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Savannah Environmental (Pty) Ltd
Care of Michael Morreira

Per email: Michael@savannahsa.com

Dear Michael

PART 1 AMENDMENT: VISUAL ASSESSMENT

Proposed Machadodorp PV 1 Solar Energy Facility, Mpumalanga Province

1. PROJECT TITLE

Construction of the 14MW Machadodorp PV 1 Solar Energy Facility (SEF) on Portion 8 of the Farm De Kroon 363 in the Emakhazeni Local Municipality in the Mpumalanga Province.

2. BACKGROUND AND PURPOSE OF THE AMENDMENT

Solar to Benefit Africa wishes to extend the validity of the Environmental Authorisation (EA) for the Machadodorp PV 1 Solar Energy Facility (DEA Ref: 14/12/16/3/3/1/738) for an additional 10 years.

3. ASSESSMENT OF THE PROPOSED AMENDMENT

The reviewer has assessed the proposed amendment to the extension of the validity of the EA and has drawn the following conclusions:

3.1. The Affected Environment

The description of the affected environment, as described in the original VIA report remains largely unchanged. The location and layout of the proposed PV Facility on Portion 8 of the Farm De Kroon No. 363 JT similarly remains unchanged. There is however signs of a new development, presumably a service station, opposite the Caltex Star Stop and Milly's Trout Store, immediately south of the N4 national road. The ground works for this development is located approximately 200m west of the proposed Machadodorp PV 1 SEF. Refer to **Figures 1 and 2** below.

Other than the above development on the same farm earmarked for the SEF development, the land use zonation for the larger study area (agriculture) remains the same.

The above conclusion was verified through consultation with the project proponent and the current land owner(s), as well as the observation of satellite imagery of the study area taken during 2012 and 2023.



Figure 1: Google Earth satellite image April 2012 (proposed PV Facility indicated in green).



Figure 2: Google Earth satellite image June 2023 indicating the ground works west of the proposed PV Facility (indicated in green).

3.2. Terms of reference for the VIA

The terms of reference for the original VIA report (based on the *Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (2005)*), included:

- Description of the site context, location and environmental characteristics.
- Description and categorisation of the proposed project in terms of the set guidelines.
- Identification of main view corridors and preparation of a photographic study and digital elevation model as basis for the viewshed analysis.
- Undertaking viewshed analysis as a mechanism to identify and select observation

- points for visual impact assessment of the proposed development.
- Assessment of potential visual impact of proposed development from selected observation points in terms of standard procedure and guidelines.
- Description of measures to mitigate potential detrimental impacts and enhance the potential positive impact of the proposed development.

The following methodology (supplementary/additional to the original VIA report) was undertaken during this Visual Assessment:

- Determine the potential visual exposure of the proposed project infrastructure
- Determine the visual distance/observer proximity to the project infrastructure
- Identify potential sensitive visual receptors and areas of higher viewer incidence
- Determine the visual absorption capacity of the landscape
- Calculate a visual impact index to identify the magnitude of the visual impact on potentially affected areas/receptors
- Determine the significance of the potential visual impact
- Provide mitigation measures to alleviate the potential visual impacts

The above activities and analyses are still relevant in light of the proposed amendment to the extension of the validity of the EA.

3.3. Impact rating assessment and impact mitigation measures

Four dominant *view corridors* were identified (in the VIA report) within the region, namely:

- **N4.** The main movement corridor between Pretoria and Maputo.
- **R36.** The main movement route between Carolina in the south and Machadodorp in the north. Further to the north, the road extends up to Mashishing (Lydenburg), some 70km away.
- **R541.** A movement route between the R38 in the south and Machadodorp in the north. The R541 has been identified in the Spatial Development Framework of the Gert Sibande Municipality as a potential tourism corridor which would include the towns of Machadodorp, Badplaas and Mkhondo.
- **Moloto Development Corridor.** This corridor follows the alignment of the current railway line in the region. The corridor significant opportunities for the Nkangala District area, both in terms of economic spin-offs from the corridor and tourism potential.

Additional (or selected) *Key Observation Points* (KOPs) included as **Annexure 2** to the VIA report included:

- KOP 3. Located in the settlement of Emthonjeni.
- KOP 4. Located at the Machadodorp Plaza on the N4 toll road.
- KOP 5. Located at an existing mine adjacent to the R36.
- KOP 6. Located within the Rolling Hills Estate.
- KOP 7. Located on the R751 tourism corridor.
- KOP 8. Located at the main complex of the Kloppenheim Country Estate.
- KOP 11. Located on the N4 toll road some 2 km east of the project site.

Observation points 1, 2, 9 and 12 are also indicated on the maps in the VIA report, but are not discussed in Annexure 2. There is no mention or indication of a KOP 10. The KOPs are indicated on **Maps 1** and **2** below.

The visual impact analysis of the **original VIA** and *assessment from the relevant observation points in the foreground and middle ground* is summarised as follows:

- Visibility: Medium
- Visual exposure: Medium to high
- Visual absorption capacity: Medium
- Visual sensitivity of receptors: Medium to high
- Visual intrusion: Medium
- Significance of impact: Medium

Additional potential sensitive visual receptors (and potential magnitude of the impact) identified during **this Visual Assessment** (per the methodology mentioned in the previous section) include:

Potentially **very high** magnitude (receptors located within 1km of the proposed development):

- 1 - N4 National Road
- 2 - De Kroon 1 (Milly's)
- 3 - Shavile homestead (mentioned as KOP 12 in the VIA report)
- 4 - Schoongezicht 1 homestead

Potentially **high** magnitude (receptors located within 1 - 3km of the proposed development):

- 5 - Goede Hoop 1 homestead (appears derelict)
- 6 - Unknown homesteads
- 7 - Goede Hoop 2 homestead
- 8 - Schoongezicht 2 homestead
- 9 - De Kroon 2 homestead
- 10 – Driefontein homestead

Potentially **moderate** magnitude (receptors located within 3 - 5km of the proposed development):

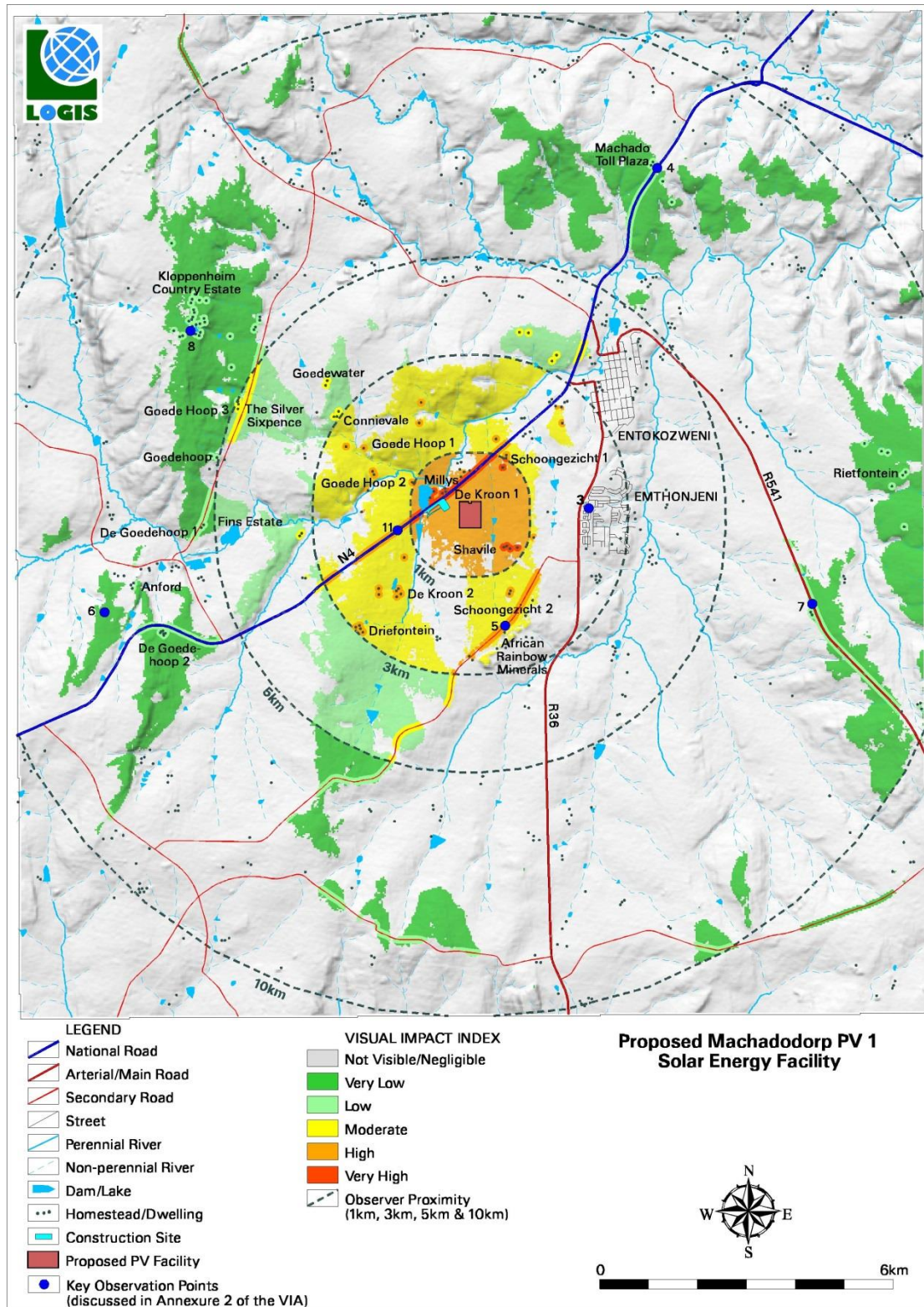
- 11 - Goede Hoop 3 homestead (The Silver Sixpence)
- 12 - Goedewater homestead
- 13 - Connievale homestead
- 14 - Unknown homestead

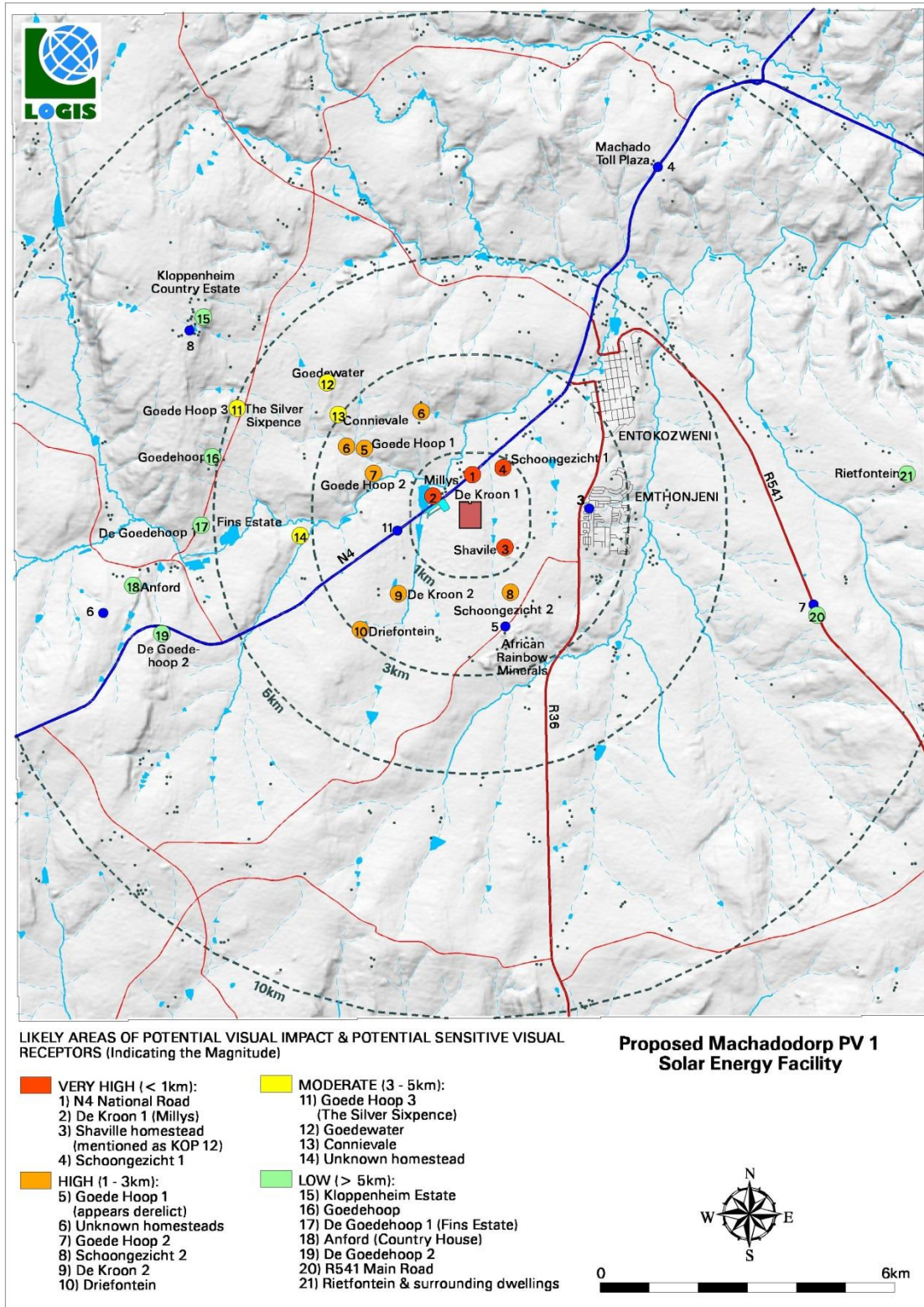
Potentially **low** magnitude (receptors located beyond 5km of the proposed development):

- 15 - Kloppenheim Estate
- 16 - Goedehoop
- 17 - De Goedehoop 1 (Fins Estate)
- 18 - Anford (Country House)
- 19 - De Goedehoop 2
- 20 - R541 Main Road (mentioned as KOP 7)
- 21 - Rietfontein & surrounding dwellings

The visual impact index and the receptors mentioned above are indicated on **Maps 1 and 2**

below.





Map 2: Likely areas of potential visual impact and potential sensitive visual receptors.

In spite of the fact that some of the additional receptors sites may experience visual impacts of **very high** to **high** magnitude, these impacts may still only be of **moderate** (medium) significance. This is due to the fact that none of the recipient sites (e.g. adjacent land owners)¹ have objected to the proposed development. The likelihood of the impact

¹ To the author's knowledge and according to the Comments and Responses Report.

occurring is therefore low.

The proposed extension of the validity of the EA by an additional ten years is therefore not expected to alter the influence of the project infrastructure on *areas of higher viewer incidence* (observers traveling along the roads within the region) or *potential sensitive visual receptors* (residents of homesteads in closer proximity to the infrastructure).

The proposed amendment to the validity of the EA is consequently not expected to influence the anticipated visual impact, as stated in the original VIA report (i.e. the visual impact is expected to occur regardless of the amendment). This statement relates specifically to the assessment of the visual impact within a 1km (and potentially up to 3km) radius of the SEF structures (potentially *moderate* significance), but also generally apply to potentially *moderate to low* visual impacts at distances of up to 5km from the structures.

From a visual perspective, the proposed amendment will therefore require no (zero) changes to the significance rating within the original visual impact assessment report that was used to inform the approved EIA. In addition to this, no new mitigation measures are required.

There are no new assessment guidelines which are now relevant to the authorised development which were not undertaken as part of the initial visual impact assessment. Additional to this, and as stated above, there have been no changes to the environment of the region surrounding the proposed development site, and only one new development (in progress) on the farm earmarked for the PV Facility.

3.4. Cumulative visual impact

There are no proposed or authorised solar energy facility developments within a 30km radius of the proposed Machadodorp PV 1 SEF. The relatively constrained area of potential visual exposure of the development is unlikely to be of any significance in terms of cumulative visual impacts within the larger region.

4. CONCLUSION AND RECOMMENDATIONS

The proposed amendment will require no changes to the impact significance ratings as stated within the original VIA report which was used to inform the approved EIA. In addition to this, no new mitigation measures are required.

It is suggested that the amendment to the validity of the EA be supported, subject to the conditions and recommendations as stipulated in the original EA, and according to the Environmental Management Programme (EMPr) and suggested mitigation measures, as provided in the original VIA report.

5. REFERENCES

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

Google Earth, 2012 & 2023. *Satellite imagery*.

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

Zone Land Solutions, 2012. *Visual Impact Assessment: Proposed Machadodorp PV Solar Energy Facility, Mpumalanga Province.*

Feel free to contact me at any time, should you have any queries.

Kind regards.

A handwritten signature in black ink, appearing to read 'L. du P.' with a flourish at the end.

Lourens du Plessis (PrGISc)