PROPOSED BUFFELSPOORT SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY AND ASSOCIATED GRID CONNECTION INFRASTRUCTURE, NORTH WEST PROVINCE

VISUAL ASSESSMENT – INPUT FOR SCOPING REPORT

Produced for:

Buffelspoort Solar Project (Pty) Ltd

On behalf of:

Savannah Environmental (Pty) Ltd
1st Floor, Block 2, 5 Woodlands Drive Office Park,
Cnr Woodlands Drive & Western Service Road
Woodmead, 2191

Produced by:

Lourens du Plessis (PrGISc) t/a LOGIS
PO Box 384, La Montagne, 0184
M: 082 922 9019 E: lourens@logis.co.za
W: logis.co.za

- June 2022 -

CONTENTS

FIGURES

MAPS

TABLES

Lourens du Plessis (t/a LOGIS) is a *Professional Geographical Information Sciences (GISc) Practitioner* registered with The South African Geomatics Council (SAGC) and specialises in Environmental GIS and Visual Impact Assessments (VIA).

Lourens has been involved in the application of Geographical Information Systems (GIS) in Environmental Planning and Management since 1990. He has extensive practical knowledge in spatial analysis, environmental modeling, and digital mapping, and applies this knowledge in various scientific fields and disciplines. His GIS expertise are often utilised in Environmental Impact Assessments, Environmental Management Frameworks, State of the Environment Reports, Environmental Management Plans, tourism development and environmental awareness projects.

He holds a BA degree in Geography and Anthropology from the University of Pretoria and worked at the GisLAB (Department of Landscape Architecture) from 1990 to 1997. He later became a member of the GisLAB and in 1997, when Q-Data Consulting acquired the GisLAB, worked for GIS Business Solutions for two years as project manager and senior consultant. In 1999 he joined MetroGIS (Pty) Ltd as director and equal partner until December 2015. From January 2016 he worked for SMEC South Africa (Pty) Ltd as a technical specialist until he went independent and began trading as LOGIS in April 2017.

Lourens has received various awards for his work over the past two decades, including EPPIC Awards for ENPAT, a Q-Data Consulting Performance Award and two ESRI (Environmental Systems Research Institute) awards for *Most Analytical* and *Best Cartographic Maps*, at Annual International ESRI User Conferences. He is a co-author of the ENPAT atlas and has had several of his maps published in various tourism, educational and environmental publications.

He is familiar with the "Guidelines for Involving Visual and Aesthetic Specialists in EIA Processes" (Provincial Government of the Western Cape: Department of Environmental Affairs and Development Planning) and utilises the principles and recommendations stated therein to successfully undertake visual impact assessments.

1. INTRODUCTION

Buffelspoort Solar Project (Pty) Ltd is proposing to develop a Solar Photovoltaic (PV) Energy Facility and associated infrastructure on Portions 75 and 134 of the Farm Buffelspoort 343JQ, located approximately 6km west of Mooinooi, within the jurisdiction of the Rustenburg Local Municipality and the Bojanala Platinum District Municipality in the North-West Province (hereafter referred to as the "Project"). The proposed Project will have a contracted capacity of up to 40MWp and will be known as the Buffelspoort Solar PV Energy Facility.

The purpose of the facility will be to supply power a private offtaker through connecting to an existing 88kV Substation via a newly proposed ~2.5km long 88kV single circuit overhead power line that will be routed over privately-owned properties from the onsite facility substation to the point of interconnection, north of the N4. The construction of the Solar PV Energy Facility aims to enable the private offtaker to diversify their energy mix and to reduce their reliance on Eskom supplied power and is a conscious effort for the offtaker to contribute to their sustainability targets and reduce their carbon footprint.

A grid connection corridor which varies in width from 200m to 300m and is up to 2.5km in length has been identified for the assessment and suitable placement of the grid connection infrastructure within the corridor. This corridor will provide for the avoidance of sensitive environmental areas and features.

A Development Footprint of up to ~77ha has been identified within the Project Site (~223ha) by Buffelspoort Solar Project (Pty) Ltd for the development of the Buffelspoort Solar PV Energy Facility. Infrastructure associated with the Solar PV Energy Facility will include the following:

- Solar PV array comprising PV panels and mounting structures.
- Inverters and transformers.
- Cabling between the arrays.
- Onsite facility substation.
- 88kV single circuit overhead power line for the distribution of the generated power, which will be connected to an existing 88kV Substation just north of the proposed project site.
- Battery Energy Storage System (BESS)[1] – to be initiated at a later stage than the Solar PV Energy Facility.
- Temporary laydown area.
- Operations and Maintenance (O&M) building, which will include a site security office, warehouse, storage area and workshop.
- Main access road (existing – to be upgraded with hard surface) and internal (new) gravel roads.
- Fencing around the site, including an access gate.

---

[1] The BESS is included as part of the ESIA process albeit that the facility will only be installed after the Solar PV Energy Facility has come into operation. The total electricity requirements for the offtaker is currently under review and an energy master plan is being developed, which will only be finalised post implementation of the Solar PV Energy Facility to address all the electricity needs of the offtaker. The BESS has been included in this ESIA in order to ensure that should the energy master plan require this component to be included sooner than expected that it has already been authorised.

Figure 1: Regional locality of the Study Area.

The Solar PV Energy Facility will take up to 12 months to construct. The operational lifespan of the facility is estimated at up to 15 years, with the option to extend should this be required by the offtaker.

The proposed properties identified for the Solar PV Energy Facility and associated infrastructure are indicated on the maps within this report. Sample images of similar PV technology and Battery Energy Storage System (BESS) facilities are provided below.

Figure 2: Photovoltaic (PV) solar panels. (*Photo: SunPower Solar Power Plant – Prieska)*.

Figure 3: Aerial view of PV arrays. (*Photo: Scatec Solar South Africa*).

Figure 4: Aerial view of a BESS facility (*Photo: Power Engineering International)*.

Figure 5: Close up view of a BESS facility *(Photo: Greenbiz.com).*

2. SCOPE OF WORK

The scope of the work includes a scoping level visual assessment of the issues related to the visual impact. The scoping phase is the process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision-making is expected to focus and to ensure that only key issues and reasonable alternatives are examined.

The Study Area for the visual assessment encompasses a geographical area of approximately 154 km² (the extent of the full-page maps displayed in this report) and includes a minimum 6 km buffer zone (area of potential visual influence) from the proposed project site.

The study area includes predominantly mining land, farm land and sections of the N4 national and R104 arterial roads.

3. METHODOLOGY

The study was undertaken using Geographical Information Systems (GIS) software as a tool to generate viewshed analyses and to apply relevant spatial criteria to the proposed facility. A detailed Digital Terrain Model (DTM) for the study area was created from topographical data provided by the Japan Aerospace Exploration Agency (JAXA), Earth Observation Research Centre, in the form of the ALOS Global Digital Surface Model "ALOS World 3D - 30m" (AW3D30) elevation model.

The methodology utilised to identify issues related to the visual impact included the following activities:

- The creation of a detailed digital terrain model of the potentially affected environment.

- The sourcing of relevant spatial data. This included cadastral features, vegetation types, land use activities, topographical features, site placement, etc.

- The identification of sensitive environments or receptors upon which the proposed facility could have a potential impact.

- The creation of viewshed analyses from the proposed project site in order to determine the visual exposure and the topography's potential to absorb the potential visual impact. The viewshed analyses take into account the dimensions of the proposed structures and activities.

This report (scoping report) sets out to identify the possible visual impacts related to the proposed Solar PV Energy Facility from a desktop level.

4. THE AFFECTED ENVIRONMENT

The Study Area is situated within the Bojanala Platinum District, so called due to the predominantly platinum and chrome mining activities within the region. The region historically had a stronger agricultural economy (in the 1960s) with tobacco, maize, soya, and sunflower amongst some of the major crops produced. In the 1970s mining was introduced and grew to become the main economic driver of the area. The mining activities have since then greatly influenced the settlement patterns and socio-economic structure of the region.

Figure 6: Aerial view of the proposed Solar PV Energy Facility Development Footprint (yellow) and grid connection corridor (red).

The proposed Project Site is located in between the N4 national and R104 arterial roads. The N4 national road very much divides the study area into two distinct land use categories, with the area north of this road predominantly given to large scale mining, and the southern section with a more agricultural and natural character. The topography of the region is similarly divided into two distinct classes, where the northern parts are described as plains and undulating plains, and the southern parts consist of mountains and tall hills. The terrain elevation of the Study Area ranges from approximately 1,140m above sea level in the north and 1,560m to the south at the top of the mountains. These mountains are the northern foothills of the Magaliesberg Mountains, located further south of the study area. Refer to **Map 1** for the shaded relief (topography) map of the study area.

The Sterkstroom River traverses the Study Area from the south (from the Buffelspoort Dam), to the north towards the Beestekraal Dam, located north of the study area. Other than this river there are a number of non-perennial streams and farm or mining dams within the study area.

The vegetation type to the north of the Study Area, where intact and not transformed by mining, is described as *Marikana Thornveld.* This veld type consists of a combination of trees and bushes (open, closed and sparse) and grassland, with various levels of degradation. The level of vegetation transformation is clearly illustrated on the land cover map (**Map 2**) where the agricultural, mining and settlement patterns are shown. The vegetation types to the south are *Moot Plains Bushveld* (along the flatlands) and *Gold Reef Mountain Bushveld* along the mountains and hills.

The most prominent (and visible) land use within the region is the mining activities, mining infrastructure, tailings dams and waste rock dumps. Interspersed with these mining activities are agricultural land uses, ranging from irrigated agriculture, dryland agriculture and citrus farming (orchards) predominantly to the south. Agricultural activities include the production of maize, wheat and sun flower crops, as well as cattle farming. The farmers working these fields predominantly reside at homesteads or farm residences scattered throughout the study area. Homesteads located in closer proximity to the proposed Buffelspoort Solar PV Energy facility site include Buffelspoort, Mizpah, Maakiesaakie, Dassieklip and Elandsdrift.[2]

The largest residential area, or town, within the study area is the mining town of Mooinooi (population 4,733), located approximately 6 km east of the proposed development site.

The N4 national road provides motorised access to the region and is the main connecting route in between the Gauteng Province (Pretoria) and Rustenburg. The proposed Solar PV Energy Facility site is easily accessible from the N4 via the R104 arterial road.

Besides the large number of mines and mining infrastructure within the study area, there are numerous power lines and substations, predominantly associated with the mines. Some of these include:

- Bighorn / Pluto 1 275kV
- Lonmin Eastern Platinum Mine Middelkraal M/P 1
- Middelkraal / Spruitfontein 1 88kV
- Middelkraal / Tharisa 1 88kV

[2] The names listed here are of the homestead or farm dwelling as indicated on the SA 1: 50 000 topographical maps and do not refer to the registered farm name.

- Tharisa / Spruitfontein 1 88kV
- Tharisa / Tharisa Minerals MP1 88kV
- Bighorn / CCT Smelters 1 and 2 88kV
- Bighorn / Middelkraal 1 88kV
- Middelkraal / Moddderspruit 88kV
- Middelkraal / Wonderkop 1 88kV

There are no airports or airfields within the Study Area. There are also no other identified existing or authorised solar energy facilities, although there is one EIA application for a 1MW PV facility at the Lonmin Western Platinum Limited mine, to the north-east of the study area.

The study area is not considered to be an "end destination" tourist attraction, but does provide a thoroughfare to tourist attractions to the west of the province, e.g. Sun City. However, one holiday resort, the Afrikaanse Taal en Kultuur Vereniging (ATKV) Buffelspoort holiday resort was identified approximately 2km west of the proposed Solar PV Energy Facility site. Another facility, the Bosveld Paradys Bed and Breakfast, is located on the farm earmarked for the Solar PV Energy Facility. Other than these facilities, there are no formally protected or designated conservation areas within the Study Area and no additional tourist attractions were identified in closer proximity to the proposed Project[3]

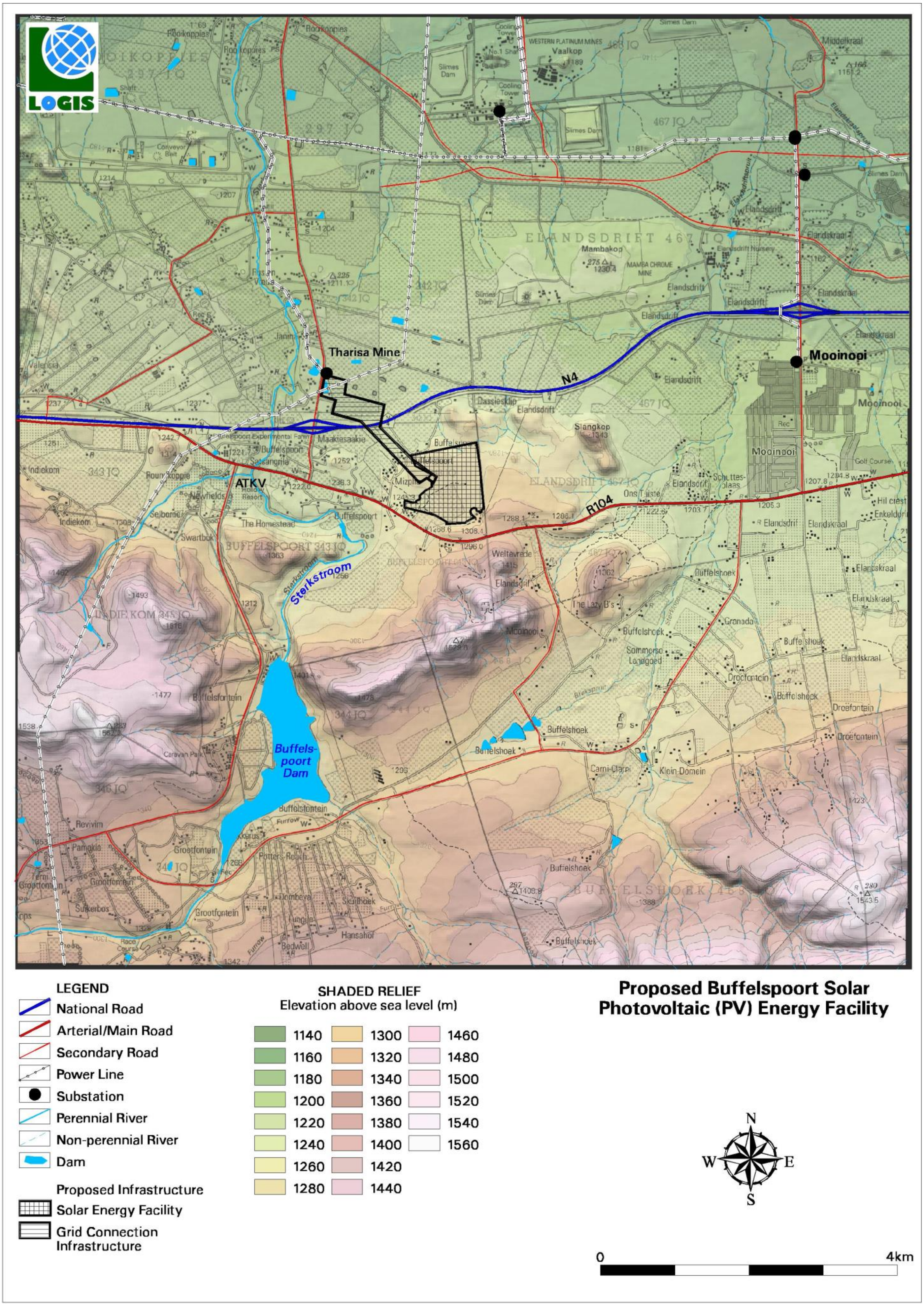
Figure 7: View of the proposed Development Footprint from the N4 national road.

[3] Sources: DEAT (ENPAT North West), NBI (Vegetation Map of South Africa, Lesotho and Swaziland), NLC2018 (ARC/CSIR), REEA_OR_2021_Q1 and SAPAD2021 (DFFE), Wikipedia.

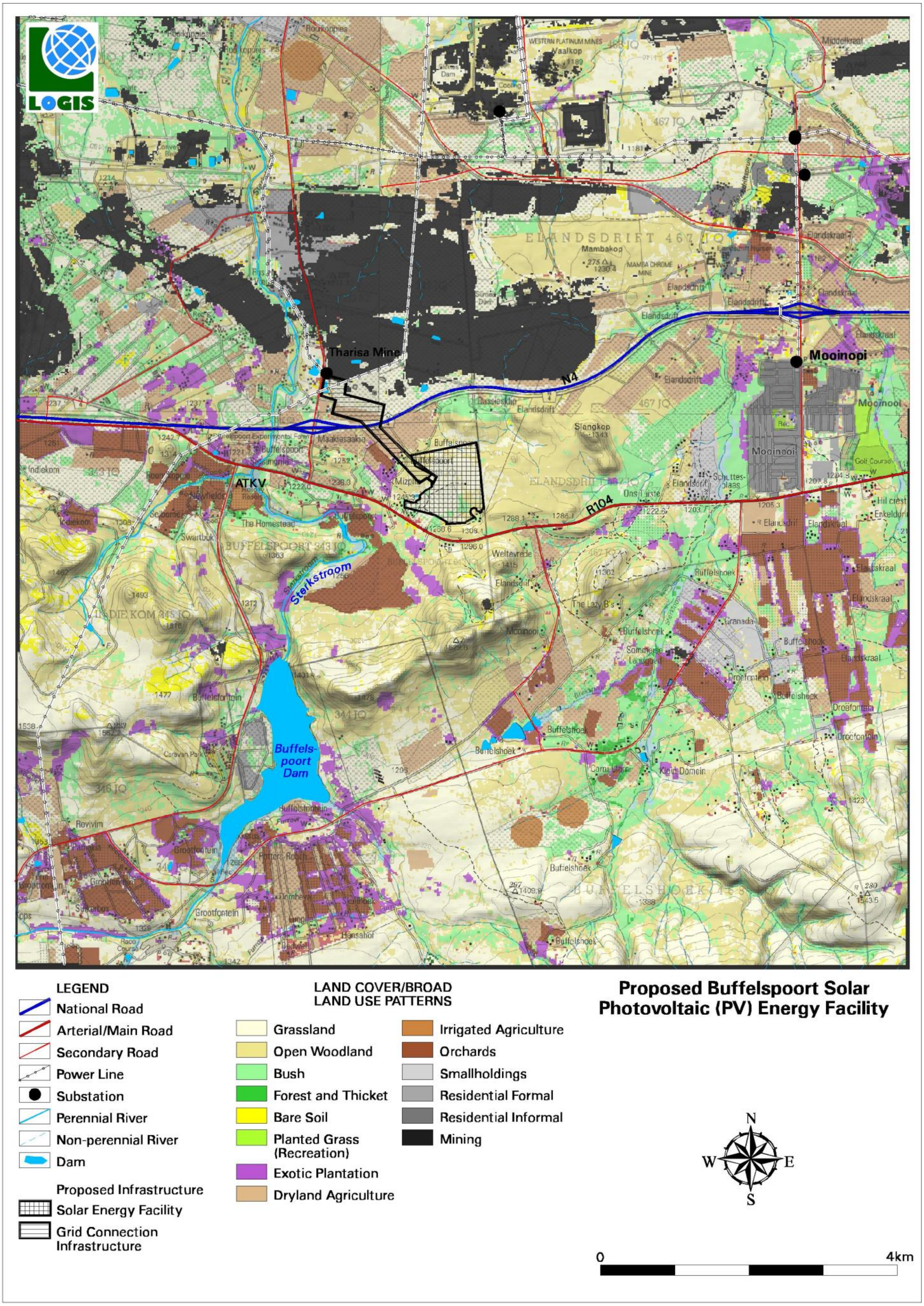
Figure 8: Bushland and woodland with mountains in the background.

Figure 9: Typical mining activity within the Study Area (Photo credit: Martin Politick).

Figure 10: Mine dumps, power lines and mining infrastructure within the Study Area.



Map 1: Shaded relief map of the Study Area.



Map 2: Land cover and broad land use patterns.

5. VISUAL EXPOSURE/VISIBILITY

The result of the viewshed analysis for the proposed Solar PV Energy Facility is shown on the map below (**Map 3**). The viewshed analysis was undertaken from a representative number of vantage points within the Development Footprint at an offset of 5 m above ground level (as a worst-case-scenario). This was done in order to determine the general visual exposure (visibility) of the area under investigation, simulating the maximum height of the proposed structures (PV panels, inverters and BESS) associated with the proposed Project.

It should be noted that the viewshed analysis is based on the entire project site (Development Footprint) as provided and that the results may differ once a final layout, structure positions and dimensions are provided during the EIA phase of the project. At this stage there is a part of the project site that extends north of the plateau on which the site is located, resulting in visual exposure to the north.

The viewshed analysis will be further refined once a preliminary and/or final layout is completed and will be regenerated for the actual position of the infrastructure on the site and actual proposed infrastructure during the EIA phase of the proposed Project.

Map 3 also indicates proximity radii from the Development Footprint in order to show the viewing distance (scale of observation) of the facility in relation to its surrounds.

Results

The proposed Solar PV Energy Facility is located north of a group of ridges/mountains that greatly restricts the visual exposure to the south and south-east. Visual exposure to the north-east is similarly restricted by a weak ridgeline and the Slangkop hill (and other unnamed hill), located to the north-east. Some scattered visual exposure to the west (towards Mooinooi) may be possible, but is unlikely to expose the entire facility.

The most prominent visual exposure will be towards the north and the west. The northern visual exposure falls virtually entirely within mining land. Visual exposure to the west is likely to contain the most potential sensitive visual receptors in the form of residents of homesteads in that area and observers travelling along the N4 national and R104 arterial roads.

The following is evident from the viewshed analyses:

0 – 1km

The PV facility may be highly visible within a 1 km radius. This zone predominantly falls within vacant open space, but does contain farm residences (especially to the west and north) and sections of the N4 and R104. It is expected that the Solar PV Energy Facility and ancillary infrastructure would be highly visible unless the observer is shielded by vegetation cover.

1 – 3km

Visual exposure within this zone includes farm residences and sections of the N4 and R104 roads to the west. Visual exposure to the north falls within mining land with existing visual clutter and disturbances. The ATKV Buffelspoort holiday resort falls within this zone and may theoretically be exposed to the Solar PV Energy

Facility infrastructure. It should once again be noted that visual exposure may only occur where the natural or planted vegetation cover is removed.

3 - 6km

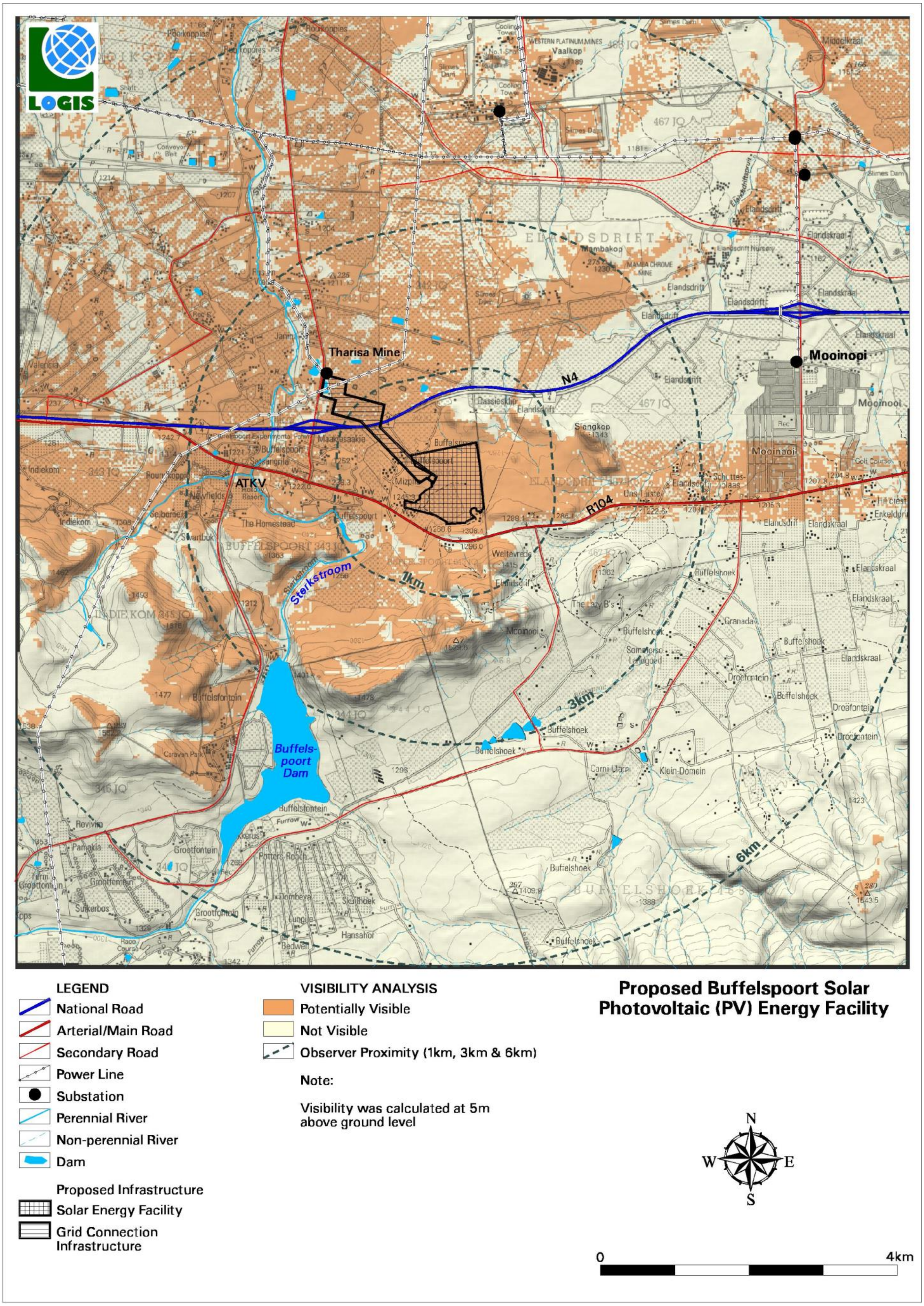
Within a 3 – 6km radius, the visual exposure, predominantly to the north and west, is scattered and interrupted due to the undulating nature of the topography. Most of the visual exposure will be within mining or vacant agricultural land.

> 6km

At distances exceeding 6km, the intensity of visual exposure is expected to be very low and highly unlikely due to the distance between the object (Solar PV Energy Facility) and the observer, and the developed nature of the study area.

Conclusion

In general terms, it is envisaged that the structures, where visible from shorter distances (e.g. less than 1 km and potentially up to 3 km), and where sensitive visual receptors may find themselves within this zone, may constitute a high visual prominence, potentially resulting in a visual impact. This may include observers travelling along the roads N4 and R104, and from residences in closer proximity to the proposed Project.



Map 3: Map indicating the potential (preliminary) visual exposure of the proposed Buffelspoort PV Energy facility.

6. ANTICIPATED ISSUES RELATED TO THE VISUAL IMPACT

Anticipated issues related to the potential visual impact of the proposed Solar PV Energy Facility include the following:

- The visibility of the Solar PV Energy Facility to, and potential visual impact on, observers travelling along the N4 national and R104 arterial roads in closer proximity to the proposed infrastructure.
- The visibility of the Solar PV Energy Facility to, and potential visual impact on residents of dwellings within the study area, with specific reference to the farm residences (to the west and north) in closer proximity to the proposed development.
- The potential visual impact of the Solar PV Energy Facility on the visual character or sense of place of the region.
- The potential visual impact of the Solar PV Energy Facility on tourist routes or tourist destinations/facilities (e.g. the ATKV holiday resort and the Bosveld Paradys Bed and Breakfast).
- The potential visual impact of the construction of ancillary infrastructure (i.e. internal access roads, buildings, power line, etc.) on observers in close proximity to the facility.
- The visual absorption capacity of the natural vegetation or built structures/mining infrastructure (if applicable).
- Potential cumulative visual impacts (or consolidation of visual impacts), with specific reference to the placement of the Solar PV Energy Facility within a predominantly mining area.
- The potential visual impact of operational, safety and security lighting of the facility at night on observers residing in close proximity of the Solar PV Energy Facility.
- Potential visual impact of solar glint and glare as a visual distraction and possible air/road travel hazard (if required).
- Potential visual impact of solar glint and glare on static ground-based receptors (residents of homesteads) in close proximity to the Solar PV Energy Facility (if required).
- Potential visual impacts associated with the construction phase.
- The potential to mitigate visual impacts and inform the design process.

It is envisaged that the issues listed above may potentially constitute a visual impact at a local and/or regional scale. These need to be assessed in greater detail during the EIA phase of the proposed Project.

Table 1: Impact table summarising the potential primary visual impacts associated with the proposed Solar PV Energy Facility.

Impact
Visual impact of the facility on observers in close proximity to the proposed Solar

PV Energy Facility infrastructure and activities. Potential sensitive visual receptors include:

- Residents of homesteads and farm dwellings (if present in closer proximity to the facility)
- Observers travelling along the N4 national and R104 arterial roads

Issue	Nature of Impact	Extent of Impact	No-Go Areas
The viewing of the PV facility infrastructure and activities	The potential negative experience of viewing the infrastructure and activities	Primarily observers situated within a 1km (and potentially up to 3km) radius of the facility	N.A.

Description of expected significance of impact

Extent: Local
Duration: Long term
Magnitude: Moderate
Probability: Probable
Significance: Moderate
Status (positive, neutral or negative): Negative
Reversibility: Recoverable
Irreplaceable loss of resources: No
Can impacts be mitigated: Yes

Gaps in knowledge & recommendations for further study

A preliminary and/or final layout of the Solar PV Energy Facility and ancillary infrastructure is required for further analysis. This includes the provision of the dimensions of the proposed structures and ancillary equipment.

Additional spatial analyses are required in order to create a visual impact index that will include the following criteria:

- Visual exposure
- Visual distance/observer proximity to the structures/activities
- Viewer incidence/viewer perception (sensitive visual receptors)
- Visual absorption capacity of the environment surrounding the infrastructure and activities

Additional activities:

- Identify potential cumulative visual impacts
- Undertake a site visit
- Recommend mitigation measures and/or infrastructure placement alternatives

Refer to the Plan of Study for the EIA phase of the project below.

7. CONCLUSION AND RECOMMENDATIONS

The fact that some components of the proposed Buffelspoort Solar PV Energy Facility and associated infrastructure may be visible does not necessarily imply a high visual impact. Sensitive visual receptors within (but not restricted to) a 3km buffer zone from the facility need to be identified and the severity of the visual impact assessed within the EIA phase of the proposed Project.

It is recommended that additional spatial analyses be undertaken in order to create a visual impact index that will further aid in determining potential areas of visual impact. This exercise should be undertaken for the core PV infrastructure (solar field) as well as for the ancillary infrastructure, as these structures (e.g. the BESS structures and power line) are envisaged to have varying levels of visual impact at a more localised scale. The site-specific issues (as mentioned earlier in the report) and potential sensitive visual receptors should be measured against this visual impact index and be addressed individually in terms of nature, extent, duration, probability, severity and significance of visual impact.

This recommended work must be undertaken during the EIA Phase of reporting for this proposed project. In this respect, the Plan of Study for the EIA is as follows:

Visual Impact Assessment (VIA)

The VIA is determined according to the nature, extent, duration, intensity or magnitude, probability and significance of the potential visual impacts, and will propose management actions and/or monitoring programs and may include recommendations related to the solar energy facility layout.

The visual impact is determined for the highest impact-operating scenario (worst-case scenario) and varying climatic conditions (i.e. different seasons, weather conditions, etc.) are not considered.

The VIA considers potential cumulative visual impacts, or alternatively the potential to concentrate visual exposure/impact within the region.

The following VIA-specific tasks must be undertaken:

- **Determine potential visual exposure**

The visibility or visual exposure of any structure or activity is the point of departure for the visual impact assessment. It stands to reason that if (or where) the proposed Project and associated infrastructure were not visible, no impact would occur.

The viewshed analyses of the proposed Project and the related infrastructure are based on a detailed digital terrain model of the study area.

The first step in determining the visual impact of the proposed project is to identify the areas from which the structures would be visible. The type of structures, the dimensions, the extent of operations and their support infrastructure are taken into account.

- **Determine visual distance/observer proximity to the proposed Project**

In order to refine the visual exposure of the proposed Project on surrounding areas/receptors, the principle of reduced impact over distance is applied in order to determine the core area of visual influence for this type of structure.

Proximity radii for the proposed infrastructure are created in order to indicate the scale and viewing distance of the proposed Project and to determine the prominence of the structures in relation to their environment.

The visual distance theory and the observer's proximity to the facility are closely related, and especially relevant, when considered from areas with a high viewer incidence and a predominantly (anticipated) negative visual perception of the proposed facility.

- **Determine viewer incidence/viewer perception (sensitive visual receptors)**

The next layer of information is the identification of areas of high viewer incidence (i.e. main roads, residential areas, settlements, etc.) that may be exposed to the Project infrastructure.

This is done in order to focus attention on areas where the perceived visual impact of the proposed Project will be the highest and where the perception of affected observers will be negative.

Related to this data set, is a land use character map, that further aids in identifying sensitive areas and possible critical features (i.e. tourist facilities, protected areas, etc.), that should be addressed.

- **Determine the visual absorption capacity (VAC) of the landscape**

This is the capacity of the receiving environment to absorb the potential visual impact of the proposed Project. The VAC is primarily a function of the vegetation, and will be high if the vegetation is tall, dense and continuous. Conversely, low growing, sparse and patchy vegetation will have a low VAC.

The VAC would also be high where the environment can readily absorb the structure in terms of texture, colour, form and light / shade characteristics of the structure. On the other hand, the VAC for a structure contrasting markedly with one or more of the characteristics of the environment would be low.

The VAC also generally increases with distance, where discernible detail in visual characteristics of both environment and structure decreases.

- **Calculate the visual impact index**

The results of the above analyses are merged in order to determine the areas of likely visual impact and where the viewer perception would be negative. An area with short distance visual exposure to the proposed infrastructure, a high viewer incidence and a predominantly negative perception would therefore have a higher value (greater impact) on the index. This focusses the attention to the critical areas of potential impact and determines the potential **magnitude** of the visual impact.

Geographical Information Systems (GIS) software is used to perform all the analyses and to overlay relevant geographical data sets in order to generate a visual impact index.

- **Determine impact significance**

The potential visual impacts are quantified in their respective geographical locations in order to determine the significance of the anticipated impact on identified receptors. Significance is determined as a function of extent, duration, magnitude (derived from the visual impact index) and probability. Potential cumulative and residual visual impacts are also addressed. The results of this section are displayed in impact tables and summarised in an impact statement.

- **Propose mitigation measures**

The preferred alternative (or a possible permutation of the alternatives) will be based on its potential to reduce the visual impact. Additional general mitigation measures will be proposed in terms of the planning, construction, operation and decommissioning phases of the proposed Project.

- **Reporting and map display**

All the data categories, used to calculate the visual impact index, and the results of the analyses will be displayed as maps in the accompanying report. The methodology of the analyses, the results of the visual impact assessment and the conclusion of the assessment will be addressed in the VIA report.

- **Site visit**

Undertake a site visit in order to collect a photographic record of the affected environment, to verify the results of the spatial analyses and to identify any additional site-specific issues that may need to be addressed in the VIA report.

8. REFERENCES/DATA SOURCES

Chief Directorate National Geo-Spatial Information, varying dates. *1:50 000 Topographical Maps and Data.*

CSIR, 2015. *The Strategic Environmental Assessment for wind and solar photovoltaic energy in South Africa.*

DFFE, 2018. *National Land-cover Database 2018 (NLC2018).*

DFFE, 2021. *South African Protected Areas Database (SAPAD_OR_2021_Q1).*

DFFE, 2021. *South African Renewable Energy EIA Application Database (REEA_OR_2021_Q1).*

DEA&DP, 2011. Provincial Government of the Western Cape. *Guideline on Generic Terms of Reference for EAPS and Project Schedules.*

Department of Environmental Affairs and Tourism (DEA&T), 2001. *Environmental Potential Atlas (ENPAT) for the North West Province.*

JAXA, 2021. Earth Observation Research Centre. *ALOS Global Digital Surface Model (AW3D30).*

National Botanical Institute (NBI), 2004. *Vegetation Map of South Africa, Lesotho and Swaziland (Unpublished Beta Version 3.0)*

Oberholzer, B. (2005). *Guideline for involving visual and aesthetic specialists in EIA processes: Edition 1.*

The Environmental Impact Assessment Amendment Regulations. In Government Gazette Nr. 33306, 18 June 2010.