline the proposed grid connection infrastructure can be classified as a Category 5 development, which includes large-scale development of agricultural land and powerlines. The project is

situated in an area of medium scenic, cultural and historical significance. Based on the site visit it became evident that the high visual impact expected in terms of the guideline (see Table 4-1) is lowered to a moderate visual impact, which introduces:

- A potential effect on protected landscapes or scenic resources;
- Some change in the visual character of the area; and
- New development or adds to existing development in the area.

Table 4-1: Expected visual impact significance

Type of environment	**Type of development**				
	Cat 1	**Cat 2**	**Cat 3**	**Cat 4**	**Cat 5**
Protected / wild areas	Moderate	High	High	Very high	Very high
High scenic, cultural, historical value	Minimal	Moderate	High	High	Very high
Medium scenic, cultural, historical value	Little or none	Minimal	**Moderate**	High	High
Low scenic, cultural, historical value / disturbed	Little or none Possible benefits	Little or none	Minimal	Moderate	High
Disturbed or degraded sites	Little or none Possible benefits	Little or none Possible benefits	Little or none	Minimal	Moderate

Such a project typically warrants a Level 3 assessment (see Table 4-2), which includes the following generic steps:

- Identification of issues and site visit;
- Description of receiving environment and proposed project;
- Establishment of view catchment area, view corridors, viewpoints and receptors;
- Indication of potential visual impacts using established criteria;
- Inclusion of potential lighting impacts at night; and
- Description of alternatives, mitigation measures and monitoring programmes.

Table 4-2: Recommended approach for visual assessment

Approach	**Type of issue expected**				
	Little or no visual impact	**Minimal visual impact**	**Moderate visual impact**	**High visual impact**	**Very high visual impact**
Level of visual impact recommended	Level 1 visual input	Level 2 visual input	**Level 3 visual assessment**	Level 4 visual assessment	

5. DESCRIPTION OF THE RECEIVING ENVIRONMENT – VISUAL CONTEXT

The following description of the affected environment focuses on the Visual Character of the area surrounding and including the project (the study area) and discusses the Visual Quality and Sense of Place[3]. This baseline information provides the context for the visual analysis.

[3] These terms are explained in the relevant sections below.

5.1 Landscape Character

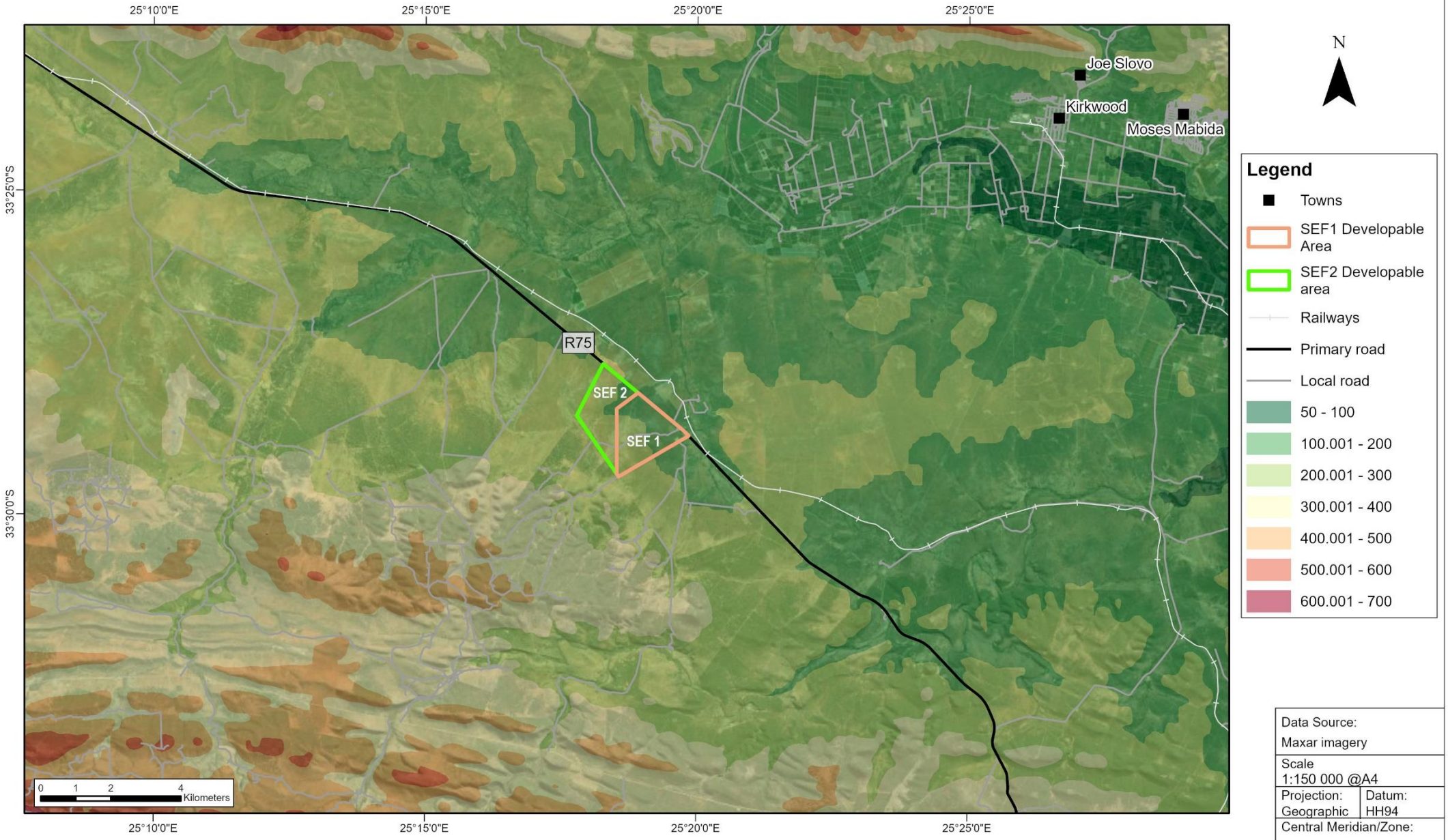
Landscape character is the description of the pattern of the landscape, resulting from particular combinations of natural (physical and biological) and cultural (land use) characteristics. It focuses on the inherent nature of the land rather than the response of a viewer (Young, 2000).

5.1.1 Geology and Topography

The geology and topography of the area, together with the temperate climate, provide the framework for the basic landscape features and visual elements of the study area.

The project is located on the Kirkwood Formation which is primarily comprised of sedimentary rocks such as sandstone and claystone. The Kariega, Holbak and Bezuidenhouts Rivers (tributaries of the Sundays River) and Sundays (or Sondags) River drain the Sundays River Valley. Farm dams are common on the surrounding farms. The valley is gently undulating, cradled by distant mountain ranges to the north and south of the Sundays River (Figure 5-1). This region experiences cold winters and hot summers.

A mountain range is located to the south of the site reaching ~700 m above mean sea level (mamsl). The site is located at the very base of the foothill of this mountain, where the terrain levels to the Sundays River Floodplain. The site gently slopes downwards from ~300 mamsl in the south-west to ~200 mamsl in the north-eastern portion of the site. No watercourses are mapped on the site (Figure 5-1).



Data Source: Maxar imagery	
Scale 1:150 000 @A4	
Projection: Geographic	Datum: HH94
Central Meridian/Zone:	
Date: 28/07/2023	Compiled by: MAHH
Project No. 591856	Fig No. 5-1

srk consulting

MAYOGI SEF
TOPOGRAPHY MAP

Path: C:\Users\mahh\OneDrive - SRK Consulting\8GIS\GISPROJ\PRO\2023\591856_MAYOGI.aprx\SEF2_Topography_A4L_20230516

Revision: A Date: 28 07 2023

5.1.2 Vegetation

The project is located within the original extent of the Sundays Noorsveld which comprises 1-2 m tall succulent thicket consisting of noors (*Euphorbia caerulescens* - Figure 5-2) and low karoo shrub vegetation. The vegetation is also characterised by solitary trees and shrub groups (Figure 5-3). The natural vegetation has been retained on most of the land within the project area and surrounds where grazing activity is occurring (see Section 5.1.2).

Figure 5-2: Noors (Euphorbia caerulescens)

Figure 5-3: Vegetation in the area surrounding the site

5.1.3 Land Use

The area surrounding the site is predominantly characterised by agricultural activity (mainly citrus crops) giving rise to textured patches of orchards across the landscape, private game reserves and a small node of urban development.

Surrounding land use includes:

- Urban areas (e.g. Kirkwood);
- Farmsteads (Figure 5-4);
- Powerlines (Figure 5-4);

- Daniell Cheetah project (Figure 5-4);
- Private game reserves:
    - Schuilpatdorp Game Farm;
    - Thorndale Safari Lodge;
    - Bluecliff Safaris;
- Agriculture:
    - Citrus orchards (Figure 5-4); and
    - Cattle and sheep pastures.

Isolated farmsteads around the project site

Pylons and powerlines routed adjacent to the R75 road

Daniell Cheetah project

Citrus orchards

Figure 5-4: Land uses surrounding the site

The site is currently used for cattle rearing and sheep farming. The Mayogi Farmstall is located on the property adjacent to the R75 (Figure 5-5), and the Skilpad Substation is located on the south-eastern portion of the property. A powerline (~132 kV) traverses the site, parallel to the R75 and connects to the Skilpad Substation on the site (Figure 5-6).

Figure 5-5: Mayogi farmstall located on the property abutting the R75

Figure 5-6: Existing Skilpad Substation located on the south-eastern portion of the property

5.2 Visual Character

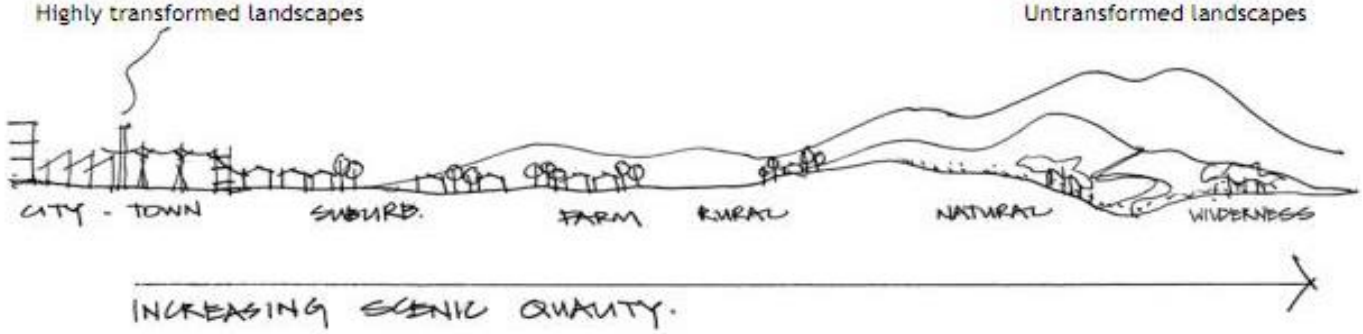
Visual character is descriptive and non-evaluative, which implies that it is based on defined attributes that are neither positive nor negative. It refers to the overall experience and impression of the landscape, such as natural or transformed.

A change in visual character cannot be described as having positive or negative attributes until the viewer's response to that change has been taken into consideration. The probable change caused by the project is assessed against the existing degree of change caused by previous development.

The basis for the visual character is provided by the topography, vegetation and land use of the area, which is a predominantly rural environment characterised by sprawling grazing land, a patchwork of orchards and interspersed nodes of development (e.g. towns, farmsteads, etc.).

The site and the surrounding area can be described as a modified rural landscape (Figure 5-7).

Highly Transformed Landscape – Urban/Industrial	Transition Landscape	Modified Rural Landscape	Natural Transition Landscape	Untransformed Landscape – Natural
Substantially developed landscape. High levels of visual impact associated with buildings, factories, roads and other related infrastructure (e.g. powerlines).	Transitional landscape associated with the interface between, rural, agricultural area and more developed suburban or urban zones.	Typical character is rural landscape, defined by field patterns, forestry plantations and agricultural areas and associated small-scale roads and buildings.	A changing landscape character associated with the interface between natural areas and modified rural / pastoral or agricultural zones.	No / minimal impact associated with the actions of man. National parks, coastlines, pristine forest areas.



Source: (CNDV, 2006)

(Shan Ding Lu, 2009)

(Night Jar Travel South Africa, 2012)

(Boschkloof, 2012)

Figure 5-7: Typical visual character attributes

5.3 Visual Quality

Aesthetic value is an emotional response derived from our experience and perceptions. As such, it is subjective and difficult to quantify in absolute terms. Studies in perceptual psychology have shown that humans prefer landscapes with higher complexity (Crawford, 1994). Landscape quality can be said to increase when:

- Topographic ruggedness and relative relief increases;
- Water forms are present;
- Diverse patterns of grasslands, shrubs and trees occur;
- Natural landscape increases and man-made landscape decreases; and
- Where land use compatibility increases.

The visual quality of the area can be experienced through rolling views across the Sundays River Valley which can be described as having a long closed landscape (Figure 5-8 and Figure 5-10). The area around the site is defined by the agricultural activity and - some distance away - by urban development around the town of Kirkwood. The outskirts of Kirkwood are characterised by the patchwork of citrus orchards, albeit fewer closer to the site where the land is largely used as game reserves and for livestock farming. The naturally undulating landscape is occasionally interrupted by powerlines which are mostly routed adjacent to roads (Figure 5-9).

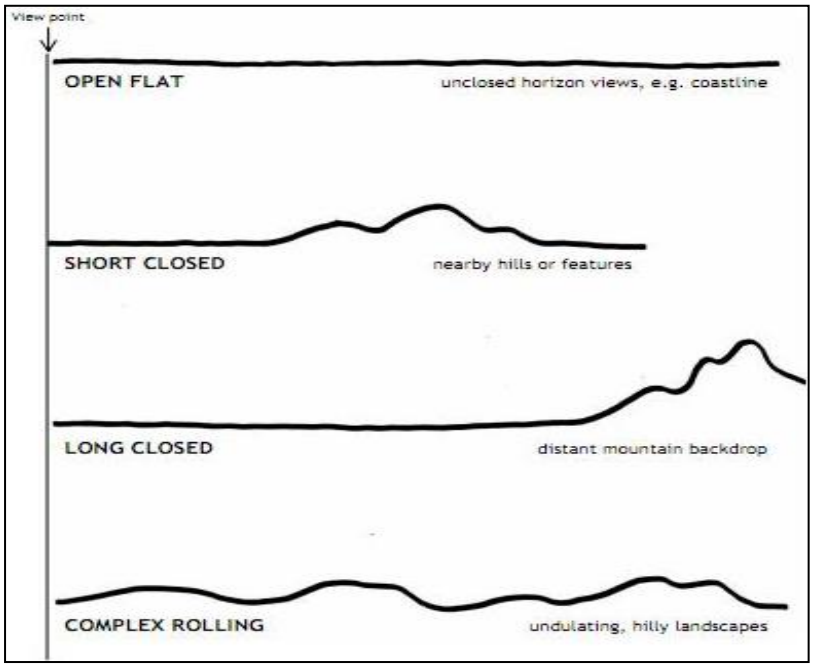


Figure 5-8: Typical views in the landscape

Sources: (CNDV, 2006)

Figure 5-9: Powerlines routed adjacent to the R75

Figure 5-10: Views of the landscape looking in a southerly direction towards the site

5.4 Visual Receptors

Visual receptors were identified based on surrounding land uses, primarily those in farming areas and recreational attractions (see Section 5.1.2). The visual receptors are briefly described below and linked to viewpoints (VP) indicated in Figure 6-1 and Table 6-4:

- Farmstead residents (VP 2, VP 7 – VP 9): Isolated farmsteads are interspersed throughout the area surrounding the site;
- Motorists (VP 1, VP 3 – VP 4 and VP 9): The site is located adjacent to the R75. The R336 intersects the R75 ~5 km to the north-west of the site. Various farm roads branch off the R75 around the site; and
- Recreational (VP 6 and VP 9): Recreational attractions such as the Daniell Cheetah project and private game reserves are located in the area around the project. Patrons of these businesses may also be receptors to this project.

5.5 Sense of Place

Our sense of a place depends not only on spatial form and quality, but also on culture, temperament, status, experience and the current purpose of the observer (Lynch, 1992). Central to the idea of 'sense of place' or

Genius Loci is identity. An area will have a stronger sense of place if it can easily be identified, that is to say if it is unique and distinct from other places. Lynch defines 'sense of place' as "the extent to which a person can recognise or recall a place as being distinct from other places – as having a vivid or unique, or at least a particular, character of its own" (Lynch, 1992).

It is often the case that sense of place is linked directly to visual quality and that areas / spaces with high visual quality have a strong sense of place. However, this is not an inviolate relationship and it is plausible that areas of low visual quality may have a strong sense of place or – more commonly – that areas of high visual quality have a weak sense of place. The defining feature of sense of place is uniqueness, generally real or biophysical (e.g. trees in an otherwise treeless expanse), but sometimes perceived (e.g. visible but unspectacular sacred sites and places which evoke defined responses in receptors). In this context Cross (2001) identified six categories of relationships with place: biographical, spiritual, ideological, narrative, cognitive and dependent (Table 5-1).

Table 5-1: Relationship to place

Type of Relationship	Process
Biographical (historical and familial)	Being born in and living in a place. Develops over time
Spiritual (emotional, intangible)	Feeling a sense of belonging
Ideological (moral and ethical)	Living according to moral guidelines for human responsibility to place Guidelines may be religious or secular
Narrative (mythical)	Learning about a place through stories, family histories, political accounts and fictional accounts
Cognitive (based on choice and desirability)	Choosing a place based on a list of desirable traits and lifestyle preferences
Dependent (material)	Constrained by lack of choice, dependency on another person or economic opportunity

Sources: Adapted from Cross (2001)

The sense of place of the surrounding area is strongly influenced by the surrounding land use, which can generally be described as a rural agricultural area located within the expansive Sundays River Valley. While there are views across the valley to mountains in the distance, the sense of place is not particularly distinct from the rest of the wider region and is therefore not experienced as overly unique. Nevertheless, there are several recreational attractions in the area surrounding the project that attract tourists and patrons to the area.

The relationship of receptors in the study area to place may be predominantly biographical, dependent and cognitive. A family, for example, who has farmed in this area for a few generations will have a biographical and dependent attachment to the area. Visitors, such as patrons or tourists to the area, have chosen (based on desirability), to visit the area around the site and therefore have a cognitive relationship to the area.

6. ANALYSIS OF THE MAGNITUDE OF THE VISUAL IMPACT

The following section outlines the analysis that was undertaken to determine the **magnitude or intensity** of the overall visual impact resulting from the project. Various factors were considered in the assessment, including:

- Visual exposure;

- Visual absorption capacity;
- Sensitivity of visual receptors;
- Visibility and viewing distance; and
- Integrity with existing landscape / townscape.

The analysis of the magnitude or intensity of the visual impact, as described in this section, is summarized and integrated in Table 6-6 and forms the basis for the assessment and rating of the impact as documented in Section 6.

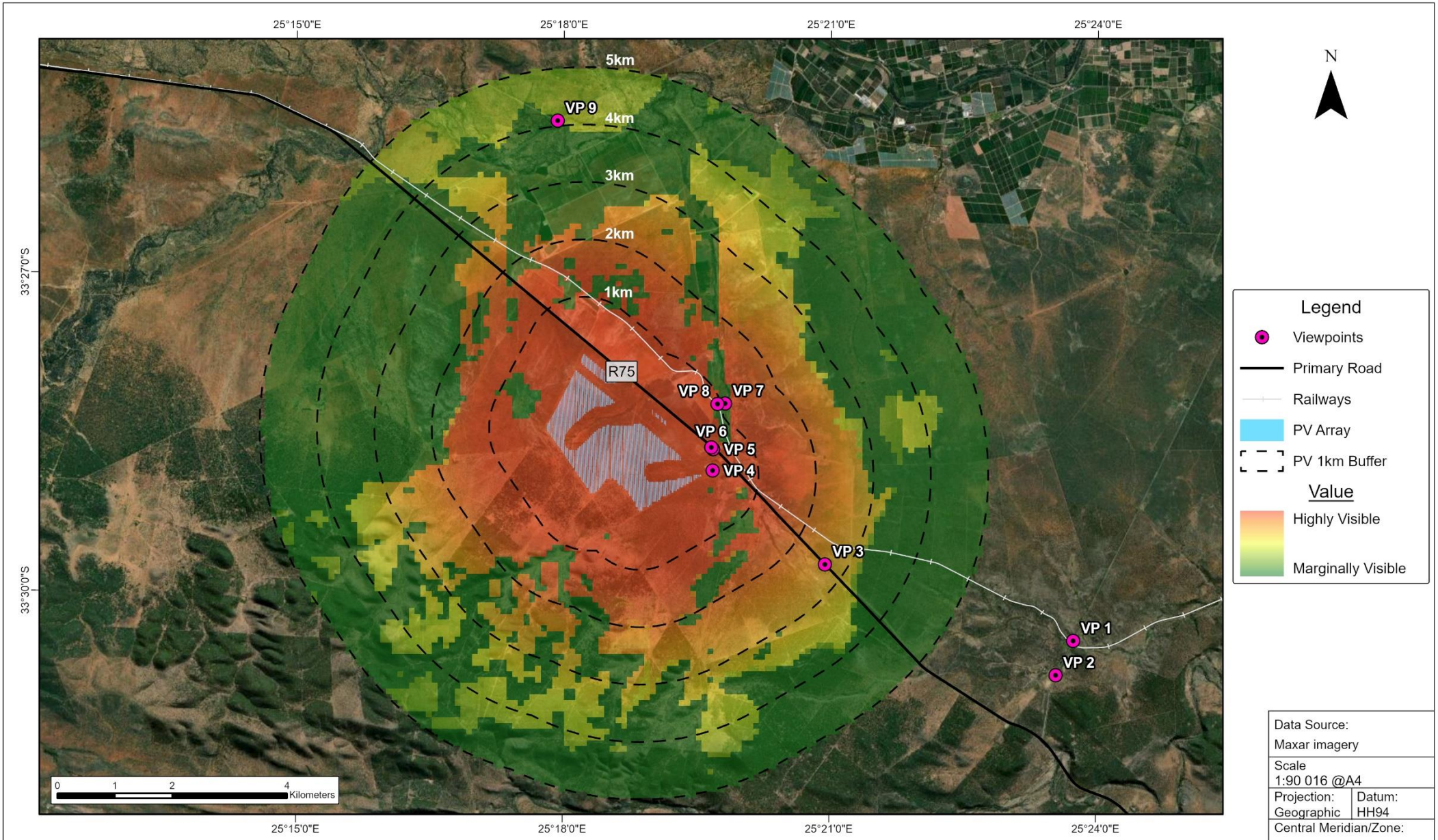
6.1 Visual Exposure

Visual exposure is determined by the zone of visual influence or viewshed. The viewshed is the topographically defined area that includes all the major observation sites from which the project *could* be visible. The viewshed analysis assumes maximum visibility of the project in an environment stripped bare of vegetation and structures. The viewshed indicates the visibility of the project, accounting for the decrease in visibility as distance from the project increases (Figure 6-1).

The visual exposure of the PV array has been modelled with a viewshed (Figure 6-1). The viewshed indicates that the PV array will be highly visible within 1km. Beyond that, intervening topography and distance influences the exposure of the PV array, with the array being visible to the north, south-east and south-west up to 4 km with decreasing visibility over distance. The PV array will be visible from the ~6 km long section of the R75 adjacent to the site.

The visual exposure of the on-site substation, BESS and powerlines is expected to be somewhat similar to the PV array, in that they will be highly visible within ~1 km and thereafter the view of these components is expected to diminish with distance and due to intervening topography. These components will also be visible from the ~6 km section of the R75.

The visual exposure of proposed infrastructure is thus deemed ***moderate.***



Data Source: Maxar imagery	
Scale 1:90 016 @A4	
Projection: Geographic	Datum: HH94
Central Meridian/Zone:	
Date: 31/07/2023	Compiled by: MAHH
Project No. 591856	Fig No. 6-1

srk consulting

MAYOGI SEF
VIEWSHED WITH VIEWPOINTS

Path: C:\Users\mahh\Downloads\OneDrive_1_2023-08-01\GISPROJ\PRO\2023\591856_MAYOGI.aprx\SEF_Viewshed

Revision: A Date: 01 08 2023

6.2 Visual Absorption Capacity

The VAC is the potential for an area to conceal and assimilate the proposed project. Criteria used to determine the VAC of the affected area are defined in Table 6-1. The VAC of an area is increased by:

1. Topography and vegetation that is able to provide screening and increase the VAC of a landscape;
2. The degree of urbanisation compared to open space. A highly urbanised landscape is better able to absorb the visual impacts of similar developments, whereas an undeveloped rural landscape will have a lower VAC; and
3. The scale and density of surrounding development.

These factors frequently apply at different scales, by influencing the VAC in the foreground (e.g. dense bush, existing roads and bridges, small structures), middleground and background (e.g. tall forests, hills).

The property on which the project is located and surrounds are largely undeveloped and currently used for grazing, with grasses, shrubs and very few trees. The proposed project comprises a large-scale PV array (~136 ha), 33 kV and 132 kV powerlines[4], BESS and on-site substation components.

The undulating topography is expected to provide some screening to the PV arrays which have a relatively low vertical profile. The remaining infrastructure, including the on-site substations, 132 kV powerlines and BESS' have relatively higher vertical profiles which are more difficult to screen, even with distance and undulating topography. Overall, due to the scale of the project, the VAC of the area for the project is limited.

The VAC of the area for the project is ***low***, particularly in the foreground due to the low growing vegetation that has limited screening potential. However, the undulating landscape in the surrounding area increases the VAC of the area for the project in the middle and background to some degree.

6.3 Sensitivity of Visual Receptors

Receptors are important insofar as they inform visual sensitivity. The sensitivity of viewers is determined by the number and nature of viewers.

Viewers can be deemed to have:

1. High sensitivity if they view the project from e.g. residential areas, nature reserves and scenic routes or trails;
2. Moderate sensitivity if they view the project from e.g. sporting or recreational areas or places of work; and
3. Low sensitivity if they view the project from or within e.g. industrial, mining or degraded areas, or are transient viewers on roads.

The sensitivity of potential viewers identified in Section 5.4 is described below:

- **Farmstead residents:** There are no identified receptors located within close proximity to the site. Therefore, these receptors are considered to have a moderate or low sensitivities due their distance from the site;
- **Motorists:** Motorists on the R75, R366 and the gravel roads between farms will be receptors of the project; and

[4] Installed either above or below ground

- **Recreational**: Individuals visiting the Daniell Cheetah project and Mayogi Farmstall may be sensitive receptors to this project.

Receptors at surrounding game farms, such as Schuilpatdop Game Farm, Citruslandgoed Game Farm, etc. have limited exposure to the site due to distance and intervening topography.

Motorists are considered to have relatively low sensitivity as in some cases their view of the project are fleeting and / or temporary.

The high sensitivity of the visual receptors in close proximity to the project, e.g. residential and recreational receptors, is moderated by the large number of motorists with fleeting views. As such, the sensitivity of the viewers or visual receptors potentially affected by the visual impact of the project is considered to be ***moderate.***

Table 6-1: Visual absorption capacity criteria

High	Moderate	Low
The area is able to absorb the visual impact as it has: ▪ Undulating topography and relief ▪ Good screening vegetation (high and dense) ▪ Is highly urbanised in character (existing development is of a scale and density to absorb the visual impact).	The area is moderately able to absorb the visual impact, as it has: ▪ Moderately undulating topography and relief ▪ Some or partial screening vegetation ▪ A relatively urbanised character (existing development is of a scale and density to absorb the visual impact to some extent.	The area is not able to absorb the visual impact as it has: ▪ Flat topography ▪ Low growing or sparse vegetation ▪ Is not urbanised (existing development is not of a scale and density to absorb the visual impact to some extent.)
 http://www.franschhoek.co.za	 http://wikipedia.org	 http://www.butbn.cas.cz
 http://commons.wikimedia.org	 http://blogs.agu.org	 http://fortheinterim.com

6.4 Viewing Distance and Visibility

The distance of a viewer from an object is an important determinant of the magnitude of the visual impact. This is because the visual impact of an object diminishes / attenuates as the distance between the viewer and the object increases. Thus, the visual impact at 1 000 m would, nominally, be 25% of the impact as viewed from 500 m. At 2 000 m it would be 10% of the impact at 500 m (Hull and Bishop, 1988 in (Young, 2000)).

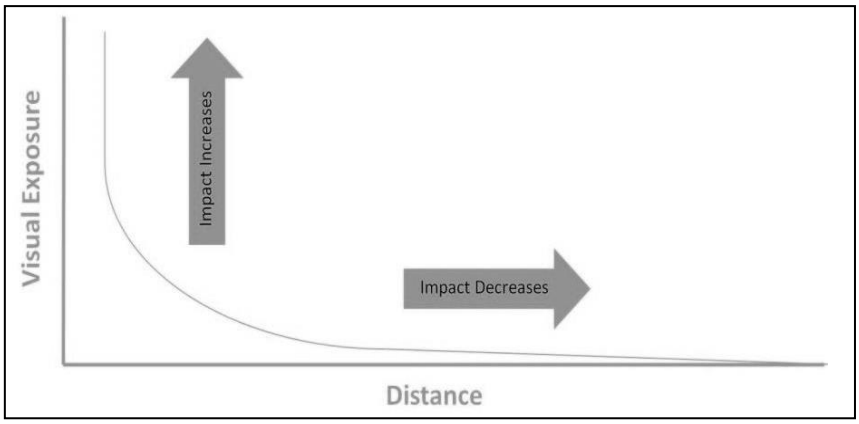


Figure 6-2: Visual exposure vis-à-vis distance

Sources: Adapted from Hull and Bishop, 2998 in (Young, 2000)

Three basic distance categories can be defined for a project of this scale (as discussed and represented in Table 6-2): foreground, middleground and background.

Table 6-2: Distance categories

FOREGROUND (0 – 1 km)	The zone where the proposed project will dominate the frame of view. The project will be *highly visible* unless obscured.
MIDDLEGROUND (1 - 2 km)	The zone where colour and line are still readily discernible. The project will be *moderately visible* but will still be easily recognisable.
BACKGROUND (2 - 5 km)	This zone stretches from 2 km to 5 km. Objects in this zone can be classified as *marginally visible* to *not visible*.

A number of viewpoints were selected to indicate locations from where receptors may (or may not) view the project. The viewpoints are shown in Figure 6-1 and listed in Table 6-4. Current views from these points are shown in Appendix C.

The predicted visibility of (any element of the project) from each viewpoint is described in Table 6-4, based on the visibility categories in Table 6-2. Note that unlike visual exposure (Section 6.1) which describes areas from which the project may be visible without taking local screening into account (i.e. the viewshed), visibility describes predicted, actual visibility. The visibility of the project can be summarised as follows:

- SEF 1 and 2 will not be visible from VPs over 2 km away (VP 1 - VP 3 and VP 9);
- SEF 1 and 2 will be marginally visible to receptors located over 3 km away in elevated areas (VP 7);
- SEF 1 and 2 will be visible to receptors in close proximity to the site (VP 4; VP 5 and VP 6); and
- SEF 1 will not be visible from VPs over 2 km away (VP 3 and VP 8).

Overall, the project is visible in the foreground and middleground to surrounding receptors, and screened to receptors located some distance away (>1 km): as such the visibility of the project is ***moderate***.

Table 6-3: Visibility criteria

NOT VISIBLE	Project cannot be seen	
MARGINALLY VISIBLE	Project is only just visible / partially visible (usually in the background zone)	
VISIBLE	Project is visible although parts may be partially obscured (usually in middleground zone)	
HIGHLY VISIBLE	Project is clearly visible (usually in foreground or middleground zone)	

Table 6-4: Visibility from viewpoints

Viewpoint #	Location	Co-ordinates	Direction of view	Potential Receptors	Visibility
VP 1	Railway Bridge	33°30'27.06"S 25°23'44.49"E	Looking west	Rail passengers and motorists.	**SEF 1 and 2: Not Visible** The project will not be visible due to distance and intervening topography.
VP 2	Farmstead 1	33°30'46.51"S 25°23'32.74"E	Looking west	Residents of farmsteads and motorists.	**SEF 1 and 2: Not Visible** The project will not be visible due to distance and intervening topography.
VP 3	R75 South	33°29'44.30"S 25°20'56.79"E	Looking north-west	Motorists.	**SEF 1 and 2: Not Visible** The project will not be visible due to distance and intervening topography.
VP 4	Farm Road and Skilpad Substation	33°28'51.41"S 25°19'40.84"E	Looking north-east	Residents of farmstead and motorists.	**SEF 1 and 2: Highly Visible** The project will be highly visible in the foreground from this location.
VP 5	R75 (Mayogi Farmstall)	33°28'39.36"S 25°19'41.09"E	Looking south-west	Patrons of Mayogi Farmstall and motorists.	**SEF 1 and 2: Visible** The project will be visible in the middleground and may be screened to receptors by existing buildings and fences.
VP 6	Daniell Cheetah Project	33°28'38.32"S 25°19'39.90"E	Looking south-west	Patrons of Daniell Cheetah Project and motorists.	**SEF 1 and 2: Visible** The project will be visible in the middleground and may be screened to receptors by existing buildings and fences.
VP 7	Farmstead 2	33°28'13.79"S 25°19'44.00"E	Looking south	Residents of farmstead and motorists travelling on the gravel road.	**SEF 1 and 2: Marginally Visible** The project will be marginally visible in the background, screened partially by existing structures and obscured due to distance.
VP 8	Farmstead 3	33°28'13.51"S 25°19'49.10"E	Looking south	Residents of farmstead and motorists travelling on the gravel road.	**SEF 1 and 2: Not Visible** SEF 1 will not be visible due to distance and intervening topography.
VP 9	Osberg Safari on R336	33°25'33.87"S 25°17'55.68"E	Looking south	Patrons of Osberg Safari and motorists.	**SEF 1 and 2: Not Visible** The project will not be visible due to distance and intervening topography.

6.5 Compatibility with Landscape Integrity

Landscape (or townscape) integrity refers to the compatibility of the development / visual intrusion with the existing landscape. The landscape integrity of the project is rated based on the relevant criteria listed in Table 6-5.

Table 6-5: Landscape integrity criteria

Criterion	Landscape integrity		
	High	**Moderate**	**Low**
	The project is:		
Consistency with existing land use of the area	Consistent	Moderately consistent	Not consistent / very different
Sensitivity to natural environment	Highly sensitive	Moderately sensitive	Not sensitive
Consistency with urban texture and layout	Consistent	Moderately consistent	Not consistent / very different
Congruence of buildings / structures with / sensitivity to existing architecture / buildings	Congruent / sensitive	Moderately congruent / sensitive	Not congruent / sensitive
Scale and size relative to nearby existing development	Similar	Moderately similar	Different

The proposed project is located within a rural, agricultural area with sprawling farmlands surrounding the proposed site. No other SEFs or Wind Energy Facilities (WEFs) are located within ~ 20 km of the site and the predominant land use surrounding the site is rural. The PV arrays are therefore expected to be very different and incongruent with the existing land use and differ significantly from the scale and size of the infrastructure in the area around the site.

Grid infrastructure such as substations and powerlines are more common in the area surrounding the proposed project, with small and large powerlines traversing the landscape, and some substations. The on-site substations and 33 kV and 132 kV powerline infrastructure is therefore expected to be more consistent with type, scale and size of the existing infrastructure in the landscape.

Nevertheless, the project is deemed to have a ***low*** integrity with the surrounding landscape.

6.6 Magnitude of the Overall Visual Impact

Based on the above criteria, the magnitude or intensity of the overall visual impact that is expected to result from the project has been rated. Table 6-6 provides a summary of the criteria, a descriptor summarising the status of the criteria and projected impact magnitude ratings.

The overall magnitude of the visual impact that is expected to result from the project is rated as ***moderate***. The area around the site has a limited ability to conceal and/or absorb the proposed project and the project is incongruent with the existing landscape. The low VAC and landscape integrity are moderated by the moderate viewing distance and visibility and low viewer sensitivity.

Table 6-6: Magnitude of overall visual impact

Criteria	Rating	Comments
Visual Exposure (Viewshed)	Moderate	The visibility of the PV arrays is high within 1 km of the arrays. Beyond this, the arrays will be visible up to 4 km to the north, south-east and south-west. The arrays will also be visible from a ~6 km section of the R75 adjacent to the site. The on-site substation, BESS and powerline are expected to be highly visible within 1 km of these components and then diminish thereafter. It is expected that these components will also be visible from the ~6 km section of the R75 routed adjacent to the site.
Visual Absorption Capacity	Low	The VAC of the area is low, particularly in the foreground due to the low growing vegetation that has limited screening potential. However, the undulating landscape in the surrounding area increases the VAC of the area for the project in the middle and background to some degree.
Viewer Sensitivity (Receptors)	Low	Only a few farmsteads are located within close proximity of the project and are therefore considered receptors. Motorists will have fleeting and / or temporary views of the project, and are considered less sensitive. Individuals visiting the Daniell Cheetah project and the Mayogi Farmstall are likely to be sensitive recreational receptors.
Viewing Distance and Visibility	Moderate	The high sensitivity of the visual receptors in close proximity to the project, e.g. recreational receptors, is moderated by the large number of motorists with fleeting views. As such, the sensitivity of the viewers or visual receptors potentially affected by the visual impact of the project is considered to be moderate.
Landscape Integrity	Low	No operational SEFs or WEFs have been identified within ~ 20 km of the project, and therefore the project will be very different to the existing land use and vary significantly from the scale and size of the infrastructure in the area around the site. Grid infrastructure such as substations and powerlines are more common in the area surrounding the proposed project, with small and large powerlines already traversing the landscape, and occasional substations.

7. IDENTIFICATION OF IMPACTS

The following section describes the visual impacts anticipated during the construction and operational phases.

Possible measures to avoid, mitigate or compensate visual impacts will be considered and recommended, in the VIA, depending on the severity of impacts and the feasibility of measures. The mitigation hierarchy and sample measures are provided below (DEA&DP, 2005):

- Avoid, e.g. by re-examining the need for the proposed project, relocating the project or re-designing the project;

- Mitigate (reduce), e.g. through adjustments to the siting and design of the project, careful selection of finishes and colours, use of earthworks (such as berms) and planting to provide visual screening and dust control where required;
- Rehabilitate and restore, e.g. through on-site and off-site landscape rehabilitation of areas affected by the project, which may include re-instating landforms and natural vegetation, provision of landscaped open space etc.;
- Compensate and offset, where avoidance or mitigation cannot achieve the desired effect; and
- Enhance, where the proposed project is located in run-down areas or degraded landscapes.

The project relates to the greenfield development of two SEFs each with associated grid infrastructure and each with a 132 kV powerline, on-site substation and a BESS: as such the potential visual impacts are expected to be far more extensive than they would be for a brownfield project.

Direct visual and aesthetic impacts are likely to result from the following project interventions and/or activities:

- Earthworks and construction activities (including clearing of vegetation and associated generation of dust);
- Change in character of the area caused by project; and
- Increased light pollution.

The visual and aesthetic impacts generated by the project are likely to be associated with visual intrusion and visual quality.

7.1 Construction Phase

7.1.1 Altered Sense of Place and Visual Intrusion caused by Construction Activities

Visual impacts will be generated by construction activities such as earthworks, which can generate dust, and from construction infrastructure, plant and materials on site (e.g. site camp, plant and machinery, and stockpiles of excavated material). Dust generated during construction will be visually unappealing and may detract from the visual quality (and sense of place) of the area. These impacts are typically limited to the immediate area surrounding the construction site of the PV arrays, powerline alignment and substation footprints, as well as on access roads/tracks, during the construction period. Since the construction footprint for project is very large (~504 ha) pertinent impacts (e.g. from dust) are likely to be significant.

Construction activities will have a greater impact in the foreground where receptors are particularly exposed to these visual impacts.

These construction phase impacts are anticipated to impact adjacent farmstead receptors to a larger degree than motorists, as their experience of the area is fleeting.

7.2 Operational Phase

7.2.1 Altered Sense of Place and Visual Intrusion caused by the PV Arrays

SEF 1 and 2 will comprise PV arrays that occupy ~272 ha (of the total ~504 ha footprint). The PV arrays may be perceived as conflicting with the current landscape comprising low-growing shrubs and tall succulents (1-2 m). While there is some evidence of anthropogenic influence within the directly surrounding area it is limited to farmstalls, isolated buildings and dwellings, roads, powerlines and substations. The Department of

Forestry, Fisheries and the Environment (DFFE) South African Renewable Energy EIA Application Database (DFFE, 2022) and the site visit confirm that no operational SEFs and WEFs are located within ~20 km of the site. The PV array is anticipated to interrupt and/or degrade views, and therefore negatively affect the sense of place and present as a visual intrusion across the landscape.

Visual receptors north and east (VP 4 – VP 6) are expected to experience the PV array as a significant transformation in the landscape, with the PV array visible in the fore- and middle-ground (though not obstructing views). From further afield where the PV array is not visible (VP 3, VP 7 and VP 8).

7.2.2 Altered Sense of Place and Visual Intrusion caused by the On-Site Substations, BESS' and 132 kV powerlines

Each SEF will include a BESS, 33 kV and 132 kV powerlines and a 33 / 132 kV on-site substation. Where possible, the 33 kV powerlines will be installed underground. The 132 kV powerlines will be between ~600m and 1 900m in length and will be supported by pylon structures. Existing powerlines traverse the landscape surrounding the site: therefore the proposed powerline will increase the density of powerlines and visual clutter.

Shipping containers are typically used to house the BESS components. Viewed from a distance, shipping containers are not dissimilar from farmstead buildings. However the BESS (containers) typically cover an area of ~1 ha. As such, the new BESS' and internal grid connections are anticipated to contribute to visual clutter on the site and introduce a different scale of structures into the landscape, negatively affecting the sense of place and presenting as a visual intrusion across the landscape.

An existing substation, occupying ~1.5 ha, is located on the south-eastern portion of the site. The two proposed ~2 ha on-site substations will contribute further to visual clutter, visible to nearby visual receptors.

Visual receptors to the north and east of the site (VP 4 - VP 7) are expected to have a view of the BESS, substation and internal grid infrastructure or parts thereof, and therefore experience it as a transformation in the landscape.

7.2.3 Altered Visual Quality caused by Light Pollution at Night

Lighting will be installed around the substation and O&M building. Lighting around the substation will only be utilised during maintenance.

Lighting around the substation and O&M building will generate nightglow, potentially altering the sense of place and visual quality, and contributing to the existing lighting from nearby buildings.

Lighting is not easily screened by vegetation or topography, and the proposed lighting for substations and O&M buildings may alter visual quality of the surrounding area.

7.3 Decommissioning Phase

7.3.1 Altered Sense of Place caused by Decommissioning Activities

While the proposed project is anticipated to operate in the long-term, when decommissioning is required, visual impacts will be generated.

The decommissioning of the PV arrays, powerlines, BESS' and substations will include earthworks, the movement of plant and equipment (e.g. plant and machinery, and stockpiles of excavated/salvaged material). Dust generated during decommissioning will be visually unappealing and may detract from the visual quality (and sense of place) of the area. These impacts are typically limited to the immediate area surrounding the site, during the decommissioning period.

Decommissioning activities will have a greater impact in the foreground where receptors are particularly exposed to these visual impacts.

These decommissioning phase impacts will impact adjacent residential receptors to a larger degree than motorists, as the latter's experience of the area is fleeting.

7.4 Cumulative Impacts

7.4.1 Introduction

For the purposes of this report, cumulative impacts are defined as 'direct and indirect impacts that act together with existing or future potential impacts of other activities or proposed activities in the area / region that affect the same resources and / or receptors'.

For the most part, cumulative effects or aspects thereof are too uncertain to be quantifiable, due mainly to a lack of data availability and accuracy. This is particularly true of cumulative effects arising from potential or future projects, the design or details of which may not be finalised or available and the direct and indirect impacts of which have not yet been assessed.

For practical reasons, the identification and management of cumulative impacts are limited to those effects generally recognised as important on the basis of scientific concerns and/or concerns of affected communities, in this case effects of other renewable energy facilities and large-scale infrastructure projects.

7.4.2 Cumulative Impacts Analysis

In addition to the project, other past, present, and future activities have taken place or are proposed within a 35 km radius of the project site that might have caused or may cause impacts and may interact with impacts caused by the project. These are briefly discussed in this section and will be assessed in the VIA.

Four approved WEFs and associated grid connection infrastructure projects are located within a 35 km radius of the proposed project site are listed on the DFFE South African Renewable Energy EIA Application Database (DFFE, 2022). These projects are listed in Table 7-1 and their location shown in Figure 7-1.

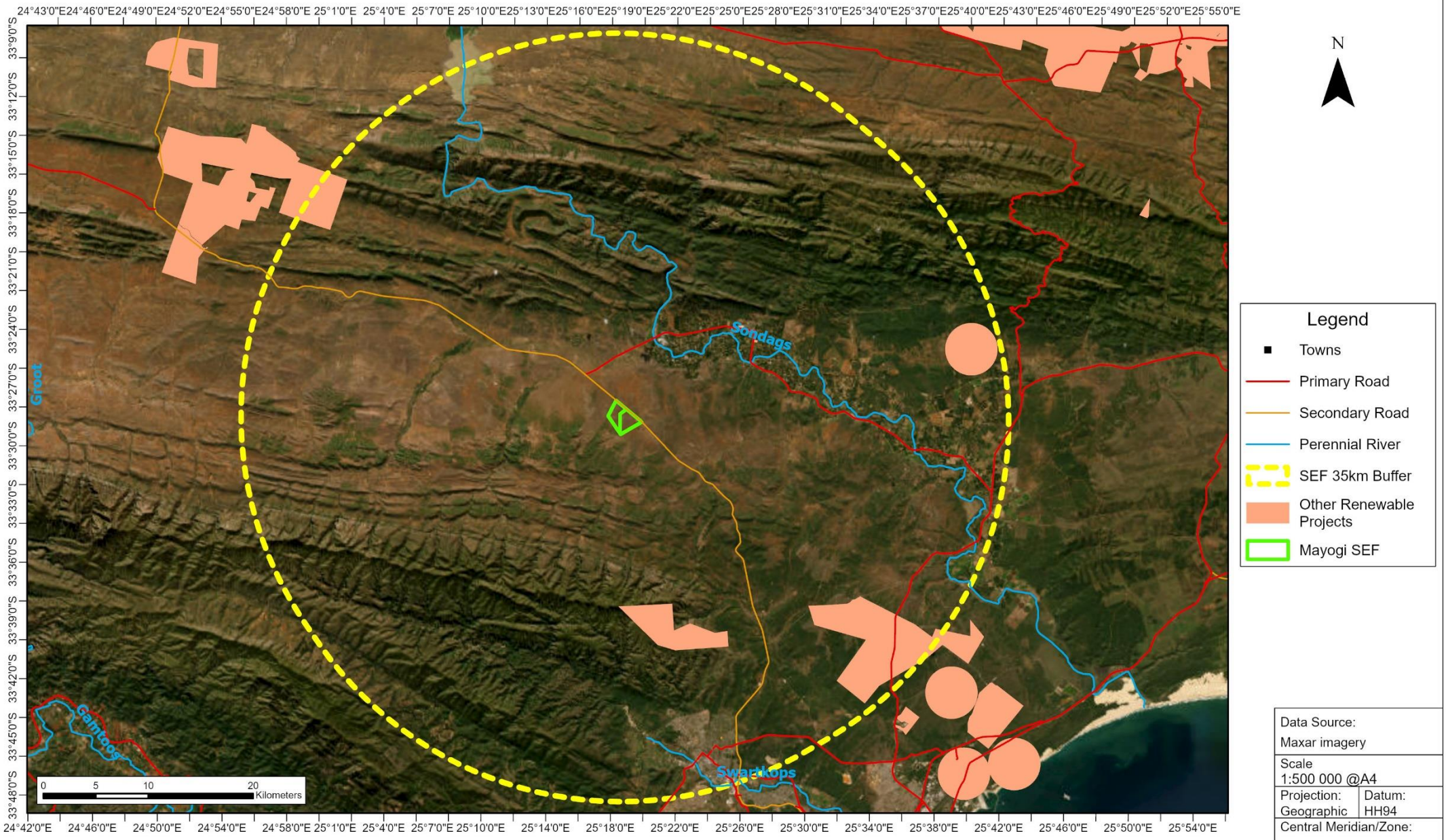
Table 7-1: Renewable projects within a 35 km radius of the project site

Facility Name / Description	Status	Capacity (MW)
Wolwefontein WEF	Approved	80 MW
Universal Wind Energy Project: Zone 12 Coega Industrial Development Zone	Approved	80 MW
Ukomeleza WEF	Approved	Unknown
Innowind WEF	Approved	Unknown
	Total	**~160 MW**

No SEF projects within 35 km of the site are listed on the DFFE South African Renewable Energy EIA Application Database.

Substations and powerlines have already been developed within the region, already altering the visual quality and sense of place in this modified rural landscape. As such, the proposed powerlines and substations associated with this project are not the first of their kind in the visual landscape. The Mayogi SEFs and other proposed facilities listed above have large development footprints but are far apart and do not constitute a spatially concentrated, high density network of renewable energy facilities, which mitigates cumulative impacts.

SiVEST's Impact Assessment methodology will be used to evaluate the cumulative visual impacts of the project on the sense of place of the surrounding 35 km radius.



Data Source: Maxar imagery	
Scale 1:500 000 @A4	
Projection: Geographic	Datum: HH94
Central Meridian/Zone:	

srk consulting

MAYOGI SEF

SURROUNDING RENEWABLE ENERGY PROJECTS

Date:	Compiled by:
28/07/2023	MAHH
Project No. 591856	Fig No. 7-1

Path: C:\Users\mahh\OneDrive - SRK Consulting\8GIS\GISPROJ\PRO\2023\591856_MAYOGI.aprx\SEF_Buffer_20230728

Revision: A Date: 28 07 2023

7.5 Overall Impact Rating

The impact assessment and ratings for the project will be completed in the VIA.

7.6 Input into the EMPr

Mitigation measures and key monitoring recommendations for each phase of the project for inclusion in the EMPr or Environmental Authorisation (EA) will be included in the VIA.

7.7 No-Go Alternative

The No-Go alternative entails no change to the status quo, in other words, no SEFs, 33 kV and 132 kV powerlines, on-site substations and BESS' (see Section 3.2.1).

Should the application for the Mayogi SEFs and associated infrastructure be refused, the visual impacts will not be realised.

8. CONCLUSION

The Visual Scoping Report describes and interprets the visual context or affected environment in which the project is located: this provides a visual baseline or template and aims to ascertain the aesthetic uniqueness of the project area. To better understand the magnitude or intensity of visual and sense of place impacts, the capacity of the project area and receptors to accommodate, attenuate and absorb impacts was analysed in considerable detail.

The following findings are pertinent:

- JUWI South Africa (Pty) Ltd proposes to develop two 75 MW SEFs, each with an on-site substation and BESS on Farm 692 Kirkwood, near Kirkwood, in the Eastern Cape Province. The project (SEF 1 and 2) will occupy up to 504 ha;
- The basis for the landscape and visual character of the region is provided by the geology / topography, vegetation and land use of the area, which is predominantly a rural environment and can be described as a modified rural landscape. The site gently slopes downwards from ~300 mamsl in the south-west to ~200 mamsl in the north-east. No watercourses are mapped on the site, however farm dams are located on surrounding farms;
- The visual quality of the area can be experienced through rolling views across the Sundays River Valley which can be described as having a long closed landscape. The area around the site is defined by agricultural activity, including a patchwork of citrus orchards and - some distance away - urban development;
- The receptors identified based on the surrounding land uses include residents of surrounding farmsteads, motorists and visitors / tourists visiting the recreational attractions in the area around the site;
- The sense of place of the surrounding area is strongly influenced by the surrounding land uses which can be described as a rural agricultural area within the Sundays River Valley. While there are views across the valley to mountains in the distance, the sense of place is not particularly distinct from the rest of the wider region and is therefore not experienced as overly unique;
- The visibility of the project is considered high within 1 km and diminishes thereafter with distance. The project is also visible from ~6 km section of the R75 adjacent to the site. The visibility of the proposed substations is not anticipated to be high due to the undulating topography. The visual exposure of the project is deemed to be moderate;
- The VAC of the area for the project is limited due to the (large) scale of the project. However the relatively low vertical profile of the PV array may be concealed by the undulating landscape. The infrastructure with taller vertical profiles will be more difficult to conceal;
- The high sensitivity of the visual receptors in close proximity to the project, e.g. recreational receptors, is moderated by the large number of motorists with fleeting views. As such, the sensitivity of the

viewers or visual receptors potentially affected by the visual impact of the project is considered to be moderate;

- The project is visible to receptors directly surrounding the site (VP 4 – VP 6), and visibility reduces with distance from the site;
- The PV arrays are expected to be very different and incongruent with the existing land use and differ significantly from the scale and size of the infrastructure in the area around the site. The on-site substations and 33 kV and 132 kV powerline infrastructure are expected to be more consistent with type, scale and size of the existing infrastructure in the landscape. Nevertheless, the project is deemed to have a low integrity with the surrounding landscape;
- Construction activities will generate visual impacts related to earthworks and construction infrastructure, plant and materials on site. These activities are visually intrusive and will mostly impact receptors in the foreground;
- The PV arrays of SEF 1 and 2 will have a large combined footprint (~272 ha) and may be perceived as conflicting with the current landscape comprising low-growing shrubs and tall succulents (1-2 m). While there is some evidence of anthropogenic influence within the directly surrounding area it is limited to farmstalls, isolated buildings and dwellings, roads, powerlines and substations. The PV arrays are anticipated to interrupt and/or degrade views, and therefore negatively affect the sense of place and present as a visual intrusion across the landscape;
- Each of the SEFs include a BESS, 33 kV and 132 kV powerlines and 33 / 132 kV on-site substation. Where possible, the 33 kV powerlines will be installed underground. The 132 kV powerline will be between 600m and 1 900m in length and will be supported by pylon structures. Existing powerlines traverse the landscape surrounding the site: therefore the proposed powerline will increase the density of powerlines and visual clutter. Viewed from a distance, shipping containers, housing the BESS', are not dissimilar from farmstead buildings. However the BESS' (containers) typically cover an area of ~1 ha. As such, the new BESS' and internal grid connection are anticipated to contribute to visual clutter on the site and introduce a different scale of structures into the landscape, affecting the sense of place and presenting as a visual intrusion across the landscape;
- Lighting at the substation and O&M buildings will generate nightglow, altering the sense of place and visual quality to the surrounding receptors;
- Decommissioning activities will generate visual impacts related to earthworks, decommissioning activities and infrastructure, and plant and machinery on site. These activities are visually intrusive and will mostly impact receptors in the foreground; and
- Four approved WEFs and associated grid connection projects are located within a 35 km radius of the proposed project site. No SEF projects are located within 35 km of the site. Substations and powerlines have already been developed in the region and already alter the visual quality and sense of place. The Mayogi SEFs and other proposed facilities have large development footprints, but are far part and do not constitute a spatially concentrated high density network of renewable energy facilities.

8.1 Impact Statement

The project comprises the development of two SEFs, each with an on-site substation, 33 kV and 132 kV powerlines, and a BESS, further altering the visual landscape of the project area. The project is incongruent with and moderately affects the integrity of the landscape as there are no similar development within ~20 km of the proposed site. The relatively low vertical profile of the PV arrays increases the VAC of the area for the

project, however for the project components with a higher vertical profile, the VAC of the project area is limited. There are a limited number of highly sensitive receptors positions around the site.

This project will alter the visual quality during the construction and decommissioning phases, as well as alter the sense of place, visual quality and result in visual intrusion during the operational phase. These impacts will be assessed in the VIA.

9. REFERENCES

Boschkloof. (2012). *Cederberg Farm Experience*. Retrieved October 2012, from http://www.boschkloof.com/cederberg-guest-farm-citrusdal.htm

CNDV. (2006). *Strategic Initiative to Introduce Commercial Land Based Wind Energy Development to the Western Cape: Towards a Regional Methodology for Wind Energsanbiy Site Selection. Reports 1 – 6.*

Crawford, D. (1994). Using remotely sensed data in landscape visual quality assessment. *Landscape and Urban Planning 30*, 17-81.

Cross, J. E. (2001). What is Sense of Place? *Prepared for the 12th Headwaters Conference, November 2-4, 2001.* Retrieved July 2020, from https://www.researchgate.net/publication/282980896_What_is_Sense_of_Place/link/56256fbf08aeabddac91cd62/download

DEA&DP. (2005). *Guideline for Involving Visual and Aesthetic Specialists in EIA Processes.* Retrieved June 2020, from http://asapa.co.za/wp-content/uploads/2016/06/5_deadp_visual_guideline_june05.pdf

DFFE. (2022). *Department of Forestry, Fisheries and the Environment: egis*. Retrieved from https://egis.environment.gov.za/gis_data_downloads

Landscape Institute. (2013). *Guideline for Landscape and Visual Impact Assessment.* Routledge.

Lynch, K. (1992). *Good City Form.* London: The MIT Press.

Night Jar Travel South Africa. (2012). Retrieved August 2012, from http://www.nightjartravel.com

Shan Ding Lu. (2009). Retrieved August 2012, from http://www.shandinglu.org

Young, G. (2000). *First Draft Gamsberg Zinc Project: Specialist Study Report: Visual Environment. Newtown Landscape Architects, 10 March 2000.*

Appendix A: Specialist CV

Appendix B: Impact Assessment Methodology

Appendix C: Views from Viewpoints

Viewpoint 1: Railway Bridge - looking west. The project will not be visible due to distance and intervening topography.

Viewpoint 2: Farmstead 1 - looking west. The project will not be visible due to distance and intervening topography.

Viewpoint 3: R75 – looking north-west. The project will not be visible due to distance and intervening topography.

Viewpoint 4: Farm Road and Skilpad Substation– looking west. The project will be highly visible in the foreground.

Viewpoint 5: R75 (Mayogi Farmstall – left hand side of the photo) – looking south-west. The project will be visible in the middleground.

Viewpoint 6: Daniell Cheetah Project – looking south-west. The project will be visible in the middleground.

Viewpoint 7: Farmstead 2 – looking south. The project will be marginally visible due to intervening topography.

Viewpoint 8: Farmstead 3 – looking south. The project will not be visible due to intervening topography.

Viewpoint 9: Osberg Safari on R336 – looking south. The project will not be visible due to distance.