VISUAL IMPACT ASSESSMENT FOR THE PROPOSED MIER RIETFONTEIN SOLAR PV, BATTERY STORAGE AND TELECOM TOWER PROJECT

Eskom Holdings SOC Ltd

Draft Report - July 2021

Submitted to:
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Executive Summary

Hawkhead Consulting has been appointed by Golder Associates Africa (Pty) Ltd to conduct the visual impact assessment (VIA) for the proposed Mier Rietfontein Solar PV, Battery Storage and Telecommunications Tower Project. The sites for the proposed Project infrastructure are located near Rietfontein and Groot Mier, in the Dawid Kruiper Local Municipality in the Northern Cape Province.

The PV blocks and battery energy storage systems (BESS) site is about 10 ha in extent and located between Rietfontein village and the Rietfontein border post with Namibia. The telecommunications (telecom) tower site is 0.0025 ha in extent and located adjacent to the R31 arterial road, approximately 5 km south-east of Groot Mier and 35 km to the west of Rietfontein.

As proposed Project infrastructure will be located at two different sites that are located approximately 35 km apart, two separate study areas were considered for the VIA; study area A comprises a 10 km radius around the proposed PV blocks and BESS site; study area B comprises a 10 km radius around the proposed Telecom Tower site.

The methodology for the VIA included describing the landscape character or visual baseline of both study areas, based on photographs and a review of available aerial photography and topographical maps. The visual baseline characterisation was used to establish the visual resource value, visual absorption capacity (VAC) and receptor sensitivity of the study areas. These factors, along with a viewshed analysis of the level of theoretical visibility (LDV), visual intrusion and visual exposure, were then used to determine the magnitude of potential impacts of the proposed Project on the visual resource.

The visual resource analysis, which considered topography, hydrological features, vegetation cover and land uses, rated the visual resource value of both study areas as moderate. As the proposed Solar PV and Battery Storage site is located close to existing anthropogenic infrastructure (such as Rietfontein border post), the VAC of study area A was rated medium. The proposed Telecom Tower is located in an expansive, relatively undisturbed landscape. Accordingly, the VAC of study area B was rated low.

Resident receptors identified in both study areas include people living in local towns and villages, and farmers and farm workers. Transient receptors identified include local people travelling from town to town using the R31 as well as smaller roads and informal tracks, and cross-border tourists driving along the R31 to access the Rietfontein border post with Namibia. Collectively, these were assessed to be a moderate number of people, with a moderate sensitivity factor with respect to the visual resource. A moderate receptor sensitivity weighting factor was therefore applied during the impact magnitude determination.

Negative impacts identified for the proposed Project include:

- Dust generation from the PV Blocks and BESS site;
- Reduction in visual resource value due to presence of PV Blocks, BESS and associated infrastructure;
- Reduction in visual resource value due to presence of Telecom Tower and associated infrastructure; and

- Light pollution at night from the PV Blocks and BESS site.

Construction and operational mitigation possibilities are limited for the presence of proposed Project, due to the operational and structural requirements of these Project components. Visual mitigation efforts were therefore focussed on implementing several minor measures during the construction and operational phases, and effective post-operational rehabilitation of the visual resources. Accordingly, the reduction in visual resource value as a result of the presence of the proposed Project infrastructure were rated to be of moderate significance both before and after mitigation. However, the dismantling of all proposed Project infrastructure followed by the rehabilitation of disturbance footprints during the decommissioning and closure phase, will act as effective long-term mitigation and will ameliorate the visual resource value of the landscape.

Both dust generation and light pollution from the PV Blocks and BESS site were assessed to be of moderate significance before mitigation. With mitigation, these impacts can be reduced to low significance.

It is noted that a small aerodrome is located to north of Rietfontein – approximately 3.5 km to the north-west of the PV Block and BESS site. In line with Civil Aviation Authority requirements, an application for the proposed Project must be submitted to the Obstacle Inspectorate for approval. As per Obstacle Notice 3/2020 (Replacement for 17/11/2017), supporting documentation that may need to submitted as part of the application, may include a glint and glare assessment.

In accordance with the outcomes of the visual impact assessment, the proposed Project is not deemed to present significant negative environmental issues or impacts from a visual resource perspective, and it should thus be authorised.

Details of the Expertise of the Specialist

Specialist Information	
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Qualifications	M.Sc. Resource Conservation Biology B.Sc. Hons. Ecology and Conservation Biology B.Sc. Zoology and Grassland Science
Summary of Past Experience	Andrew Zinn is a terrestrial ecologist with Hawkhead Consulting. In this role, he conducts varied specialist ecology studies, including flora and fauna surveys, for baseline ecological assessments and ecological impact assessments. He also conducts visual impact assessments for development projects. Andrew has over a decade of experience working in the fields of ecology and conservation research. He has worked on projects in several African countries including Botswana, Democratic Republic of Congo, Ethiopia, Ghana, Mozambique, South Africa, Tanzania and Zambia.

Declaration of Independence by Specialist

I, Andrew Zinn, declare that I –

- Act as the independent specialist for the undertaking of a specialist section for the proposed Rietfontein Solar PV, Battery Storage and Telecom Tower Project;
- Do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed;
- Do not have, nor will have, a vested interest in the proposed activity proceeding;
- Have no, and will not engage in, conflicting interests in the undertaking of the activity; and
- Undertake to disclose, to the competent authority, any information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document.

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Acronyms and Abbreviations

Abbreviation	Explanation
BA	Basic Assessment
BAR	Basic Assessment Report
BESS	Battery Energy Storage Systems
DEFF	National Department of Environment, Forestry, and Fisheries
DEM	Digital Elevation Model
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
ha	Hectare
LTV	Level of Theoretical Visibility
PV	Photovoltaic
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment

1. Introduction

Hawkhead Consulting has been appointed by Golder Associates Africa (Pty) Ltd ("Golder") on behalf of Eskom Holdings SOC Ltd ("Eskom") to undertake a visual impact assessment (VIA) to inform a basic assessment ("BA") process for the proposed Mier Rietfontein Solar PV, Battery Storage Systems and Telecommunications Tower Project (hereafter referred to as the "Project").

2. This Report

The purpose of this report is to present a baseline characterisation of the visual resource of proposed Project sites and conduct an impact assessment of proposed Project activities to inform the BA process.

The scope of work of this specialist study is as follows:

- Collate and review information pertaining to the visual character and visual resource value of the landscape in which the proposed Project infrastructure will be located;
- Assess the impact of proposed Project infrastructure and activities on the visual resource;
- Recommend visual mitigation and management measures for inclusion in the Project's Environmental Management Programme (EMP).

This specialist report will be included in the basic assessment report ("BAR") submitted to the authorities, the National Department of Environment, Forestry, and Fisheries ("DEFF") in support of the application for environmental authorisation ("EA") for the proposed Project.

2.1. Structure of this Report

Table 1 provides a summary of report structure.

Table 1: Information to be included in specialist report.

Section	Requirements	Section addressed in 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	Preceding Page
(ii)	the expertise of that specialist to compile a specialist report including a curriculum vitae	Preceding Page
(b)	a declaration that the specialist is independent in a form as may be specified by the competent authority	Preceding Page
(c)	an indication of the scope of, and the purpose for which, the report was prepared;	Section 1.0 and 2.0
(cA)	an indication of the quality and age of base data used for the specialist report;	Section 5.0
(cB)	a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 7.0
(d)	the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 5.2
(e)	a description of the methodology adopted in preparing the report or carrying out the	Section 5.0

	specialised process inclusive of equipment and modelling used;	
(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;	Section 8.0
(g)	an identification of any areas to be avoided, including buffers;	N/A
(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;	Section 11.0
(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;	Section 8.0
(k)	any mitigation measures for inclusion in the EMPr;	Section 9.0
(l)	any conditions for inclusion in the environmental authorisation;	Section 11.0
(m)	any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 10.0
(n)	a reasoned opinion—	
(i)	(as to) whether the proposed activity, activities or portions thereof should be authorised;	Section 11.0
(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;	
(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

3. Project Location

The sites for the proposed Project are located near the towns of Rietfontein and Groot Mier, in the Dawid Kruiper Local Municipality (“DKLM”), in the ZF Mgcawu District Municipality, in the Northern Cape Province.

- The proposed PV blocks and battery storage system site is about 10 ha in extent and located between Rietfontein town and the Rietfontein border post with Namibia; and
- The proposed Telecommunications Tower site is 0.0025 ha in extent and located adjacent to the R31 arterial road, approximately 5 km south-east of Groot Mier and 35 km to the west of Rietfontein.

Refer to Figure 1 for a map showing the regional location of the proposed Project sites.

4. Project Overview

The proposed Project will consist of 12 independent PV blocks of 170 (“kW”) kW each, with a total installed capacity of 2 040 kW (or 2.04 megawatts (“MW”)). The proposed Project will also consist of 11 independent battery storage systems (“BESS”) of 140 kW (560 kWh) each, with a total installed capacity of 1 540 kW (or 1.54 MW) and 6 160 kWh (or 6.16 MWh).

The installation of these PV blocks and BESS will be staggered according to the expected growth in electrical demand:

- Initial installation of 5 x 170 kW PV blocks and 4 x 140 kW BESS for the “electrification scenario”
- Installation of an additional 3 x 170 kW PV blocks and 3 x 140 kW BESS for the “LPUs scenario”
- Installation of an additional 4 x PV blocks and 4 x 140 kW for the “unforeseen demand scenario”

In addition to the PV blocks and BESS, the proposed Project will also include the following main associated infrastructure:

- 12 x 200 kW inverters to convert the direct current (“DC”) electricity from the PV modules to the alternative current (“AC”) electricity at grid frequency;
- 12 x LV/MV step-up transformers to step up the voltage from low voltage (“LV”) at the output of the inverter to the required medium voltage (“MV”) at the point of connection;
- Transmission Yard and underground cables to connect the proposed PV and BESS to the Mier switching station, and overhead cables connecting to the Rietfontein 33kV feeder;
- Admin Block, Control & Storeroom, Workshop & Storeroom, and parking area; and
- Access road, service road, and internal roads (all gravel).

The Telecommunications (telecom) Tower development will include a 50 m high tower with four communication dishes. The Telecom Tower will be linked to an equipment container via a feeder gantry. All infrastructure will be positioned within a 15 X 15 m site, that will be enclosed with a fence.

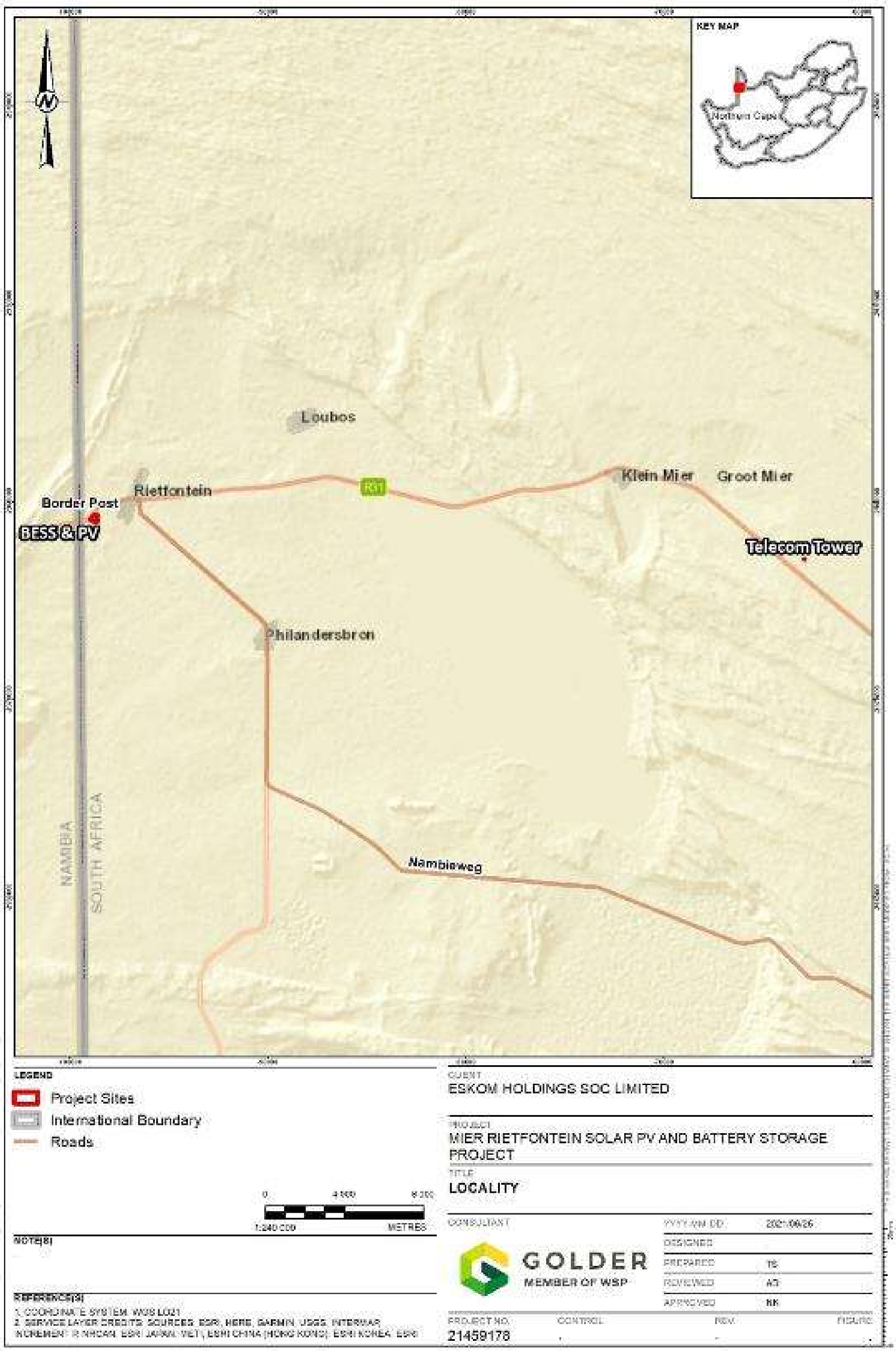

Figure 1: Location of the proposed Project sites.

5. Approach and Methodology

5.1. Delineation of the Study Area

The study area for a VIA comprises the spatial extent of a project's footprint and related activities, as well as an associated buffer area. A visual impact will be caused by all visible infrastructural components and activities that will take place as part of the project, as well as all areas where the physical appearance of the landscape will be altered by earthworks and construction activities. In these areas, the existing land cover will be replaced or the environment will be physically altered, and will therefore be visually directly impacted. The areas from which these proposed landscape alterations are expected to be visible are therefore within the visual study area.

As the proposed Project infrastructure will be located at two disparate sites – located 35 km apart, for the purposes of this VIA, two separate study areas were considered. These were both defined as a 10 km radius around the physical footprints of the PV blocks and BESS (Study Area A), and the Telecom Tower Site (Study Area B) – shown in Figure 2 and Figure 3, respectively.

The distance of 10 km was selected based on the fact that the human eye cannot distinguish significant detail beyond this range. Although it may be possible to see over greater distances from certain elevated locations, such as hilltops, visual impacts such as man-made structures or artificial landforms that are this far away from the viewer are no longer clearly discernible or are at most inconspicuous. For this reason, the visual impact beyond this range is considered to be negligible. In line with this, we consider two spatial areas:

- The term 'Project sites' or 'sites' refers to the areas that will be physically affected by the proposed Project infrastructure and activities (i.e., the development footprints); and
- The term "study area(s)" refers to the areas that will potentially be visually affected by proposed Project infrastructure and represents the 10 km radius buffer around the visible components of the Project.

5.2. Visual Assessment Methodology

The VIA specialist study conducted for the purposes of this BA was conducted using the following methodology:

- The landscape character or visual baseline was described based on:
    - Photographs taken of the proposed Project sites and the surrounding landscapes. The PV Block and BESS site was visited and photographed during a field trip conducted from the 13-14th April 2021. Photographs of the proposed Telecom Tower site were collected by the land owner (Mr. A.J. Willemse) on behalf of the project team on the 30th June and 1st July 2021; and
    - Available aerial photography and topographical maps were reviewed to develop an understanding of the spatial distribution of natural elements, and human-made elements;
- The visual resource value of the landscape was determined in terms of:
    - The topographical character of the Project sites and their surroundings and occurrence of landform features of potential interest;
    - The presence of water bodies (hydrological features) within each study area;

    - The general nature and level of disturbance of vegetation cover within the study areas; and
    - The nature and level of human disturbance and transformation evident.
- The visual absorption capacity of the receiving visual landscape was determined;
- Both resident and transient visual receptors were identified, and a receptor sensitivity rating to the proposed Project was established;
- The magnitude of the impact was determined, by considering the proposed Project in terms of aspects of VIA, namely:
    - Visibility;
    - Visual intrusion; and
    - Visual exposure.
- Impact significance of identified impacts on the visual resource were assessed by relating the magnitude of the visual impact to its:
    - Duration;
    - Severity; and
    - Geographical extent.

Predicated on the findings of the visual impact assessment, mitigation measures to reduce the potential visual impacts of the Project were identified and recommended for inclusion in the Project's Environmental Management Programme (EMP).

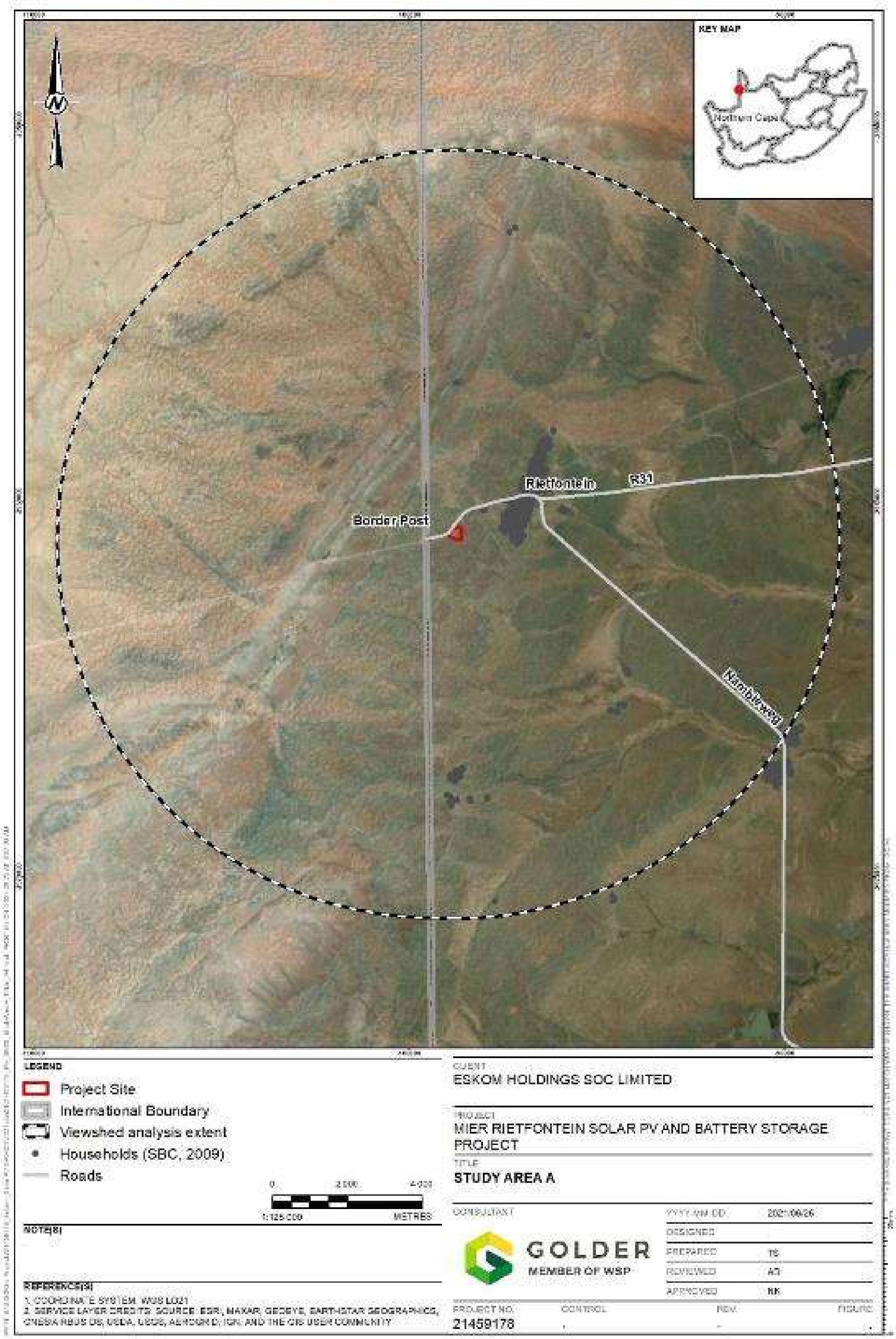

Figure 2: Study area A - used for the Viewshed analysis of the proposed PV blocks and BESS site development. Note location of site with respect to Rietfontein town and border post.

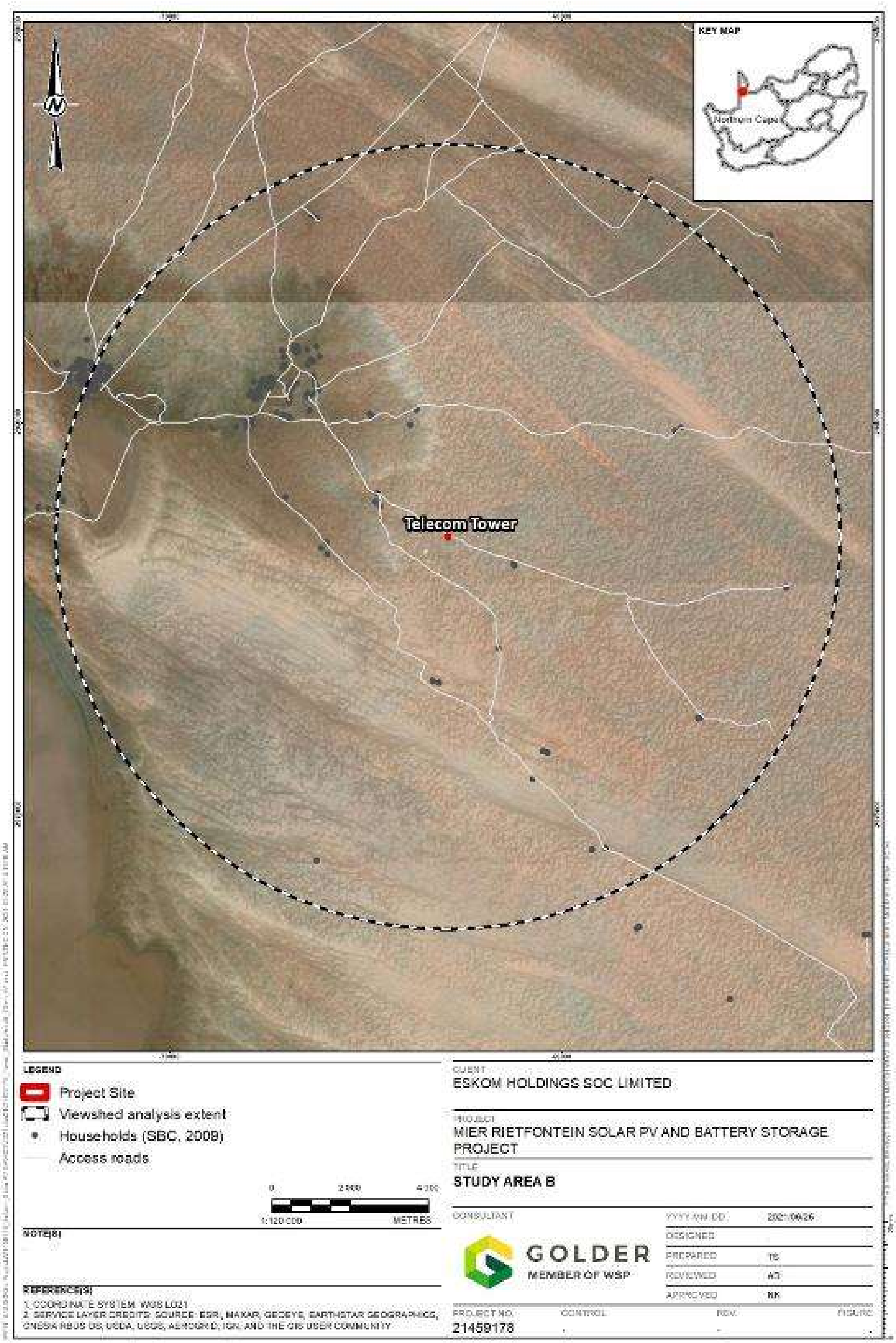

Figure 3: Study area B - used for the viewshed analysis of the proposed Telecom Tower site development.

6. Applicable Legislation, Policies and Guidelines

South African does not have explicit legislation concerning visual impact assessment. However, there are legislation and guidelines that are applicable to the process. Those that were consulted during the visual impact assessment are summarised below:

- The EIA regulations, as published under the National Environmental Management Act (Act No. 107 or 1998), contains listing notices of activities that require either a basic assessment or scoping and an environmental impact assessment (EIA). The EIA regulations also provide broad protocols for the conducting of *inter alia*, specialist environmental studies which have relevance to visual impact assessment;
- The National Heritage Resource Act (Act No. 25 of 1999) is also relevant to visual impact assessment as it provides statutory protection for listed or proclaimed sites (e.g., urban conservation areas and nature reserves) and proclaimed scenic routes;
- The Civil Aviation Act (Act No. 13 of 2009) provides a legal framework for controlling, promoting and regulating the civil aviation industry to ensure the continual improvement of security and safety measures. In line with the Act, all development projects or activities that may have an impact on civil aviation must be assessed by the South African Civil Aviation Authority (SACAA);
- The spatial development framework and associated maps for Dawid Kruiper Municipality were reviewed; and
- The guideline for involving visual and aesthetic specialists in EIA processes, developed by Oberholzer (2005), is of particular relevance and was used, inter alia, to guide this VIA study.

7. Description of the Baseline Conditions

7.1. Visual Baseline Environment

The visual baseline environment was described based on data collected during the field visit and on an assessment of on-site photographs and Google Earth imagery. During the field visit, the Project sites were traversed on foot and in a vehicle. To determine the visual resource value, specific attention was given to the aspects listed below:

- The nature of the existing vegetation cover in terms of its overall appearance, density and height, and level of disturbance;
- The general topographical character of both study areas, including prominent or appealing landforms, and their spatial orientation in terms of the Project sites;
- The nature and level of human transformation or disturbance of the study areas;
- The location, physical extent and appearance of water bodies within each study area, if present; and
- The perceived level of compatibility of existing land uses in terms of the study areas and each other.

This section provides a brief overview of the visual baseline environment in which the proposed Project will take place.

7.1.1. General Landscape Characteristics

Both study areas are dominated by vast expanses of undeveloped and relatively undisturbed natural habitat, consisting of arid shrub- and bushveld. Localised areas of development and transformation are present and include small towns and settlements, such as Rietfontein village (Figure 4) and Philandersbron in study area A, and Groot Mier in study area B. There are also scattered small farm dwellings throughout the region (Figure 5).

Figure 4: Municipal water reservoir and existing Telecommunications Tower, located approximately 700 m north-east of the proposed PV Block and BESS site, adjacent to Rietfontein town.

Figure 5: Outside of towns/villages livestock farming is the main land use.

7.1.2. Topography

The topography of study area A is flat to undulating, with lower lying areas generally aligned to dry drainage features. A larger and more pronounced series of hills, trending on a north-east to south-west axis across the west of this study area A is present - visible in Figure 2. The topography of study area B is characterised by broad, flat plains and undulating low dune fields. A very flat pan is also present in the north-west of the study area.

7.1.3. Atmospheric Conditions

A further aspect of the visual baseline that needs to be considered is that of atmospheric conditions, as this factor can greatly influence how a landscape is perceived by viewers, as well as the range over which views are possible. The broader Kalahari region is arid, and humidity and cloud-cover are very low for most the year. Although wild fires are uncommon, high winds may lead to increased dust generation at certain times of the year, which may create 'hazy' conditions. Overall however, visibility is generally clear at both study areas.

7.1.4. Hydrology (Drainage Features)

The region is very arid with mean annual precipitation (MAP) recorded at between 100-200 mm. Rainfall occurs mainly in the late summer and early autumn (Mucina & Rutherford, 2011). No permanent water bodies are present in either study area.

Numerous dry drainage channels/lines are present in study area A (Figure 6). These are likely to flow/hold water only temporarily and after sufficient rainfall. At the time of the April field visit, two small earthen dams located to the south-west of the PV Block and BESS site, along the larger drainage lines in study area A, held water (shown in Figure 7).

In contrast to study area A, aerial imagery indicates that there a very few drainage channels/lines present in study area B. There is however, a medium-sized ephemeral pan in the west of this study area (refer to regional map in Figure 3).

Figure 6: Large dry drainage channel located to the east of the proposed PV Block and BESS site in study area A.

Figure 7: Artificial dam filled with water at the time of the field visit. Located along a drainage channel to the south-east of the proposed PV Block and BESS site in study area A.

7.1.5. Vegetation Characteristics

Study area A is located in Kalahari Karroid Shrubland of the Nama-Karoo Biome (Mucina and Rutherford, 2011) (Figure 8). Vegetation is characterised by open- to sparse shrubland, comprising both woody and herbaceous (grasses and forbs) vegetation (Mucina and Rutherford, 2011). Woody vegetation is dominated by short/low growing (< 1m) shrubs and although large trees (> 2m in height) are present, they are not abundant.

Study area B is dominated by the Gordonia Plains Shrubland and Gordonia Dunveld vegetation types, which are part of the savanna biome (Mucina and Rutherford, 2011). Both vegetation types are characterised by open grassland, with occasional shrubs and small trees. In Gordonia Plains Shrubland, vegetation grows on relatively flat plains (shown in Figure 9), while in Gordonia Dunveld vegetation grows on numerous parallel, rolling dunes (Mucina and Rutherford, 2011). In study area B, there is also an area characterised by Southern Kalahari Salt Pans vegetation. This vegetation type is characterised by low grassland, growing on pan bottoms and fringed by low shrubs (Mucina and Rutherford, 2011).

Figure 8: Typical Kalahari Karroid Shrubland that dominates study area A. Note relatively flat landscape, with short, open shrubland vegetation

Figure 9: Gordonia Plains Shrubland associated with the study area B landscape. Note open, grass dominated vegetation, with scattered short woody trees and shrubs.

7.1.6. General Land Cover and Land Uses

Outside of small commercial / residential centres (e.g., Rietfontein and Groot Mier – see Figure 1), the prevailing land use across the region is livestock farming, with both cattle, sheep and goats observed during the field visit (Figure 10). Towns and villages that are present are generally small, and comprise a few commercial/administrative buildings and several homesteads.

Prominent anthropogenic infrastructure in the immediate landscape surrounding the proposed PV Block and BESS site in study area A include the Rietfontein border post (Figure 11), outlying residences of Rietfontein, a municipal water reservoir, telecommunications tower (shown in Figure 4) and overhead powerlines. The presence of these anthropogenic features in close proximity to the proposed PV Block and BESS site have an influence on the visual resource and visual absorption capacity of the landscape.

Aerial imagery indicates that, apart from the Breek Duin Water Reservoir (Figure 12) and the R31 arterial road (Figure 13), there is little anthropogenic infrastructure within the immediate landscape surrounding the proposed Telecom Tower site in study area B. The nearest settlement is the village of Groot Mier. This small residential area comprises a few scattered houses.

Overall, the vast and open expanses of the landscape, coupled with the dominance of short and relatively undisturbed arid vegetation, conveys a distinct rural, desolate and wilderness aesthetic to the region.

Figure 10: Cattle observed grazing in study area A.

Figure 11: Rietfontein border post located immediately west of the proposed PV Block and BESS site. Note low hills beyond the border post buildings.

Figure 12: Breek Duin Water Reservoir located adjacent to the R31, in the vicinity of the proposed Telecom Tower site.

Figure 13: The R31 arterial road and a farm fence located to the south of the proposed Telecom Tower site.

7.1.7. Protected Areas

The nearest formally protected area is the Kgalagadi Transfrontier Park (KTP). This extensive protected area, is located between 45 and 70 km north of the two study areas, and covers both South Africa and neighbouring and is a popular tourism destination. Considering the distance between both proposed Project sites and the KTP, the presence of this protected area will not have an influence on the VIA of proposed infrastructure.

7.2. Study Area Visual Resource Value

Visual resource value refers to the visual quality of elements of an environment, as well as the way in which combinations of elements in an environment appeal to our senses. Studies in perceptual psychology have shown an affinity for landscapes with a higher visual complexity, rather than homogeneous ones (Young, 2004). Furthermore, based on research of human visual preference (Crawford, 1994), landscape quality increases when:

- Prominent topographical features and rugged horizon lines exist;
- Water bodies such as streams or dams are present;
- Untransformed indigenous vegetation cover dominates; and
- Limited presence of human activity, or land uses that are not visually intrusive or dominant prevail.

Further to these factors, Table 2 indicates criteria used for visual resource assessment. The assessment combines visual quality attributes (views, sense of place and aesthetic appeal) with landscape character and gives the landscape a high, moderate or low visual resource value.

Table 2: Visual resource value criteria

Visual Resource Value	Criteria
High (3)	Pristine or near-pristine condition/little to no visible human intervention visible/ characterised by highly scenic or attractive natural features, or cultural heritage sites with high historical or social value and visual appeal/characterised by highly scenic or attractive features/areas that exhibit a strong positive character with valued features that combine to give the experience of unity, richness and harmony. These are landscapes that may be considered to be of particular importance to conserve and which may be sensitive to change.
Moderate (2)	Partially transformed or disturbed landscape/human intervention visible but does not dominate view, or is characterised by elements that have some socio-cultural or historic interest but that is not considered visually unique/scenic appeal of landscape partially compromised/noticeable presence of incongruous elements/areas that exhibit positive character but which may have evidence of degradation/erosion of some features resulting in areas of more mixed character. These landscapes are less important to conserve, but may include certain areas or features worthy of conservation.
Low (1)	Extensively transformed or disturbed landscape/human intervention is of visually intrusive nature and dominates available views/scenic appeal of landscape greatly compromised/visual prominence of widely disparate or incongruous land uses and activities/areas generally negative in character with few, if any, valued features. Scope for positive enhancement frequently occurs.

A brief analysis of the visual resource value of the study area *vis-á-vis* the tabulated factors is discussed below:

7.2.1. Visual Resource Value Analysis

Topography

The natural topography of the landscape in both study areas is flat to undulating, although a series of small hills is present in the west of study area A. Prominent landforms, like hills and mountains are expected to be visually distinctive and therefore likely have a higher visual resource value, whereas flat to undulating plains or dune fields are considered to have a lower visual resource value.

- Overall, the topographic value of both study areas is rated <u>medium</u>.

Hydrology

Apart from several small ephemeral drainage lines (some with small earthen dams) and a shallow pan (study area B), there are no highly prominent or water drainage or holding features that permanently hold water in either study area. The drainage features that are present are not significant within the overall visual context.

- The visual resource value of the study area's hydrology is therefore considered to be low.

Vegetation Cover

Vegetation in both study areas is natural and characterised by either arid shrubland or arid savanna vegetation. Vegetation cover across large areas is homogenous. Excluding small and localised areas of development or disturbance, natural habitat is largely unaltered over the entire region.

- The visual resource value of the study area's vegetation cover is therefore expected to be high.

Land Use

Outside of the small town and villages, the prevailing land use across both study areas is primarily farming (livestock and possibly game farming). Farming inherently invokes a natural and wild aesthetic that contributes positively to the visual resource of the landscape.

- The visual resource value of both study area's land use is high.

7.2.2. Summary

Based on the score ranges presented in Table 3, the overall visual resource value of both study areas is rated as MODERATE (9).

Table 3: Visual resource value determination.

Visual baseline attributes	Topography	Water Bodies	Vegetation	Land uses
Visual resource value score	2 (moderate)	1 (low)	3 (high)	3 (high)
Total				9 (moderate)

Where:

- 4 – 6 = Low;
- 7 – 9 = Moderate; and
- 10 – 12 = High.

7.3. Visual Absorption Capacity

Visual Absorption Capacity (VAC) can be defined as an "estimation of the capacity of the landscape to absorb development without creating a significant change in visual character or producing a reduction in scenic quality" (Oberholzer, 2008). The ability of a landscape to absorb development or additional human intervention is primarily determined by the nature and occurrence of vegetation cover, topographical character and human structures.

A further major factor is the degree of visual contrast between the proposed new Project and the existing elements in the landscape. If, for example, a visually prominent industrial development already exists in an area, the capacity of that section of landscape to visually "absorb" additional industrial structures is higher than that of a similar section of landscape that is still in its natural state. VAC is therefore primarily a function of the existing land use and cover, in combination with the topographical ruggedness of the study area and immediate surroundings.

- Despite the topography and the unaltered vegetation cover of the landscape, existing infrastructure, such as the buildings in Rietfontein town and the nearby Rietfontein border post, municipal water reservoir and telecommunication tower, are conspicuous visual features that are in close proximity to the Project site in study area A. It is anticipated that the capacity of these existing features to visually 'absorb' additional infrastructure, such as that proposed for this Project, is reasonable, and accordingly, the VAC of the study area A is rated MEDIUM.
- Unlike study area A, there is very little anthropogenic disturbances or infrastructure within study area B, and in particular in close proximity to the proposed Telecom Tower site. Accordingly, this landscape has limited ability to 'absorb' new infrastructure. The VAC of the study area B is therefore rated LOW.

7.3.1. Visual Absorption Capacity Weighting Factor

In order to account for the fact that visual impacts are expected to be more intrusive in landscapes with a lower VAC than in those with a higher VAC (regardless of the visual quality of the landscape), a weighting factor is incorporated into the impact magnitude determination, as indicated in Table 4.

Table 4: Visual absorption capacity weighting factor table

Visual resource value of receiving landscape	Low VAC	Moderate VAC	High VAC
High resource value	High (1.2)	High (1.2)	Moderate (1.0)
Moderate resource value	High (1.2)	Moderate (1.0)	Low (0.8)
Low visual resource value	Moderate (1.0)	Low (0.8)	Low (0.8)

The visual resource value of both study areas has been determined to be MODERATE (refer to Section 7.2.2). The VAC of the study area A has been rated as medium, while that of study area B is rated low (refer to Section 7.3). Hence, during the impact assessment:

- A Moderate (1.0) weighting factor in terms of VAC is applied to study area A; and
- A High (1.2) weighting factor in terms of VAC is applied to study area B.

7.4. Visual Receptor Sensitivity

7.4.1. Receptor Groups

Visual impact is primarily an impact concerned with human interest. Potential viewers or visual receptors, are therefore people that might see the proposed development. Receptor sensitivity refers to the degree to which an activity will actually impact on receptors and depends on how many persons see the project, how frequently they are exposed to it and their perceptions regarding aesthetics. Receptors of the proposed Project can be broadly categorised into two main groups, namely:

- People who live or work in the area, and who will be frequently exposed to the project components (resident receptors); and
- People who travel through the area, and are only temporarily exposed to the project components (transient receptors).

Resident Receptors

Resident receptors include people living in towns and villages, such as Rietfontein and Philandersbron in study area A, and Groot Mier and Klein Mier in study area B. It also includes farmers and farm workers that occupy the numerous rural homesteads that are scattered on farms throughout each study area.

Transient Receptors

Motorists driving along the R31 are the main transient receptors. It is anticipated that this group will include both people from outside the area, who travel along the R31 between Namibia and South Africa (i.e., cross-border tourists), as well as local people travelling between towns and villages in the region.

Aerial imagery also indicates the presence of a small aerodrome to the north of Rietfontein – approximately 3.5 km to the north-west of the PV Block and BESS site. The aerodrome is equipped with two gravel landing strips. These are orientated on an approximate north-west to south-east axis, and a north-south axis.

7.4.2. Receptor Sensitivity and Incidences

The visual receptor sensitivity and incidence can be classified as high, moderate or low, as indicated in Table 5.

Table 5: Visual receptor sensitivity criteria

Number of people that will see the project (incidence factor)	
Large	Towns and cities, along major national roads (e.g., thousands of people)
Moderate	Villages, typically less than 1 000 people
Small	Less than 100 people (e.g., a few households)
Receptor perceived landscape value (sensitivity factor)	
High	People attach a high value to aesthetics, such as in or around a game reserve or conservation area, and the project is perceived to impact significantly on this value of the landscape.
Moderate	People attach a moderate value to aesthetics, such as smaller towns, where natural character is still plentiful and in close range of residency.
Low	People attach a low value to aesthetics, when compared to employment opportunities, for instance. Environments have already been transformed, such as cities and towns.

The following ratings have therefore been applied to the identified visual receptor groups:

Resident Receptors

Resident receptors comprise a moderate number of people (incidence factor) living in and around the project area:

- People living in urban areas, such as Rietfontein, will probably attach a low value (sensitivity factor) to the Project; and
- People living in rural settings (farmers, etc.) will attach a high value (sensitivity factor) to the Project.

Transient Receptors

People travelling through the study areas will include both local residents and tourists. They will constitute a moderate number of people (incidence factor). It is expected that many travellers will attach a moderate degree of value to the currently untransformed visual setting of the proposed Project sites (sensitivity factor). Hence, this receptor group has also been given a moderate sensitivity rating.

Based on the above, a moderate number of people (incidence factor) are expected to be visually affected by the project and the overall perceived landscape value (sensitivity factor) will also be moderate.

7.4.3. Receptor Sensitivity Weighting Factor

To determine the magnitude of a visual impact, a weighting factor that accounts for receptor sensitivity is determined (Table 6), based on the number of people that are likely to be exposed to a visual impact (incidence factor) and their expected perception of the value of the visual landscape and project impact (sensitivity factor).

Table 6: Weighting factor for receptor sensitivity criteria

		Number of people that will see the project (incidence factor)		
		Large	**Moderate**	**Small**
Receptor perceived landscape value (sensitivity factor)	**High**	High (1.2)	High (1.2)	Moderate (1.0)
	Moderate	High (1.2)	Moderate (1.0)	Low (0.8)
	Low	Moderate (1.0)	Low (0.8)	Low (0.8)

Based on the receptor sensitivity assessment and the above criteria, a MODERATE weighting factor (1.0) in terms of this aspect is applied during the impact magnitude determination.

8. Impact Assessment

8.1. Impact Identification

The following potential visual impacts that may occur during the construction, operational and decommissioning/closure phases of the proposed Project have been identified. Note that for the purposes of this assessment, the potential impacts of the construction and operational phases have been grouped together, as they are expected to be largely similar in nature.

8.1.1. Construction and Operational Phases

- Dust generation during vegetation clearance and construction activities [Note: *Considering the small size of the proposed Telecom Tower footprint* (*225 m^2 or 0.0225 ha*)*, dust generation is only considered an impact of concern for the larger PV Blocks BESS footprint, which is estimated at 10 ha footprint*].
- Reduction in visual resource value due to presence of PV Blocks, BESS and associated infrastructure;
- Reduction in visual resource value due to presence of Telecom Tower and associated infrastructure; and
- Light pollution at night. [Note: *This impact is only considered applicable at the PV Blocks BESS site*].

8.1.2. Decommissioning and Closure Phase

- Reinstatement of visual resource value due to the dismantling of all proposed Project infrastructure and the subsequent rehabilitation of footprint areas; and
- Visible dust plumes during rehabilitation.

8.2. Impact Magnitude Criteria

The magnitude of a visual impact is determined by considering the visual resource value and VAC of the landscape in which the Project will take place, the receptors potentially affected by it, together with the level of visibility of the Project components, their degree of visual intrusion and the potential visual exposure of receptors to the Project, as further elaborated below:

8.2.1. Theoretical Visibility

The level of theoretical visibility (LTV) is defined as the sections of each study area from which proposed Project infrastructure may be visible. This was determined by conducting Viewshed analyses using Geographic Information System software, with three-dimensional topographical modelling capabilities.

- The basis of a Viewshed analysis is a good Digital Elevation Model (DEM). The DEM for this Viewshed analysis was derived from 5 m contour lines, as per the National Geo-spatial Information (NGI);
- A 10 km area surrounding each Project site was used; and
- Receptor height was set to 1.5 m.

Viewsheds were developed for the proposed Project based on indicated infrastructure locations and heights (refer to Table 7 for infrastructure heights). In this fashion, the LTV based on the results of the Viewshed analysis were then rated as shown in Table 8. Viewsheds were modelled on the above-mentioned DEM, adjusted to include the proposed site layout, using Esri ArcGIS for Desktop software, 3D Analysist Extension. Two Viewsheds were generated - one for each study area. These are shown in Figure 14 and Figure 15.

It must be noted that the Viewshed analyses do not incorporate vegetation height. Therefore, where vegetation is present in or around receptors, there is potential that it may obscure views, meaning that actual view effects will be lower than those assessed in this report. This notwithstanding, considering the generally short and open nature of vegetation across the region, visual obstruction caused by vegetation is not considered an important influencing factor.

Table 7: Estimated height of proposed Project infrastructure

Project Component	Approximate Height (m above ground level)
Battery Storage Systems (BESS)	4 m
PV Blocks	3.5 m
Telecom Tower	50 m
All Supporting Infrastructure	4 m

Table 8: Level of visibility rating

Level of theoretical visibility of Project elements	Visibility Rating
Less than a quarter of the total project study area	Low
Between a quarter and half of the study area	Moderate
More than half of the study area	High

8.2.1.1.Construction and Operational Phases

- **Dust generation**: During construction, it is expected that activities (vegetation clearing and earth works) on site will result in airborne dust plumes – this will be particularly likely during the dry season and in windy conditions. The footprint of disturbance for the PV Block and BESS is however, reasonably small (approx.10 ha), which will limit the. The LTV of dust plumes during both construction and operation is therefore expected to be low; and
- **PV Blocks, BESS and associated infrastructure**: The viewshed indicates that these facilities will be readily visible from many locations across the eastern sphere of study area A, with the hills trending across Namibia acting as an effective screen blocking views from the west (Figure 14). Interestingly, infrastructure will not be readily visible from most of Rietfontein town. The LTV of the PV Blocks, BESS and associated infrastructure is thus expected to be moderate, in line with the criteria set out in Table 8.
- **Telecom Tower and associated infrastructure**: The viewshed for the Telecom Tower indicates that this feature will be visible from many locations within a broad band that trends south-east to north-west across study area B (Figure 15). The LTV of the Telecom Tower and associated infrastructure is therefore also expected to be moderate.
- **Light pollution at night**: The degree to which light pollution will be visible is expected to be similar to that of the PV Block and BESS. For this reason, the LTV of light pollution is expected to be moderate during the construction and operational phases.

8.2.1.2.Decommissioning and Closure Phase

- **Dismantling of all proposed PV Blocks, BESS and associated infrastructure and subsequent rehabilitation of footprint areas**: During decommissioning, all infrastructure will be dismantled, removed and the affected footprint areas will be rehabilitated. Post closure, this is rated as low;

- **Dismantling of all proposed Telecom Tower and associated infrastructure and subsequent rehabilitation of footprint areas:** During decommissioning, all infrastructure will be dismantled, removed and the affected footprint areas will be rehabilitated. Post closure, this is rated as low;
- **Visible dust plumes during rehabilitation**: Rehabilitation activities are also expected to cause some airborne dust; however, this is expected to be at a smaller scale compared to the construction phase. The visibility of this impact is therefore also rated low for this phase.

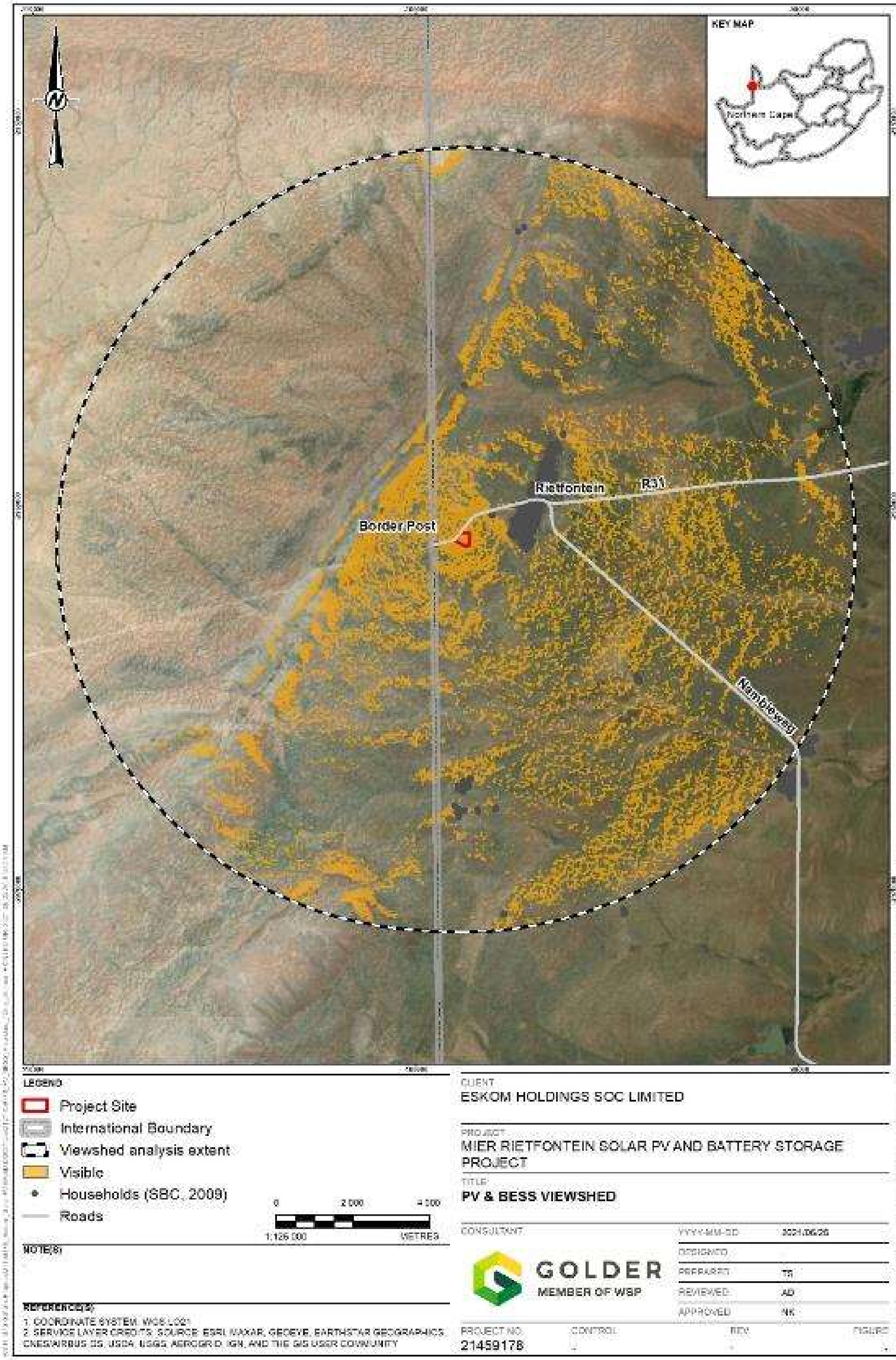

Figure 14: Viewshed from the proposed PV Blocks, BESS and associated infrastructure site.

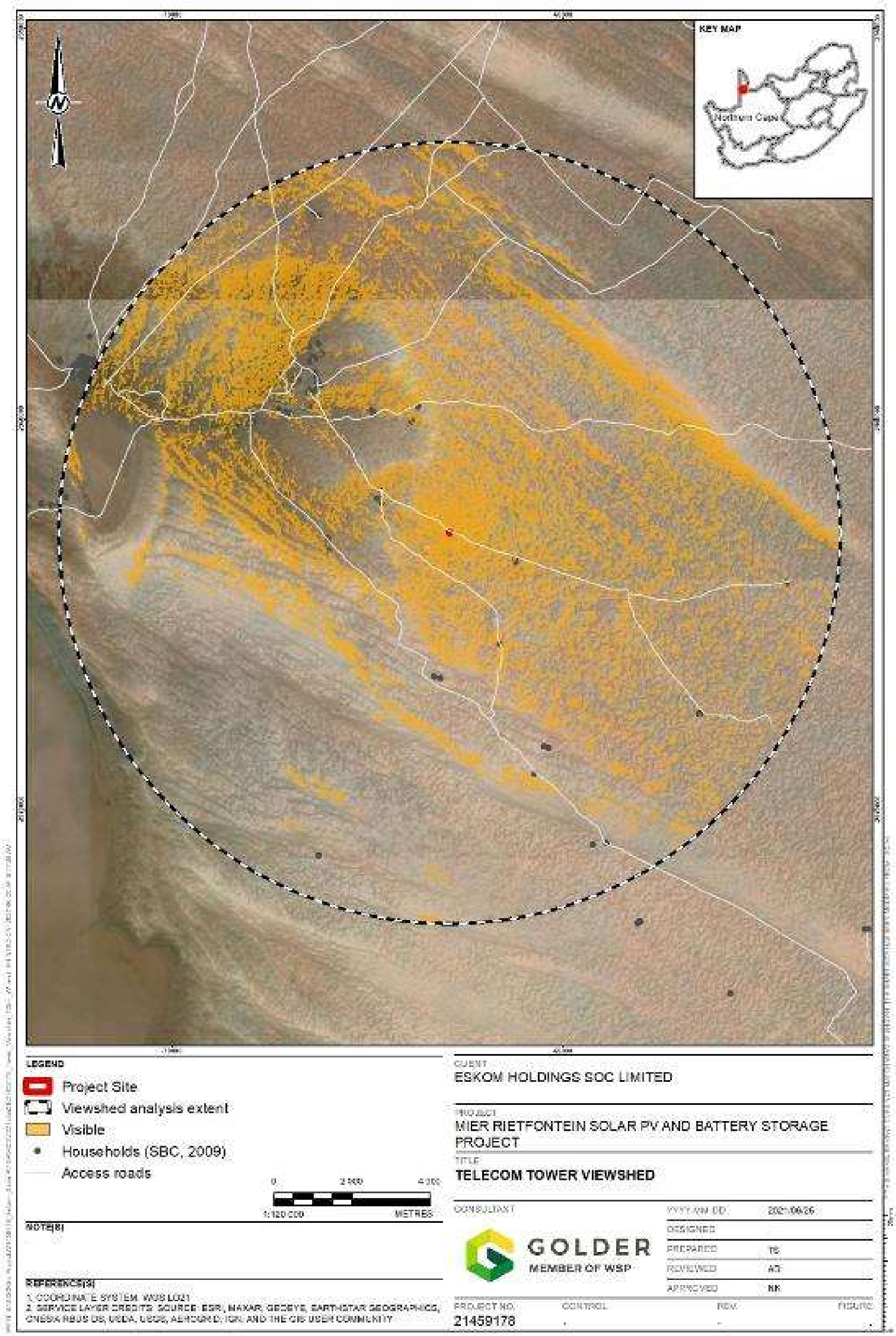

Figure 15: Viewshed from the proposed Telecom Tower and associated infrastructure site

8.2.2. Visual Intrusion

Visual intrusion deals with how well the project components fit into the ecological and cultural aesthetic of the landscape as a whole. An object will have a greater negative impact on scenes considered to have a high visual quality than on scenes of low quality because the most scenic areas have the "most to lose".

The visual impact of a proposed landscape alteration also decreases as the complexity of the context within which it takes place, increases. If the existing visual context of the site is relatively simple and uniform, any alterations or the addition of human-made elements tend to be very noticeable, whereas the same alterations in a visually complex and varied context do not attract as much attention. Especially as distance increases, the object becomes less of a focal point because there is more visual distraction, and the observer's attention is diverted by the complexity of the scene (Hull and Bishop, 1998). The expected level of visual intrusion of each of the Project components are assessed below.

8.2.2.1. Construction and Operational Phases

- **Dust generation**: Dust is often one of the more socially objectionable impacts associated with construction activities. Considering the very arid and barren nature of the landscape, existing dust levels are expected to be relatively high. This impact is thus expected to be only moderately intrusive from a visual perspective;
- **PV Blocks, BESS and associated infrastructure**: Project infrastructure will be geometric in shape and made of synthetic material. Although they will be enclosed and partly obscured by a 2.4 m high palisade fence, they will contrast sharply with the immediate natural vegetation. However, considering the presence of close-by existing anthropogenic infrastructure, such as the Rietfontein border post, municipal reservoir and telecommunications tower, the level of visual intrusion of these components is expected to be moderate;
- **Telecom Tower and associated infrastructure:** This infrastructure will also contrast sharply with the natural setting of the landscape. However, unlike the site for the PV Blocks and BESS infrastructure, there is no existing anthropogenic infrastructure in the immediate vicinity of the Telecom Tower site that can 'absorb' the intrusion of new infrastructure. The level of visual intrusion of the Telecom Tower is therefore expected to be high; and
- **Light pollution at night:** Light pollution can be a highly objectionable night-time impact in rural landscapes. The PV Blocks, BESS and associated infrastructure are expected to have night-time security lighting. As there are existing light sources at the nearby facilities, this impact has been rated as being of low intrusive value.

8.2.2.2. Decommissioning and Closure Phase

- **Dismantling of all proposed PV Blocks, BESS and associated infrastructure and subsequent rehabilitation of footprint areas**: The dismantling and removal infrastructure, coupled with rehabilitation, will have a positive visual impact compared to that of operations, and to a large extent will reinstate the original visual character of the affected footprint areas. The resultant level of visual intrusion of the end state of these areas is expected to be negligible.
- **Dismantling of all proposed Telecom Tower and associated infrastructure and subsequent rehabilitation of footprint areas**: *As per for PV Blocks, BESS and associated infrastructure.*

- **Visible dust plumes during rehabilitation**: Visible dust plumes during decommissioning and closure are expected to be moderately intrusive, but are likely to only persist until the site is rehabilitated.

8.2.3. Visual Exposure

The visual impact of a development diminishes at an exponential rate as the distance between the observer and the object increases – refer to Figure 16. Moreover, other factors such as relative humidity and fog in the area, directly influence the effect. Increased humidity causes the air to appear greyer, diminishing detail. Thus, the impact at 1 000 m would be 25% of the impact as viewed from 500 m. At 2 000 m it would be 10% of the impact at 500 m. The inverse relationship of distance and visual impact is well recognised in visual analysis literature (Hull, R.B and Bishop, I.E, 1998) and was used as important criteria for this study.

Thus, visual exposure is an expression of how close receptors are expected to get to the proposed interventions on a regular basis. For the purposes of this assessment, close range views (equating to a high level of visual exposure) are views over a distance of 500 m or less, medium-range views (equating to a moderate/medium level of visual exposure) are views of 500 m to 2 km, and long-range views are over distances greater than 2 km (low levels of visual exposure).

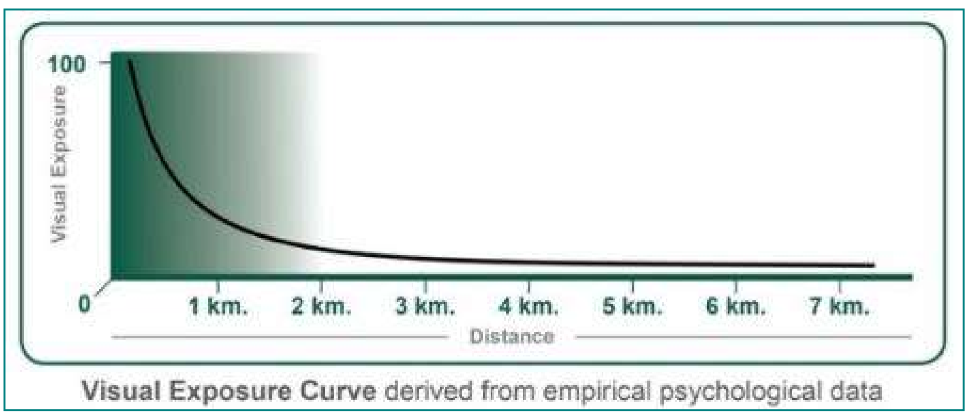

Figure 16: Visual exposure graph

8.2.3.1. Construction and Operational Phases

All identified impacts: In study area A, most resident receptors in Rietfontein are located further than 1 km from the PV Block and BESS site. For the purposes of this assessment, visual exposure in terms of all identified impacts at this location, has therefore been rated as moderate.

Most receptors in study area B are located further than 2 km from the proposed Telecom Tower site. Visual exposure for impacts at this location are therefore rated low.

8.2.3.2. Decommissioning and Closure Phase

All identified impacts: *As per Section 8.2.3.1: Construction and Operational Phases*.

8.3. Impact Magnitude Methodology

The expected impact magnitude of the proposed Project was rated, based on the above assessment of the visual resource value of the site, as well as level of visibility, visual intrusion, visual exposure and receptor sensitivity as visual impact criteria. The process is summarised below.

Magnitude = [(Visual quality of the site x VAC factor) x (Visibility + Visual Intrusion + Visual Exposure)] x Receptor sensitivity factor.

Thus: [(1 x Factor 1.0) x (1 + 1 + 1)] x Factor 1 = 3.

From the above equation the maximum magnitude point (MP) score is 38.9 points. The possible range of MP scores is then categorised as indicated in Table 9: Impact magnitude point score range.

Table 9: Impact magnitude point score range

MP Score	Magnitude rating
20.1≤	High
13.1-20.0	Moderate
6.1-13.0	Low
≤6.0	Negligible

8.4. Impact Magnitude Determination

Based on the visual resource, VAC, receptor sensitivity and impact assessment criteria assessed in the preceding sections, the magnitude of the various impacts identified was determined for each phase of the project. Consequently, the impact magnitude determination for the construction and operational phases and for the closure phase is presented in Table 10 and Table 11.

Table 10: Construction and Operational Phases - impact magnitude summary.

Visual Impacts	Study area visual resource value	VAC weighting factor	Level of visibility	Visual intrusion	Visual exposure	Receptor sensitivity factor	Impact magnitude point score
Dust generation during vegetation clearance and construction activities.	2	1.0	1	2	2	1.0	10 (low)
Reduction in visual resource value due to presence of PV Blocks, BESS and associated infrastructure.	2	1.0	2	2	2	1.0	12 (low)
Reduction in visual resource value due to presence of Telecom Tower and associated infrastructure.	2	1.2	2	3	1	1.0	14.4 (moderate)
Light pollution at night	2	1.0	2	1	2	1.0	10 (low)
Where for: visual resource value, visibility, visual intrusion and visual exposure: high=3; moderate=2; low=1; and receptor sensitivity: high = factor 1.2; moderate = factor 1; low = factor 0.8							

Table 11: Decommissioning and Closure Phase - impact magnitude summary.

Visual Impacts	Study area visual resource value	VAC weighting factor	Level of visibility	Visual intrusion	Visual exposure	Receptor sensitivity factor	Impact magnitude point score
Reinstatement of visual resource value due to dismantling of proposed PV Blocks, BESS and associated infrastructure and subsequent rehabilitation of footprint areas	2	1.0	1	0	2	1.0	6 (negligible)
Reinstatement of visual resource value due to dismantling of proposed Telecom Tower and associated infrastructure and subsequent rehabilitation of footprint areas	2	1.2	1	0	1	1.0	4.8 (negligible)
Visible dust plumes during rehabilitation.	2	1.0	1	1	2	1.0	10 (low)
Where for: visual resource value, visibility, visual intrusion and visual exposure: high=3; moderate=2; low=1; and receptor sensitivity: high = factor 1.2; moderate = factor 1; low = factor 0.8							

8.5. Impact Rating Methodology

The impact assessment was undertaken using a matrix selection process, the most used methodology, for determining the significance of potential environmental impacts/risks. This methodology is based on the minimum requirements as outlined in Appendix 3 of the EIA Regulations of 2014. The methodology incorporates four aspects for assessing the potential significance of impacts, namely direction, severity, probability of occurrence, and reversibility, which are further sub-divided as follows (Table 12).

Table 12: Impact assessment factors

Direction	Severity			Probability	Reversibility
Positive/ negative	Magnitude	Duration	Scale/extent	Probability of occurrence	Reversible/ irreversible

To determine the significance of each potential impact/risk, the following four ranking scales are used (Table 13).

Table 13: Impact assessment scoring methodology

Value	Description
Magnitude	
10	Very high/unknown (of the highest order possible within the bounds of impacts that could occur. In the case of adverse impacts, there is no possible mitigation that could offset the impact, or mitigation is difficult, expensive, time-consuming or some combination of these. Social, cultural, and economic activities of communities are disrupted to such an extent that these come to a halt).
8	High
6	Moderate (impact is real, but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. In the case of adverse impacts, mitigation is both feasible and easily possible. Social, cultural, and economic activities of communities are changed, but can be continued (albeit in a different form). Modification of the project design or alternative action may be required).
4	Low (impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts, mitigation is either easily achieved or little will be required, or both. Social, cultural, and economic activities of communities can continue unchanged.)
2	Minor
Duration	
5	Permanent (Permanent or beyond closure)
4	Long term (more than 15 years)
3	Medium-term (5 to 15 years)
2	Short-term (1 to 5 years)
1	Immediate (less than 1 year)
Scale	
5	International
4	National
3	Regional
2	Local
1	Site only

0	None
Probability	
5	Definite/unknown (impact will definitely occur)
4	Highly probable (most likely, 60% to 90% chance)
3	Medium probability (40% to 60% chance)
2	Low probability (5% to 40% chance)
1	Improbable (less than 5% chance)
0	None
5	Definite/unknown (impact will definitely occur)

Significance = (Magnitude + Duration + Scale) x Probability

Table 14: Significance of impact based on point allocation

Points	Significance	Description
SP>75	High environmental significance	An impact which could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30 – 75	Moderate environmental significance	An impact or benefit which is sufficiently important to require management, and which could have an influence on the decision unless it is mitigated.
SP<30	Low environmental significance	Impacts with little real effect and which will not have an influence on or require modification of the project design.
+	Positive impact	An impact that is likely to result in positive consequences/effects.

For the methodology outlined above, the following definitions were used:

- **Direction** of an impact may be positive, neutral, or negative with respect to the impact
- **Magnitude** is a measure of the degree of change in a measurement or analysis (e.g., the severity of an impact on human health, well-being, and the environment), and is classified as none/negligible, low, moderate, high, or very high/unknown
- **Scale/geographic extent** refers to the area that could be affected by the impact and is classified as site, local, regional, national, or international
- **Duration** refers to the length of time over which an environmental impact may occur i.e., immediate/transient, short-term, medium term, long-term, or permanent
- **Probability** of occurrence is a description of the probability of the impact occurring as improbable, low probability, medium probability, highly probable or definite
- **Reversibility** of an impact, which may be described as reversible or irreversible

8.5.1. Construction and Operational Phases

Impact 1: Dust generation during vegetation clearance and construction activities.

Before mitigation, impact magnitude is low, while duration is medium-term and it has a high probability. The spatial extent will be local. Prior to mitigation, dust generation is rated an impact of "moderate" significance. After mitigation, this impact can be reduced to a minor magnitude, with a short duration. Spatial extent will be maintained at local, but probability will be reduced to low. After mitigation, dust generation is rated an impact of “low” significance.

Impact 2: Reduction in visual resource value due to presence of PV Blocks, BESS and associated infrastructure.

Before mitigation, impact magnitude is low, while duration is long term. It has a definite probability of occurrence. The spatial extent of the impact is local. Prior to mitigation, this impact is rated of “moderate” significance. This impact can be maintained at a low magnitude, and will remain of long term in duration. Spatial extent will be maintained at the local, but probability will be reduced to highly probable. After mitigation this impact is still rated to be of “moderate” significance.

Impact 3: Reduction in visual resource value due to presence of Telecom Tower and associated infrastructure.

Due to the size and nature of this proposed infrastructure, it is very difficult to mitigate the associated visual impact. Both before and after mitigation, impact significance is rated as “moderate”. This is based on magnitude scores of moderate, a long-term duration, a definite probability of occurrence and a local spatial extent.

Impact 4: Light pollution at night.

Before mitigation, impact magnitude is low, while duration is long-term and it has a high probability. The spatial extent will be local. Prior to mitigation, dust generation is rated an impact of “moderate” significance. After mitigation, this impact can be reduced to a minor magnitude, with a long duration. Spatial extent will be maintained at local, but probability will be reduced to medium. After mitigation, dust generation is rated an impact of “low” significance.

8.5.2. Decommissioning and Closure Phase

Impact 1: Dismantling of all proposed PV Blocks, BESS and associated infrastructure and subsequent rehabilitation of footprint areas

The dismantling of all infrastructure at the BV Block and BESS site, coupled with the rehabilitation of disturbed footprints during the decommissioning and closure phase will have a positive impact on the visual resource of this study area.

Impact 2: Dismantling of all proposed Telecom Tower and associated infrastructure and subsequent rehabilitation of footprint areas

The dismantling of all infrastructure at the Telecom Tower site, coupled with the rehabilitation of disturbed footprint during the decommissioning and closure phase will have a positive impact on the visual resource of this study area.

Impact 3: Visible dust plumes during rehabilitation

Before mitigation, impact magnitude is low, while duration is medium-term and it has a high probability. The spatial extent will be local. Prior to mitigation, dust generation is rated an impact of “moderate” significance. After mitigation, this impact can be reduced to a minor magnitude, with a short duration. Spatial extent will be maintained at local, but probability will be reduced to low. After mitigation, dust generation is rated an impact of “low” significance.

Table 15: Summary of the potential impacts/risks during the construction and operational phases, and decommissioning and closure phase.

Aspect	Potential Impact	Impact Assessment Factors		Probability	Significance without mitigation	Impact Assessment Factors		Probability	Significance with mitigation
Construction and Operational Phases									
Visual Resource	Dust generation during vegetation clearance and construction activities	*Direction:*	Negative	Highly Probable	Moderate	*Direction:*	Negative	Low Probability	Low
		Magnitude:	Low			*Magnitude:*	Minor		
		Duration:	Medium Term			*Duration:*	Short Term		
		Scale:	Local			*Scale:*	Local		
		Reversibility:	Reversible			*Reversibility:*	Reversible		
Visual Resource	Reduction in visual resource value due to presence of PV Blocks, BESS and associated infrastructure	*Direction:*	Negative	Definite/ Unknown	Moderate	*Direction:*	Negative	Highly Probability	Moderate
		Magnitude:	Low			*Magnitude:*	Low		
		Duration:	Long Term			*Duration:*	Long Term		
		Scale:	Local			*Scale:*	Local		
		Reversibility:	Reversible			*Reversibility:*	Reversible		
Visual Resource	Reduction in visual resource value due to presence of Telecom Tower and associated infrastructure.	*Direction:*	Negative	Definite/ Unknown	Moderate	*Direction:*	Negative	Highly Probability	Moderate
		Magnitude:	Moderate			*Magnitude:*	Moderate		
		Duration:	Long Term			*Duration:*	Long Term		
		Scale:	Local			*Scale:*	Local		
		Reversibility:	Reversible			*Reversibility:*	Reversible		
Visual Resource	Light pollution at night	*Direction:*	Negative	Highly Probable	Moderate	*Direction:*	Negative	Medium Probability	Low
		Magnitude:	Low			*Magnitude:*	Minor		

Aspect	Potential Impact	Impact Assessment Factors		Probability	Significance without mitigation	Impact Assessment Factors		Probability	Significance with mitigation
		Duration:	Long Term			*Duration:*	Long Term		
		Scale:	Local			*Scale:*	Local		
		Reversibility:	Reversible			*Reversibility:*	Reversible		
Decommissioning and closure phases									
Visual Resource	Dismantling of all proposed PV Blocks, BESS and associated infrastructure and subsequent rehabilitation of footprint areas	*Direction:*	Positive	Definite/ Unknown	Positive	*Direction:*	N.A. (decommissioning and rehabilitation measures constitutes visual mitigation)		
		Magnitude:	Minor			*Magnitude:*			
		Duration:	Short Term			*Duration:*			
		Scale:	Local			*Scale:*			
		Reversibility:	Reversible			*Reversibility:*			
Visual Resource	Dismantling of all proposed Telecom Tower and associated infrastructure and subsequent rehabilitation of footprint areas	*Direction:*	Positive	Definite/ Unknown	Positive	*Direction:*	N.A. (decommissioning and rehabilitation measures constitutes visual mitigation)		
		Magnitude:	Minor			*Magnitude:*			
		Duration:	Short Term			*Duration:*			
		Scale:	Local			*Scale:*			
		Reversibility:	Reversible			*Reversibility:*			
Visual Resource	Visible dust plumes during rehabilitation	*Direction:*	Negative	Highly Probable	Moderate	*Direction:*	Negative	Low Probability	Low
		Magnitude:	Low			*Magnitude:*	Minor		
		Duration:	Long Term			*Duration:*	Short Term		
		Scale:	Local			*Scale:*	Local		
		Reversibility:	Reversible			*Reversibility:*	Reversible		

9. Proposed Mitigation Measures

The following section presents the proposed impact management actions to avoid, minimise and/or manage the potential impacts/risks which were assessed Section 8.

As with the assessment of potential impacts/risks, the impact management actions have been arranged according to the following project phases:

- Construction
- Operational
- Closure (including decommissioning)

For each impact management action, the following information is provided:

- Category: The category within which the potential impact/risk occurs
- Potential impact/risk: Identified potential impact/risk resulting from the pre-construction, construction, operation, and closure of the proposed Project
- Description: Description of the possible impact management action
- Prescribed standards or practices: Prescribed environmental standards or practices with which the impact management action must comply. Note that only key standards or practices have been listed
- Mitigation type: The type of mitigation measure. This includes the following:
  - Avoidance
  - Minimisation
  - Rehabilitation or restoration
  - Offsetting
- Time period: The time period when the impact management actions must be implemented
- Responsible persons: The persons who will be responsible for the implementation of the impact management actions.

Visual mitigation of proposed Project infrastructure can be approached in two ways, and usually a combination of the two methodologies is most effective. The first option is to implement measures that attempt to reduce the visibility of the sources of a visual impact. Thus, an attempt is made to "hide" the source of the visual impact from view, by placing visually appealing elements between the viewer and the source of the visual impact. The second option aims to minimise the degree or severity of the visual impact itself, and usually involves altering the source of the impact in such a way that it is smaller in physical extent and/or less intrusive in appearance. This can be done by decreasing the size of disturbances buildings or by shaping, positioning, colouring and/or covering them in such a way that they blend in with the surrounding scenery to a certain degree.

Construction and operational mitigation possibilities are limited for the proposed Project, due to the operational and structural requirements of Project components. Visual mitigation efforts are therefore focussed on several minor measures during the operational phase, and effective post-operational rehabilitation of the visual resources.

The proposed visual mitigation measures for the construction, operational and decommissioning and closure phases are presented in Table 16.

Table 16: Summary of proposed impact mitigation measures

Ref No.	Category	Potential impact/risk	Description	Prescribed standards or practices	Mitigation type	Time period	Responsible person
1. Construction and Operational Phases							
1.1	Visual Resource	Dust generation during vegetation clearance and construction activities	• Water down construction roads and large bare areas as frequently as is required to minimise airborne dust; • Place a sufficiently deep layer of crushed rock or gravel at vehicle and machinery parking areas; • Apply chemical dust suppressants if deemed necessary.	N/A	Minimisation	During construction phase	Project manager
1.2	Visual Resource	Reduction in visual resource value due to presence of PV Blocks, BESS and associated infrastructure	<u>Potential Architectural Measures</u> To reduce the visual intrusion of built infrastructure, wherever possible: • Material used for on-site infrastructure should not be white or shiny (e.g., bare galvanised steel that causes glare); • Construct and/or paint infrastructure in colours that are complementary to the surrounding landscape, such as light grey, grey green, blue grey, dark buff, rust, ochre variations of tan; and	N/A	Minimisation	During construction and operational phases	Project / Facility manager

Ref No.	Category	Potential impact/risk	Description	Prescribed standards or practices	Mitigation type	Time period	Responsible person
			• Utilise construction materials that have matt textures where possible. General Site Management • Maintain the construction site in a neat and orderly condition at all times; • Create designated areas for material storage, waste sorting and temporary storage, batching and other potentially intrusive activities; • Limit the physical extent of areas cleared for material laydown and vehicle parking as much as possible, and rehabilitate these area as soon as is feasible; • Repair unsightly and ecologically detrimental erosion to steep or bare slopes as soon as possible, and re-vegetate these areas using a suitable mix of indigenous grass species; and • Retain existing shrubs/trees wherever possible, as they already provide valuable screening.				

Ref No.	Category	Potential impact/risk	Description	Prescribed standards or practices	Mitigation type	Time period	Responsible person
1.3	Visual Resource	Reduction in visual resource value due to presence of Telecom Tower and associated infrastructure.	*See above recommendations for PV Blocks, BESS and associated infrastructure.*	N/A	Minimisation	During construction and operational phases	Project / Facility manager
1.4	Visual Resource	Light pollution at night	• Utilise security lighting (if feasible) that is movement activated rather than permanently switched on, to prevent unnecessary constant illumination; • Plan the lighting requirements of the facilities to ensure that lighting meets the need to keep the site secure and safe, without resulting in excessive illumination; • Reduce the height and angle of illumination from which floodlights are fixed as much possible while still maintaining the required levels of illumination; • Identify zones of high and low lighting requirements, focusing on only illuminating areas to the minimum extent possible to allow safe operations at night and for security surveillance	N/A	Minimisation	During Operational phase	Project manager

Ref No.	Category	Potential impact/risk	Description	Prescribed standards or practices	Mitigation type	Time period	Responsible person
			• Avoid up-lighting of structures by rather directing lighting downwards and focussed on the area to be illuminated; and • Fit all security lighting with 'blinkers' or specifically designed fixtures, to ensure light is directed downwards while preventing side spill. Light fixtures of this description are commonly available for a variety of uses and should be used to the greatest extent possible.				
2. Decommissioning and Closure Phase							
2.1	Visual Resource	Dismantling of all proposed PV Blocks, BESS and associated infrastructure and subsequent rehabilitation of footprint areas	• Dismantle and remove all visible surface infrastructure during decommissioning; • Re-shape all footprint areas to be as natural in appearance as possible; • Actively revegetate using grasses to establish a vigorous and self-sustaining vegetation cover.	N/A	Minimisation / Rehabilitation	During closure phase	Facility manager
2.2	Visual Resource	Dismantling of all proposed Telecom Tower and associated	*See above recommendations for PV Blocks, BESS and associated infrastructure.*	N/A	Minimisation / Rehabilitation	During closure phase	Facility manager

Ref No.	Category	Potential impact/risk	Description	Prescribed standards or practices	Mitigation type	Time period	Responsible person
		infrastructure and subsequent rehabilitation of footprint areas					
2.3	Visual Resource	Visible dust plumes during rehabilitation	The site should be actively rehabilitated using indigenous and locally sourced grass species. Seeding should be conducted prior to the first summer rains.	N/A	Minimisation / Rehabilitation	During closure phase	Facility manager

10. Proposed Monitoring Actions

The following section presents the proposed monitoring actions for monitoring and reporting on the implementation of the impact mitigation actions presented in the preceding Section **Error! Reference source not found.**.

The content of this section is largely based on the monitoring requirements outlined in Appendix 4 of the EIA Regulations, 2014.

For each monitoring action, the following information is provided:

- Category: The category within which the potential impact and/or risk occurs
- Potential impact/risk: Identified potential impact/risk resulting from the pre-construction, construction, operation, and closure of the proposed Project
- Method for monitoring : The method for monitoring the implementation of the recommended mitigation measures
- Time period: The time period over which the monitoring actions must be implemented
- Frequency of monitoring: The frequency of monitoring the implementation of the recommended mitigation measures
- Mechanism for monitoring compliance: The mechanism for monitoring compliance with the impact management actions
- Responsible persons: The persons who will be responsible for the implementation of the monitoring actions

As with the impact management actions, the proposed monitoring actions have been arranged according to the following project phases:

- Construction and Operational Phases
- Closure (including decommissioning)

Table 17 presents a summary of the proposed monitoring actions.

Table 17: Summary of proposed monitoring actions

Ref. No.	Category	Method for monitoring	Time period	Frequency of monitoring	Mechanism for monitoring compliance	Responsible person
1. Construction and Operational Phases						
1.1		• Based on general observations, if dust generation become problematic during the construction/operational phases, a dust monitoring programme should be implemented on-site and used to inform additional mitigation measures.	Year-Round	As required	Annual monitoring report	Project / Facility manager
2. Decommissioning and Closure Phase						
2.1		• Conduct periodic monitoring and maintenance of the rehabilitated areas to ensure that vegetation establishes successfully and that erosion does not occur.	Wet/growing season	Annual	Annual monitoring report	Facility manager

11. Environmental Impact Statement

The following section presents a summary of the key findings of the study. Table 18**Error! Reference source not found.** presents a summary of the potential impacts/risks associated with the proposed Project in the construction and operational phases, and decommissioning and closure phases.

Table 18: Summary of potential impacts/risks

Aspect	Potential Impact/Risk	Significance without Mitigation	Significance with Mitigation
Construction and Operational Phase			
Visual Resource	Dust generation during vegetation clearance and construction activities	Moderate	Low
Visual Resource	Reduction in visual resource value due to presence of PV Blocks, BESS and associated infrastructure	Moderate	Moderate
Visual Resource	Reduction in visual resource value due to presence of Telecom Tower and associated infrastructure.	Moderate	Moderate
Visual Resource	Light pollution at night	Moderate	Low
Decommissioning and Closure Phase			
Visual Resource	Dismantling of all proposed PV Blocks, BESS and associated infrastructure and subsequent rehabilitation of footprint areas	Positive	N.A. (decommissioning and rehabilitation measures constitutes visual mitigation)
Visual Resource	Reduction in visual resource value due to presence of Telecom Tower and associated infrastructure.	Positive	
Visual Resource	Visible dust plumes during rehabilitation	Moderate	Low

11.1. Conditions to be included in the Environmental Authorisation

No additional conditions are recommended for inclusion in the EA.

11.2. Specialist Opinion

In accordance with the outcomes of the impact assessment (Section **Error! Reference source not found.**) and taking cognisance of the baseline conditions as presented in Section **Error! Reference source not found.**, as well as the impact management measures (Section **Error! Reference source not found.**), the proposed Mier Rietfontein Solar PV and Battery Storage Project, is not deemed to present significant negative environmental issues or impacts, and it should thus be authorised.

It is noted that a small aerodrome is located to north of Rietfontein – approximately 3.5 km to the north-west of the PV Block and BESS site. In line with Civil Aviation Authority requirements, an application for the project must be submitted to the Obstacle Inspectorate for approval. Supporting documentation that may need to submitted as part of the application, as per Obstacle Notice 3/2020 (Replacement for 17/11/2017), may include a glint and glare assessment.

12. Assumptions, Uncertainties, and Gaps in Knowledge

The following qualification is relevant to the field of VIA and the findings of this study:

Determining the value, quality and significance of a visual resource or the significance of the visual impact that any activity may have on it, in absolute terms, is not achievable. The value of a visual resource is partly determined by the viewer and is influenced by that person's socio-economic, cultural and specific family background, and is even subject to fluctuating factors, such as emotional mood. This situation is compounded by the fact that the conditions under which the visual resource is viewed can change dramatically due to natural phenomena, such as weather, climatic conditions and seasonal change.

Visual impact cannot therefore be measured simply and reliably, as is for instance, the case with water, noise or air pollution. It is therefore impossible to conduct a visual assessment without relying to some extent on the expert professional opinion of a qualified consultant, which is inherently subjective. The subjective opinion of the visual consultant is however unlikely to materially influence the findings and recommendations of this study, as a wide body of scientific knowledge exists in the industry of VIA, on which findings are based.

13. References

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SDF (2018). All Inclusive Spatial Development Framework. Dawid Kruiper Municipality. Final Report February 2018.

HAWKHEAD CONSULTING

Andrew Zinn – Terrestrial Ecologist

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Details

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South Africa

Date of birth: 14 July 1982
Nationality: South African

Education & Qualifications

University of the Witwatersrand
M.Sc. Resource Conservation Biology (2013).

University of KwaZulu-Natal
BSc. Hons. Ecology and Conservation Biology (2005).

Published thesis: *Inducible defences in Acacia sieberiana in response to giraffe browsing*.

University of KwaZulu-Natal
BSc. Zoology and Grassland Science (2004).

Bryanston High School, Johannesburg
Matric Exemption
(2000).

Profile

I am an ecologist with an M.Sc. Degree in Resource Conservation Biology and over 13 years of experience working in biodiversity consulting and ecological research. I am registered with the South African Council of Natural Scientific Professions as a Professional Natural Scientist. I currently work as an independent consulting ecologist, with Hawkhead Consulting. During my career I have worked on projects in remote areas in several African countries including South Africa, Botswana, Democratic Republic of the Congo, Ethiopia, Ghana, Mozambique, Tanzania and Zambia. I have also previously worked in the United Kingdom and the United Arab Emirates.

Work Experience

Independent Ecologist
Hawkhead Consulting, South Africa
September 2020 – Present

Consulting ecologist focusing on terrestrial ecology. I specialise in conducting baseline flora and fauna surveys, ecological impact assessments, and developing mitigation and management programmes for projects and operations in various industry sectors. Core services and responsibilities include, amongst others:

- ❑ Biodiversity study design and implementation;
- ❑ Biodiversity baseline and impact assessment reporting;
- ❑ Mitigation measure design and application;
- ❑ Vegetation surveys and vegetation community mapping;
- ❑ Fauna surveys for mammals, birds, reptiles and amphibians;
- ❑ Development of biodiversity management plans;
- ❑ Development of rehabilitation and revegetation plans; and
- ❑ Alien invasive species control and eradication plans.

Ecologist
Golder Associates Africa, South Africa
June 2011 – September 2020

Ecologist responsible for the management and implementation of baseline biodiversity studies and ecological impact assessments for development projects in the mining, power generation, transport, land development and industrial development sectors throughout sub-Saharan Africa.
Role responsibilities included project management, technical review, biodiversity study design and implementation, flora and fauna surveys, biodiversity baseline and impact assessment reporting, development of biodiversity management plans, rehabilitation plans and alien invasive species control and eradication plans. These studies were conducted to satisfy national environmental regulations and/or international financing requirements, including the International Finance Corporation’s Performance Standard 6.

Affiliations

Member of the South African Wildlife Management Association

Member of the South African Council of Natural Scientific Professions – Professional Natural Scientist (400687/15).

Work Experience (continued)

Independent Ecologist
Subcontracted to KPMG, United Arab Emirates
March – April 2011

Subcontracted to KPMG as a subject matter expert (ecology) on the internal audit of Sir Bani Yas Island's Conservation Department (United Arab Emirates). The audit focused on evaluating the efficacy of the island's various conservation practices, including game management, feed provisioning, carnivore breeding and monitoring, veterinary care and vegetation maintenance.

Environmental Consultant
WSP Environment and Energy, South Africa
August 2008 – March 2011

Environmental consultant, responsible for a range of environmental projects and services including managing environmental authorisation processes (BAs and EIAs), facilitating stakeholder engagement processes, conducting compliance audits, developing environmental management programmes and conducting specialist ecological studies.

Research Technician
Yale University, Kruger National Park, South Africa
October 2007 – May 2008

Research technician on the Savanna Convergence Experiment (SCE). The SCE project was a long-term cross-continental study that investigated the role of mega-herbivores in fire-grazing interactions and their influence on vegetation dynamics. Responsible for collecting and analysing vegetation composition and productivity data, as well as herbivore distribution data.

Publications

- Zinn, A.D., D.E., Burkepile and D.I. Thompson (In prep). Impacts of fire and herbivores on tree seedling establishment in a South African savanna.
- Burkepile, D.E., C.E. Burns, E. Amendola, G.M. Buis, N. Govender, V. Nelson, C.J. Tambling, D.I. Thompson, A.D. Zinn and M.D. Smith (2013). Habitat selection by large herbivores in a southern African savanna: the relative roles of bottom-up and top-down forces. Ecosphere, 4(11):139.
- Knapp, A.K., D.L. Hoover, J.M. Blair, G. Buis, D.E. Burkepile, A. Chamberlain, S.L. Collins, R.W.S Fynn, K.P. Kirkman, M.D. Smith, D. Blake, N. Govender, P. O'Neal, T. Schreck and A. Zinn (2012). A test of two mechanisms proposed to optimize grassland aboveground primary productivity in response to grazing. Journal of Plant Ecology, 5, 357-365.
- Zinn, A.D., D. Ward and K. Kirkman (2007). Inducible defences in *Acacia sieberiana* in response to giraffe browsing. African Journal of Range and Forage Science, 24, 123-129.

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- Zinn, A.D. (2007). Exploitation vs. Conservation: A Burgeoning Fifth Column. African Wildlife, 61, 9-11.
- Andrew Zinn (2006). Conflict Resolution. Africa Birds and Birding. Vol. 11, No. 5, 12-13.

forestry, fisheries
& the environment

Department:
Forestry, Fisheries and the Environment
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

Mier Rietfontein Solar PV and Battery Storage Project

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 April 2021. 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

Online Submission:
EIAapplications@environment.gov.za or https://sfiler.environment.gov.za:8443/.

Please read the process for uploading files to determine how files are to submitted to this Department.

Postal address:
Department of Forestry, Fisheries and the Environment
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:
Department of Forestry, Fisheries and the Environment
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:	Hawkhead Consulting			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)		Percentage Procurement recognition	
Specialist name:	Andrew Zinn			
Specialist Qualifications:	M.Sc. Resource Conservation Biology			
Professional affiliation/registration:	Member of the South African Council of Natural Scientific Professions - Pr.Sci.Nat. 400687/15			
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Telephone:		Fax:		
E-mail:	andrew@hawkhead.co.za			

2. DECLARATION BY THE SPECIALIST

I, __Andrew Zinn______________________________, 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

Hawkhead Consulting

Name of Company:

12 July 2021

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, ____Andrew Zinn______________________________, 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

Golder Associates

Name of Company

12 July 2021

Date

Tracy Skinner
Commissioner of Oaths
Ex-Officio Professional GISc Practitioner (PGP 1356)
Magwa Crescent West, Waterfall City
Midrand

Signature of the Commissioner of Oaths

12 July 2021

Date