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12 March 2025

AMENDMENT LETTER

AVIFAUNAL SPECIALIST INPUT: PROPOSED AMENDMENTS TO THE EA AND FINAL LAYOUT OF THE BEAUFORT WEST SOLAR PV ENERGY FACILITY (SEF) NEAR BEAUFORT WEST IN THE WESTERN CAPE PROVINCE

1. Introduction & Project Description

The proposed development site is located on privately owned farmland, approximately 12.5km south-east of the town of Beaufort West, within the Beaufort West Local Municipality, in the Central Karoo District Municipality, Western Cape Province.

The site is approximately 3763 ha in extent. The proposed Solar Photovoltaic (PV) Energy Facility (SEF) will generate up to 415MW, and include the following components:

- PV fields (arrays) comprising multiple PV modules. The modules will be either crystalline silicon or thin film technology. The modules will be mounted on a fixed/single or double axis tracking technology.
- Each PV module will be approximately 2.4 m long and 1.3 m wide and mounted on supporting structures above ground. At this stage it is anticipated that the PV modules will be mono- or bifacial modules.
- A 33/132kV on-site substation (facility substation) (stepdown from 132kV to 32kV) occupying an area of up to approximately 1 ha. This will be adjacent to the Eskom on-site substation (covered under the authorization for the grid connection OHL).
- Internal 33kV lines connecting the substations to the facilities (either underground/above ground).
- A Battery Energy Storage System (BESS) on an area of approximately 4 ha next to the onsite 33/132kV substation. The BESS containers will be delivered to site.
- Auxiliary/ Operations & Maintenance (O&M) buildings of approximately 1 ha. The functions within these buildings include (but are not limited to) office/administration, control centre, ablution, workshops, storage areas and security centre.
- The O&M building, substation construction camp and the laydown area (up to 12 ha) will be located together as per attached layout.
- Site and internal access roads, up to 6m wide, will provide access to the PV arrays. Existing site roads will be used wherever possible, although new site roads will be constructed where necessary.
- A new access road, 8 m wide, entering the site from the east is proposed. This road will however be subject to a separate BA process and is not included in the current amendment.
- Galvanized palisade perimeter fencing with a height of at least 2.1 m, is proposed around each PV cluster, with security access control, and security lighting.

- Associated infrastructure includes a lightning protection system, telecommunication infrastructure, diesel storage facilities (less than 80 m³) and a batching plant (if required).
- Abstraction of water will be from existing or new boreholes if required. The anticipated volume required is 220kL per day.

The previously authorized (via a separate BAR process – DFFE reference no 14/12116/3/3/1/2672) overhead grid connection from the proposed development to the Eskom Droërivier Main Transmission Station, is located approximately 10 km north-west of the site. Included in this is the on-site Eskom switching substation, located adjacent to the Independent Power Producer (IPP) substation, which forms part of the SEF BA.

➤ **Avifauna**

According to the original Avifaunal Impact Assessment (AfriAvian Environmental, formerly Chris van Rooyen Consulting, 2022) it is estimated that a total of 254 bird species could potentially occur in the broader area where the authorised Project is to be located. Of these, 122 species are classified as priority species for solar developments.

The entire Project Site is a high sensitivity zone, from an avifaunal perspective, due to the recorded and potential presence of several species of conservation concern (SCC) including Blue Crane, Karoo Korhaan, Lanner Falcon, Kori Bustard, Ludwig's Bustard, Martial Eagle, Secretarybird, and Verreaux's Eagle which could utilise the whole Project Site and surrounds for foraging. However, these species do not require specific avoidance measures at this stage because there is still adequate habitat available outside the Project Site.

The purpose of this Avifaunal Specialist Comment is to assess if the proposed amended final layout of the SEF has taken all avifaunal sensitivities into account, and to investigate and determine any potential implications of the proposed amendments to the project description and site layout with respect to avifauna, if any.

2. Site Locality

The proposed Beaufort West Solar PV Energy Facility is located on privately owned farmland, approximately 12.5km south-east of the town of Beaufort West, within the Beaufort West Local Municipality, in the Central Karoo District Municipality, Western Cape Province (**Figure 1**).

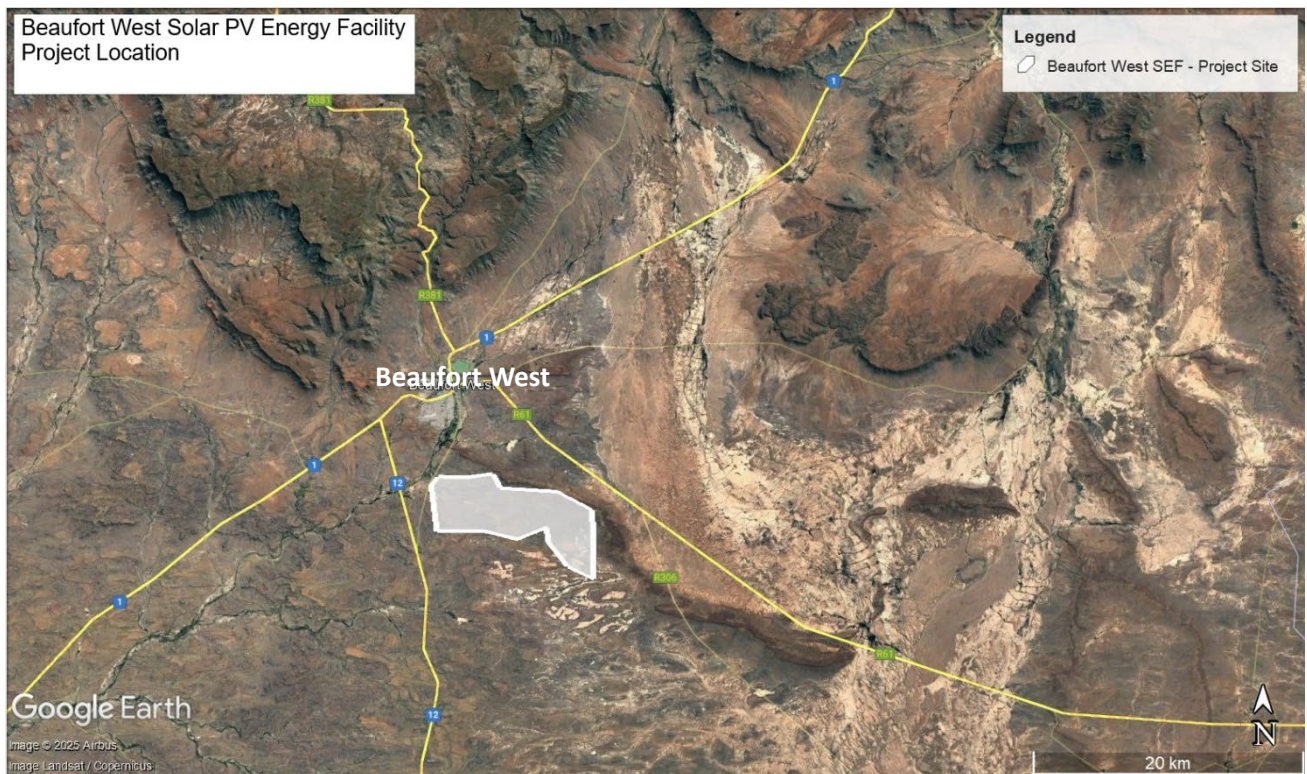


Figure 1: The location of the Beaufort West Solar PV Energy Facility (SEF) Project.

3. Current Approved Layout

The current authorised SEF layout is displayed in **Figure 2**. The layout has subsequently been refined, requiring an amendment to the approved Layout Plan and Project Description. The main changes applied for in this Part 2 Amendment relate to the project layout and footprint (remaining within the project site that was previously assessed). The project components also remain largely unchanged, apart from their configurations / locations and some increases in footprint area. A new access road is proposed to enter the site from the east (**to be assessed in a separate Basic Assessment process**).

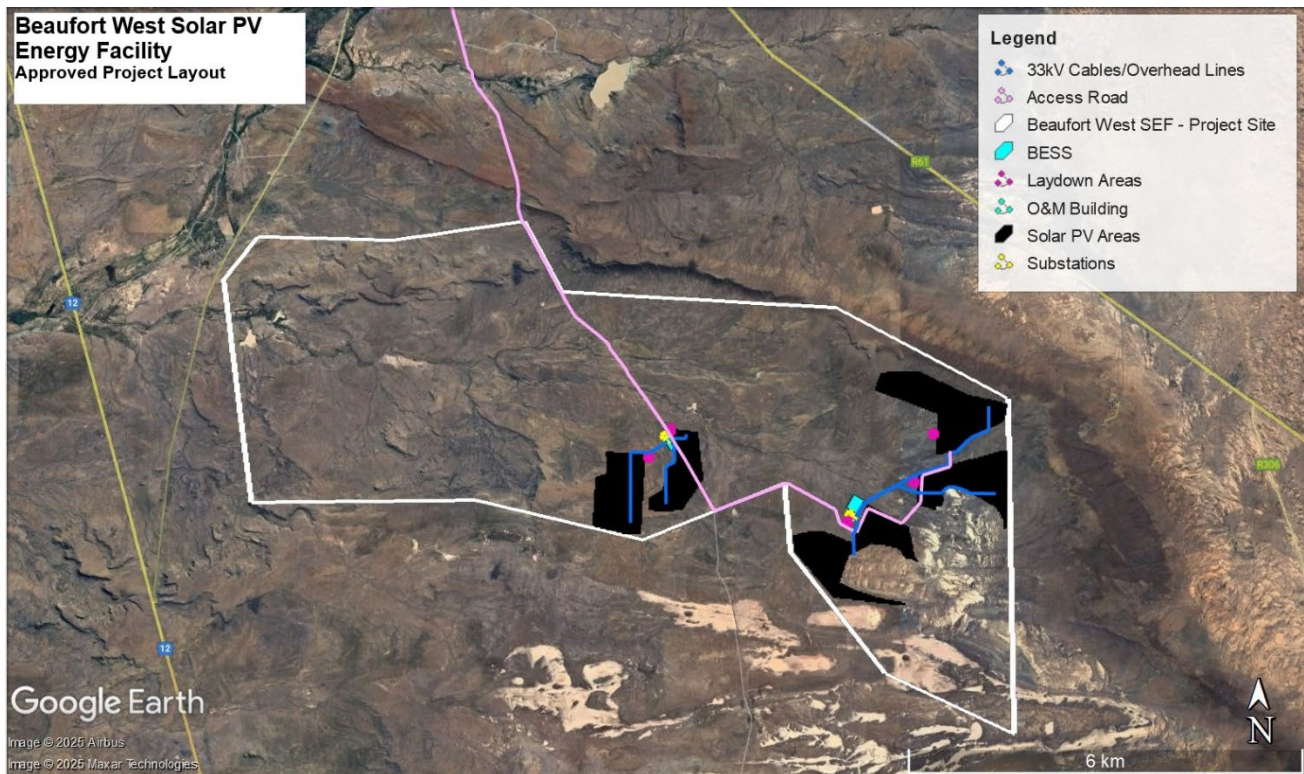


Figure 2: Approved layout of the authorised Beaufort West Solar PV Energy Facility.

4. Proposed Amended Layout Plan

The proposed amended layout includes a refinement of the layout of the on-site substations, the solar PV areas, laydown areas and MV cabling. All other aspects of the Project will remain the same. An alternative access road is being explored from the east, (to be assessed in a separate Basic Assessment process), however the previously approved access road in Figure 2 above will also be retained.

The proposed amended layout plans (the preferred layout and alternative layout) have both taken the identified avifaunal sensitives into account (**Figures 3 & 4**). The proposed amendments to the layout plan (preferred and alternative) will not result in an increased level or change in the nature of the avifaunal impacts originally identified or require any changes to the mitigation measures recommended in the Avifaunal Impact Assessment (Chris van Rooyen Consulting 2022). The inputs into the final EMP_r for the SEF should be as per the original recommendations, which is included in Section 7 below for ease of reference. The proposed changes to the Layout Plan would not result in any changes to the impact management outcomes (with respect to avifauna) of the EMP_r. **Overall, the proposed amended final layout plans (the preferred layout and alternative layout) is considered acceptable from an avifaunal impact perspective, provided all mitigation measures are strictly implemented.**

Overall, the proposed amendments to the project description would not result in an increased level or change in the nature of the impacts for the current approved final layout plan, nor would the proposed amendments result in an increased level or change in the nature of the impacts for the proposed amended final layout plan. Considering this, the proposed amendments are acceptable in terms of avifaunal impacts for both the current approved final layout plan and the proposed amended layout plan (both the preferred and alternative layout).

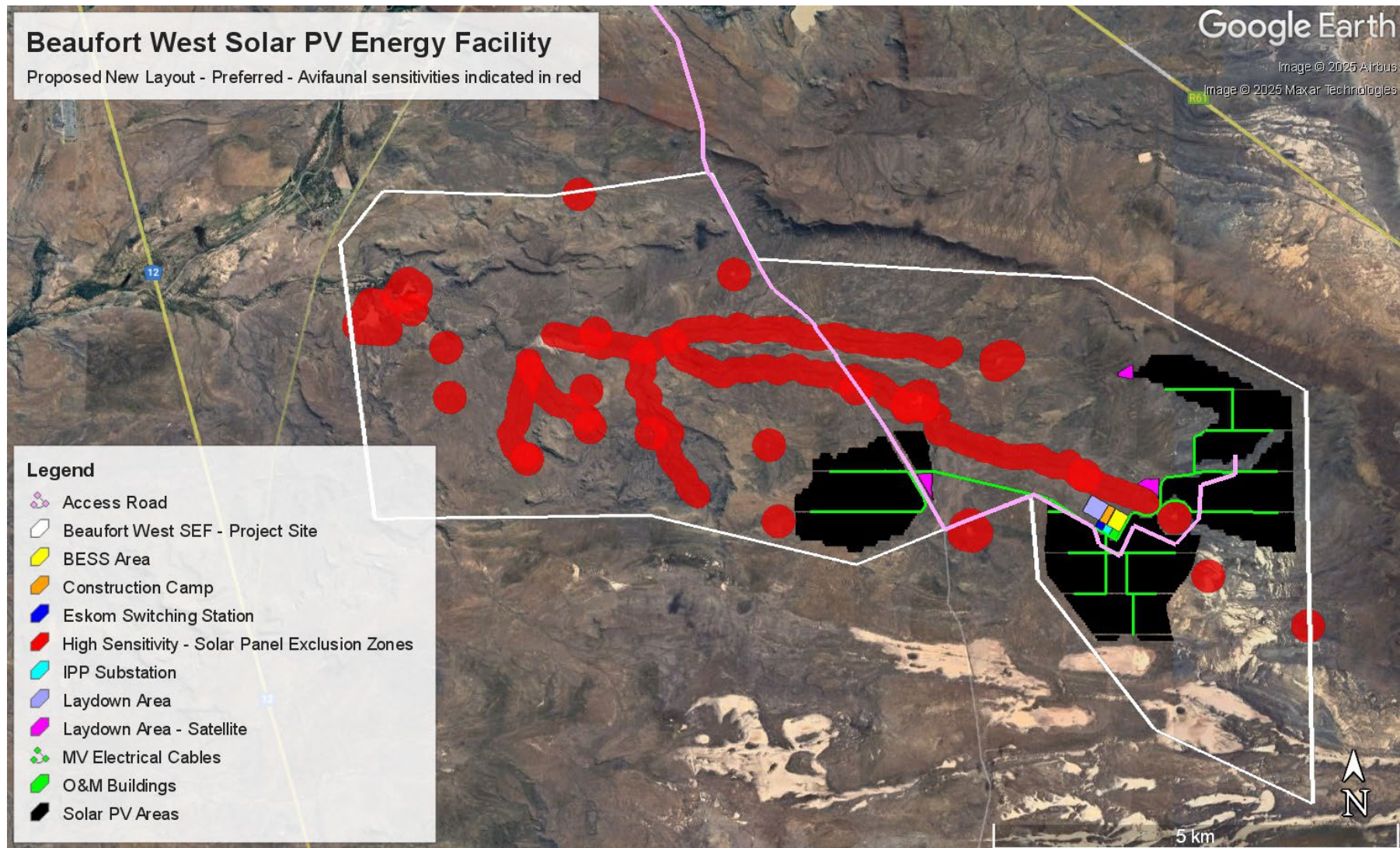


Figure 3: Proposed Amended Final Layout (Preferred) of the Beaufort West SEF. Avifaunal sensitivities indicated in red.

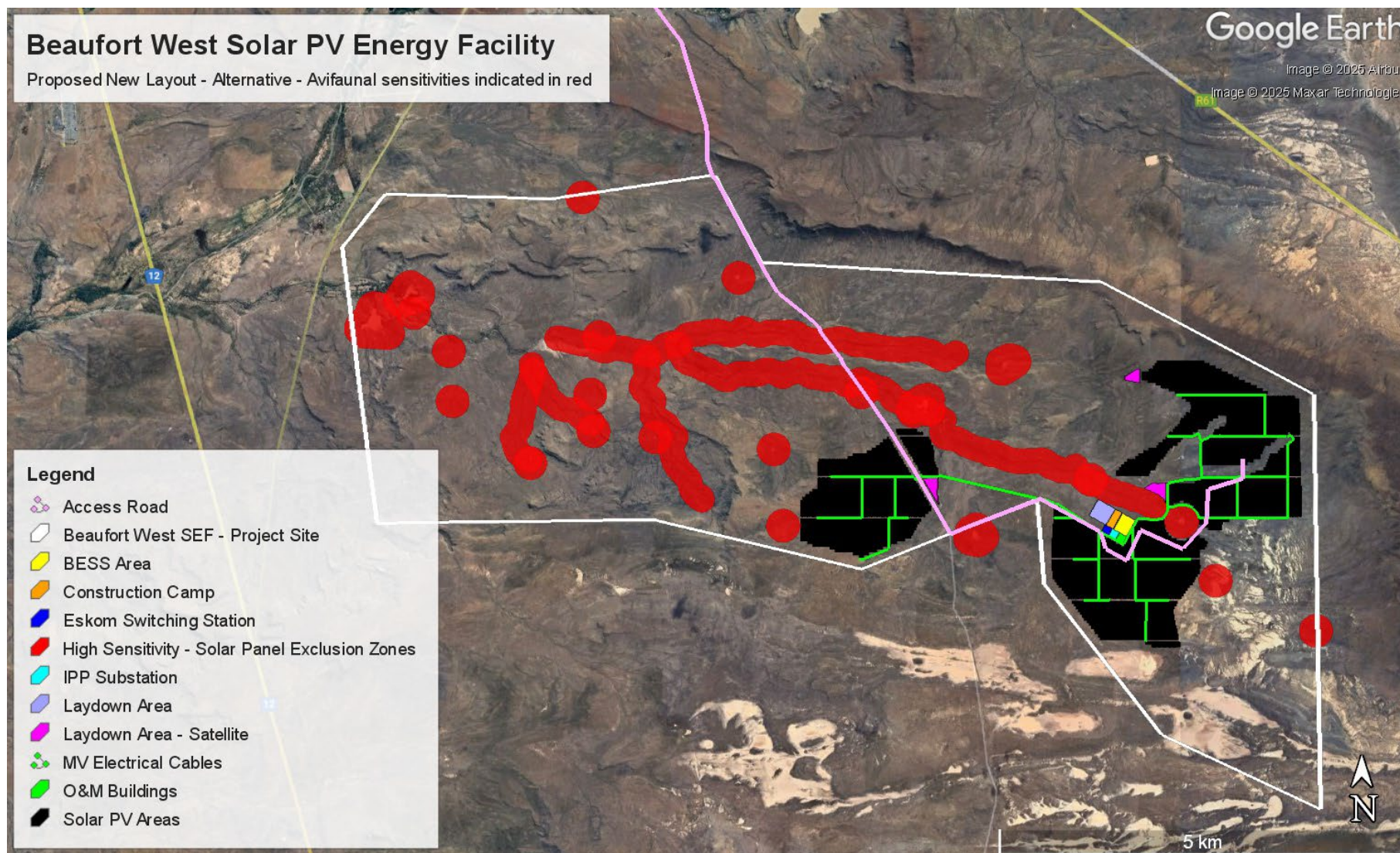


Figure 4: Proposed Amended Final Layout (Alternative) of the Beaufort West SEF. Avifaunal sensitivities indicated in red.

5. Cumulative Impacts

Cumulative effects are commonly understood to be impacts from different projects that combine to result in significant change, which could be larger than the sum of all the individual impacts. The assessment of cumulative effects therefore needs to consider all renewable energy projects within a 30 km radius that have received an EA at the time of starting the environmental impact process, as well as the authorised Beaufort West SEF Project. There were seven (7) renewable energy projects authorised, operational or in process within a 30 km radius around the proposed Beaufort West SEF at the time of the environmental impact process.

The negative impacts resulting from all phases of this proposed development (i.e. development to the extent of individual farms) would certainly be substantially amplified by the construction and operation of multiple renewable energy projects in the area (development to the extent of broader localities or even regions). Relatively minor levels of disturbance at the individual project level (i.e. farm) would escalate to combined levels likely to cause complete and possibly long-term evacuation of the locality or region by more sensitive bird species (Table 2).

Table 1: Cumulative Impacts

Nature: Cumulative impacts in terms of: <ul style="list-style-type: none"> • Displacement of priority species due to disturbance during construction phase • Displacement of priority species due to habitat loss in the construction phase • Mortality of priority species due to collisions with solar panels in the operational phase • Mortality of priority species due to entrapment in perimeter fences– operational phase • Mortality of priority species due to electrocutions on the overhead MV network and in the substation yard – operational phase • Mortality of priority species due to collisions with the 33kV medium voltage overhead lines in the operational phase 		
	Overall impact of the Project considered in isolation (post mitigation)	Cumulative impact of the Project and all other projects in the area (post mitigation)
Impacts Significance	Low	Medium
Status	Negative	Negative
Mitigation Measures: <ul style="list-style-type: none"> • Construction activity should be restricted to the immediate footprint of the infrastructure as far as possible. • Burying of internal MV cables. • Using bird-friendly structures for the any above ground sections of MV poles. • Rehabilitation of disturbed vegetation. • Maximum use of existing roads. • Avoidance of no-go buffers around sensitive areas, recommendations of the Freshwater and Botanical Specialists should be strictly implemented. • Marking of any overhead power lines with Bird Flight Diverters. 		
Residual Impacts: The implementation of the proposed mitigation measures will result in a reduction of the cumulative impacts, but the proposed Project (in isolation) will still have a low-medium residual impact at a regional level.		

6. Impacts Summary Table

Below is a summary table comparing the identified impacts of the Authorised Project vs. the proposed Amended Project of the Beaufort West SEF (**Table 3**). Identified impacts and impact ratings of the Authorised Project are as per the original Avifaunal Impact Assessment conducted by Chris van Rooyen Consulting (October 2022).

Table 2: Impacts Summary Table

IMPACT	AUTHORISED PROJECT		ASSESSMENT OF PROJECT WITH PROPOSED AMENDMENTS (PREFERRED ALT)		ASSESSMENT OF PROJECT WITH PROPOSED AMENDMENTS (ALTERNATIVE)	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
CONSTRUCTION PHASE						
1) Habitat Loss	Medium (-)	Medium (-)	Medium (-)	Medium (-)	Medium (-)	Medium (-)
2) Displacement due to Disturbance	Medium (-)	Medium (-)	Medium (-)	Medium (-)	Medium (-)	Medium (-)
OPERATIONAL PHASE						
1) Entrapment in Perimeter Fences	Low (-)	Low (-)	Low (-)	Low (-)	Low (-)	Low (-)
2) Collisions with Solar Panels	Low (-)	Low (-)	Low (-)	Low (-)	Low (-)	Low (-)
3) Electrocutions on the Internal Medium Voltage Network	Medium (-)	Low (-)	Medium (-)	Low (-)	Medium (-)	Low (-)
4) Collisions with the Internal Medium Voltage Network	Medium (-)	Low (-)	Medium (-)	Low (-)	Medium (-)	Low (-)
DECOMMISSIONING PHASE						
1) Displacement due to Disturbance	Medium (-)	Medium (-)	Medium (-)	Medium (-)	Medium (-)	Medium (-)
CUMULATIVE IMPACTS (ALL PROJECTS IN 30 KM RADIUS)						
1) Habitat Loss	High (-)	Medium (-)	High (-)	Medium (-)	High (-)	Medium (-)
2) Displacement due to Disturbance						
3) Collisions with Solar Panels						
4) Entrapment in Perimeter Fences						
5) Electrocutions/collisions on the Internal Medium Voltage Network						

7. Recommendations

The following mitigation must be included in the EMP:

7.1 Construction Phase

- A 200m solar panel exclusion zone must be implemented around dams, wetlands, and any other sources of open water, and a 150m solar panel exclusion zone must be implemented around drainage lines, as indicated and taken into account in the layouts in **Figures 3 and 4**.
- Construction activity should be restricted to the immediate footprint of the infrastructure and laydown areas, as per the proposed layout.
- Measures to control noise and dust should be applied according to current best practice in the industry.

- The construction of new roads should be kept to a minimum as far as practical and maximum use should be made of existing access roads.
- Access to the rest of the property must be restricted.
- The recommendations of the Ecological and Botanical specialist studies must be strictly implemented, especially as far as limitation of the construction footprint is concerned.
- **Perimeter fence:** Depending on the design of fence (as stipulated in final EMPr) replace at least the top two barbed strands with smooth wire to reduce snagging risks, increasing the spacing between at least the top two wires (to a minimum of 30cm), and ensuring they are correctly tensioned will reduce the snaring risk.
- **33kV network:** All 33kV cables will be underground. However, if any sections need to be above ground the final pole design must be developed in consultation with the avifaunal specialist to ensure that a bird-friendly design is employed. The avifaunal specialist must sign off on the final pole design.
- All internal medium voltage overhead lines must be marked with Eskom approved Bird Flight Diverters, according to the applicable Eskom Engineering Instruction.

7.2 Operational Phase

- A 200m solar panel exclusion zone must be maintained around dams, wetlands, and any other sources of open water, and a 150m solar panel exclusion zone must be maintained around drainage lines.
- The recommendations of the Ecological and Botanical specialist studies must be strictly implemented, especially as far as habitat restoration is concerned.
- **Substation:** Due to the complicated design of the substation hardware, pro-active mitigation is not a practical option. Instead, the situation must be monitored, and should electrocutions of priority species be recorded, reactive mitigation could be applied in the form of insulation of live components.

7.3 Decommissioning Phase

- Decommissioning activity should be restricted to the immediate footprint of the infrastructure and laydown areas.
- Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species.
- Measures to control noise and dust should be applied according to current industry standard best practice.

8. Conclusions

The proposed amendments to the layout plan (both the preferred layout and alternative layout) **would not result in an increased level or change in the nature of the avifaunal impacts, or require any changes to the mitigation measures recommended in the Avifaunal Impact Assessment (October 2022).**

The inputs into the final EMPr for the SEF should be as per the recommendations, Section 7 above, of AfriAvian Environmental (2024), formerly known as Chris van Rooyen Consulting. The proposed changes to the Layout Plan (both the preferred layout and alternative layout) would not result in any changes to the impact management outcomes (with respect to avifauna) of the EMPr. **Overall, the proposed amended final layout plan (both the preferred layout and alternative layout) is considered acceptable from an avifaunal impact perspective, provided all mitigation measures are strictly implemented.**

Similarly, the proposed amendments to the project description would not result in an increased level or change in the nature of the impacts for the current approved final layout plan, nor for the proposed amended layout plan. Accordingly, the proposed amendments to the project description are acceptable in terms of avifaunal impacts for both the current approved final layout plan and the proposed amended layout plan.

It is recommended that the proposed EA amendments and the amended layout is approved, **subject to the implementation of the mitigation measures as detailed in the approved EMPr and Section 7 of this Letter.**

Signed:

A handwritten signature in black ink, appearing to read 'A. Froneman', with a stylized flourish at the end.

Name: Albert Froneman

Position: Director / Avifaunal Specialist ek

SRK Consulting (South Africa) (Pty) Ltd
254 Walmer Boulevard
South End
Gqeberha
6001

Division: Civil Engineering
Your Reference:
Our Reference: 20060/NH/E01-1
Date: 17 March 2025

ATTENTION: Ms. NICOLA RUMP

Dear Ms Rump

BEAUFORT WEST SOLAR PV ENERGY FACILITY: SPECIALIST LETTER OF OPINION FOR EA PART TWO AMENDMENT – TRAFFIC STUDY

The above development refers.

1. INTRODUCTION

Beaufort West Solar PV Energy (PTY) LTD is undertaking a Part Two Amendment to an Environmental Authorisation (EA) for the proposed Beaufort West Solar PV Energy Facility, situated approximately 7 km south of the town of Beaufort West in the Western Cape province. The proposed facility is to have a combined maximum generating capacity of 415 MW. The Part Two Amendment to the EA is required due to proposed changes to the layout after it was finalised and authorised by Department of Forestry, Fisheries and the Environment (DFFE) in 2023.

The letter serves as the specialist letter of opinion on how the proposed amendments to the approved layout affect the traffic study which informed the EA and whether the finding, recommendations and mitigation measures of the original traffic study remain valid and applicable in light of the proposed amendments. The specialist letter of opinion is written by the author of the original traffic study which bears reference herein and is titled **Beaufort West Solar PV Energy Facility Transportation Study - Rev 0** and dated 08 November 2022.

2. REASONS FOR AMENDMENT

It is understood that the reasons for the Part Two Amendment are proposed changes to the approved layout. The approved layout is depicted in Appendix A Figure A while the proposed amended layouts (preferred and alternative) are depicted in Appendix A Figure B and Figure C. The proposed changes are discussed below.

2.1. Solar PV Areas

- The configuration of the solar PV areas has been amended to avoid additional sensitivities while retaining the maximum generation capacity of 415 MW. The re-configuration does not alter the scope of work that in any way that would affect the findings of the original traffic study.

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2.2. On-Site Substation

- The footprint of the on-site substation changes slightly but remain within the approved area of 2 ha. This change is thus deemed to have a negligible impact on the traffic study.

2.3. Laydown Areas

- Additional laydown areas have been introduced. Original laydown areas were approximately 9 ha whereas the latest layout proposed laydown areas of approximately 16.2 ha. The additional laydown areas will increase the volumes of construction traffic.

2.4. Construction Site

- A construction site is included in the updated layout. However, the construction site falls within the footprint of the laydown areas discussed above and therefore does not have an additional impact.

2.5. Road Widths

- The access road width is increased from 6 m to 8 m while internal road widths are increased from 5 m to 6 m. The increased road widths will require additional layerworks and hence will result in increased construction traffic.

2.6. Diesel Storage Area

- On-site diesel storage of less than 30 m³ is proposed. Such storage will require a concrete-surfaced bunded area capable of containing 110% of the stored volume. The requisite bunded area is estimated to be approximately 33 m² (assuming a containment height of 1 m). The materials necessary for the construction of the bunded area will result in a slight increase in construction traffic.

2.7. Additional Guardhouses

- Numerous guard houses are proposed on the facility whose construction will result in a slight increase in construction traffic.

3. SPECIALIST COMMENT

3.1. Previous Key Findings

The material findings of the original Traffic Study are summarised below:

- The proposed development was anticipated to have the greatest traffic impact during the construction phase wherein ± 20 peak-hour trips would be generated over the morning and afternoon peaks. These trips account for the transportation of labour, construction plant, construction materials and wind energy facility components. The nationally accepted trigger for detailed Traffic Impact Assessments is 50 generated peak-hour trips. The traffic generated by the proposed development was estimated to be well below this trigger and was thus considered to be of low impact.
- Access to the site was to be obtained through an existing access point which was assessed and accounted for in the final layout.
- The primary long-distance haulage routes were assessed to emanate from Ngqura, Cape Town and Saldanha Bay and follow a series of national and provincial routes which were observed to be well maintained and in good condition.
- The overall traffic impacts of the proposed development were assessed to be low and the authorisation of the development was recommended.

3.2. Implications of Amendments

3.2.1. Revise Traffic Volumes

As discussed above, the proposed amendments result in an increase in construction traffic and thus necessitate a re-determination of the expected traffic volumes. The revised traffic volumes are tabulated below.

	Construction Phase	O&M Phase	Decommissioning Phase
Original Assessment	± 20	± 8	± 11
Part Two Amendment	± 26	± 8	± 16
Comment	Marginal increase but still below the threshold for a detailed TIA	Unchanged	Marginal increase but still below the threshold for a detailed TIA

3.2.2. Traffic Impacts

- The traffic impacts of the proposed the Beaufort West Solar PV Facility remain low. In terms of TMH 16¹, developments that generate less than 50 peak-hour trips are not required to undertake a detailed Traffic Impact Assessment (TIA). The generated peak-hour traffic for the Beaufort West Solar PV Facility is well below this threshold even after considering the proposed layout changes.
- The cumulative traffic impacts of the proposed amended Beaufort West Solar PV Facility and the surrounding developments also remain low. The findings and recommendations of the original traffic impact assessment in this respect remain valid and applicable.
- The traffic impacts for both the preferred layout and alternative layout are identical and are as assessed above. There is no preference between the two layout alternatives in respect of traffic impacts.

4. CONCLUSION

The traffic impacts of the proposed Beaufort West Solar PV Facility, considering the proposed amendments to the original approved development, remain nominal. The findings, impact rating, mitigation measures, and recommendations of the original traffic assessment remain valid and applicable.

We trust the foregoing is sufficient for your requirements. Should you have further queries or requirements, please do not hesitate to contact the undersigned.

Yours sincerely



Ntuthuko Hlanguza Pr. Eng
 Civil Engineer
SIVEST

email: ntuthukoh@sivest.com

¹ TMH 16: South African Traffic Impact and Site Traffic Assessment Manual

Appendix A

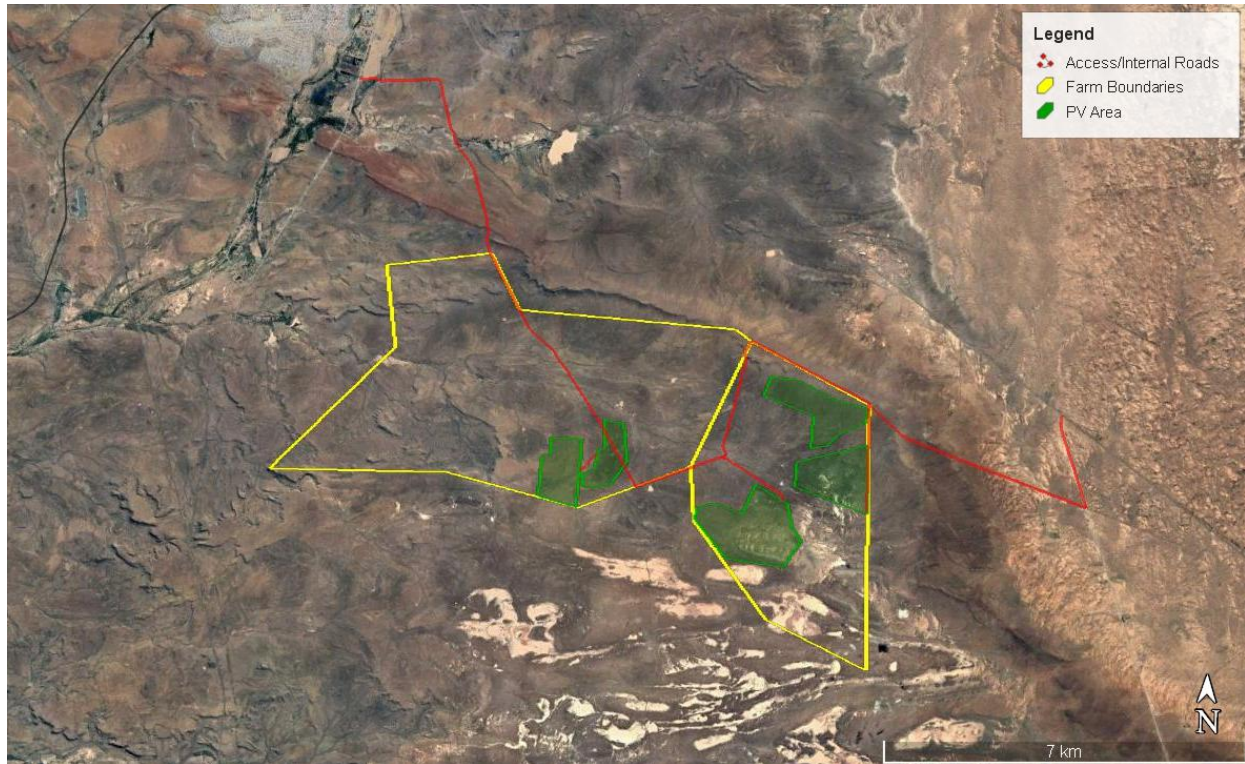


Figure A: Approved Layout

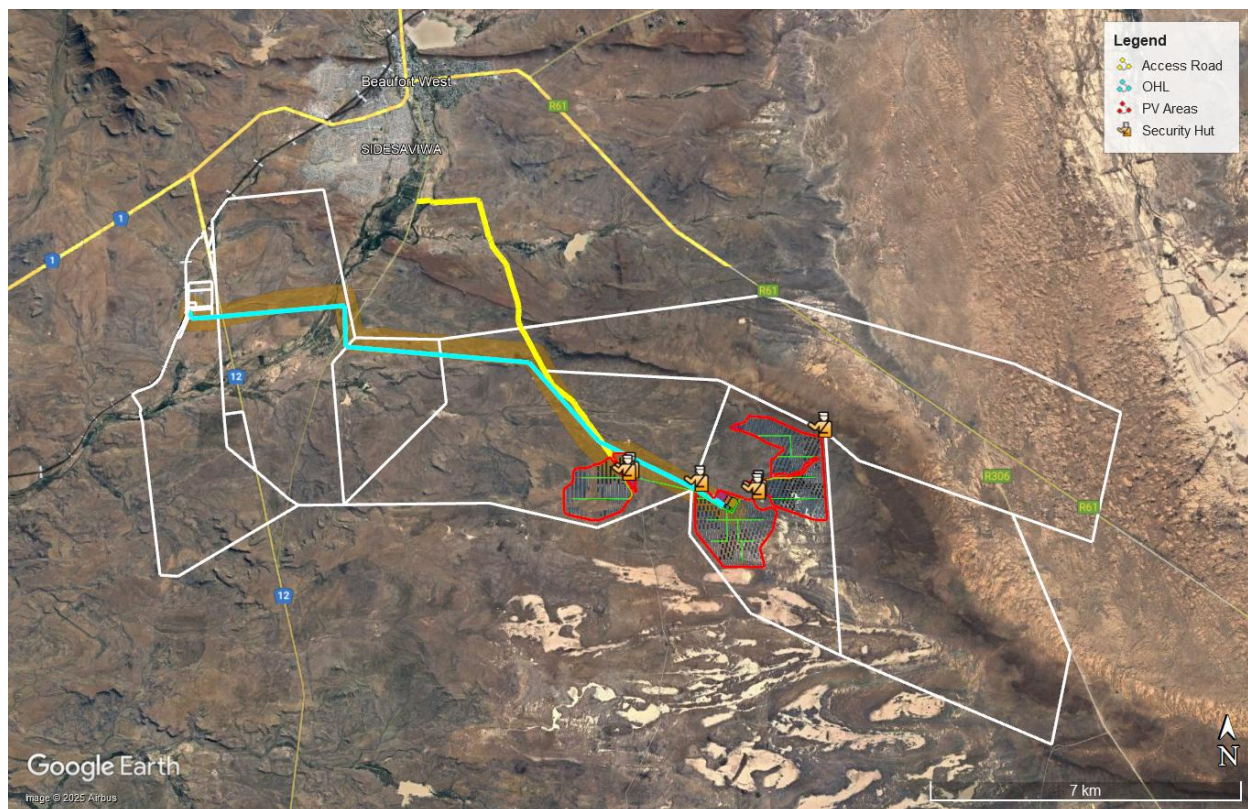


Figure B: Proposed Layout (Preferred)

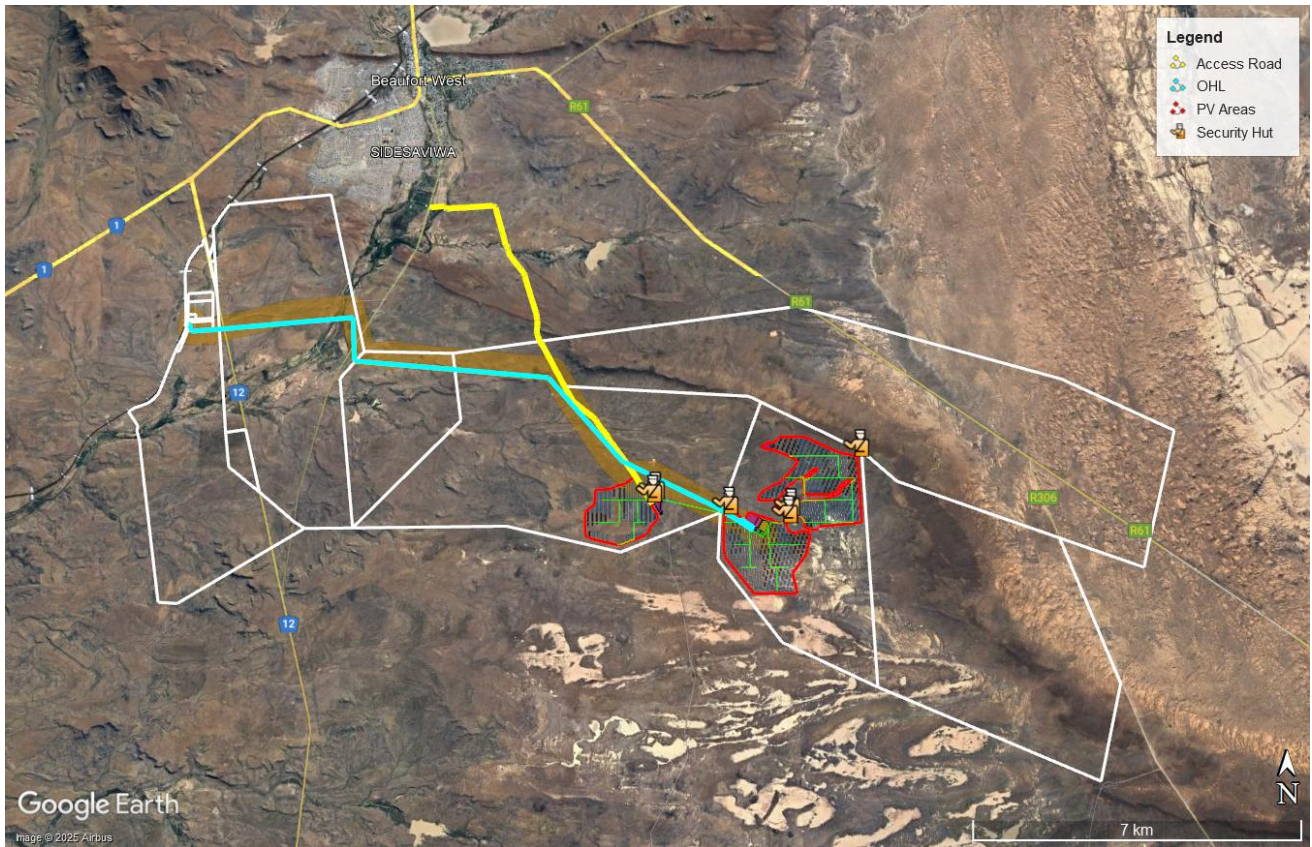


Figure C: Proposed Layout (Alternative)



JG AFRIKA
EXPERIENCE QUALITY INTEGRITY

 **srk** consulting

PROPOSED DEVELOPMENT OF THE BEAUFORT WEST
SOLAR PHOTOVOLTAIC ENERGY FACILITY, BEAUFORT
WEST,
WESTERN CAPE

SPECIALIST GEOTECHNICAL IMPACT ASSESSMENT
REPORT

March 2025
Ref: 005607
Revision 01

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VERIFICATION PAGE

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Rev 14

TITLE:

SPECIALIST GEOTECHNICAL IMPACT ASSESSMENT FOR THE PROPOSED BEAUFORT WEST SOLAR PHOTOVOLTAIC ENERGY FACILITY, BEAUFORT WEST, WESTERN CAPE

JG AFRIKA REF. NO.

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SYNOPSIS

Desktop geotechnical investigation for the proposed development of the Beaufort West Solar Photovoltaic Energy Facility

KEY WORDS:

Geology, engineering geology, Solar PV plant, Subsoils

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QUALITY VERIFICATION

This report has been prepared under the controls established by a quality management system that meets the requirements of ISO9001: 2015 which has been independently certified by DEKRA Certification



Verification	Capacity	Name	Signature	Date
Author	Engineering Geologist	Priantha Subrayen		18 March 2025
Checked and Authorised by	Executive Associate	Keval Singh		18 March 2025
Filename:	https://jgafrika.sharepoint.com/sites/Job5797-team-100-WIP-Internal-Eng/Shared Documents/100-WIP-Internal-Eng/105-PrelimDesign/6. Beaufort West SPV/5607 Mulilo Beaufort West Solar Energy Facility.docx			



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

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of Report
1. (1) A specialist report prepared in terms of these Regulations must contain-	Verification Page
a) details of- <ul style="list-style-type: none"> i. the specialist who prepared the report; and ii. the expertise of that specialist to compile a specialist report including a curriculum vitae; 	Appendix C
b) A declaration that the specialist is independent in a form as may be specified by the competent authority	1
c) An indication of the scope of, and the purpose for which, the report was prepared;	4, 5, 9
(cA) An indication of the quality and age of base data used for the specialist report;	Table 3 and 4
(cB) A description of existing impacts on the site of the proposed development and levels of acceptable change;	N/A
d) The date and season of the site investigation and the relevance of the season to the outcome of the assessment;	1
e) A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Appendix A, Figure 1, 2a, 2b, 3, 4, 5
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	Appendix A, Figure 1, 2, 3, 4, 5
g) An identification of any areas to be avoided, including buffers	Appendix A, Figure 1, 2a, 2b, 3, 4, 5
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	2
i) A description of any assumptions made and any uncertainties or gaps in knowledge	3, 4, 5, 6, 7
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	8
k) Any mitigation measures for inclusion in the EMP	

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SPECIALIST GEOTECHNICAL IMPACT ASSESSMENT FOR THE PROPOSED BEAUFORT WEST SOLAR PHOTOVOLTAIC ENERGY FACILITY, BEAUFORT WEST, WESTERN CAPE

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 Appendix C: Specialist's CV and Specialist Declaration



EXECUTIVE SUMMARY

This desktop level study presents the findings concluded for the proposed Beaufort West Solar Photovoltaic (SPV) Energy Facility. The proposed study area receives a relatively low mean annual precipitation of 230mm, with the warmest month being January. The study area is predominantly underlain by the Teekloof Formation of the Beaufort Group, which comprises mudstone, sandstone, thin greenish cherty beds near the base and occasional pink tuff beds with alluvium occurring along river channels. Regional hydrogeological information indicates the presence of a “d3” type, fractured aquifer underlying the site, with median borehole yields in the range of 0.5l/s to 2.0l/s. The desktop study indicates no fatal flaws from a preliminary and geological and geotechnical assessment. The impact of the development from a geotechnical perspective will be restricted to the removal and displacement of soil, boulders and bedrock. The impact assessment matrix impact of the Beaufort West Solar Photovoltaic (PV) Energy Facility was found to be “Negative Low Impact” (The anticipated impact will have minimal negative effects and will require minor mitigation). The site, from a desktop level geotechnical study is considered suitable for the proposed PV plant.



SPECIALIST GEOTECHNICAL IMPACT ASSESSMENT FOR THE PROPOSED BEAUFORT WEST SOLAR PHOTOVOLTAIC ENERGY FACILITY, BEAUFORT WEST, WESTERN CAPE

1 INTRODUCTION

This geotechnical report presents the findings of a desktop study undertaken by JG Afrika (Pty) Ltd, for the proposed construction of the 415MWac Beaufort West SPV Energy Facility near Beaufort West in the Western Cape Province. It is understood that a desktop level geotechnical report is required as part of an environmental submission for an amended basic assessment (BA) report being undertaken by SRK Consulting (Pty) Ltd (SRK). The proposed development is to be located approximately 7km south-east of Beaufort West within the Beaufort West Local Municipality in the Western Cape Province and can be accessed via the N12 National Highway.

The Beaufort West SPV Energy Facility will include the following infrastructure:

- Solar arrays
- A 132/33kV substation (IPP Portion) – stepdown from 132kV to 32kV (~1 Ha)
- A BESS facility that will be located next to the 132/33kV Substation (~4 Ha)
- Internal 33kV lines connecting the substations to the facilities (either underground/above ground)
- An O&M building, construction camp, guard huts and temporary and permanent laydown areas.

1.1 Scope of Work

The investigation seeks to give a desktop evaluation of the proposed site focusing on the areas proposed for the construction of the Beaufort West SPV Energy Facility. The objectives of the desktop investigation were to assess the geological and geotechnical conditions across the development area.

This involved a literature review and a review of topographic, geological and hydrogeological maps. Consideration was given to, but not limited to the following from a desktop level:

- The influence of topography on site suitability.
- The envisaged geological and geotechnical influences on the competency of foundations for the construction of structures.
- Tectonic influences on overall stability, namely the presence of faults, lineaments and preferred discontinuity orientations.
- Comments regarding likely founding conditions, geotechnical constraints, problem areas and overall site stability from a desktop level.
- Recommendations regarding requirements for subsequent detailed geotechnical investigations.

The proposed solar PV plant is to be located on the following properties:

- Portion 0 of Farm Oude Volks Kraal No. 164; and



- Portion 0 of Farm Quaggas Fontein No. 166.

1.2 Terms of Reference

The appointment to proceed with the investigation is based upon JG Afrika's cost estimate email referenced, "Quotation to Undertake an Update to the Mulilo Beaufort West Solar Energy Facility Geotechnical Impact Assessment Report" dated 16th January 2025. JG Afrika received the appointment via a sub-consultancy agreement letter referenced, "20250121_Subconsultance Agreement_Jan Norris_Geotechnical Impact".

1.3 Specialist Credentials

Ms. Subrayen is a professionally registered and qualified engineering geologist, attaining a Honours of Science Degree in Engineering Geology, from the University of KwaZulu-Natal (UKZN).

Ms. Subrayen holds the position of Engineering Geologist at JG Afrika's Durban branch. She has experience in the various fields of earth science and ground engineering, namely: engineering geology, geotechnical engineering, environmental geology and geohydrology.

1.4 Assessment Methodology

The investigation methodology included a literature review and a review of topographic, geological and hydrogeological maps. Consideration was given to the terrain, geology, hydrogeology and envisaged geotechnical constraints. Based on the results of the desktop study an Environmental Impact Assessment matrix, as provided by SRK Consulting, was completed.

1.5 Assumptions, Limitations, Uncertainties - Disclaimer

The interpretation of the overall geotechnical conditions across the site are based on observations and point information acquired from a desktop level. Subsurface and geotechnical conditions intermediate to these have been inferred by extrapolation, interpolation and professional judgement. The information and interpretations are given as a guideline only. There is no guarantee that the information given is totally representative of the entire area in every respect and no responsibility will be accepted for consequences arising out of the fact that actual conditions vary from those inferred.

2 TECHNICAL DESCRIPTION

2.1 Project Location

The proposed Beaufort West SPV Energy Facility is to be located approximately 7km south-east of town of Beaufort West in the Western Cape province. The site is buffered in the east and west by the R61 and N1 main roads respectively, with access into the study area via the N12 National Highway.

The location of the study area is indicated in Figure 1, **Appendix A**.

2.2 Topography and Land Use

The proposed development area is currently vacant with the exception of vegetation and trees (Figure 2a and 2b, **Appendix A**). The topography varies minimally across the site with the elevation ranging from 865 meters above mean sea level (mamsl) in the south-east to 840mamsl in the north-west. A slope category map depicting the topographic variation across the site is shown in Figure 3, **Appendix A**.



2.3 Climate

In accordance with the Köppen-Geiger climate classification Beaufort West is considered to be characterised by cold desert climate with a “Bwk” classification and received an average annual precipitation of 204.8mm per annum. The average lowest rainfall is received in July (15mm) and the highest in March (57mm), which is a seasonal variation of 42mm.

The average maximum midday temperature for Beaufort West ranges from 31.7°C in January to 18.0°C in July, which is a seasonal variation of 13.0°C.

Table 1 summarizes the climatic conditions.

Table 1: Summary of Climatic Conditions, Beaufort West (Source: www.climatic-data.org)

Months	Average Rainfall (mm)	Temperature (°C)		
		Maximum	Minimum	Average
January	50	31.7	16.2	24.0
February	52	31.3	16.6	23.8
March	57	28.8	14.8	21.8
April	32	24.7	11.4	18.0
May	20	21.6	8.4	14.8
June	15	18.1	4.9	11.3
July	15	18.0	4.4	11.1
August	21	19.8	5.4	12.6
September	17	23.2	7.7	15.6
October	31	26.2	10.6	18.6
November	38	28.3	12.5	20.5
December	44	30.6	15.0	22.7

According to the regional contour map of climatic N-values for Southern Africa by Weinert (1980), the Weinert N-Value of the study is greater than 10 and is indicative of arid climatic conditions. Weathering of rock material is predominantly by mechanical processes.

2.4 Drainage

The proposed Beaufort West SPV Energy Facility is to be located within the J21A quaternary catchment and is anticipated to receive a mean annual precipitation of 230mm per annum over an area of 854m².

The Gamka River, and its tributaries and Droer River are the only major surface drainage features in the immediate vicinity of the development area.

2.5 Vegetation

Vegetation in the area is characterised by Great Nama Karoo type shrubland and low fynbos, of the Nama Karoo Biome.

3 GEOLOGY

According to the 1: 250 000 scale geological map of Beaufort West (Map Reference 3222) (Council for Geoscience, 2000). The study area is predominantly underlain by mudstone, sandstone, thin



greenish cherty beds near the base and occasional pink tuff beds (Pt) of the Teekloof Formation. Alluvium characterises the river channels and with occasional outcrops of dolerite (Jd) occurring along the north-western and eastern extremities of the site. No structural lineaments in the form of dykes or faults were identified during a review of geological maps and aerial photography.

A geological map is presented as Figure 4, **Appendix A**.

4 HYDROGEOLOGY

According to the 1: 500 000 scaled hydrogeological map series of Beaufort West (Map Reference: 3122). The study area is underlain by a “b3” type fractured aquifer with median borehole yields anticipated to be low to moderate and in the range of 0.5l/ to 2.0l/s. Regional groundwater quality test results indicate an electrical conductivity of between 70mS/m to 300mS/m.

A hydrogeological map is presented as Figure 5, **Appendix A**.

5 ENGINEERING GEOLOGY

According to Brink (1979) the lithological units belonging to the South-western Karoo Basin predominantly underlie the Beaufort West area. Specifically, these include the mudrocks and subordinate sandstones of the Teekloof Formation of the Beaufort Group. Due to the arid climatic conditions the bedrock materials generally weather by mechanical disintegration with the mudrock prone to slaking on exposure to the elements. The sandstones typically breakdown to form granular or gravelly soils. The residual soil horizons are generally of limited thickness and grade into bedrock high up in the soil profile. The mudrock residuum is clayey or silty in nature and prone to swelling and is potentially expansive during changes to the soil's moisture content. The potential expansiveness of these subsoils generally vary from medium to high (Brink, 1979). The residual mudrocks subsoils are likely to be semi or impervious and exhibit a low shear-strength and poor compatibility.

Laboratory indicator tests performed on the residual mudrock subsoils indicate elevated plasticity indices and linear shrinkage values further iterating the probability of medium to high potential expansivity and the susceptibility to shrinkage on desiccation.

In the Beaufort West area, which is a relatively low rainfall region, weathering of the bedrock materials by chemical processes is not as prevalent. As such soluble bases are not leached out of the residual mudrock soil resulting in the formation of expansive clay minerals of which montmorillonite is the most common. This results in the clays exhibiting a medium to high potential expansiveness. Construction within these rock types will therefore likely be affected by changes in the soil's moisture content. Factors such as seepage, the presence of vegetation and the occurrence of human activities will play a key role in the overall behaviour of soil movement. It is therefore recommended that emphasis be placed on the drainage system and structural design if development is to occur in areas underlain by these rock units and that the earthworks being carefully controlled throughout the construction phase. Furthermore, it is advisable that heavier structures be founded on appropriately design foundations and be constructed within competent bedrock horizons. The sandstone residuum does not typically display these clayey and potentially expansive properties.

Due to the variable material properties of alluvial subsoils construction within this horizon should be avoided and developments should be founded deeper in the profile within the more competent bedrock horizons.



6 GEOTECHNICAL APPRAISAL

If underlain by residual mudrock subsoils the soil activity may be influenced by the presence of expansive soil conditions while the sandstones will likely be granular or gravelly and will not be significantly expansive. In accordance with Brink (1979) however, the residual soils tend to be shallow and will likely grade into mudrock or sandstone bedrock higher up in the soil profile. Additionally, both the mudrock residuum and bedrock has the ability to undergo shrinkage on desiccation on drying and slaking and degradation upon exposure to the elements.

Competent founding conditions can be anticipated within the mudrock and sandstone horizons. Due to the variable material characteristics of the alluvium, founding within this horizon is not recommended. Additionally, gravelly material from the mudstone, siltstone and shale may not be ideal for construction material. These factors will however have to be assessed during the invasive geotechnical investigation.

7 GEOTECHNICAL IMPACT ASSESSMENT MATRIX

From a preliminary geological and geotechnical assessment, no fatal flaws relating to the Beaufort West SPV Energy Facility amended layout have been identified. The impacts identified and the mitigation measures proposed for the authorised layout are applicable to this amendment.

7.1 Impacts of the Project from a Geotechnical Perspective and on the Geological Environment

The impact of the development from a geotechnical perspective will be restricted to the removal and displacement of soil, boulders and bedrock referred to in this report as “subsoils”. The levelling of areas to create building platforms will also result in the displacement and exposure of subsoils. These impacts will have a negative visual impact on the environment, which in some cases can be remediated.

The potential impact of the development on the terrain and geological environment, will include the increased potential for soil erosion, caused by construction activities and the removal of vegetation. Areas of concentrated surface flow conditions can be anticipated at the PV plan, resulting in gradual erosion of unconsolidated soil, during the operational life of the facility. This can result in the creation of preferential drainage features, unless remediated through proper engineering design (i.e. stormwater).

Based on the impact assessment matrix undertaken for this project, from a geotechnical perspective the impact of Beaufort West SPV Energy Facility was found to be “Negative Low Impact” (The anticipated impact will have minimal negative effects and will require little mitigation. The assessment impact assessment matrix is presented Table 4 and further details pertaining to the identified impacts and proposed mitigation measures are included in Table 3.

The impact assessment criteria as developed by SRK and is included in **Appendix B**.



Table 2: Geotechnical Impacts Assessment Matrix

Mulilo Beaufort West SPV					
Impact		Construction			
		Without mitigation		With mitigation	
Geotechnical Impacts					
G: The removal of subsoils (soil, rock)	Significance	Low	-3	Very Low	-2
	Extent	Local: Confined to project or study area or part thereof (e.g. site)	1	Local: Confined to project or study area or part thereof (e.g. site)	1
	Intensity	Medium: Functions and processes continue in a modified way	2	Medium: Functions and processes continue in a modified way	2
	Duration	Medium-term (2 to 15 years)	2	Medium-term (2 to 15 years)	2
	Consequence		5		5
	Probability	Probable (> 70% - 90% chance of occurring)	2	Possible (40% - 70% chance of occurring)	1
	Status	Negative	-1	Negative	-1
	Confidence	High		High	

Mulilo Beaufort West SPV					
Impact		Operation			
		Without mitigation		With mitigation	
Geotechnical Impacts					
G: The removal of subsoils (soil, rock)	Significance	Medium	-4	Low	-3
	Extent	Local: Confined to project or study area or part thereof (e.g. site)	1	Local: Confined to project or study area or part thereof (e.g. site)	1
	Intensity	Medium: Functions and processes continue in a modified way	2	Medium: Functions and processes continue in a modified way	2
	Duration	Long-term (>15 years)	3	Long-term (>15 years)	3
	Consequence		6		6
	Probability	Probable (> 70% - 90% chance of occurring)	2	Possible (40% - 70% chance of occurring)	1
	Status	Negative	-1	Negative	-1
	Confidence	High		High	

Mulilo Beaufort West SPV					
Impact		Decommissioning			
		Without mitigation		With mitigation	
Geotechnical Impacts					
G: The removal of subsoils (soil, rock)	Significance	Low	-3	Very Low	-2
	Extent	Local: Confined to project or study area or part thereof (e.g. site)	1	Local: Confined to project or study area or part thereof (e.g. site)	1
	Intensity	Medium: Functions and processes continue in a modified way	2	Medium: Functions and processes continue in a modified way	2
	Duration	Medium-term (2 to 15 years)	2	Medium-term (2 to 15 years)	2
	Consequence		5		5
	Probability	Probable (> 70% - 90% chance of occurring)	2	Possible (40% - 70% chance of occurring)	1
	Status	Negative	-1	Negative	-1
	Confidence	Medium		Medium	



Table 3: Impacts and Recommended Mitigation Measures

PHASE	ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	RECOMMENDED MITIGATION MEASURES
CONSTRUCTION PHASE	Removal of subsoils (soil, rock)	Displacement of natural earth material and overlying vegetation. 1) Increase in soil and wind erosion due to clearing of vegetation. 2) Construction and earthmoving vehicles may displace soil during operations. 3) Creation of drainage paths along access tracks. 4) Potential oil spillages from heavy plant. 6) Excessive dust.	Identify protected areas prior to construction. 1) Construction of temporary berms and drainage channels to divert surface water. 2) Minimize earthworks and fills. 3) Use existing road network and access tracks. 4) Rehabilitation of affected areas (such as regrassing, mechanical stabilization). 5) Correct engineering design and construction of gravel roads and water crossings. 6) Correct construction methods for foundation installations. 7) Vehicle repairs to be undertaken in designated areas. 8) Control stormwater flow 9) Dust suppression.
OPERATIONAL PHASE	Removal of subsoils (soil, rock)	Displacement of natural earth material . 1) Increase in soil erosion due to concentrated flow received off hardstand areas. 2) Potential oil spillages from maintenance vehicles. 3) Sedimentation of non-perennial features caused by soil erosion.	1) Use of existing roads and tracks. 2) Rehabilitation of affected areas (such as erosion control mats). 3) Correct engineering design and construction of roads, water crossings and hardstand areas. 4) Vehicle repairs to be undertaken in designated areas. 5) Design of and maintenance of stormwater system.
DECOMMISSIONING PHASE	Removal of subsoils (soil, rock)	Decommissioning of the structure will disturb the geological environment. 1) Increase in soil and wind erosion due to clearance of structures. 2) Construction and earthmoving vehicles will displace the soil. 3) Creation of drainage paths. 4) Potential oil spillages from vehicles. 5) Excessive sediments in non-perennial features.	1) Use of temporary berms and drainage channels to divert surface water during flooding. 2) Minimize earthworks and demolish footprints. 3) Use of existing roads and tracks. 4) Rehabilitation of affected areas (such as regrassing). 5) Develop a chemical spill response plan. 6) Develop dust and demolition fly suppression plan. 7) Vehicle repairs to be undertaken in designated areas. 8) Reinststate channelized drainage features.



8 GEOTECHNICAL COMPARATIVE ASSESSMENT

Layout alternatives specifically relating to Fence 4 and the solar arrays within Fence 4 were considered and assessed as part of this geotechnical report. For ease of reference the comparative assessments of alternatives are provided below and shown in Figure 2a and 2b, **Appendix A**.

It should be noted that the Fence 4 and solar array preferred and alternative configurations in both the Preferred and Alternative layouts vary minimally.

8.1 FENCE 4

- **Fence 4 Preferred and Alternative (Preferred Layout)**
 - The Fence 4 preferred route encloses PV1 and PV5 and runs along drainage feature that transects the site.
 - The Fence 4 alternative encloses PV1 and PV5 footprints along with the transecting drainage feature.
- **Fence 4 Preferred and Alternative (Alternative Layout)**
 - The Fence 4 preferred route encloses PV1 and PV5 and runs along drainage feature that transects the site. This fenceline extends the PV1 area in a south westerly direction towards the Kwagga River.
 - The Fence 4 alternative encloses PV1 and PV5 footprints along with the transecting drainage feature and extends the PV1 area in a south westerly direction towards the Kwagga River.

8.2 SOLAR ARRAYS

- **Solar Arrays Preferred and Alternative (Preferred Layout)**
 - The solar array configuration within PV1 does not extend in a south western direction.
- **Solar Arrays Preferred and Alternative (Alternative Layout)**
 - The solar array configuration within PV1 extends in a south western direction.

Table 4: Comparative Assessment Criteria

PREFERRED	The alternative will result in a low impact / reduce the impact / result in a positive impact
FAVOURABLE	The impact will be relatively insignificant
LEAST PREFERRED	The alternative will result in a high impact / increase the impact
NO PREFERENCE	The alternative will result in equal impacts



Table 5: Geotechnical Comparative Assessment of Alternatives

Alternative	Preference	Reasons (incl. potential issues)
Preferred Layout		
Fence 4 and Solar Array (Preferred)	PREFERRED	<ul style="list-style-type: none"> The fence line and solar arrays are underlain by the Teekloof Formation with the south eastern portion underlain by alluvium. The fence line separates PV1, PV5 and runs along the drainage feature crossing where slopes are most shallow and between 0.001 and 4.4%. The fence line and solar arrays will generally be located on shallow slopes of between 0.001 to 21%.
Fence 4 and Solar Array (Alternative)	FAVOURABLE	<ul style="list-style-type: none"> The fence line and solar arrays are underlain by the Teekloof Formation with the south eastern portion underlain by alluvium. This fence line encloses PV1, PV5 and the drainage feature and crosses the drainage feature to the south west where slopes are generally steeper than 4.4%. The fence and solar arrays will generally be located on shallow slopes of between 0.001 to 21% with minimal earth works. The fence line crosses the drainage feature where slopes are between 4.4 and 11.3%.
Alternative Layout		
Fence 4 and Solar Array (Preferred)	FAVOURABLE	<ul style="list-style-type: none"> The fence line and solar arrays are underlain by the Teekloof Formation with the south eastern portion underlain by alluvium. This fence line separates PV1, PV5 and runs along the drainage feature and crosses this feature where slopes are shallow at between 0.001 and 4.4%. The fence line enclosing PV1 and the solar arrays extend in a south westerly direction towards the Kwagga River. The fence line and solar arrays are will generally be located on slopes of between 0.001 to 21%.
Fence 4 and Solar Array (Alternative)	FAVOURABLE	<ul style="list-style-type: none"> The fence line and solar arrays are underlain by the Teekloof Formation with the south eastern portion underlain by alluvium. This fence line separates PV1, PV5 and runs along the drainage feature and crosses this feature where slopes are shallow at between 4.4 and 21%. The fence line enclosing PV1 and the solar arrays extend in a south westerly direction towards the Kwagga River. The fence line and solar arrays are will generally be located on slopes of between 0.001 to 21%.



Both the preferred and alternative layouts have been assessed and are suitable for development.

9 CONCLUSIONS AND RECOMMENDATIONS

The foregoing report presents the findings concluded from a desktop study undertaken for the proposed Beaufort West SPV Energy Facility.

No fatal flaws from a geotechnical perspective were identified during this desktop study. The conclusions presented in this report will have to be more accurately confirmed during the detailed geotechnical investigation phase. The impact of the SPV facility was generally found to be “Negative Low Impact” and will require little minimal mitigation. The site, from a desktop level geotechnical study, is considered suitable for the proposed Beaufort West SPV Energy Facility.

It recommended that a detailed geotechnical investigation be undertaken during the detailed design phase of the project. The detailed geotechnical investigation must entail the following:

- The profiling and sampling of exploratory trial pits to determine founding conditions for the substations and powerline infrastructure;
- Thermal resistivity and electrical resistivity geophysical testing for electrical design and ground earthing requirements;
- Groundwater sampling of existing boreholes to establish a baseline of the groundwater quality for construction purposes.

9.1 Impact Statement

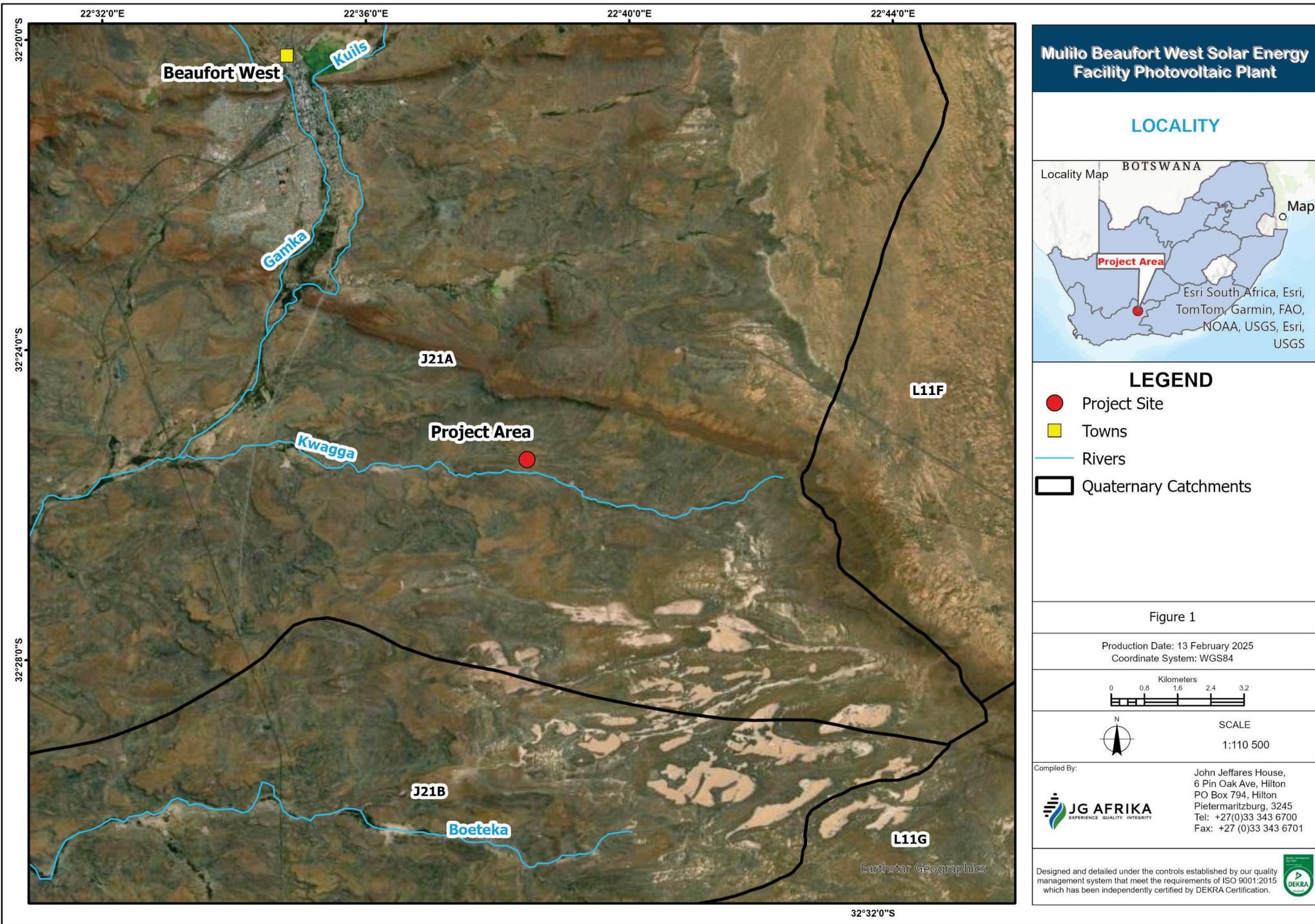
No fatal flaws from a geotechnical perspective were identified during this desktop study. The conclusions presented in this report will have to be more accurately confirmed during the detailed geotechnical investigation phase. The impact of the SPV facility and associated infrastructure was generally found to be “Negative Low Impact” (The anticipated impact will have minor negative effects and will require minimal mitigation). The site, from a desktop level geotechnical study, is considered suitable for the proposed Beaufort West SPV Energy Facility.

10 SELECTED BIBIOGRAPHY

- Brink. A.B.A (1983). Engineering Geology of Southern Africa: The Karoo Sequence. Volume 3. Building Publications: Cape Town.
- Climatic Data, Beaufort West. Accessed October 2022 from: <https://en.climate-data.org>
- COLTO (1998). Standard Specifications for Road and Bridge Works for State Road Authorities, Committee of Land Transport Officials, Published by the South African Institution of Civil Engineering.
- Weinert (1980). The Natural Road Construction Materials of Southern Africa. Council for Scientific and Industrial Research : H & R Academica (Pty) Ltd.
- 1: 250 000 Geological Map Series (3222 Beaufort West). Published by the Council of Geoscience (2000).
- 1: 3 000 000 Groundwater Harvest Potential of the Republic of South Africa. Published by the Department of Water Affairs and Forestry.



Appendix A: Figures



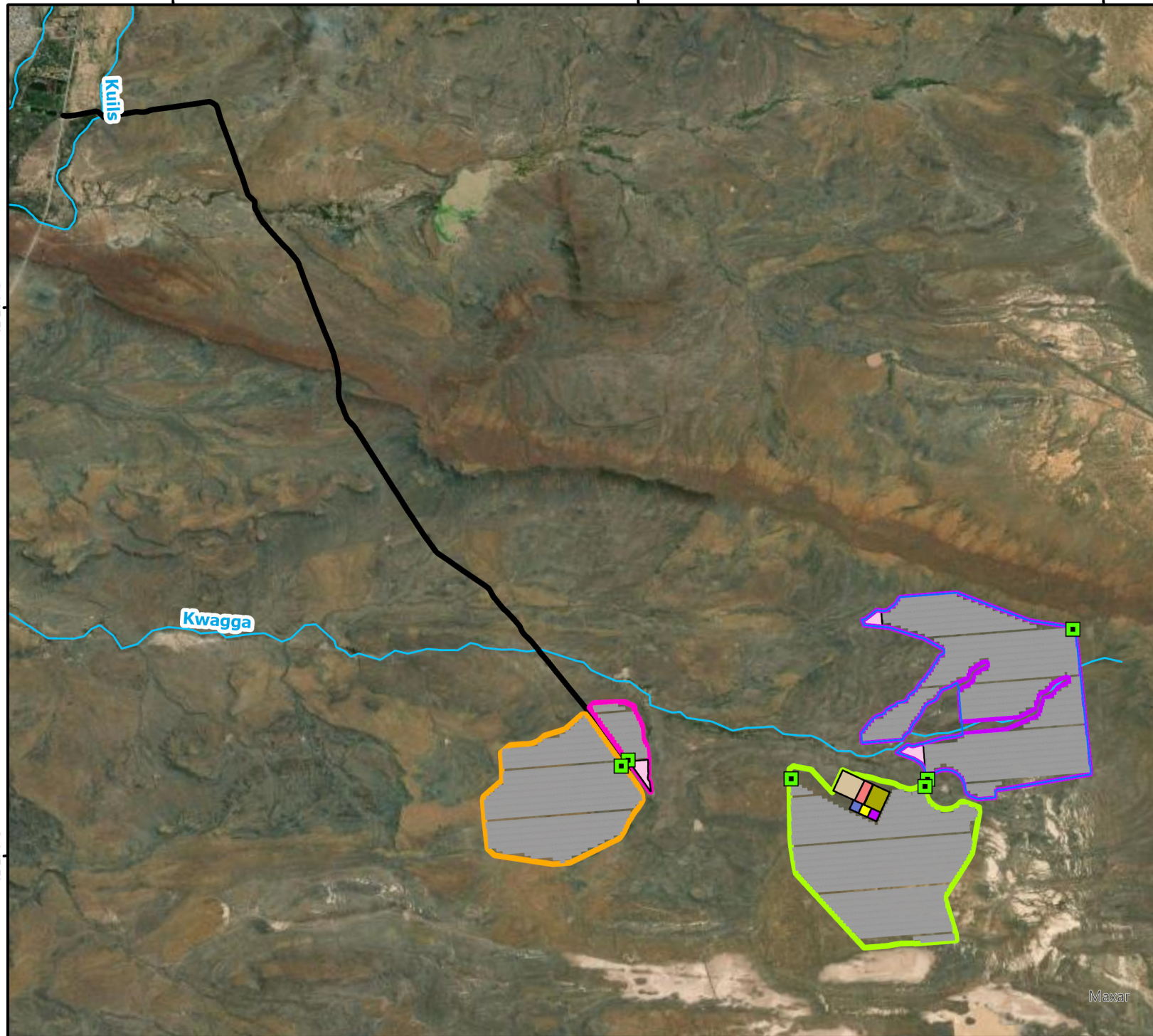
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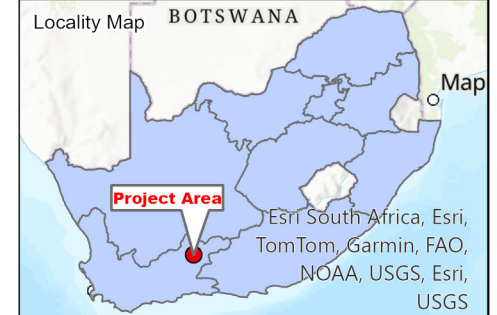
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32°27'0"S



Mulilo Beaufort West Solar Energy Facility Photovoltaic Plant

SITE PLAN- ALTERNATIVE LAYOUT

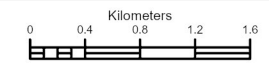


LEGEND

- | | |
|-------------------------|-----------------------------|
| BESS Area | Existing Road |
| Laydown Area | Civil Fence 1 |
| Laydown Area-Satellite | Civil Fence 2 |
| O&M Buildings | Civil Fence 3 |
| Eskom Switching Station | Civil Fence 4 (Preferred) |
| Construction Camp | Civil Fence 4 (Alternative) |
| IPP Substation | Rivers |
| Solar Arrays | |
| Security Hut | |

Figure 2b

Production Date: 13 February 2025
Coordinate System: WGS84



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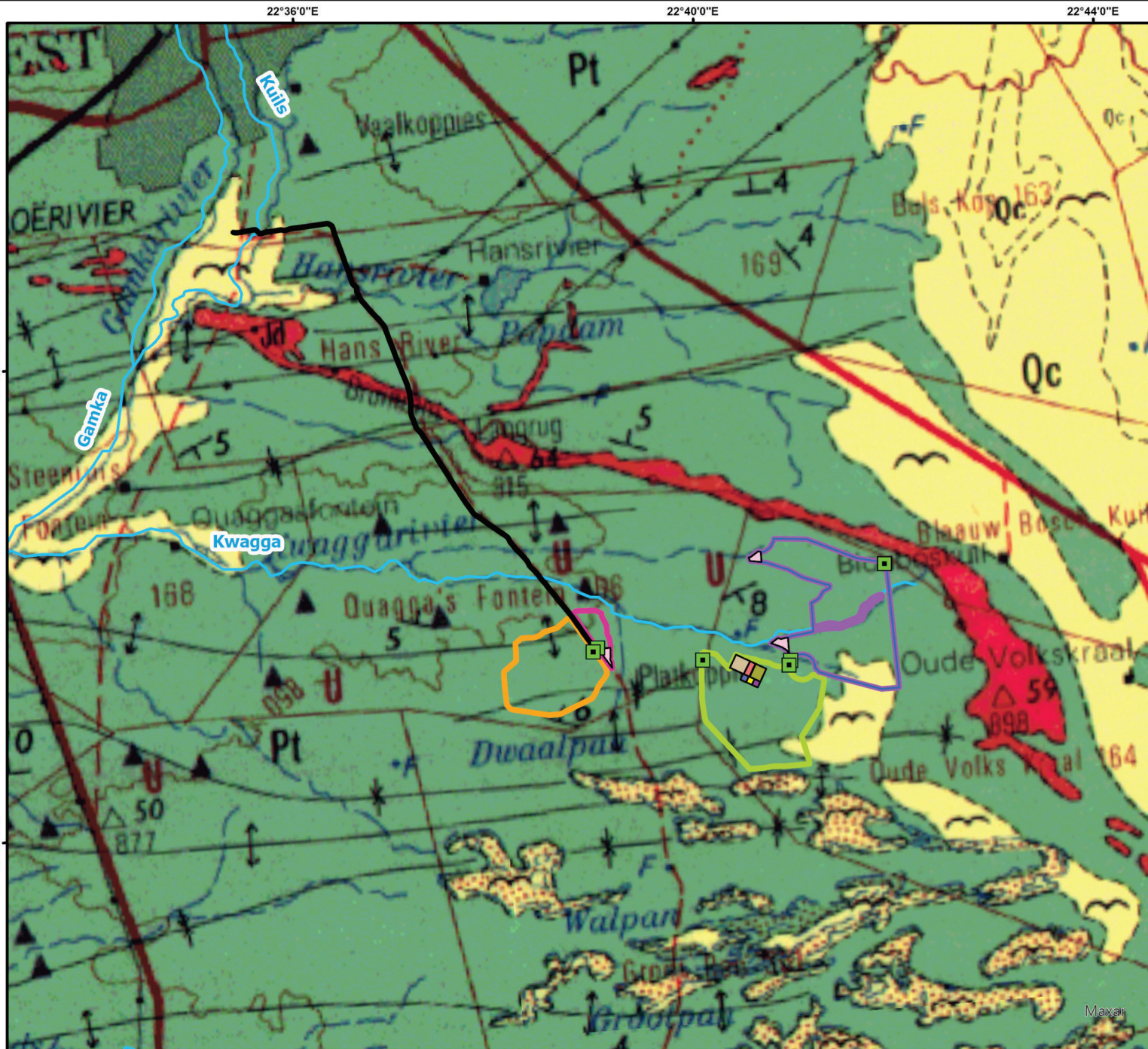


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Designed and detailed under the controls established by our quality management system that meet the requirements of ISO 9001:2015 which has been independently certified by DEKRA Certification.

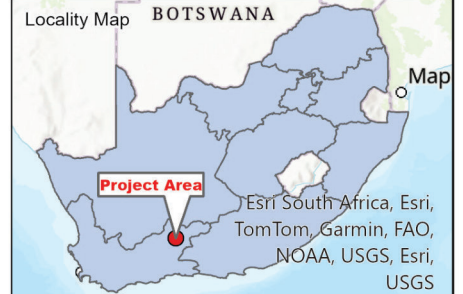


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Mulilo Beaufort West Solar Energy Facility Photovoltaic Plant

GEOLOGY

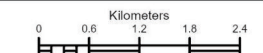


LEGEND



Figure 3

Production Date: 13 February 2025
Coordinate System: WGS84



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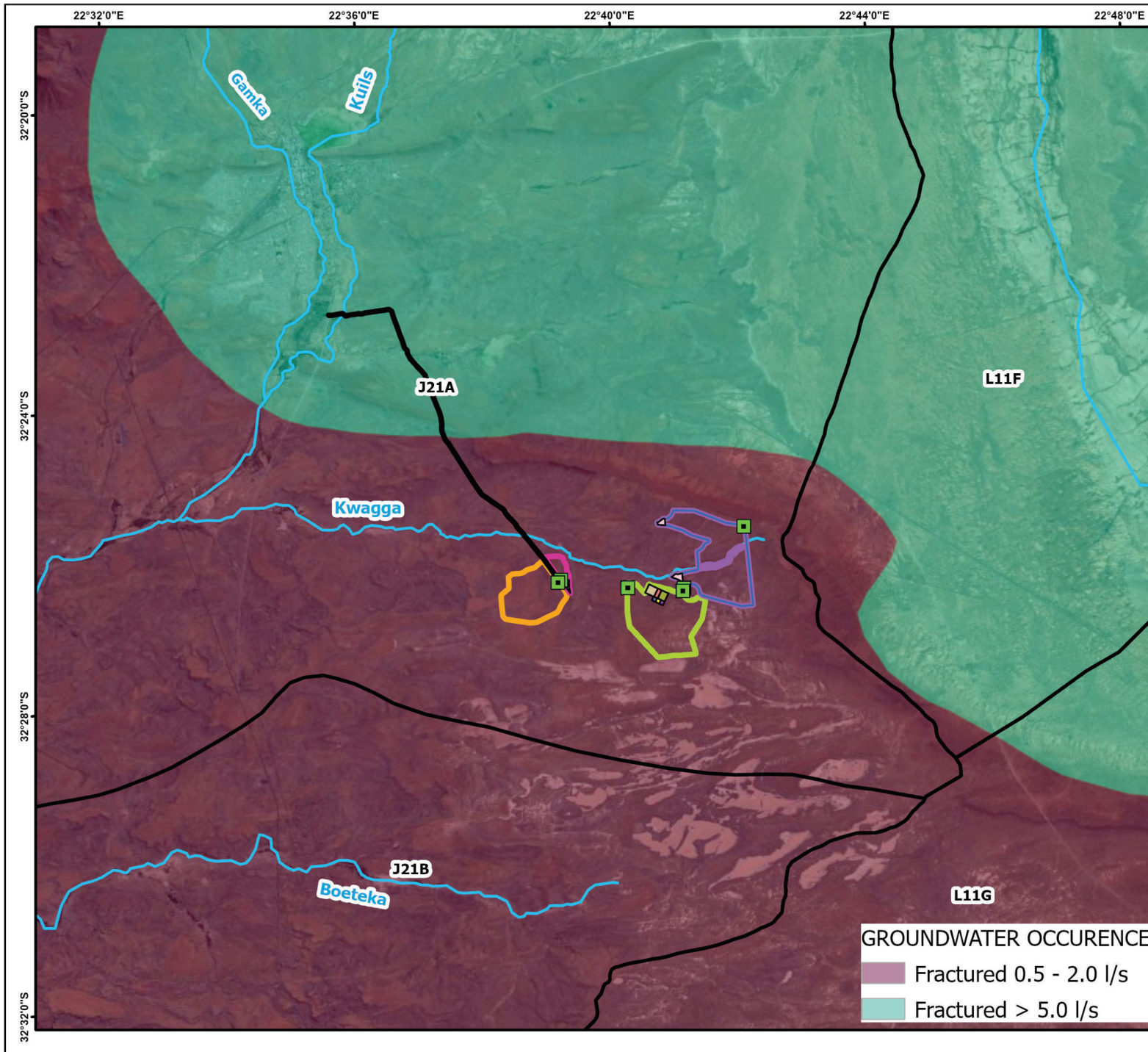
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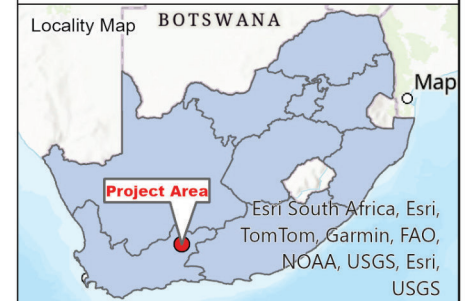
Designed and detailed under the controls established by our quality management system that meet the requirements of ISO 9001:2015 which has been independently certified by DEKRA Certification.





Mulilo Beaufort West Solar Energy Facility Photovoltaic Plant

HYDROGEOLOGY



LEGEND

- | | |
|-------------------------|---------------------------|
| BESS Area | Existing Road |
| Laydown Area | Civil Fence 1 |
| Laydown Area-Satellite | Civil Fence 2 |
| O&M Buildings | Civil Fence 3 |
| Eskom Switching Station | Civil Fence 4 |
| Construction Camp | Civil Fence 4-Alternative |
| IPP Substation | Rivers |
| Security Hut | |

Figure 4

Production Date: 13 February 2025
Coordinate System: WGS84



SCALE
1:130 000

Compiled By:



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Designed and detailed under the controls established by our quality management system that meet the requirements of ISO 9001:2015 which has been independently certified by DEKRA Certification.

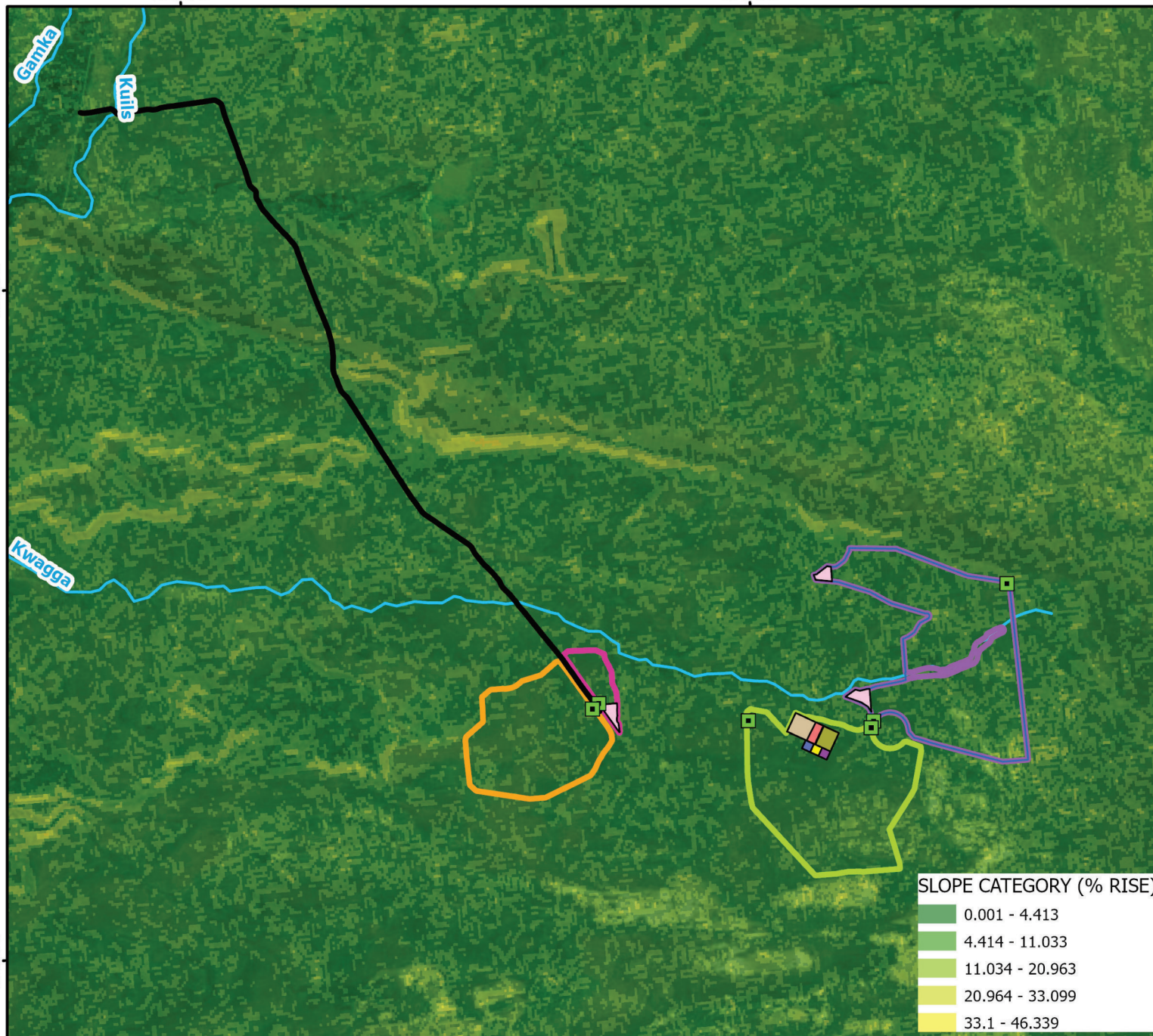


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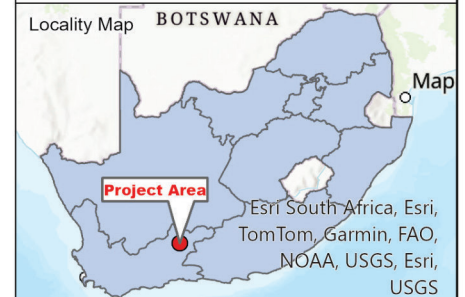
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32°28'0"S



Mulilo Beaufort West Solar Energy Facility Photovoltaic Plant

SLOPE

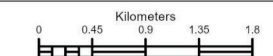


LEGEND



Figure 5

Production Date: 13 February 2025
Coordinate System: WGS84



SCALE
1:60 000

Compiled By:



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6 Pin Oak Ave, Hilton
PO Box 794, Hilton
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Designed and detailed under the controls established by our quality management system that meet the requirements of ISO 9001:2015 which has been independently certified by DEKRA Certification.





Appendix B: SRK Impact Assessment Methodology

1 Impact Rating Methodology

The **significance** of an impact is defined as a combination of the **consequence** of the impact occurring, including possible irreversibility of impacts and/or loss of irreplaceable resources, and the **probability** that the impact will occur.

The criteria used to determine impact consequence are presented in Table 1-1 below.

Table 1-1: Criteria used to determine the consequence of the impact

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
Local	Confined to project or adjacent areas	1
Regional	Affecting the region (e.g. District Municipality or Province)	2
(Inter) national	Affecting areas beyond the Province	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources		
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered and/or irreplaceable resources ¹ are lost	3
C. Duration – the timeframe over which the impact will be reversed		
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years or irreversible	3

The combined score of these three criteria corresponds to a **Consequence Rating**, as follows:

Table 1-2: Method used to determine the consequence score

Combined Score (A+B+C)	3 – 4	5	6	7	8 – 9
Consequence Rating	Very low	Low	Medium	High	Very high

Once the consequence is derived, the probability of the impact occurring is considered, using the probability classifications presented in Table 1-3 below.

Table 1-3: Probability classification

Probability – the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	> 70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall **significance** of impacts is determined by considering consequence and probability using the rating system prescribed in Table 1-4 below.

¹ Defined as important cultural or biological resource which occur nowhere else, and for which there are no substitutes.

Table 1-4: Impact significance ratings

		Probability			
		Improbable	Possible	Probable	Definite
Consequence	Very Low	INSIGNIFICANT	INSIGNIFICANT	VERY LOW	VERY LOW
	Low	VERY LOW	VERY LOW	LOW	LOW
	Medium	LOW	LOW	MEDIUM	MEDIUM
	High	MEDIUM	MEDIUM	HIGH	HIGH
	Very High	HIGH	HIGH	VERY HIGH	VERY HIGH

Finally the impacts are also considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The prescribed system for considering impacts status and confidence (in assessment) is laid out in Table 1-5 below.

Table 1-5: Impact status and confidence classification

<i>Status of impact</i>	
Indication whether the impact is adverse (negative) or beneficial (positive).	+ ve (positive – a 'benefit')
	– ve (negative – a 'cost')
<i>Confidence of assessment</i>	
The degree of confidence in predictions based on available information, SRK's judgment and/or specialist knowledge.	Low
	Medium
	High

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity.
- **Very Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity.
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity.
- **Medium:** the potential impact should influence the decision regarding the proposed activity.
- **High:** the potential impact will affect the decision regarding the proposed activity.
- **Very High:** The proposed activity should only be approved under special circumstances.

Practicable mitigation and optimisation measures are recommended and impacts are rated in the prescribed way both without and with the assumed effective implementation of mitigation and optimisation measures. Mitigation and optimisation measures are either:

- **Essential:** measures that must be implemented and are non-negotiable; and
- **Best Practice:** recommended to comply with best practice, with adoption dependent on the proponent's risk profile and commitment to adhere to best practice, and which must be shown to have been considered and sound reasons provided by the proponent if not implemented.



Appendix C: Specialist's CV and Specialist Declaration



PRIANTHA SUBRAYEN (MOONSAMY)

Summary

Priantha is a professionally registered natural scientist with the South African Council for Natural Scientific Professions. She currently occupies the position of Engineering Geologist at JG Afrika and has a combined 8 years of experience in the fields of Geotechnical Engineering and Groundwater. She currently has a BSc Honours in Engineering Geology from the University of KwaZulu-Natal and a Higher Certificate in Advanced Project Management from the University of Cape Town.

A part of both the Geotechnical and Groundwater Divisions in JG Afrika she has experience in Engineering Geology, Renewable Energy, Geohydrology, Water Quality Analysis and Auditing and Geographical Information Systems (GIS). Experience has also been obtained in compilation of contract documentation, tenders and cost estimates.

Apart from numerous projects in South Africa, Priantha also has also been involved in projects in Mozambique and Lesotho.

Professional Registrations & Institute Memberships

PrSciNat	Registered with the South African Council of Natural. Scientific Professions - Registration No 400066/16
NHBRC	Certified Competent Person with National Home Builders Registration Council.
GAKZN	Member of the Groundwater Association of KwaZulu-Natal.

Education

2010	BSc (Geological Sciences) – University of KwaZulu-Natal
2011	BSc (Hons) (Environmental and Engineering Geology) – University of KwaZulu-Natal.
2011	Higher Certificate Advanced Project Management – University of Cape Town.

Profession

Engineering Geologist

Position in Firm

Engineering Geologist

Area of Specialisation

Geotechnical Engineering and Groundwater

Qualifications

BSc Honours Engineering Geology

Years of Experience

8 Years

Years with Firm

6.5 Years



Specific Experience

JG Afrika (Pty) Ltd

2022 – Current

Position – Engineering Geologist/ Geohydrologist (Groundwater)

Hydra B Resistivity Survey – Resistivity surveys for nine solar energy facilities in the Northern Cape. Client: AfriCoast Investments (Pty) Ltd.

Western Cape DLG Groundwater Supply Project – Geohydrological investigations for groundwater supply to various municipalities in the Western Cape Province. Client: Western Cape Department of Local Governance.

ERWAT Water Quality Auditing – Water quality compliance auditing for various water treatment facilities in Gauteng. Client: ERWAT.

OR Tambo Borehole Programme – Geohydrological investigations for groundwater supply to various local municipalities in the OR Tambo District Municipality. Client: SZC Consulting an Isilimela Project Managers JV.

La Lucia Mall Groundwater Supply Project – Geohydrological Investigation for groundwater harvesting at the La Lucia Mall in KwaZulu-Natal. Client: GrowthPoint.

National Water Balance Perspectives – A determination of the groundwater availability for various catchments in South Africa using ArcGIS, AFYM, NIWIS AND GRA2 recharge data. Client: Department of Water and Sanitation.

Zambia Aquifer Mapping – Aquifer mapping using ArcGIS to generate a groundwater recharge tool for Zambia. Client: OneWorld.

Wessels Mine Geohydrological Investigation and Waste Classification – Geohydrological Investigation for the Wessels Mine in the Northern Cape. Client: South 32.

City of Cape Town – Water Quality interpretation at City of Cape Town Landfill Sites and reporting including GIS mapping and interpretation. Client: City of Cape Town.

USAID Resilient Waters Programme – Geohydrological Investigation for the Twickenham/ Der Brochen and Amandenbult Villages in the North West including desktop and feasibility reporting. Client: Tshikululu Investments and Anglo American.

Kwangoza High School - Geohydrological Investigation for water supply to the Kwangoza High School including GIS mapping and feasibility reporting. Client: PCU Consultants.

Orasecom Water Quality Monitoring System – Establishment of basin wide transboundary resource quality objectives. Client: Ground Truth.

Upper Orange Reserve Determination Study – A reserve determination study for the Upper Orange Catchment including reporting and GIS mapping. Client: GroundTruth.

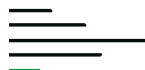
Fish to Tsitsikamma Reserve Determination Study - A reserve determination study for the Fish to Tsitsikamma Catchment including reporting and GIS mapping. Client: GroundTruth.

Specialist Desktop Geotechnical Assessments for Renewable Energy Facilities – Site Sensitivity Verification assessment and Geotechnical Impact Assessment for the Mayogi PV Facility including GIS mapping. Client: SiVest

Specialist Geotechnical Investigation (NHBC Site Classifications) – A determination of the appropriate founding depth and foundation type for single storey structures residential developments. Client: Gates Estate

Specialist Desktop Geotechnical Assessments for Renewable Energy Facilities – Site Sensitivity Verification assessment and Geotechnical Impact Assessment for the Kareebosch OHPL and WEF including GIS mapping. Client: WSP

Specialist Desktop Geotechnical Assessments for Renewable Energy Facilities – Geotechnical Verification for the Brandvalley WEF. Client: Terramanzi (Pty) Ltd.





Pre-Feasibility Geotechnical Investigation – Pre-feasibility, desktop geotechnical investigation for the Hendrina OHPL. Client: Enertrag.

Geotechnical Investigation (Bridges) – Deep invasive geotechnical investigation and GIS mapping for the Mhlali River Bridge. Client: MNA Engineers.

Geotechnical Investigation (Elevated Tank) – Invasive geotechnical investigation for the Toyota Elevated Water Tank and GIS mapping. Client: MNA Engineers.

Geotechnical Investigation (Light Structures) – Invasive geotechnical investigation for the South32 filtration plant, internal road and culvert. Client: JG Afrika (Water Department).

Geotechnical Investigation (NHBRC Site Classifications) – A determination of the appropriate founding depth and foundation type for single storey structures residential developments including site class designation and GIS mapping. Client: Gates Estate.

JG Afrika (Pty) Ltd

2013 – 2016

Position – Engineering Geologist (Geotechnical Engineering)

Lesotho Highlands Phase II Water Project – Information database management, site data analysis, interpretation and compilation, reporting. Client: Lesotho Highlands Development Authority.

Geotechnical Investigations (Quarry Rock Mass Ratings Determination – Afrimat Quarries) – Slope stability and rock quality assessments at various Afrimat Quarries in KwaZulu-Natal. Client: Afrimat.

Geotechnical Investigations (Single Storey Structures) – A determination of the appropriate founding depth and foundation type for single storey structures. These included residential developments, multi-purpose buildings and poultry farm sheds. Client: Various.

Geotechnical Investigations (Irrigation Schemes and Related Infrastructure) – Shallow site investigations to determine the suitability of a site for various irrigation scheme infrastructure, including pipes, reservoirs and pump stations. Client: Various.

Geotechnical Investigations (Industrial Developments) – Shallow geotechnical investigations for small and large scale industrial developments, to determine the founding depths and appropriate foundation types for various heavily loaded industrial structures. Client: Various.

Geotechnical Investigations (Cemetery Site Selection) – Shallow geotechnical investigations to determine site suitability for the development of a cemetery and related infrastructure. Client: Msunduzi Municipality.

Geotechnical Investigations (Roads and Related Infrastructure) – Road centreline investigations for the upgrade of lightly to moderately trafficked roads, borrow pit evaluation and bridge and culvert foundation assessments. Client: Naidu Consulting (Pty) Ltd.

Geotechnical Investigations (Low-Cost Housing Developments) – Shallow geotechnical investigations and NHBRC site classifications for numerous low-cost housing developments within South Africa. Client: Various.

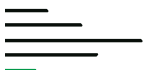
SRK Consulting (Pty) Ltd

2012 – 2013

Position – Junior Engineering Geologist (Geotechnical Engineering)

Geotechnical Investigations (Multi- Storey Structures) – Small scale, deep geotechnical investigations for multi-storey buildings in Pietermaritzburg. Client: Msunduzi Municipality.

Geotechnical Investigations (Roads and Related Infrastructure) – Road centreline investigations, borrow pit evaluation and culvert and over-topping structure founding condition inspections. Client: Naidu Consulting (Pty) Ltd.





Geotechnical Investigations (Low-Cost Housing Developments) – Shallow geotechnical investigations and site classifications for numerous low-cost housing developments within South Africa. Client: various.

Geotechnical Investigations (Heavily Loaded Structures -Vopak Tank Storage Farm) – Deep geotechnical investigations to determine the suitability of the site and founding conditions for tank storage reservoirs within the Richards Bay Port: Vopak.

Mutamba Titanium Dioxide Feedstock Project – CPT Monitoring and evaluation, mineral resource estimation and orebody modelling. Client: RioTinto.

Continued Professional Development

COURSES

- | | |
|-------------|--|
| 2012 | LeapFrog Geo |
| 2013 | SAIEG Soil, Rock and Chip Logging |
| 2014 | Kaytech Engineered Fabrics - Introduction to Geosynthetics |

Personal Details

Nationality – South African

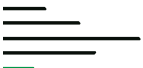
Date of Birth – 1989-12-20

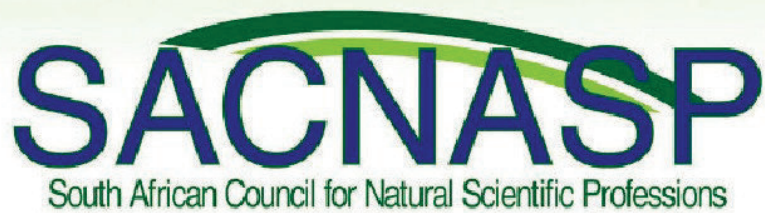
Domicile – Durban, South Africa

Languages

English – Excellent

Afrikaans – Good





herewith certifies that

Priantha Moonsamy

Registration Number: 400066/16

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)

in the following field(s) of practice (Schedule 1 of the Act)

Earth Science (Professional Natural Scientist)

Effective **9 March 2016**

Expires **31 March 2025**



A handwritten signature in black ink, likely of the Chairperson, positioned above a horizontal line.

Chairperson

A handwritten signature in black ink, likely of the Chief Executive Officer, positioned above a horizontal line.

Chief Executive Officer





environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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

File Reference Number:	(For official use only)
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

Beaufort West Solar Energy Facility Photovoltaic Plant

Kindly note the following:

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

Departmental Details

Postal address:

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

Physical address:

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

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

1. SPECIALIST INFORMATION

Specialist Company Name:	JG Afrika (Pty) Ltd		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	1	Percentage Procurement recognition
Specialist name:	Priantha Subrayen		
Specialist Qualifications:	BSc. Honours (Engineering Geology)		
Professional affiliation/registration:	SACNASP (40066/16)		
Physical address:	6 Pin Oak Avenue, Hilton, 3201		
Postal address:	PO Box 794, Hilton, 3245		
Postal code:	3201	Cell:	074 473 6439
Telephone:	033 343 6700	Fax:	033 343 6701
E-mail:	subrayenp@jgafrika.com		

2. DECLARATION BY THE SPECIALIST

I, Priantha Subrayen, 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

JG Afrika (Pty) Ltd

Name of Company:

24/02/2025

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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

P Subrayen

Signature of the Specialist

JG Afrika (Pty) Ltd

Name of Company

24/02/2025

Date

DJBurgin

Signature of the Commissioner of Oaths

COMMISSIONER OF OATHS
DAWN JANET BURGIN
9/1/8/2 (R/O) KZN (PIETERMARITZBURG)
6 PIN OAK AVENUE, HILTON

24/02/2025

Date

NATURA VIVA cc
Palaeontological Impact Assessments & Heritage Management,
Natural History Education, Tourism, Research

Attn: Ms Nicola Rump
SRK Consulting (South Africa) (Pty) Ltd.
254 Walmer Boulevard,
South End,
Gqeberha (Port Elizabeth) 6001
South Africa

Date: 16 February 2025

Palaeontological Heritage Comment:

**PROPOSED PART 2 AMENDMENT FOR THE AUTHORIZED BEAUFORT WEST
 SOLAR PV ENERGY FACILITY NEAR BEAUFORT WEST, WESTERN CAPE
 PROVINCE**

1. PROJECT CONTEXT & PROPOSED SEF AMENDMENT

Upgrade Energy (Pty) Ltd received Environmental Authorization in 2023 for the proposed construction of the Beaufort West Solar Photovoltaic (PV) Energy Facility (SEF) and associated grid connection infrastructure near Beaufort West in the Western Cape Province (DFFE Reference Number: 14/12/16/3/3/1/2673). A subsequent amendment to the authorisation was undertaken to change the holder from Upgrade Energy to Beaufort West Solar PV Energy Facility (Pty) Ltd, the proponent of the current amendment application. The development site is located on privately owned farmland, approximately 12.5km south east from the town of Beaufort West, within the Beaufort West Local Municipality, in the Central Karoo District Municipality, Western Cape Province (Figure 1).

The site is approximately 3763 ha in extent. The project involves the development of a solar energy facility with a total generation capacity of approximately 415MWac electricity from renewable solar energy to be supplied to the national Eskom grid *via* the existing Droerivier Substation located near to the site.

Beaufort West Solar PV Energy Facility is now applying for a Part 2 Amendment regarding the SEF component of the project but not for the grid connection which will remain within the previously authorised alignment. The main changes applied for in this amendment relate to the project layout and footprint (remaining within the site that was previously assessed). The project components remain largely unchanged, apart from their configurations / locations and some increases in footprint area. The revised SEF project description is appended to this comment letter and the proposed new SEF layout is shown in Figure 1 below.

The **proposed changes to the authorized infrastructure layout of the SEF** (see Figure 1) to be noted are:

***NATURA VIVA cc* (Reg. No. 2000/019296/23)**
Members: Dr J.E. Almond (British)(Managing), M.L. Tusenius
76 Breda Park, Breda Street, Oranjezicht, CAPE TOWN 8001, RSA
Tel / Fax: +27 (21) 462 3622 E-mail: naturaviva@universe.co.za

- New **temporary laydown areas** on the north and west – these will be for construction only and will be rehabilitated after construction;
- Inclusion of **construction site camp** (note, no accommodation will be provided on site), and the **substation footprint** changed slightly, but still placed within the approved 2ha footprint;
- The addition of **guard houses** at various locations around the site (these will be very small);
- Each PV development area will be completely fenced.

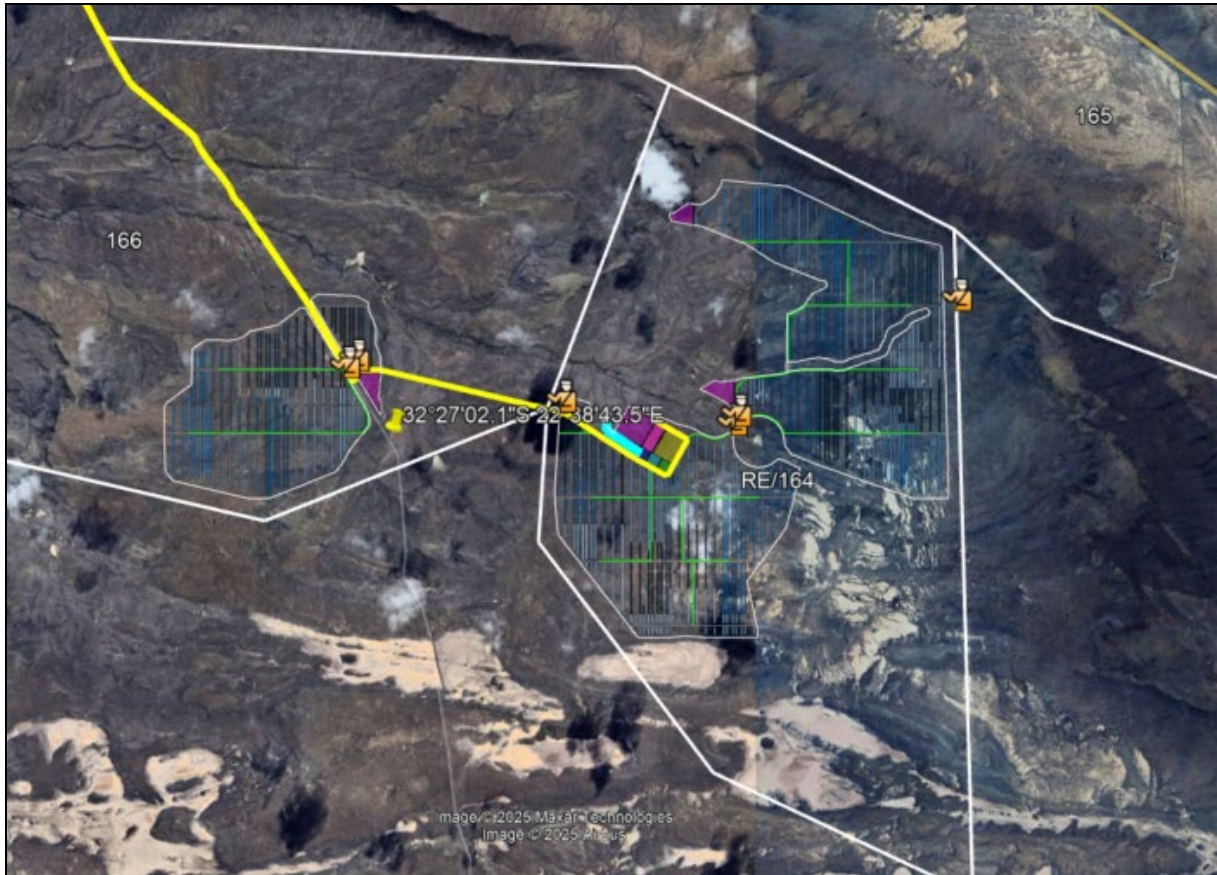


Figure 1: Google Earth© satellite image showing the proposed amended layout of the authorized Beaufort West Solar PV Energy Facility near Beaufort West, Western Cape (Image provided by SRK).

A combined desktop- and field-based palaeontological heritage report for the original, authorized SEF and Grid Connection was submitted by Almond (2022). The principle conclusions and recommendations reached in this earlier report were:

- **No Very High Sensitivity or No-Go palaeontological sites or areas have been identified within the SEF or Grid Connection Infrastructure project areas.** Almost all the known fossil sites (apart from some *in situ* tetrapod burrows) can be readily mitigated – if necessary - through professional recording and collection of fossil material in the pre-construction phase. Therefore no recommendations for micro-siting of SEF or Grid Connection infrastructure are made here.

- The proposed Beaufort West SEF and associated Grid Connection Infrastructure developments are assigned a similar overall impact significance rating (Construction Phase) of **NEGATIVE LOW without mitigation and NEGATIVE LOW following mitigation**. No significant further impacts on fossil heritage resources are anticipated in the planning, operational and decommissioning phases.
- Pending the potential discovery of significant new fossil remains during the Construction Phase of these developments, **no recommendations for further specialist palaeontological studies or mitigation are made here**.
- The responsible ECO / ESO should be aware of the possibility of chance fossil finds (*e.g.* vertebrate teeth, bones, petrified wood) in this region of the Great Karoo and should implement the **Chance Fossil Finds Protocol** outlined in Appendix 2 during the construction phase. The qualified palaeontologist responsible for any mitigation work will need to submit a Work Plan for approval by Heritage Western Cape (HWC) and a Mitigation Report must be submitted to HWC for consideration.
- The proposed Beaufort West SEF and Grid Connection Infrastructure developments are **not fatally flawed in terms of palaeontological heritage**. On condition that the recommended mitigation measures are included within the relevant EMPs and implemented in full, there are **no objections on palaeontological heritage grounds to the authorization of these renewable energy developments**.

2. CONCLUSIONS & RECOMMENDATIONS

Based on a comparison of the original palaeontological database provided by Almond (2022 - fossil site table and maps provided in Appendix 1) and the proposed amended layout of the SEF as shown in Figure 1, **no known fossil sites of significant scientific or conservation interest will be threatened by the new, amended layout**. It is accordingly concluded that:

- **There are no outstanding palaeontological heritage issues with the amended layout for the SEF;**
- **The conclusions and recommendations made in the original PIA report by Almond (2022) remain unchanged.**
- **On condition that the palaeontological heritage mitigation measures made by Almond (2022) are included within the relevant EMPs and implemented in full, there are no objections on palaeontological heritage grounds to the authorization of the proposed amended layout for the Mulilo Beaufort West SEF.**

3. KEY REFERENCES

ALMOND, J.E. (2022). Proposed Beaufort West Solar Renewable Energy Facility and associated grid connection infrastructure, near Beaufort West, Western Cape Province. Palaeontological heritage

report, 93 pp. *Natura Viva cc*, Cape Town.

4. OUTLINE OF AUTHOR'S EXPERTISE

Dr John Almond has an Honours Degree in Natural Sciences (Zoology) as well as a PhD in Palaeontology from the University of Cambridge, UK. He has been awarded post-doctoral research fellowships at Cambridge University and the University of Tübingen in Germany, and has carried out palaeontological research in Europe, North America, the Middle East as well as North and South Africa and Madagascar. For eight years he was a scientific officer (palaeontologist) for the Geological Survey / Council for Geoscience in the RSA. His current palaeontological research focuses on fossil record of the Precambrian - Cambrian boundary and the Cape Supergroup of South Africa. He has recently written palaeontological reviews for several 1: 250 000 geological maps published by the Council for Geoscience and has contributed educational material on fossils and evolution for new school textbooks in the RSA.

Since 2002 Dr Almond has also carried out numerous palaeontological impact assessments for developments and conservation areas in the Western, Eastern and Northern Cape, Limpopo, Northwest Province, Mpumalanga, Gauteng, KwaZulu-Natal and the Free State under the aegis of his Cape Town-based company *Natura Viva cc*. He has served as a member of the Archaeology, Palaeontology and Meteorites Committee for Heritage Western Cape (HWC) and an advisor on palaeontological conservation and management issues for the Palaeontological Society of South Africa (PSSA), HWC and SAHRA. He is currently compiling technical reports on the provincial palaeontological heritage of Western, Northern and Eastern Cape for SAHRA and HWC. Dr Almond is an accredited member of PSSA and APHP (Association of Professional Heritage Practitioners – Western Cape).

Declaration of Independence

I, John E. Almond, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed development project, application or appeal in respect of which I was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of my performing such work.



Dr John E. Almond
Palaeontologist,
Natura Viva cc
CAPE TOWN

NATURA VIVA cc (Reg. No. 2000/019296/23)
 Members: Dr J.E. Almond (British)(Managing), M.L. Tusenius
 76 Breda Park, Breda Street, Oranjezicht, CAPE TOWN 8001, RSA
 Tel / Fax: +27 (21) 462 3622 E-mail: naturaviva@universe.co.za

APPENDIX - Mulilo BW SEF Amended Project Description

The proposed development site is located on privately owned farmland, approximately 12.5km south east from the town of Beaufort West, within the Beaufort West Local Municipality, in the Central Karoo District Municipality, Western Cape Province.

The site is approximately 3763 ha in extent. The proposed Solar Photovoltaic (PV) energy facility will generate up to 415 MW, and include the following components:

- PV fields (arrays) comprising multiple PV modules. The modules will be either crystalline silicon or thin film technology. The modules will be mounted on a fixed/single or double axis tracking technology.
- Each PV module will be approximately 2.4 m long and 1.3 m wide and mounted on supporting structures above ground. At this stage it is anticipated that the PV modules will be mono- or bifacial modules.
- A 33/132kV on-site substation (facility substation) (stepdown from 132kV to 32kV) occupying an area of up to approximately 0.5 ha. This will be adjacent to the Eskom on-site substation (covered under the authorization for the grid connection OHL).
- Internal 33kV lines connecting the substations to the facilities (either underground/above ground).
- A Battery Energy Storage System (BESS) on an area of approximately 4 ha next to the onsite 33/132kV substation. The BESS containers will be delivered to site.
- Auxiliary/ Operations & Maintenance (O&M) buildings of approximately 1ha. The functions within these buildings include (but are not limited to) to office/administration, control centre, ablution, workshops, storage areas and security centre.
- The O&M building, substation construction camp and the laydown area (approximately 12 ha) will be located together as per attached layout.
- Site and internal access roads, up to 6m wide, will provide access to the PV arrays. Existing site roads will be used wherever possible, although new site roads will be constructed where necessary. A new site access road is proposed to the East of the site. However, this will be assessed via a separate BA process and does not form part of the current amendment application.
- Galvanized palisade perimeter fencing with a height of at least 2.1 m, is proposed around each PV cluster, with security access control, and security lighting.
- Associated infrastructure includes a lightning protection system, telecommunication infrastructure, diesel storage facilities (less than 80 m³) and a batching plant (if required).
- Abstraction of water will be from existing or new boreholes if required. The anticipated volume required is 220kl per day.

The previously authorized (via a separate BAR process – DFFE reference no 14/12116/3/3/1/2672) overhead grid connection from the proposed development to the Eskom Droeriver Main Transmission Station, located approximately 10 km northwest of the site. Included in this is the on-site Eskom switching substation, located adjacent to the Independent Power Producer (IPP) substation, which forms part of the SEF BA.

It is anticipated that construction will take up to two years to complete.



Simon Todd Pr.Sci.Nat
Director & Principle Scientist
C: 082 3326502
Simon.Todd@3foxes.co.za

23 De Villiers Road
Kommetjie
7975

Ecological Solutions for
People & the Environment

3Foxes Biodiversity Solutions
23 De Villiers Road
Kommetjie
7975
24 February 2025

ATT: Nicola Rump
SRK Consulting (South Africa) (Pty) Ltd.
254 Walmer Boulevard
South End
Gqeberha
6001

RE: Part 2 Amendment Application with Regards to Layout Changes to the Beaufort West Solar PV Energy Facility located in in the Western Cape near to Beaufort West

SRK has been appointed by Mulilo, on behalf of the Beaufort West Solar PV Energy Facility (Pty) Ltd, to apply for a part 2 amendment application to the environmental authorisation issued to Upgrade Energy (dated 2023) for the Beaufort West Solar PV energy facility. A subsequent amendment to the authorisation was undertaken to change the holder from Upgrade Energy to Beaufort West Solar PV Energy Facility. The proposed changes mainly entail a revision of the footprint of the SEF, relative to what was assessed in the original BA for the project. SRK has requested comment from 3Foxes Biodiversity Solutions with regards to the proposed changes and their implications for impacts on terrestrial fauna and flora as compared to what was originally assessed. The original and amended layouts are depicted below in Figure 1 and Figure 2.

The amendment request includes the following changes to the layout as compared to the original assessed layout:

- The grid connection will remain within the authorised alignment, and no amendments to that authorisation are proposed, however the connections from the on-site substation to each individual SEF cluster would change.
- The capacity and components of the SEF will not change, only the spatial configuration of the arrays and various other components within the site.
- The revised project footprint falls within the sites previously assessed as part of the BA. Changes to the project description include increased internal road widths – 8 m and 6 m respectively, increased laydown area (up to 11 ha), possible increase in security fencing height), and inclusion of diesel fuel storage on site (<30 m3) .
- Security fencing will be installed around each SEF cluster.

Scope of the Amendment

In order to address the above proposed changes to the authorised layout of the development, this amendment statement letter provides an evaluation of the ecological impacts associated with the development with regards to the following:

1. An assessment of all impacts related to the proposed changes, including a comparison with those impacts as predicted in the EIA.
2. Measures to ensure avoidance, management and mitigation of impacts associated with the proposed change
3. Any changes to the EMPr

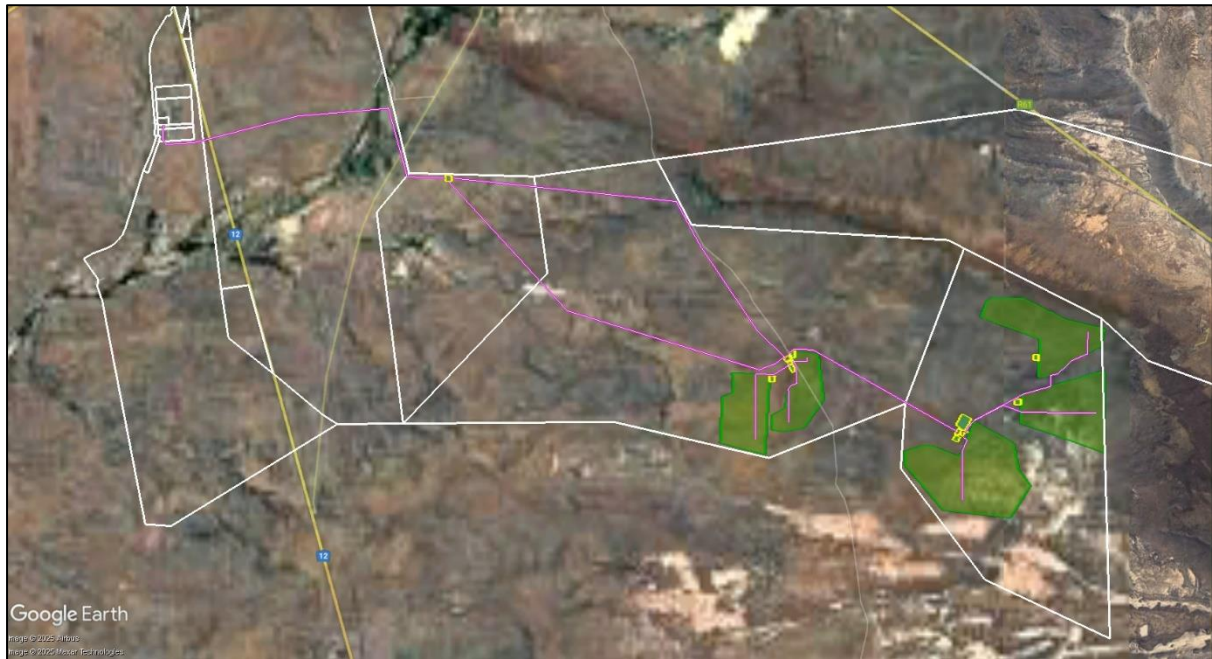


Figure 1. Original layout of the Beaufort West SEF as assessed in the original EIA for the development.

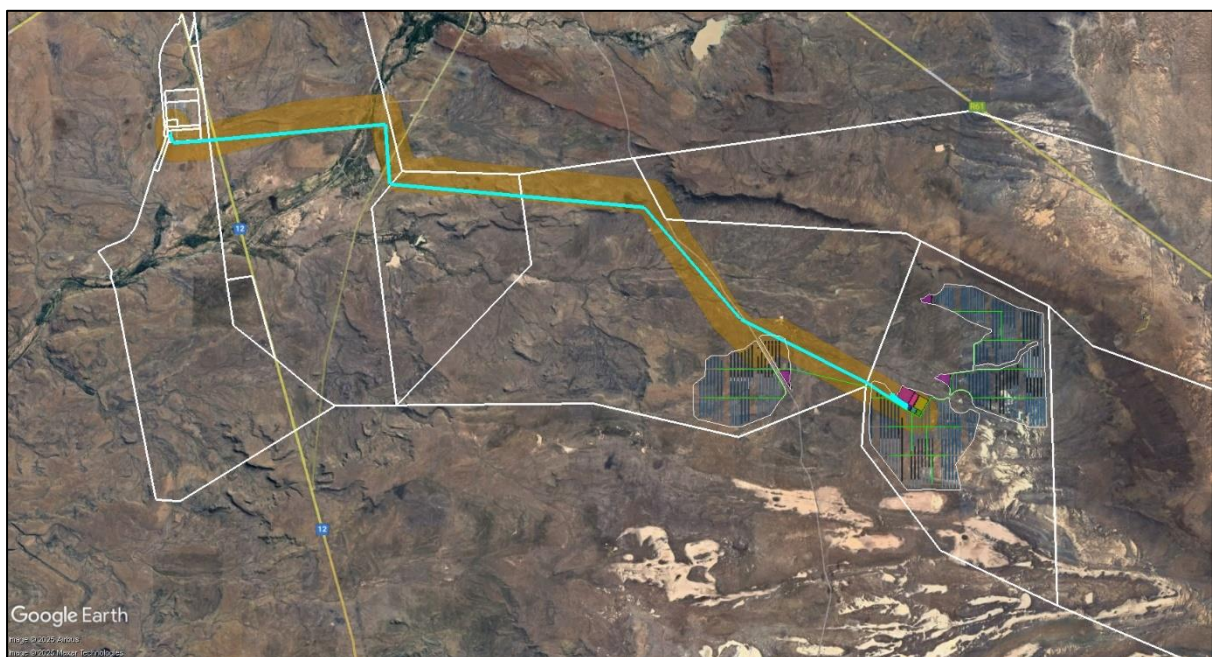


Figure 2. Amended layout of the Beaufort West SEF, showing the final preferred alternative and development areas.

1. An assessment of all impacts related to the proposed change, including a comparison with those impacts predicted in the EIA.

The original assessment of the PV facility, consisted of a plant species compliance statement, animal species compliance statement and terrestrial biodiversity assessment. As such, since the revised amended layout falls within the original assessed project area, the compliance statements would still be applicable to the amended layout. Although there are some minor changes to the layout, these would not affect the overall impacts on plant and animal species and as such there would not be any consequences for the two compliance statements.

In terms of the Terrestrial Biodiversity Assessment, a full assessment was conducted and the significance of the impacts assessed for the PV facility are provided below. There are no changes in impact significance resulting from the changes associated with the amendment. The amended layout (both the preferred and alternative layout) is not significantly different in location or overall footprint as compared to the original assessment and as such, the original assessment is considered applicable to the current amended layout as well.

Table 1. Summary of post-mitigation Terrestrial Ecological impacts associated with the Beaufort West SEF and grid connection for the original assessment and the current amendment.

Impact	Original Assessment	Current Amendment
Beaufort West SEF Grid Connection		
Impact on CBAs and ESAs due to presence and operation of the PV Facility and associated infrastructure	Medium Negative	Medium Negative
Cumulative Impacts on ecological processes	Low Negative	Low Negative

2. Advantages and disadvantages associated with the proposed change

The changes to the layout would not entail any significant ecological advantages or disadvantages for the development, for terrestrial fauna, flora or overall terrestrial biodiversity. There are no significant advantages or disadvantages of the changes that would affect the impacts of the development as assessed. As such, the Preferred Layout is considered to be similar to the Alternative Layout in terms of ecological impact and the current Preferred Layout is therefore considered acceptable.

3. Measures to ensure avoidance, management and mitigation of impacts associated with the proposed change

The changes to the layout are within the original assessed development footprint and would not result in any new, novel or increased impacts. As such, there are no additional changes to the mitigation and avoidance measures that were recommended in the original studies. In addition, the cumulative impacts associated with the amendment are considered to be the same as those as assessed and thus there would no changes to the overall cumulative impacts associated with the changes. All of the

mitigation and avoidance measures as recommended in the BA are held up by the current study and should be applicable to the amendment as well.

4. Any changes to the EMPr

There are no recommended changes to the EMPr and all of the mitigation and avoidance measures as recommended in the BA are applicable to the amended layouts, for flora, fauna and overall terrestrial ecology.

Conclusions and Recommendations

The amended layout of the Beaufort West Solar PV Energy Facility development would not generate any novel impacts or increase the severity of existing impacts associated with the SEF, for flora, fauna and overall terrestrial ecology. No additional mitigation or avoidance measures, beyond those already recommended in the EIA study are required for the amendment. As such, there are no reasons to oppose the proposed amendment and it can therefore be supported from an ecological point of view.

Sincerely

A handwritten signature in black ink, appearing to read 'Simon Todd', with a stylized, cursive script.

Simon Todd
Director
3Foxes Biodiversity Solutions

THE PROPOSED BEAUFORT WEST SOLAR PV ENERGY FACILITY PART 2 AMENDMENT ASSESSMENT, WESTERN CAPE PROVINCE, SOUTH AFRICA

Visual Statement

Final v_1

DATE: 13 March 2025

Document prepared for SRK Consulting (South Africa (Pty) Ltd
On behalf of Mulilo Renewable Energy Projects Development (Pty) Ltd



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LIST OF ACRONYMS

<i>APHP</i>	Association of Professional Heritage Practitioners
<i>BLM</i>	Bureau of Land Management (United States)
<i>BPEO</i>	Best Practicable Environmental Option
<i>CALP</i>	Collaborative for Advanced Landscape Planning
<i>DEM</i>	Digital Elevation Model
<i>DoC</i>	Degree of Contrast
<i>EIA</i>	Environmental Impact Assessment
<i>EMPr</i>	Environmental Management Plan
<i>GIS</i>	Geographic Information System
<i>GPS</i>	Global Positioning System
<i>IDP</i>	Integrated Development Plan
<i>IEMA</i>	Institute of Environmental Management and Assessment (United Kingdom)
<i>KOP</i>	Key Observation Point
<i>LVIA</i>	Landscape and Visual Impact Assessment
<i>MAMSL</i>	Metres above mean sea level
<i>NELPAG</i>	New England Light Pollution Advisory Group
<i>PNR</i>	Private Nature Reserve
<i>SDF</i>	Spatial Development Framework
<i>SEA</i>	Strategic Environmental Assessment
<i>VAC</i>	Visual Absorption Capacity
<i>VIA</i>	Visual Impact Assessment
<i>VRM</i>	Visual Resource Management
<i>VRMA</i>	Visual Resource Management Africa
<i>ZVI</i>	Zone of Visual Influence

GLOSSARY OF TECHNICAL TERMS

Technical Terms Definition (Oberholzer, 2005)

Degree of Contrast	The measure in terms of the form, line, colour and texture of the existing landscape in relation to the proposed landscape modification in relation to the defined visual resource management objectives.
Visual intrusion	Issues are concerns related to the proposed development, generally phrased as questions, taking the form of “what will the impact of some activity be on some element of the visual, aesthetic or scenic environment”.
Receptors	Individuals, groups or communities who would be subject to the visual influence of a particular project.

Sense of place	The unique quality or character of a place, whether natural, rural or urban.
Scenic corridor	A linear geographic area that contains scenic resources, usually, but not necessarily, defined by a route.
Viewshed	The outer boundary defining a view catchment area, usually along crests and ridgelines. Similar to a watershed. This reflects the area, or the extent thereof, where the landscape modification would probably be seen.
Visual Absorption Capacity	The potential of the landscape to conceal the proposed project.

Technical Term	Definition (USDL., 2004)
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Key Observation Point	Receptors refer to the people located in the most critical locations, or key observation points, surrounding the landscape modification, who make consistent use of the views associated with the site where landscape modifications are proposed. KOPs can either be a single point of view that an observer/evaluator uses to rate an area or panorama, or a linear view along a roadway, trail, or river corridor.
Visual Resource Management	A map-based landscape and visual impact assessment method development by the Bureau of Land Management (USA).
Zone of Visual Influence	The ZVI is defined as 'the area within which a proposed development may have an influence or effect on visual amenity.'

1 DFFE SPECIALIST REPORTING REQUIREMENTS

1.1 Specialist declaration of independence

Table 1. Specialist declaration of independence.

<p>All intellectual property rights and copyright associated with VRM Africa's services are reserved, and project deliverables, including electronic copies of reports, maps, data, shape files and photographs, may not be modified or incorporated into subsequent reports in any form, or by any means, without the written consent of the author. Reference must be made to this report, should the results, recommendations or conclusions in this report be used in subsequent documentation. Any comments on the draft copy of the Visual Impact Assessment (VIA) must be put in writing. Any recommendations, statements or conclusions drawn from, or based upon, this report, must make reference to it.</p> <p>This document was completed by Silver Solutions 887 cc trading as VRM Africa, a Visual Impact Study and Mapping organisation located in George, South Africa. VRM Africa cc was appointed as an independent professional visual impact practitioner to facilitate this VIA. I, Stephen Stead, hereby declare that VRM Africa, an independent consulting firm, has no interest or personal gains in this project whatsoever, except receiving fair payment for rendering an independent professional service.</p>  <p>Stephen Stead APHP accredited VIA Specialist</p>
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1.2 Specialist report requirements in terms of Appendix 6 of the EIA Regulations (2014), as amended in 2017

Table 2: Specialist report requirements table

A specialist report prepared in terms of the Environmental Impact Regulations of 2014 (as amended in 2017) must contain:	Relevant section in report
Details of the specialist who prepared the report	Stephen Stead, owner / director of Visual Resource Management Africa. steve@vrma.co.za Cell: 0835609911
The expertise of that person to compile a specialist report including a curriculum vitae	Registration with Association of Professional Heritage Practitioners. MSc Geography
A declaration that the person is independent in a form as may be specified by the competent authority	Table 1

A specialist report prepared in terms of the Environmental Impact Regulations of 2014 (as amended in 2017) must contain:	Relevant section in report
An indication of the scope of, and the purpose for which, the report was prepared	Terms of Reference
A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	Baseline Assessment
The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	21 Oct 2022. No relevance to seasonal variation.
A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Methodology
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 alternative;	Baseline Visual Inventory
An identification of any areas to be avoided, including buffers	Visual Resource Management Classes
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	VRM Map
A description of any assumptions made and any uncertainties or gaps in knowledge;	Assumptions and Limitations
A description of the findings and potential implications of such findings on the impact of the proposed activity or activities	Visual Impact Assessment
Any mitigation measures for inclusion in the EMPr	Environmental Management Plan
Any conditions for inclusion in the environmental authorisation	NA
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	NA
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised	Opportunities and Constraints
Regarding the acceptability of the proposed activity or activities; and	Conclusion
If the opinion is that the proposed activity 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	It is the recommendation that the proposed development should commence WITH MITIGATION for the key reasons motivated in the Executive Summary.
A description of any consultation process that was undertaken during the course of carrying out the study	EIA Process
A summary and copies if any comments that were received during any consultation process	NA

A specialist report prepared in terms of the Environmental Impact Regulations of 2014 (as amended in 2017) must contain:	Relevant section in report
Any other information requested by the competent authority.	NA

1.3 DFFE Screening Tool Site Sensitivity Verification

In terms of Part A of the Assessment Protocols published in GN 320 on 20 March 2020, site sensitivity verification is required relevant to the DFFE Screening Tool. As indicated in Figure 1 below, the Map of Relative Landscape (Solar) Theme Sensitivity is rated Very High for the eastern portion of the property. The issue identified in the DFFE screening tools was Mountain Tops and High Ridgelines as mapped on the following page. The following table outlines the relevance of the risks raised in the SSV as informed by the site visit.

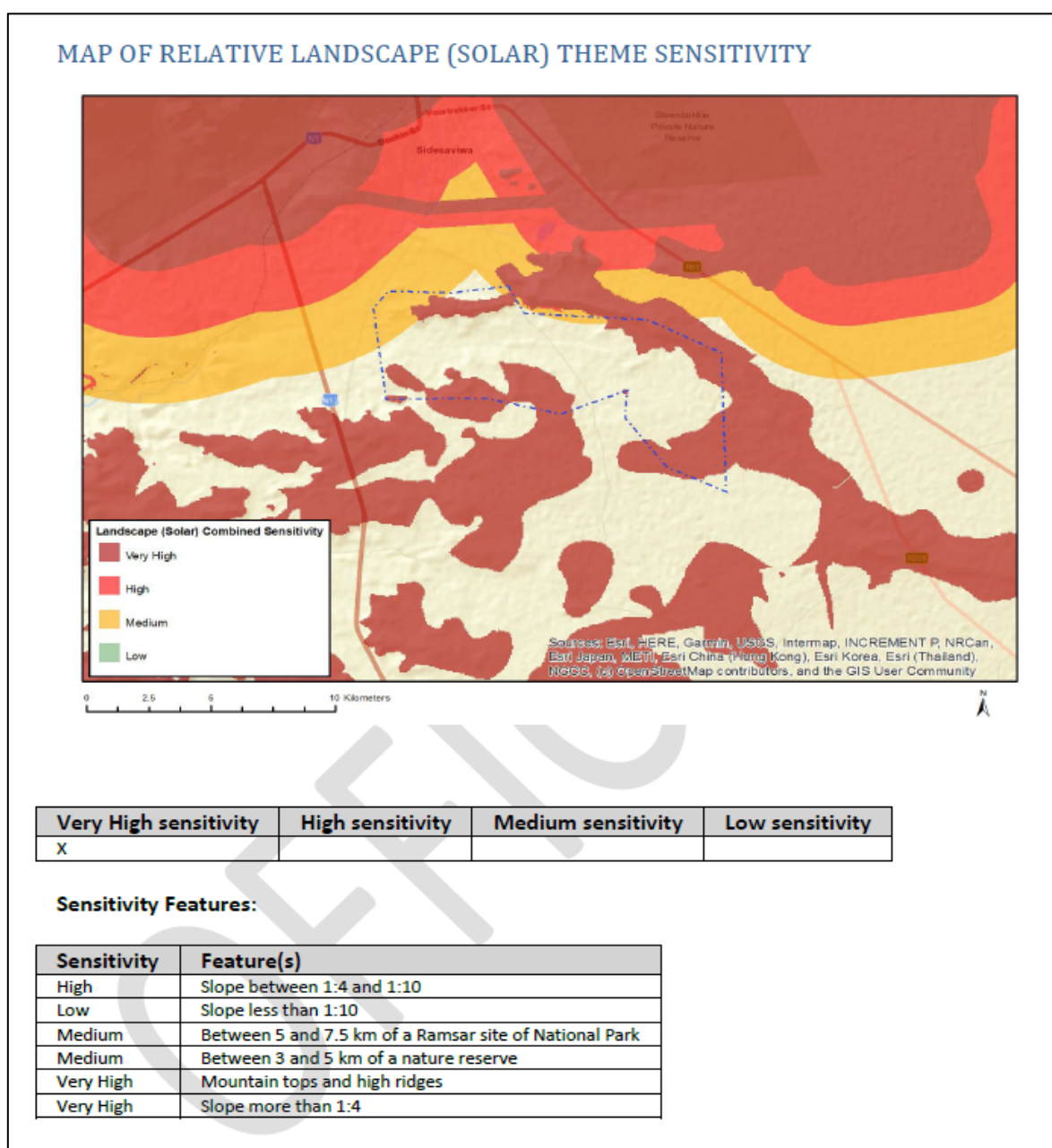


Figure 1. DFFE Screening Tool for Landscape and PV.

The SSV statement was informed by the site visit undertaken on the 21st of October 2022. The survey points and associated photographs can be viewed in Annexure A.

Table 3. DFFE SSV PV and Landscape Risk table (No Change).

DFFE Feature	DFFE Sensitivity	Risk Verification	Motivation
Slope between 1:4 and Mountain tops and high ridges	<i>Very High sensitivity</i>	Low	The slopes analysis and site visit found that the northern ridgeline did depict some steeper slope areas. These areas were not included in the development footprint. The area is also not topographically a Mountain Top.

2 EXECUTIVE SUMMARY

Visual Resource Management Africa CC (VRMA) was appointed by SRK Consulting (South Africa (Pty) Ltd to complete a Part 2 Amendment Assessment (P2AA) for the previously assessed proposed Beaufort West Solar Photovoltaic (PV) Energy Facility (SEF). A Level 3 Landscape and Visual Impact Assessment (LVIA) was undertaken in November 2022 behalf of Upgrade Energy (Pty) Ltd, with a site visit was undertaken on the 21 October 2022. An additional site visit and was not undertaken for the P2AA due to the limited period of time since the previous assessment, as well as the relatively small changes to the development footprint. The previously authorised alignment for the associated grid connection overhead line remains valid and no amendments to that authorisation are proposed. The P2AA therefore does not include the proposed Overhead Powerline routing and pertains to the PV, BESS and associated infrastructure only.

The following changes were identified by SRK that would need to be taken into consideration in the P2AA:

- New temporary laydown areas on the north and west – these will be for construction only and will be rehabilitated after construction.
- Inclusion of construction site camp (note, no accommodation will be provided on site), and the substation footprint changed slightly, but we are still within the approved 2ha footprint.
- The addition of guard houses at various locations around the site (these will be very small).
- Each PV development area will be completely fenced.
- A proposed new access road to the site from the East – this will be addressed as a separate BA process. This will therefore not need to be mentioned in the amendment application – the previously approved access road from the north of the site will remain.
- Minor changes to the development footprint of the PV areas.

P2AA VISUAL STATEMENT CONCLUSION

The finding of the P2AA visual statement is that the proposed amendment would not result in changes to the previous landscape and visual impact significance ratings. The finding of the previous landscape and visual impact assessment remain Moderate without mitigation and Low with mitigation. As there are risks to cumulative, intervisibility effects from security light spillage at night, it is the recommendation that the proposed PV project should be authorised WITH mitigation for dust, colour of structures and well as no overhead security lights. Mitigation as specified in the previous report are all relevant and would need to be implemented. With mitigation, the benefits of the PV related landscape change would outweigh the landscape status quo, where scenic resources are limited. The following key reasons provided as a previous motivation still have relevance:

- The site visual resources are limited with a Medium rating for Scenic Quality and Low rating for Receptor Sensitivity to landscape change.
- Regionally, the viewshed is contained to some degree from topographic screening and has no High or Medium Exposure Receptors. The nearest significant receptor area is the Karoo National Park (KNP) located 12km to the north where massing effects of the combined views of the PV areas will not generate a dominating visual effect.
- National energy objectives for renewable energy and job creation will be met with the site located within the REDZ11 area and there is a good alignment with regional and local planning.
- Due to the raised topography surrounding the site, there is no visual or landscape difference between the Preferred or the Alternative PV development proposals.

LANDSCAPE POLICY FIT **Positive (No Change)**

In terms of the *local and regional planning*, there is clear mention of the economic value that the renewable energy will add to the local and regional economy. While there is a strong emphasis on tourism, the 12km from the Karoo National Park effectively reduces the potential for visual intrusion. The proposed development sites also fall within the REDZ 11 area and as such the policy fit at a local and regional level is also rated **High-Positive**.

ZONE OF VISUAL INFLUENCE **Local (No Change)**

The visible extent, or viewshed, is “the outer boundary defining a view catchment area, usually along crests and ridgelines” (Oberholzer, 2005). In order to define the extent of the possible influence of the proposed project, a viewshed analysis was undertaken from the proposed site at a specified height above ground level. Due to the flat terrain around the site, in relation to the medium height of the proposed PV panels, the Extent of the project is rated **Local**, pre and post mitigation. The Visual Extent of the status quo property is rated Local, as the property is remote with limited views from surrounding areas.

RECEPTORS AND KEY OBSERVATION POINTS **2 Receptor locations and 0 Key Observation Points (No Change)**

Key Observation Points (KOPs) are the people (receptors) located in strategic locations surrounding the property that make consistent use of the views associated with the site where the landscape modifications are proposed. Due to the topographic screening, the nearest receptor is located 12km to the southwest on the N12. Given the similar height and smaller visual scale as seen from this distance, this location was excluded as a KOP. The other viewpoint proposed was the Karoo National Park mountain drive area. As this drive overlooks the town of Beaufort West in the foreground and the proposed development 12km in the background, this location was also excluded as a KOP.

SCENIC QUALITY Medium (No Change)

The scenic quality of the proposed development site is rated Medium. This is due to the flat terrain that has no water features, limited vegetation and associated colours, is not a scarce visual resource but is not degraded by agricultural practice. The only value element is the Adjacent Scenery which includes the escarpment and the low ridgeline to the north that does have value. The overall sense of place is that of a rural, arid agricultural landscape that does not offer much in terms of scenic resources that could be utilised for landscape-based tourism.

RECEPTOR SENSITIVITY Low (No Change) TO LANDSCAPE CHANGE

Receptor sensitivity to landscape changes is rated Low. This is due to the rural farming receptors who are property owners and have provided consent for the proposed landscape change, where the said change would not be visible to the surrounding farmsteads. As the area is fairly remote with local topographic screening, the area does not have many receptors who would be more sensitive to landscape change. Public interest and adjacent land owners sensitivity to landscape change is likely to be Low and no significant landforms were found with the ZVI that could be deemed as having landform significance.

EXPECTED IMPACT SIGNIFICANCE (No Change)

Medium (-ve)
(without mitigation)

Low (-ve)
(with mitigation)

The Significance of the Visual Impact for Construction and Decommissioning Phases is rated Medium without mitigation, and Low with Mitigation. Dust impacts can be effectively curtailed with mitigation. Visual Impact Significance for Operational Phase is rated Medium to High, without mitigation, but could be reduced to Medium with management of dust and lights at night. The Significance is moderated by the lower scenic quality of the site and immediate surrounding landscapes, as well as the REDZ zoning of the area where RE projects are encouraged.

CUMULATIVE EFFECTS (No Change)

Medium (-ve)
(without mitigation)

Negligible (-ve)
(with mitigation)

Within the proposed project zone of visual influence, the landscape character is mainly dominated by flat, rural agricultural landscape with limited visual resources. The Cumulative visual risk to scenic resources was rated **medium negative** with little opportunity for mitigation. The combined views of the multiple solar facilities are limited due to the local topographic screening and, as such, are unlikely to create a strong, *local* visual massing effect within the agriculturally zoned area. However, site visual resources are Medium and with the proposed site located on low lying ground, the zone of visual influence will be contained by elevated terrain to the north. The project is located within the REDZ11 area, where renewable energy projects of scale would be acceptable. With successful rehabilitation of the area back to an agricultural land use on closure, the cumulative visual risk could be reduced to **negligible in the long term**.

KEY PRELIMINARY MITIGATIONS MEASURES (No Change)

Landscape Element	Mitigation	Motivation
Visual Nuisance	Dust	Dust suppression measures as required.
Cumulative Visual Intrusion	Security lights at night.	Light mitigation of security lights at night with no overhead lighting or uplighting.

3 INTRODUCTION

Visual Resource Management Africa CC (VRMA) was appointed by SRK Consulting (South Africa (Pty) Ltd to complete a Part 2 Amendment Assessment (P2AA) for the previously assessed proposed Beaufort West Solar Photovoltaic (PV) Energy Facility (SEF). A Level 3 Landscape and Visual Impact Assessment (LVIA) was undertaken in November 2022 behalf of Upgrade Energy (Pty) Ltd, with a site visit was undertaken on the 21 October 2022. An additional site visit and was not undertaken for the P2AA due to the limited period of time since the previous assessment, as well as the relatively small changes to the development footprint.

The Proponent proposes to construct a solar energy power station and associated infrastructure on a site located approximately 7km south east of the town Beaufort West. This assessment is for the Solar Photovoltaic (PV) Energy Facility (SEF) and does not include the visual assessment of the Grid infrastructure. The VIA for the Grid Infrastructure was also undertaken by the author.

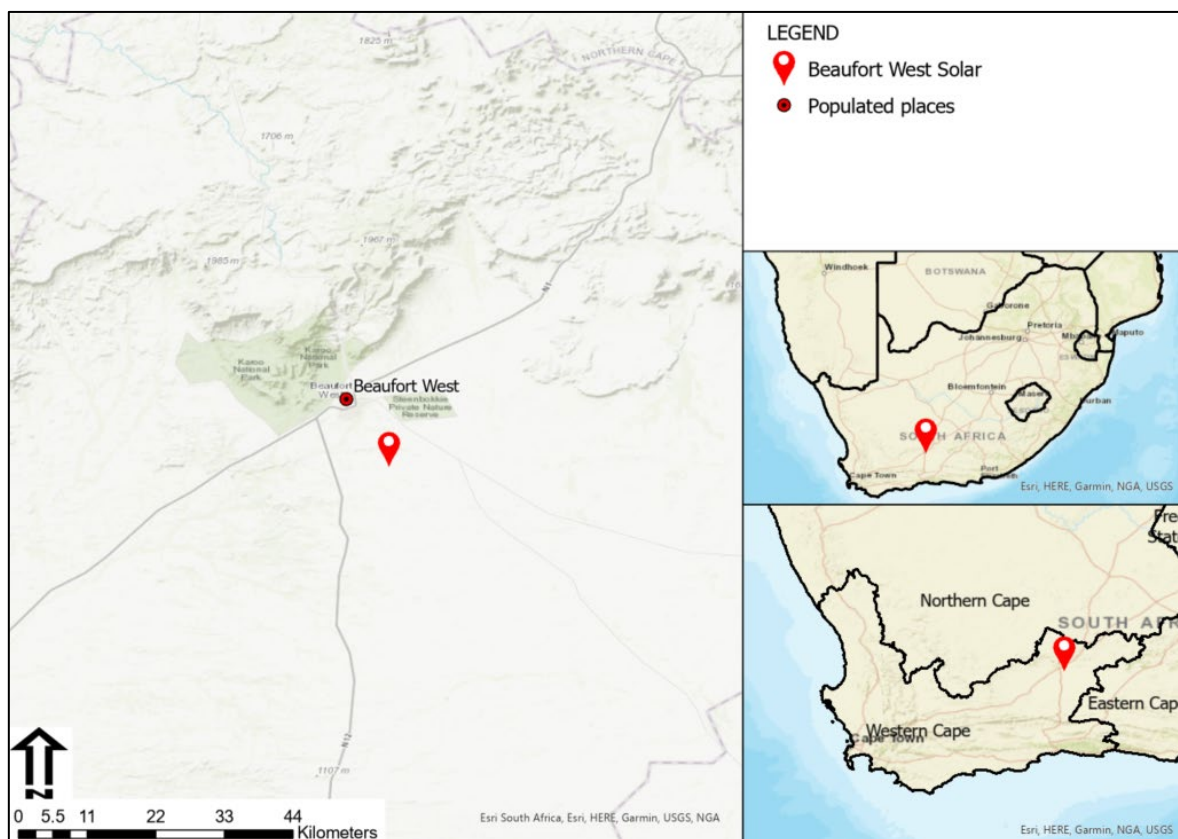


Figure 2: National and regional locality map.

3.1 Terms of Reference

The scope of this study is to cover the entire proposed project area. The broad terms of reference for the study are as follows:

- Review the amended layout and make comment regarding the suitability of the visual and landscape change to the previous assessed layout and impact assessment findings.

3.2 Study Team

Contributors to this study are summarised in the table below.

Table 4: Authors and Contributors to this Report.

Aspect	Person	Organisation / Company	Qualifications
Landscape and Visual Assessment (author of this report)	Stephen Stead MSc Geography, 2023 (UKZN, Pietermaritzburg)	VRMA	<ul style="list-style-type: none"> • 20 years of experience in visual assessments including 230 large scale landscape changes in five sub-Saharan African countries. • Registered with the Association of Professional Heritage Practitioners since 2014.

3.3 Visual Assessment Approach

The full methodology used in the assessment can be found in Annexure B, with this section outlining the key elements of the assessment process. The process that VRM Africa follows when undertaking a VIA is based on the United States Bureau of Land Management's (BLM) Visual Resource Management method (USDI., 2004). This mapping and GIS-based method of assessing landscape modifications allows for increased objectivity and consistency by using standard assessment criteria.

- *“Different levels of scenic values require different levels of management. For example, management of an area with high scenic value might be focused on preserving the existing character of the landscape, and management of an area with little scenic value might allow for major modifications to the landscape. Determining how an area should be managed first requires an assessment of the area’s scenic values”.*
- *“Assessing scenic values and determining visual impacts can be a subjective process. Objectivity and consistency can be greatly increased by using the basic design elements of form, line, colour, and texture, which have often been used to describe and evaluate landscapes, to also describe proposed projects. Projects that repeat these design elements are usually in harmony with their surroundings; those that don’t create contrast. By adjusting project designs so the elements are repeated, visual impacts can be minimized” (USDI., 2004).*

Baseline Phase Summary

The VRM process involves the systematic classification of the broad-brush landscape types within the receiving environment into one of four VRM Classes. Each VRM Class is associated with management objectives that serve to guide the degree of modification of the proposed site. The Classes are derived by means of a simple matrix with the three variables being the scenic quality, the expected receptor sensitivity to landscape change, and the distance of the proposed landscape modification from key receptor points. The Classes are not prescriptive and are utilised as a guideline to determine visual carrying capacity, where they represent the relative value of the visual resources of an area.

Classes I and II are the most valued, Class III represents a moderate value; and Class IV is of least value. The VRM Classes are not prescriptive and are used as a guideline to determine the carrying capacity of a visually preferred landscape as a basis for assessing the suitability of the landscape change associated with the proposed project.

Table 5: VRM Class Matrix Table

		VISUAL SENSITIVITY LEVELS								
		High			Medium			Low		
SCENIC QUALITY	A (High)	II	II	II	II	II	II	II	II	II
	B (Medium)	II	III	III/IV *	III	IV	IV	IV	IV	IV
	C (Low)	III	IV	IV	IV	IV	IV	IV	IV	IV
DISTANCE ZONES		Fore/middle ground	Background	Seldom seen	Fore/middle ground	Background	Seldom seen	Fore/middle ground	Background	Seldom seen

* If adjacent areas are **Class III** or lower, assign **Class III**, if higher, assign **Class IV**

The visual objectives of each of the classes are listed below:

- The Class I objective is to preserve the existing character of the landscape and the level of change to the characteristic landscape should be very low and must not attract attention. Class I is assigned when a decision is made to maintain a natural landscape.
- The Class II objective is to retain the existing character of the landscape and the level of change to the characteristic landscape should be low. The proposed development may be seen but should not attract the attention of the casual observer, and should repeat the basic elements of form, line, colour and texture found in the predominant natural features of the characteristic landscape.
- The Class III objective is to partially retain the existing character of the landscape, where the level of change to the characteristic landscape should be moderate. The proposed development may attract attention, but should not dominate the view of the casual observer, and changes should repeat the basic elements found in the predominant natural features of the characteristic landscape; and
- The Class IV objective is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the landscape can be high, and the proposed development may dominate the view and be the major focus of the viewer's (s') attention without significantly degrading the local landscape character.

Impact Phase Summary

To determine impacts, a degree of contrast exercise is undertaken. This is an assessment of the expected change to the receiving environment in terms of the form, line, colour and texture, as seen from the surrounding Key Observation Points. This determines if the proposed project meets the visual objectives defined for each of the Classes. If the expected visual contrast is strong, mitigation recommendations are to be made to assist in

meeting the visual objectives. To assist in the understanding of the proposed landscape modifications, visual representation, such as photomontages or photos depicting the impacted areas, can be generated. There is an ethical obligation in the visualisation process, as visualisation can be misleading if not undertaken ethically.

3.4 VIA Process Outline

The following approach was used in understanding the landscape processes and informing the magnitude of the impacts of the proposed landscape modification. The table below lists a number of standardised procedures recommended as a component of best international practice.

Table 6: Methodology Summary Table: P2AA Scope of Work Undertaken

Action	Description
Site Survey	As the site is visually contained and remote, with the LVIA having been undertaken less than 3 years ago where landscape change is limited, no site visit was undertaken for the P2AA.
Project Description	Provide a description of the expected project, and the components that will make up the landscape modification. (Updated)
Reviewing the Legal Framework	The legal, policy and planning framework may have implications for visual aspects of the proposed development. The heritage legislation tends to be pertinent in relation to natural and cultural landscapes, while Strategic Environmental Assessments (SEAs) for renewable energy provide a guideline at the regional scale (No change). To review cumulative effects from intervisibility, the cumulative mapping was updated to the most recent DFFE renewable energy mapping.
Determining the Zone of Visual Influence	This includes mapping of viewsheds and view corridors in relation to the proposed project elements, in order to assess the zone of visual influence of the proposed project. Based on the topography of the landscape as represented by a Digital Elevation Model, an approximate area is defined which provides an expected area where the landscape modification has the potential to influence landscapes (or landscape processes) or receptor viewpoints. (No change). The areas where the proposed PV / BESS and infrastructure are proposed are topographically contained, and remote with no rural residential receptors located in Medium to High Visual Exposure areas.
Identifying Visual Issues and Visual Resources	Visual issues are identified during the public participation process, which is being carried out by others. The visual, social or heritage specialists may also identify visual issues. The significance and proposed mitigation of the visual issues are addressed as part of the visual assessment. (No change).
REVIEW Potential Visual Impacts	An assessment is made of the significance of potential visual impacts resulting from the proposed project for the construction, operational and decommissioning phases of the project. The rating of visual significance is based on the methodology provided by the Environmental Assessment Practitioner (EAP) if Impact Assessment is deemed necessary. (No change). The updated layout was overlaid onto the previous landscape and visual impact constraints areas. While there was some expansion of the development area in some areas, the expansion areas did not intrude into prominent area, or areas that have landscape value. There was also a reduction in development footprint as well.

Action	Description
REVIEW Formulating Mitigation Measures	Possible mitigation measures are identified to avoid or minimise negative visual impacts of the proposed project. The intention is that these would be included in the project design, the Environmental Management Programme report (EMPr) and the authorisation conditions. (No change).

3.5 Assumptions and Uncertainties

- Digital Elevation Models (DEM) and viewsheds were generated using ASTER elevation data (NASA, 2009). Although every effort to maintain accuracy was undertaken, as a result of the DEM being generated from satellite imagery and not being a true representation of the earth's surface, the viewshed mapping is approximate and may not represent an exact visibility incidence. Thus, specific features identified from the DEM and derive contours (such as peaks and conical hills) would need to be verified once a detailed survey of the project area has taken place.
- The use of open-source satellite imagery was utilised for base maps in the report.
- Some of the mapping in this document was created using Bing Maps, Open-Source Map, ArcGIS Online and Google Earth Satellite imagery.
- The project deliverables, including electronic copies of reports, maps, data, shape files and photographs are based on the author's professional knowledge, as well as available information.
- VRM Africa reserves the right to modify aspects of the project deliverables if and when new/additional information may become available from research or further work in the applicable field of practice or pertaining to this study.
- Access to farms and private property is often limited due to security reasons, limiting access to private property in order to take photographs from specific locations. 3D modelling is used to reflect the expected landscape change area where applicable.
- **The P2AA does not include the proposed alignment of the Overhead Powerline routing and the new road access. The report pertains only to the PV, BESS and internal powerline infrastructure.**

4 PROJECT DESCRIPTION

The following table outlines the project information that was provided by the client that will be incorporated into the assessment and proposed infrastructure relating to the project.

Table 7: Project Information Table

PROPONENT SPECIFICATIONS	
Applicant Details	Description
Applicant Name:	Beaufort West Solar PV Energy Facility (Pty) Ltd
Project Name:	Beaufort West Solar PV Energy Facility

The project involves the development of a solar-energy facility with a total generation capacity of approximately 415MW ac electricity from renewable solar energy to be supplied to the national Eskom grid via the existing Droërivier substation, near to the site. The

necessary associated on-site infrastructure, including BESS, access roads, overhead powerlines, substations and control building(s) form a part of this application. The Grid Connection Infrastructure was assessed in a separate VIA. The proposed project will include the following infrastructure:

- PV arrays, arranged in clusters as per Figure x
- 132/33kV substation (IPP Portion), including transformers
- BESS facilities, located next to the 132/33kV SS.
- Internal 33kV lines connecting the substations to the facilities (either underground/above ground).
- Proposed access route shown (existing and new) to connect the facilities.
- The O&M building (orange), and the construction camp and the laydown areas (purple) as per Figure x.

The following changes to the layout that was previously assessed were identified by SRK that would need to be taken into consideration in the P2AA:

- New temporary laydown areas on the north and west – these will be for construction only and will be rehabilitated after construction.
- Inclusion of construction site camp (note, no accommodation will be provided on site), and the substation footprint changed slightly, but remaining within the approved 2ha footprint.
- The addition of guard houses at various locations around the site (these will be very small).
- Each PV development area will be completely fenced.
- The proposed new access road to the site from the East will be addressed as a separate BA process. This will therefore not need to be mentioned in the amendment – the previously approved access road from the north of the site will remain.
- Minor changes to the development footprint of the PV areas.
- BESS and substations consolidated into a single area.



(www.hawaiiirenewableenergy.org/Villamesias2, n.d.)



(Junior Mining Network, n.d.)

Figure 3: Photographic example of what the proposed PV could look like as fixed and single portrait model on a tracker.



Figure 4. Example of a Photomontage of Tesla BESS in landscape

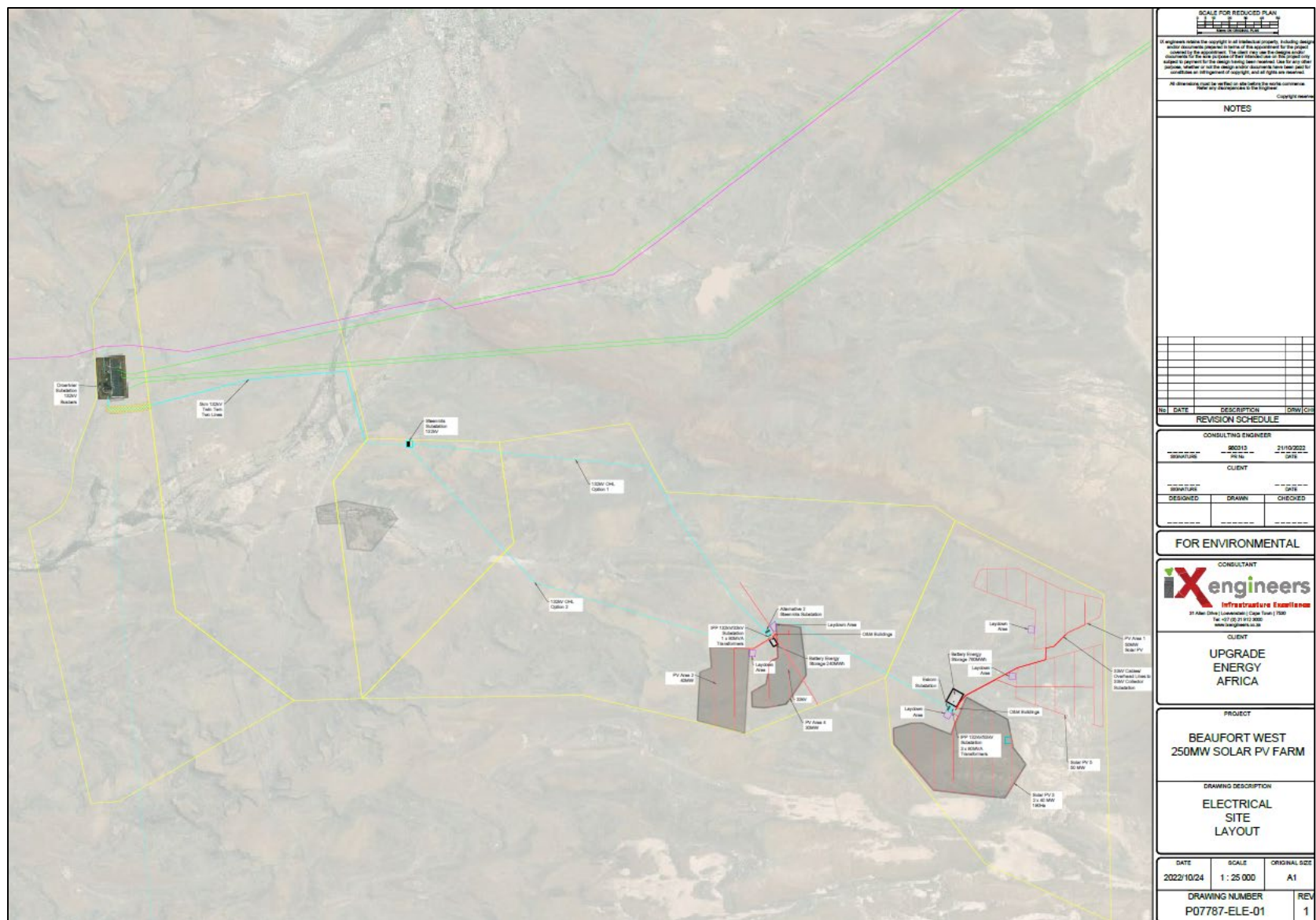


Figure 5: **Approved** layout plan map inclusive of grid connection routings.

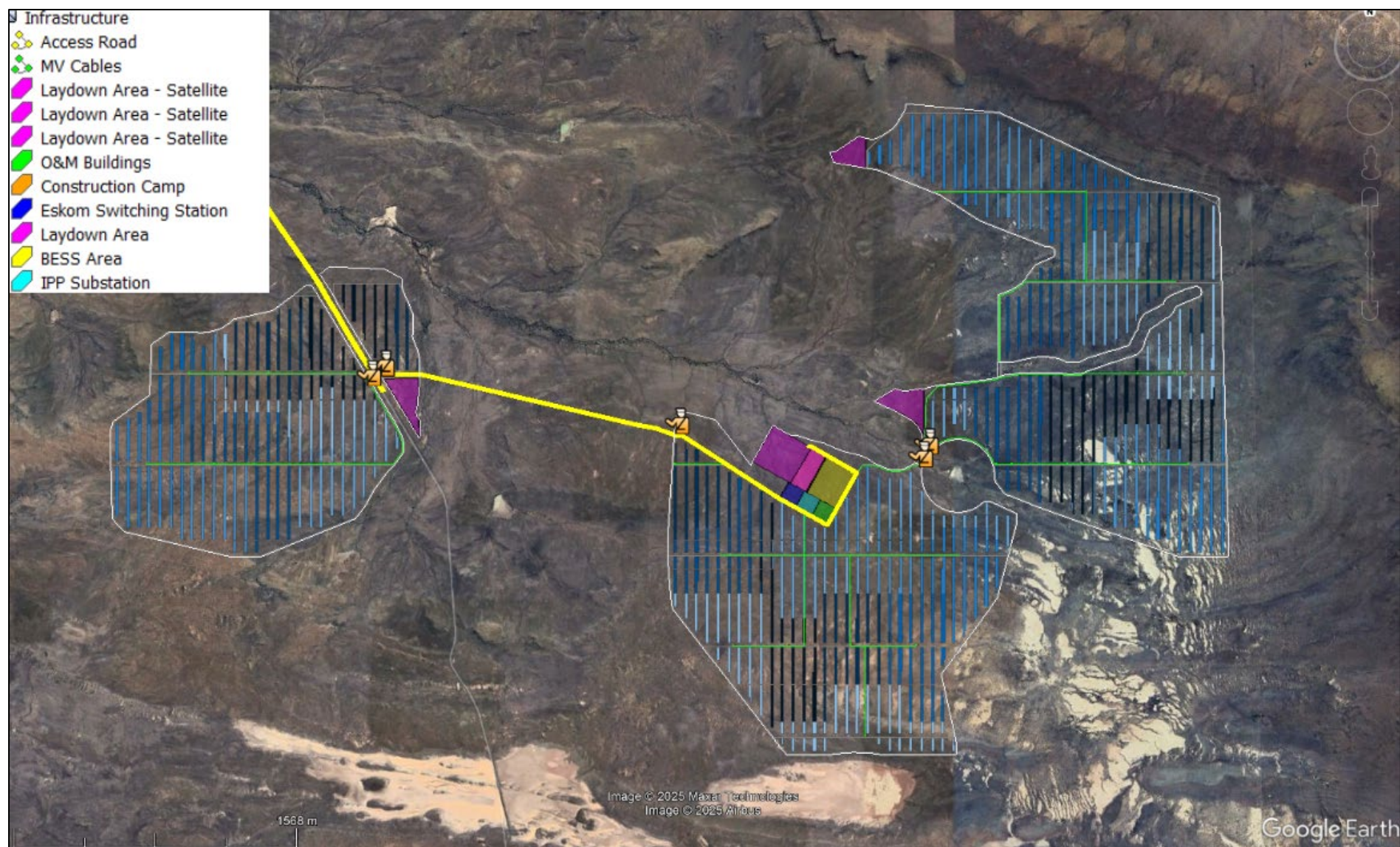


Figure 6: P2AA Proposed Preferred layout plan map exclusive of grid connection routings.

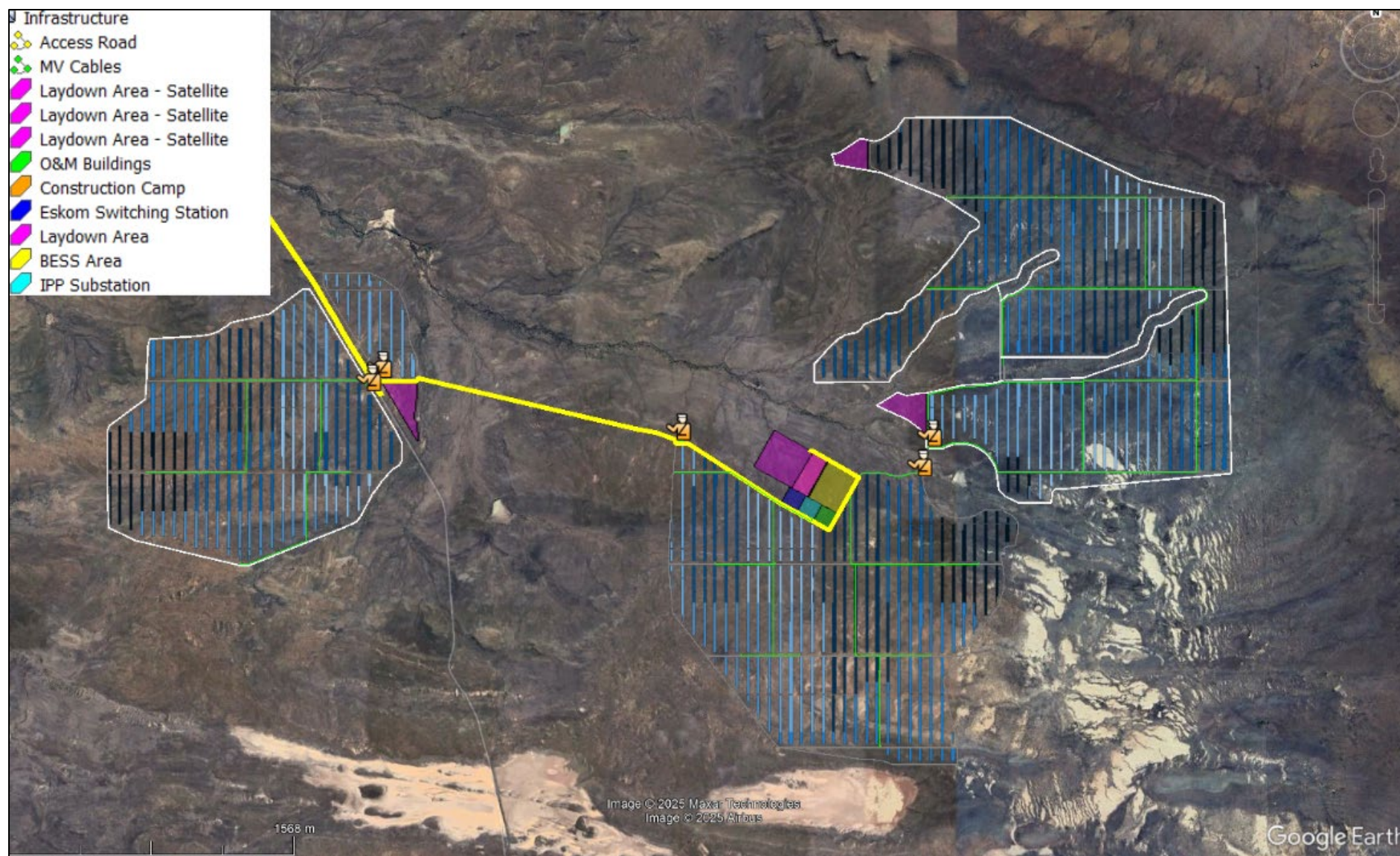


Figure 7: P2AA Proposed Alternative layout plan map exclusive of grid connection routings.

5 LEGAL FRAMEWORK

In order to comply with the Visual Resource Management requirements, it is necessary to relate the proposed landscape modification in terms of international best practice in understanding landscapes and landscape processes. The proposed project also needs to be evaluated in terms of 'policy fit'. This requires a review of International, National and Regional best practice, policy and planning for the area to ensure that the scale, density and nature of activities or developments are harmonious and in keeping with the planned sense of place and character of the area.

5.1 National and Regional Legislation and Policies

In order to comply with the Visual Resource Management requirements, it is necessary to clarify which National and Regional planning policies govern the proposed development area to ensure that the scale, density and nature of activities or developments are harmonious and in keeping with the sense of place and character of the area as mapped in Figure 7 below.

- DEA&DP Visual and Aesthetic Guidelines.
- REDZ Planning.
- Regional and Local Municipality Planning and Guidelines.

Table 8: List of key planning informants to the project.

Theme	Requirements
Province	Western Cape
District Municipality	Central Karoo
Local Municipality	Beaufort West
REDZ	Beaufort West REDZ11

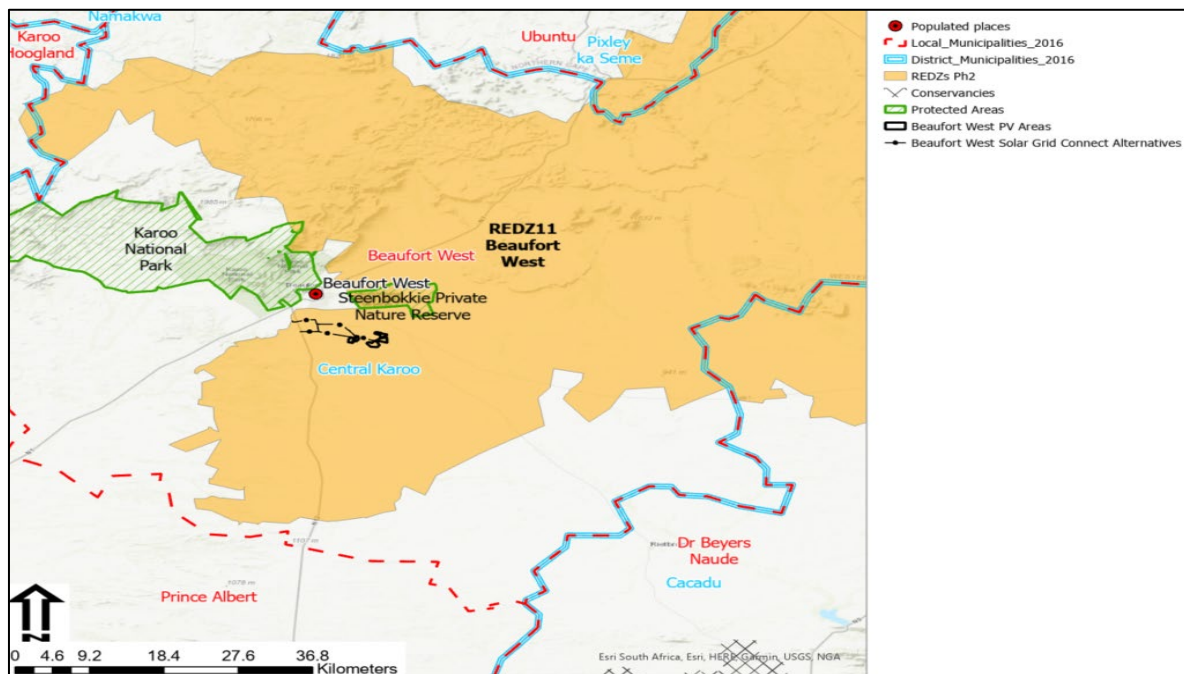


Figure 8: Planning locality map depicting the local, district and national planning zones.

5.1.1 DEA&DP Visual and Aesthetic Guidelines

Reference to the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) Guideline for involving visual and aesthetic specialists in Environmental Impact Assessment (EIA) processes is provided in terms of southern African best practice in Visual Impact Assessment. The report compiled by Oberholzer states that the Best Practicable Environmental Option (BPEO) should address the following:

- Ensure that the scale, density and nature of activities or developments are harmonious and in keeping with the sense of place and character of the area. The BPEO must also ensure that development must be located to prevent structures from being a visual intrusion (i.e., to retain open views and vistas).
- Long term protection of important scenic resources and heritage sites.
- Minimisation of visual intrusion in scenic areas.
- Retention of wilderness or special areas intact as far as possible.
- Responsiveness to the area's uniqueness, or sense of place." (Oberholzer, 2005)

5.1.2 REDZ Planning

A Strategic Environmental Assessment commissioned by the Department of Environmental Affairs, undertaken by the CSIR, identified Renewable Energy Development Zones (REDZs) (Department of Environment Affairs). These are gazetted geographical areas in which several wind and solar PV development projects will have the lowest negative impact on the environment while yielding the highest possible social and economic benefit to the country. The project is situated within the REDZ 11 area.

5.1.3 Other Renewable Energy Projects

As identified in Figure 8 on the following page from the previous assessment, a number of other renewable energy projects have been attracted to the site due to the solar energy potential of the region as well as the REDZ11 planning. The updated map found Jessa Wind Energy Facility to be the only new RE project. This proposed wind farm is located 12km approx. to the southwest of the site. While the Jessa wind turbines will be visible from the site, the PV panels will not be visible to the Jessa WEF site.

The Beaufort West Solar Park is indicated on the map with the status lapsed. There are four other solar energy projects located around the town of Beaufort West that have been approved and none of them have been constructed. Located further to the north is the proposed Beaufort West Wind Farm as well as the Lombaardskraal Wind Farm to the southwest. As these wind farms are located more than 10km away, the combined views of the wind farms and the proposed solar plant are unlikely to result in visual clutter should they all be developed.

As previously stated, once these projects are developed, it is likely that the remaining existing arid Karoo agricultural landscape around the Droërivier Substation will change to one more associated with renewable energy. This change is aligned with National RE policy planning, with the area falling within the Beaufort West REDZ. Care would need to be taken to ensure that the powerline routing does not clutter the landscape as seen from the local farm owners, as well as from the N12 National Road.

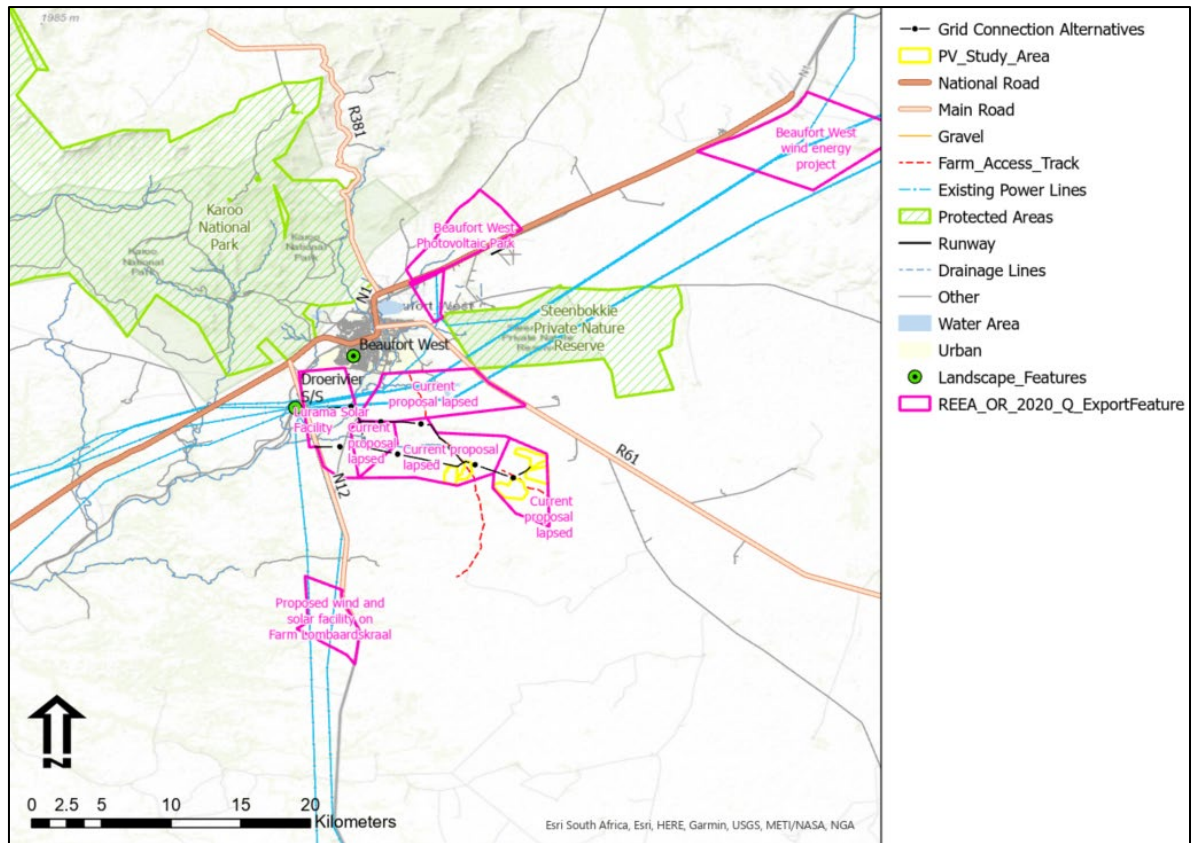


Figure 9: Previous Surrounding Renewable Energy Developments map.

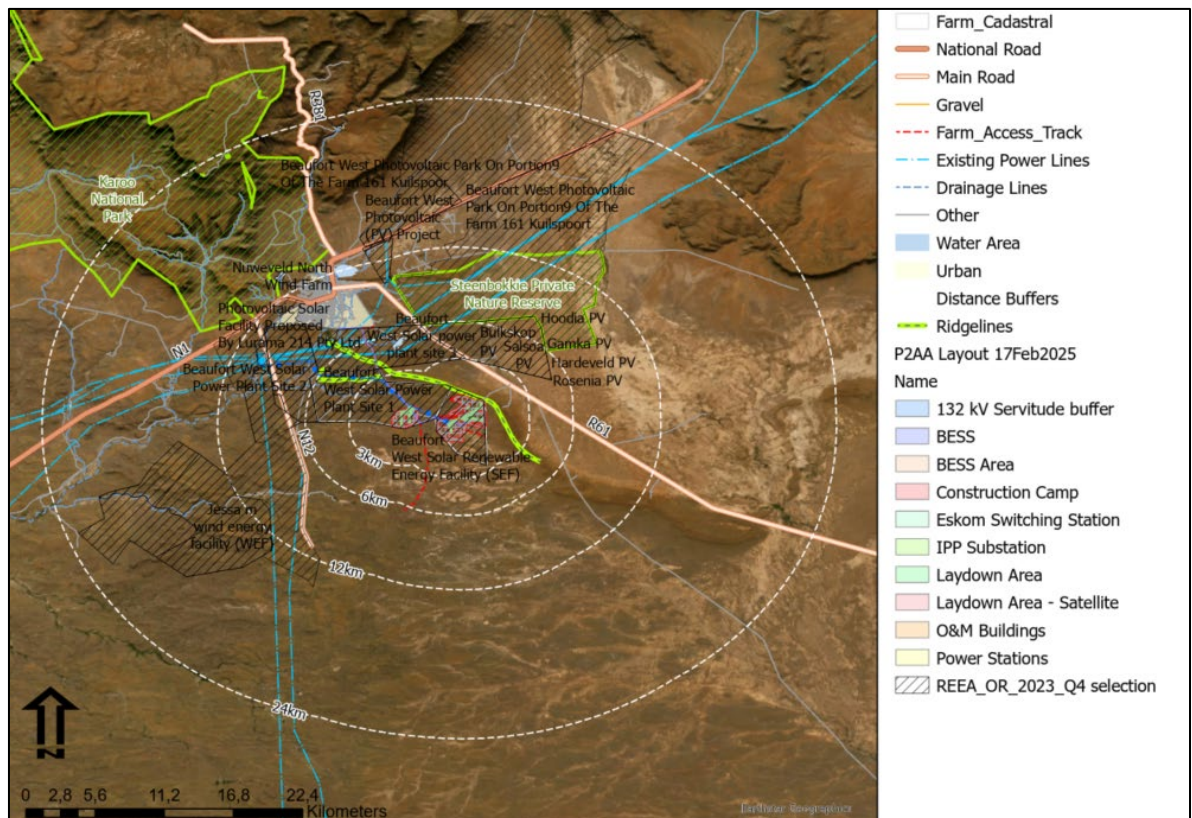


Figure 10: Updated Surrounding Renewable Energy Developments map.

5.1.4 Local and Regional Planning

The following tables list key regional and local planning that has relevance to the project pertaining to landscape-based tourism, and renewable energy projects.

Table 9: District Planning reference table relevant to the project.

Theme	Requirements	Page
General	Non-rural development in rural areas in the Central Karoo can be found in Beaufort West, Laingsburg and Prince Albert. These areas are changing from purist agricultural areas to eco-tourism and game farming areas	56
Renewable Energy	Given the harmful environmental impacts of certain identifiable energy sources, as well as growing energy demand and needs, the use of clean and sustainable energy is becoming increasingly important	49
	Move to a less carbon-intensive electricity production with a focus on renewable energy and solar water heating	144
Tourism	To establish an inclusive tourism industry through sustainable development and marketing which is public sector led, private sector driven, and community based.	77

(Central Karoo District Municipality, 2012)

Table 10: Local Planning reference table relevant to the project.

Theme	Requirements	Page
Landscape Character	Promoting the visual quality of the environment	12
	The scale of development relates to the size of the site the development is planned for. The rural character of the rural areas in the Beaufort West Municipal area should be maintained in all instances – scale should therefore not be too large, compared to the rural character of the area.	16
	The character of the rural nodes forms an integral part of the general rural character. It is therefore important to protect the inherent visual, aesthetic and location qualities of the rural nodes	49

(Beaufort West Municipality, 2015)

Theme	Requirements	Page
Renewable Energy	To make sure that everyone has significant access to electricity, the following is important:	43
	Establish an investment vehicle to attract funding for the provision of electricity by means of alternative energy sources.	43

(Beaufort West Municipality)

5.2 Landscape Planning Policy Fit

Policy fit refers to the degree to which the proposed landscape modifications align with International, National, Provincial and Local planning and policy.

In terms of *international best practice*, the proposed landscape modification will not trigger any issues as there no significant landscape/ cultural landscape features within the project area. The escarpment is a significant feature element in the regional landscape, and a

portion of this visual resource is proclaimed a natural area within the Karoo National Park. However, the park is well set back from the proposed PV site, with the approximately 12km creating a suitable visual buffer for the protection of this significant feature. Also located in the region is the Steenbokkie Private Nature which is located 6km to the north of the proposed site. However, a low ridgeline to the north of the PV area excludes the Steenbokkie Private Nature Reserve from the project viewshed. The numerous power lines and pylons in this transmission corridor also significantly reduce the local sense of place around the Droërivier Substation and Eskom Powerline Corridor.

In terms of the *local and regional planning*, there is clear mention of the economic value that the renewable energy will add to the local and regional economy. While there is a strong emphasis on tourism, the 12km from the Karoo National Park effectively reduces the potential for visual intrusion. The proposed development sites also fall within the REDZ 11 area and as such the policy fit at a local and regional level is also rated **High-Positive**.

The following maps depict the previous Visual Resource Management Class mapping, as well as the updated (and expanded) Class III Visual Management Class mapping.

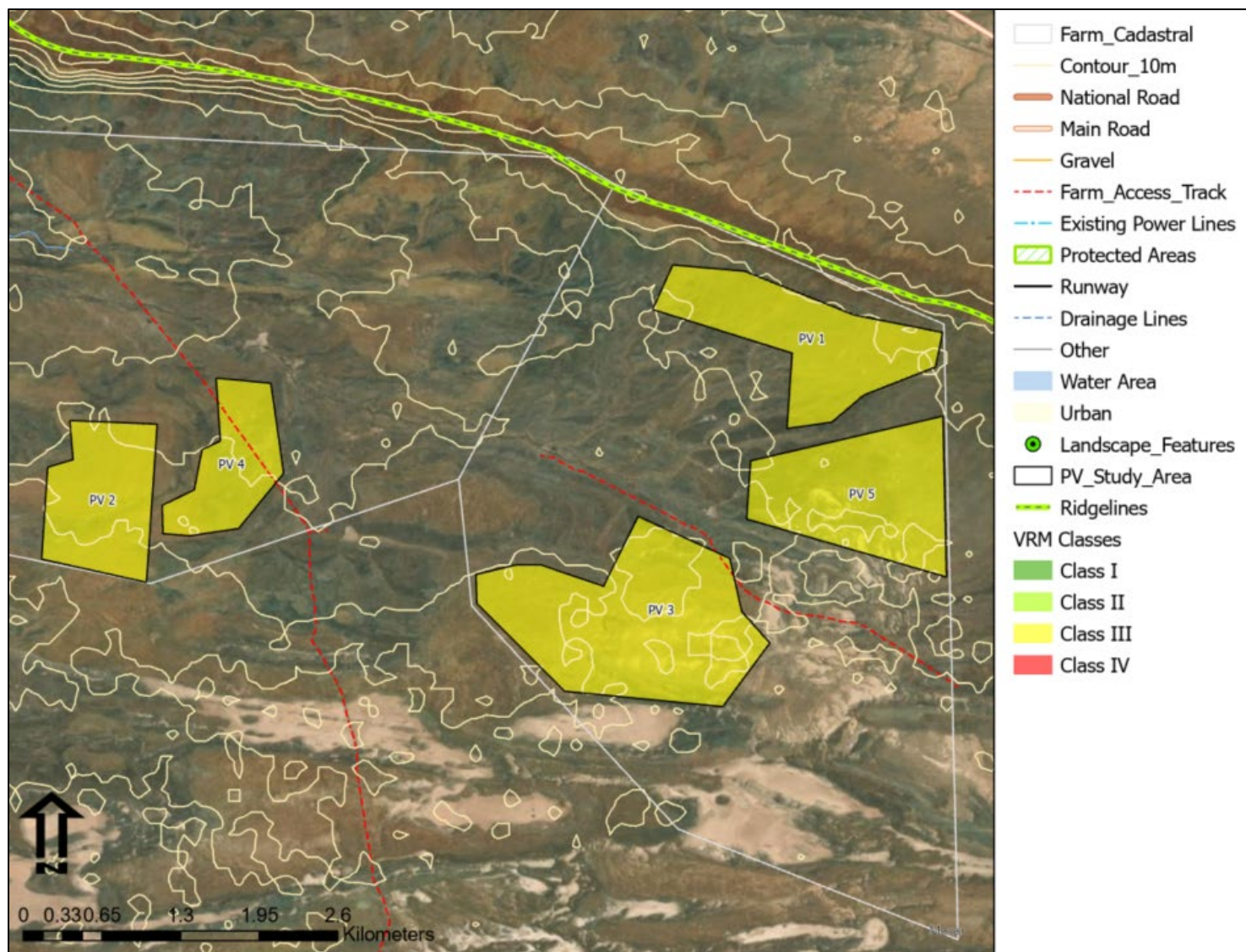


Figure 11: **Approved layout** - Visual Resource Management Classes map.

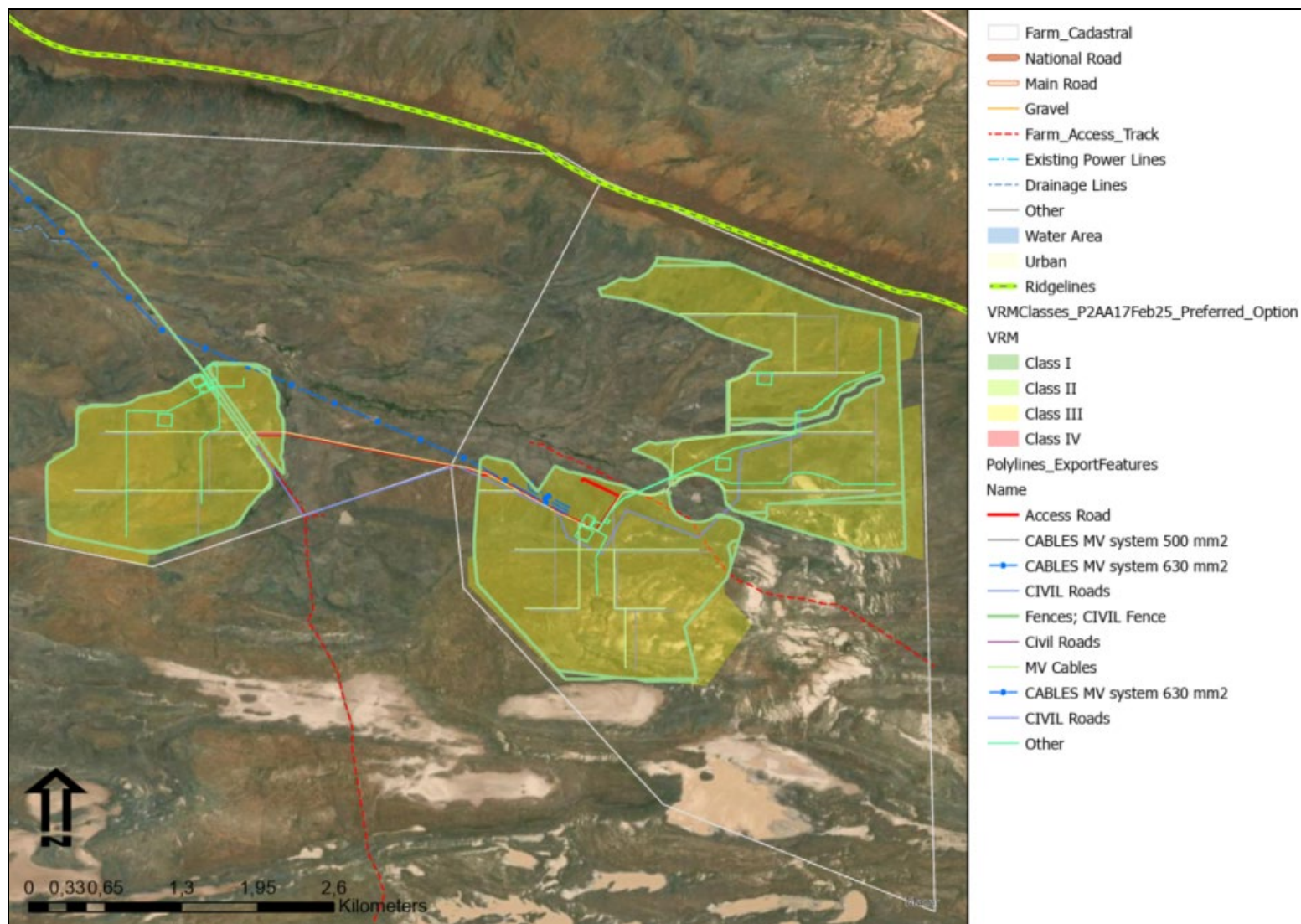


Figure 12: P2AA Updated Preferred Layout Visual Resource Management Classes map.

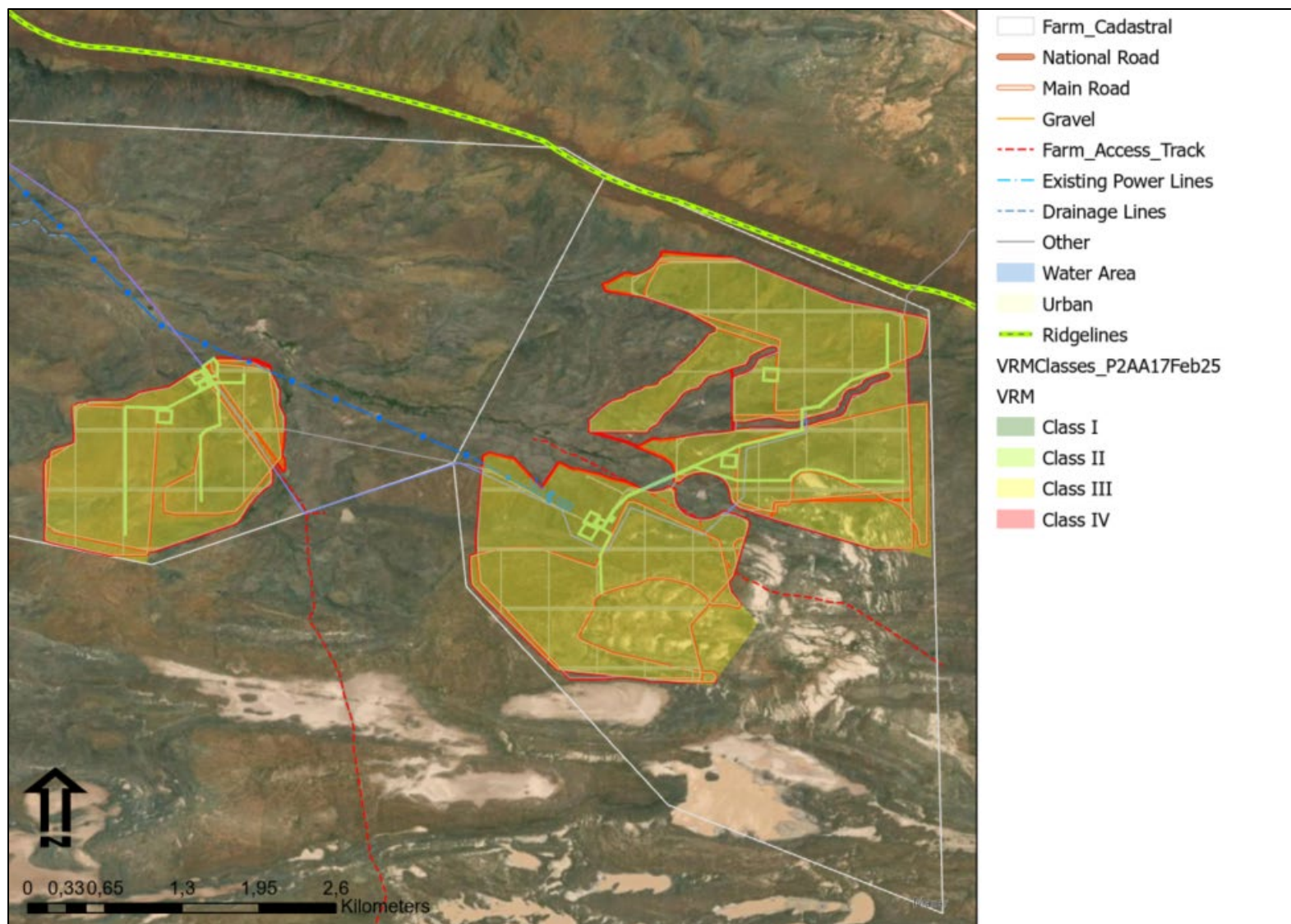


Figure 13: **P2AA Updated Alternative Layout** Visual Resource Management Classes map.

6 BIBLIOGRAPHY

- Beaufort West Municipality. (2015). *Beaufort West Municipality Spatial Development Framework Volume 2. November 2004. Final Draft.*
- Beaufort West Municipality. (n.d.). *Beaufort West Municipality Intergrated Development Plan.*
- Central Karoo District Municipality. (2012). *Central Karoo District Municipality Integrated Development Plan (2012 – 2017).*
- Department of Environment Affairs. (2013). *DEA National Wind and Solar PV Strategic Environmenal Assessment.*
- <http://www.aridareas.co.za/characteristics.htm>. (n.d.).
- <http://www.beaufortwest.com/>. (n.d.).
- Hull, R. B., & Bishop, I. E. (1988). *Scenic Impacts of Electricity Power Mine: The Influence of Landscape Type and Observer Distance. Journal of Environmental Management.*(27) Pg 99-108.
- HEMA. (2002). *U.K Institute of Environmental Management and Assessment (HEMA). 'Guidelines for Landscape and Visual Impact Assessment' Second Edition, Spon Press. Pg 44.*
- IFC. (2012). *International Finance Corporation (IFC) prescribes eight performance standards (PS) on environmental and social sustainability. Millennium Ecosystem Assessment. 2005.*
- Junior Mining Network. (n.d.). <https://www.juniorminingnetwork.com/junior-miner-news/press-releases/2961-cse/sgd/>.
- Millennium Ecosystem Assessment. (2005). *Ecosystems and Human Well-Being: Synthesis.* Washington D.C: Island Press.
- NASA, A. G. (2009). *Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) Global Digital Elevation Model Version 2 (GDEM V2 2011).* Ministry of Economy, Trade, and Industry (METI) of Japan and United States National Aeronauti.
- NELPAG. (n.d.). *New England Light Pollution Advisory Group (NELPAG) <http://cfa/www.harvard.edu/cfa/ps/nelpag.html> and Sky & Telescope <http://SkyandTelescope.com/>. NELPAG and Sky & Telescope support the International Dark-Sky Association (IDA) (<http://www.darksky.o>.*
- Oberholzer, B. (2005). *Guideline for involving visual and aesthetic specialists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs and Deve.*
- SanParks. (n.d.). *SanParks Karoo National Parks.*
- Sheppard, D. S. (2000). *Guidance for crystal ball gazers: Developing a code of ethics for landscape visualization.* Department of Forest Resources Management and Landscape Architecture Program, University of British Columbia, Vancouver, Canada
- South African National Biodiversity Institute. (2018). *Vegetation Map of South Africa, Lesotho and Swaziland.*
- The Landscape Institute. (2003). *Guidelines for Landscape and Visual Impact Assessment (Second ed.).* Spon Press.
- USDI., B. (2004). *Bureau of Land Management, U.S. Department of Interior. 2004. Visual Resource Management Manual 8400.*
- www.hawaiiirenewableenergy.org/Villamesias2. (n.d.).

7 ANNEXURE A: SITE VISIT PHOTOGRAPHS AND COMMENTS

The following photographs were taken during the field survey as mapped below. The text below the photograph describes the landscape and visual issues of the locality, if applicable.

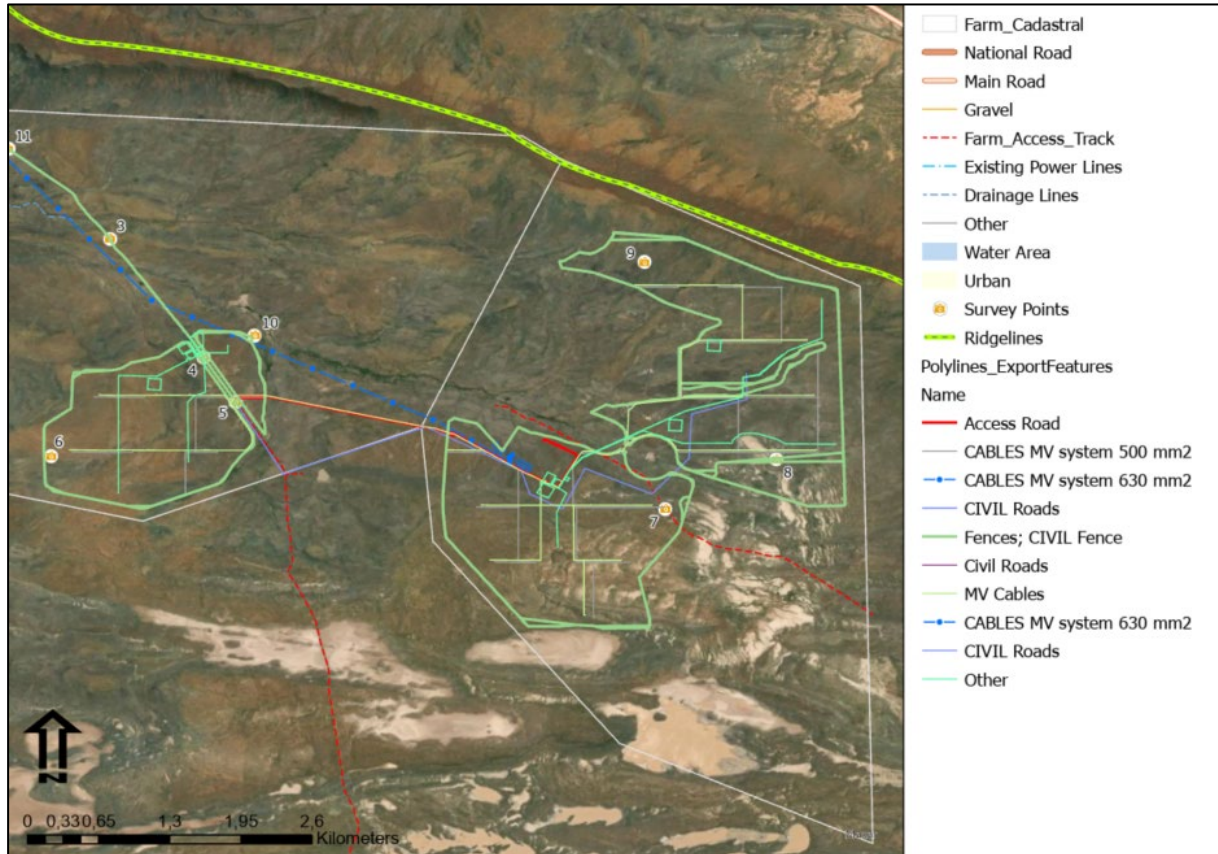


Figure 14: Site Survey Point Map

ID	4
PHOTO	Proposed substation Alternative
DIRECTION	N
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	5
PHOTO	Proposed PV4
DIRECTION	E
COMMENT	Low risk due to low prominence, medium scenic value and very low exposure.



ID	6
PHOTO	Proposed PV2
DIRECTION	N
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	7
PHOTO	Proposed PV3
DIRECTION	SE
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	8
PHOTO	Proposed PV5
DIRECTION	NE
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	9
PHOTO	Proposed PV1
DIRECTION	E
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	10
PHOTO	Proposed powerline
DIRECTION	W
COMMENT	Low risk as medium prominence, medium scenic value and very low exposure.



ID	11
PHOTO	Proposed preferred powerline
DIRECTION	NE
COMMENT	Medium scenic value and low exposure. Also existing road access increases VAC.



ID	12
PHOTO	Proposed preferred powerline
DIRECTION	E
COMMENT	Medium scenic value and very low exposure. Need to stay off prominent Ridgeline features.



8 ANNEXURE B: SPECIALIST INFORMATION

8.1 Professional Registration Certificate



8.2 Curriculum Vitae (CV)

1. **Position:** Owner / Director
2. **Name of Firm:** Visual Resource Management Africa cc (www.vrma.co.za)
3. **Name of Staff:** Stephen Stead
4. **Date of Birth:** 9 June 1967
5. **Nationality:** South African
6. **Contact Details:** Cell: +27 (0) 83 560 9911
Email: steve@vrma.co.za
7. **Educational qualifications:**
 - University of Natal (Pietermaritzburg):
 - Bachelor of Arts: Psychology and Geography
 - Bachelor of Arts (Hons): Human Geography and Geographic Information Management Systems
 - MSc Geography, University of KwaZulu-Natal (2023)
8. **Professional Accreditation**
 - Association of Professional Heritage Practitioners (APHP) Western Cape
 - Accredited VIA practitioner member of the Association (2011)
9. **Association involvement:**
 - International Association of Impact Assessment (IAIA) South African Affiliate
 - Past President (2012 - 2013)
 - President (2012)
 - President-Elect (2011)
 - Conference Co-ordinator (2010)
 - National Executive Committee member (2009)
 - Southern Cape Chairperson (2008)
10. **Conferences Attended:**
 - International Geographical Congress, Lisbon (2017)
 - IAIAAsa 2012
 - IAIAAsa 2011
 - IAIA International 2011 (Mexico)
 - IAIAAsa 2010
 - IAIAAsa 2009
 - IAIAAsa 2007
11. **Continued Professional Development:**
 - Integrating Sustainability with Environment Assessment in South Africa (IAIAAsa Conference, 1 day)
 - Achieving the full potential of SIA (Mexico, IAIA Conference, 2 days 2011)

- Researching and Assessing Heritage Resources Course (University of Cape Town, 5 days, 2009)

12. Countries of Work Experience:

- South Africa, Mozambique, Malawi, Lesotho, Kenya and Namibia

13. Relevant Experience:

Stephen gained six years of experience in the field of Geographic Information Systems mapping and spatial analysis working as a consultant for the KwaZulu-Natal Department of Health and then with an Environmental Impact Assessment company based in the Western Cape. In 2004 he set up the company Visual Resource Management Africa that specializes in visual resource management and visual impact assessments in Africa. The company makes use of the well-documented Visual Resource Management methodology developed by the Bureau of Land Management (USA) for assessing the suitability of landscape modifications. Stephen has assessed of over 150 major landscape modifications throughout southern and eastern Africa. The business has been operating for eighteen years and has successfully established and retained a large client base throughout Southern Africa which include amongst other, Rio Tinto (Pty) Ltd, Bannerman (Pty) Ltd, Anglo Coal (Pty) Ltd, Eskom (Pty) Ltd, NamSolar and Vale (Pty) Ltd, Ariva (Pty) Ltd, Harmony Gold (Pty) Ltd, Millennium Challenge Account (USA), Pretoria Portland Cement (Pty) Ltd

14. Languages:

- English – First Language
- Afrikaans – fair in speaking, reading and writing.

15. Projects:

Table 11: VRM Africa Projects Assessments Table

DESCRIPTION	COUNT	DESCRIPTION	COUNT
Dam	1	UISP	8
Mari-culture	1	Structure	8
Port	1	OHPL	12
Railway	1	Industrial	12
Power Station	3	Wind Energy	22
Hydroelectric	4	Battery Storage	14
Resort	4	Mine	20
Golf/Residential	1	Residential	45
Road Infrastructure	5	Solar Energy	62
Substation	5	TOTAL	237



ASHA Consulting (Pty) Ltd
40 Brassie Street
Lakeside
7945

12 March 2025

Nicola Rump
SRK Consulting
254 Walmer Boulevard
South End
Gqeberha (Port Elizabeth)
6001

RE: PROPOSED BEAUFORT WEST SOLAR PV ENERGY FACILITY ON STEENROTSFOUNTAIN 168/1 &168/3, QUAGGAS FONTEIN 166, AND OUDE VOLKS KRAAL 164/REM, BEAUFORT WEST

HWC Case No: HWC22102702NK1027

Dear Nicola

The above project refers. The project was assessed in a Heritage Impact Assessment compiled in 2022 within the context of a Basic Assessment. The relevant report is as follows:

Orton, J. 2022. Heritage Impact Assessment: proposed PV Facility on Portion 3 of Steenrotsfontain 168, Quaggasfontein 166, and Remainder of Oude Volks Kraal 164, Beaufort West Magisterial District, Western Cape. Report prepared for SiVest SA (Pty) Ltd. Lakeside: ASHA Consulting (Pty) Ltd.

Heritage Western Cape issued a final comment on 12 January 2023 in support of the project as follows:

FINAL COMMENT

The Committee endorsed the Heritage Impact Assessment prepared by Dr Orton dated 7 November 2022 as well as the recommendations of the HIA for authorisation on conditions as follows:

1. The Fossil Chance Finds Procedure must be incorporated into the project EMPr;
2. An archaeological pre-construction survey must be carried out focusing on those areas not yet surveyed and especially PV areas 3 and 5;
3. If any archaeological material or human burials are uncovered during the course of development, then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

The proponent (Beaufort West Solar PV Energy Facility (Pty) Ltd), now wishes to alter the layout of the proposed PV facility, but the new layout remains entirely within the originally assessed areas. This change triggers a Part 2 Amendment process to amend the Environmental Authorisation. Specialists have been asked to either confirm that there will be no change to the original assessment and mitigation requirements, or to conduct new fieldwork and update their reports.

Project description

The proposed development site is located on privately owned farmland, approximately 12.5km southeast of Beaufort West, within the Beaufort West Local Municipality, in the Central Karoo District Municipality, Western Cape Province. Although the original study area comprised of more farm portions, the PV development will be situated on the Quaggas Fontein 166 and the Remainder of Oude Volks Kraal 164.

The site is approximately 3763 ha in extent. The proposed Solar Photovoltaic (PV) energy facility will generate up to 415 MW, and include the following components:

- PV fields (arrays) comprising multiple PV modules. The modules will be either crystalline silicon or thin film technology. The modules will be mounted on a fixed/single or double axis tracking technology.
- Each PV module will be approximately 2.4 m long and 1.3 m wide and mounted on supporting structures above ground. At this stage it is anticipated that the PV modules will be mono- or bifacial modules.
- A 33/132kV on-site substation (facility substation) (stepdown from 132kV to 32kV) occupying an area of up to approximately 1 ha. This will be adjacent to the Eskom on-site substation (covered under the authorization for the grid connection OHL).
- Internal 33kV lines connecting the substations to the facilities (either underground/above ground).
- A Battery Energy Storage System (BESS) on an area of approximately 4 ha next to the onsite 33/132kV substation. The BESS containers will be delivered to site.
- Auxiliary/ Operations & Maintenance (O&M) buildings of approximately 1ha. The functions within these buildings include (but are not limited to) to office/administration, control centre, ablution, workshops, storage areas and security centre.
- The O&M building, substation construction camp and the laydown area (approximately 12 ha) will be located together as per attached layout.
- Site and internal access roads, up to 6m wide, will provide access to the PV arrays. Existing site roads will be used wherever possible, although new site roads will be constructed where necessary.
- Galvanized palisade perimeter fencing with a height of at least 2.1 m, is proposed around each PV cluster, with security access control, and security lighting.
- Associated infrastructure includes a lightning protection system, telecommunication infrastructure, diesel storage facilities (less than 80 m³) and a batching plant (if required).
- Abstraction of water will be from existing or new boreholes if required.

The previously authorized (via a separate BAR process – DFFE reference no 14/12116/3/3/1/2672) overhead grid connection from the proposed development to the Eskom Droërivier Main Transmission Station, located approximately 10 km northwest of the site does not require amendment as it will remain within its authorised alignment. The on-site Eskom switching substation is part of the grid connection. However, the adjacent Independent Power Producer (IPP) substation is part of the SEF application.

The following are highlighted and form part of the amendment application:

- Although the location of the IPP substation will not change, amendments to the alignments of the internal powerline connections to each individual SEF cluster are proposed;
- Although the capacity and components of the SEF will not change, the configuration of the arrays and various other components within the site are proposed to change;

- The area allocated to some project components will change (e.g. increased access and internal road widths of 8 m and 6 m respectively, increased laydown area (up to 11 ha), possible increase in security fencing height);
- Temporary laydown areas (to be rehabilitated after construction); and
- On-site diesel fuel storage will be included (<30 m³).

Two alternatives are available for the amended layout (Figures 2 & 3). It is anticipated that construction will take up to two years to complete. A new access road may be developed from the east of the site – however, this will be assessed via a separate BA process and does not form part of this amendment application.

Assessment


The critical aspect for the further assessment of the project is that all changes remain within the already assessed total footprint. This means that no new heritage resources on or in the ground outside the approved footprint (i.e. archaeology, palaeontology, buildings) would be impacted by the development. Likewise, visual impacts to the landscape will remain unchanged because the project components will still be within the same assessed area. For these reasons, **there will be no change to the impact assessment ratings for any of the anticipated heritage impacts**. No new impact assessment is required, and both of the amended layouts are considered acceptable from a heritage point of view.

The requirements of HWC as presented above – specifically that the EMPr must include a Fossil Chance Finds Procedure and that an archaeological pre-construction survey must be carried out – are noted and must continue to apply to the amended authorisation. No new mitigation or management measures are required.

Conclusion

From a heritage point of view, the EA for the Beaufort West Solar PV Energy Facility may be amended using either of the two proposed layouts and the existing conditions must continue to apply.

Yours sincerely



Jayson Orton

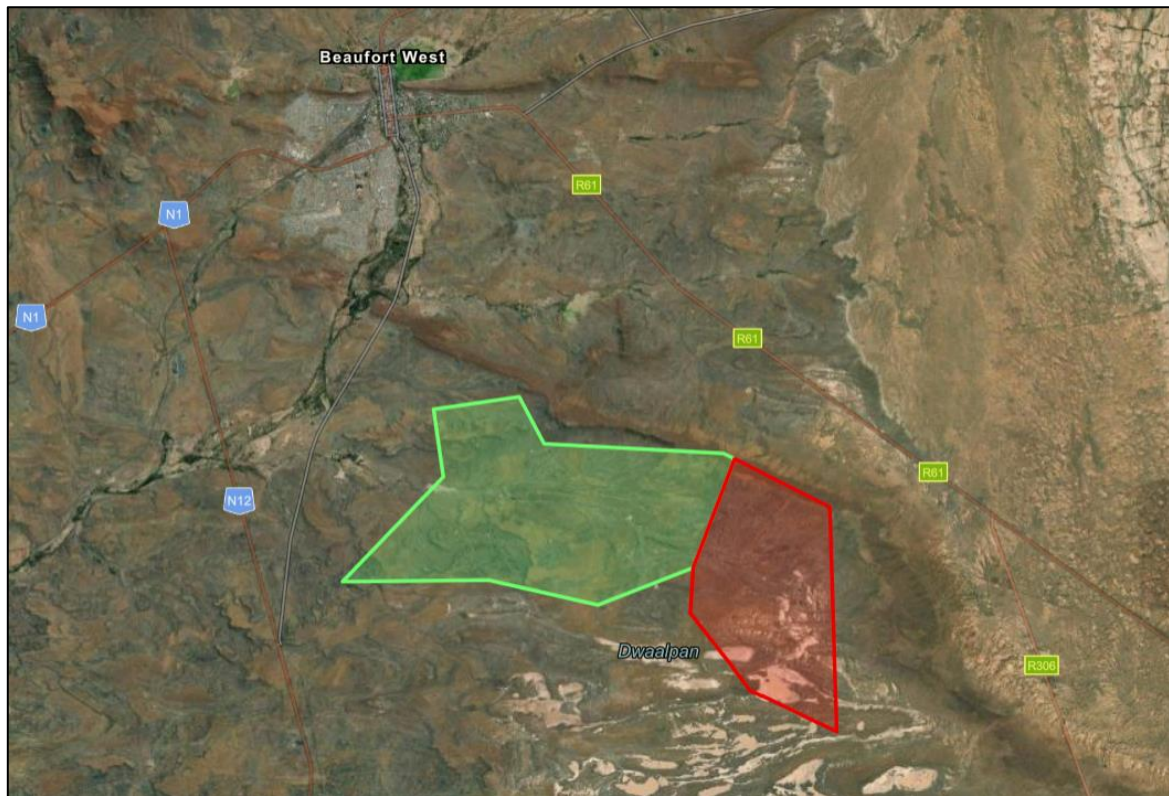


Figure 1: Location of the project with the two affected farm portions for the proposed PV project indicated. Green = Quaggas Fontein 166, Red = Remainder of Oude Volks Kraal 164.

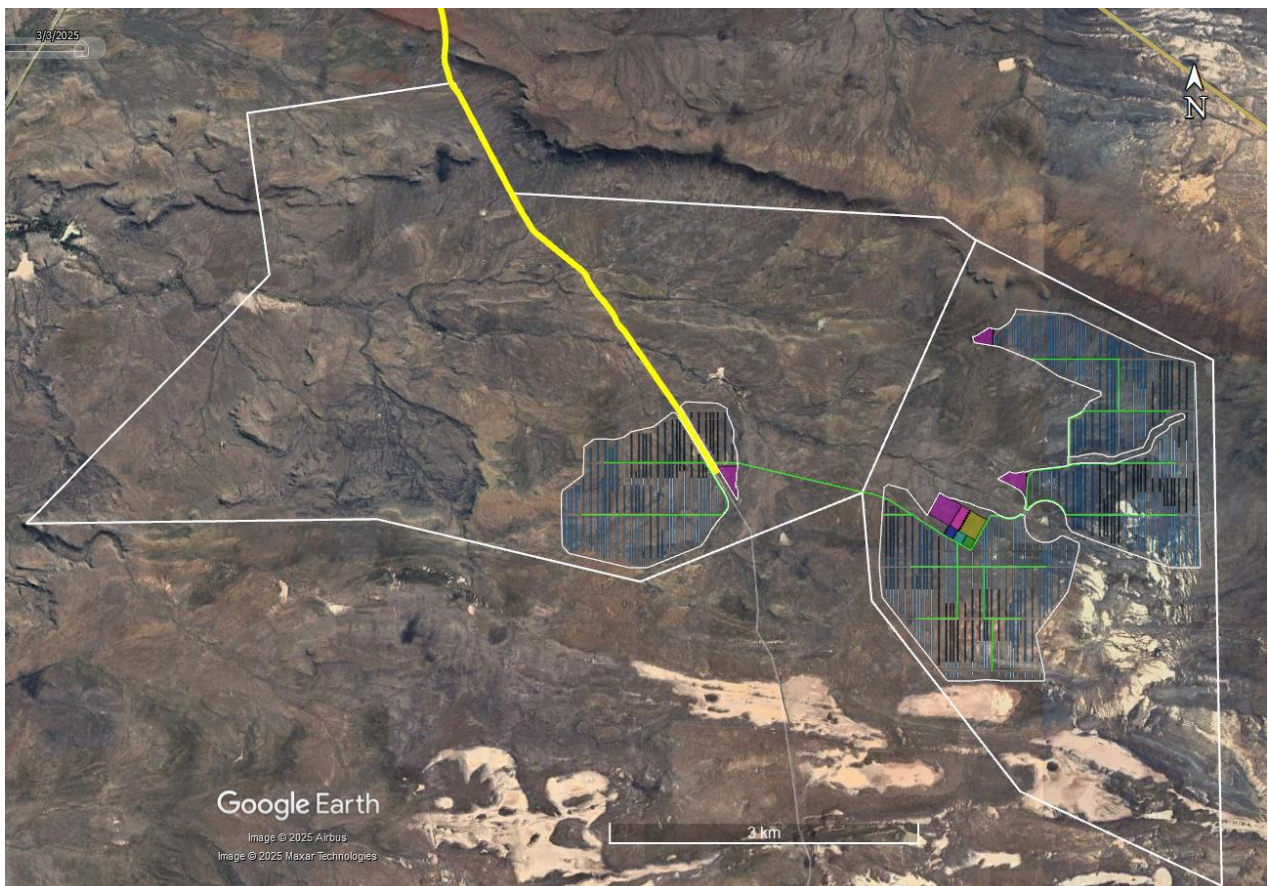


Figure 2: Preferred layout. The yellow line is an existing public road that will provide access to the site.

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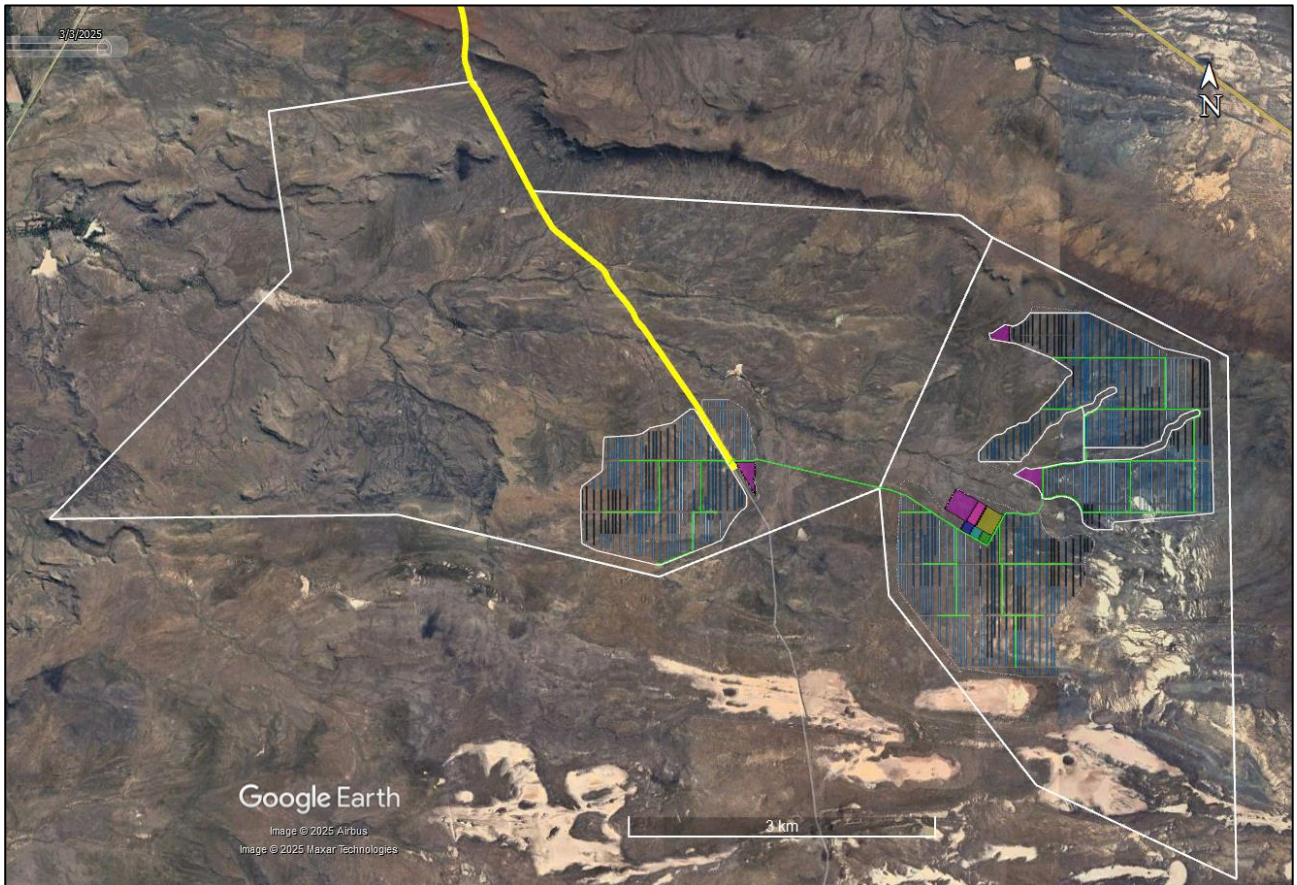


Figure 3: Alternative layout. The yellow line is an existing public road that will provide access to the site.



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**Agricultural specialist input to
An Environmental Authorisation Amendment
for the authorised Beaufort West Solar PV Energy Facility
Western Cape Province**

The Beaufort West Solar PV Energy Facility has received environmental authorisation (EA). The applicant wishes to amend the Environmental Authorisation for the following:

- The project will remain within the same assessed site. The project components will remain largely unchanged, apart from their configurations / locations and some increases in footprint area.

It is important to note that the exact nature and layout of the different infrastructure within the boundary fence of a solar energy facility has absolutely no bearing on the significance of agricultural impacts. All that is of relevance is simply the total footprint of the facility that excludes agricultural land use, which is the area within the facility fence. The fenced footprint of the facility is assessed in this assessment.

The Agricultural Impact Assessments completed in 2022 rated the significance of the agricultural impact as low. This was because the site was found to have a very low agricultural production potential due to the constraint of the classified arid, desert climate (Beck et al, 2018) as well as soil depth constraints (DAFF, 2002).

It is hereby confirmed that the current status of the site remains exactly as it was in the original assessment. Agricultural production potential is a function of climate, terrain and soils and cannot change significantly in the time period since the original assessment, or even in a much longer time period. Land use (grazing only) has also not changed on the site since the original assessment.

Site sensitivity verification

A specialist agricultural assessment is required to include a verification of the agricultural sensitivity of the development site as per the sensitivity categories used by the web-based environmental screening tool of the Department of Forestry, Fisheries and the Environment (DFFE). The screening tool's classification of sensitivity is merely an initial indication of what the sensitivity of a piece of land might be, as indicated by the only data that is available. What the screening tool attempts to indicate is whether the land is suitable for crop production (high and very high sensitivity) or unsuitable for crop production (low and medium sensitivity). To do this, the screening tool uses two independent criteria, from two independent data sets, which are both indicators of suitability for crop production but are limited and were not designed for this purpose. The first is outdated and the second is fairly coarse, modelled data which is not accurate at site scale. The two criteria are:

1. Whether the land is classified as cropland or not on the field crop boundary data set (Crop Estimates Consortium, 2019). All classified cropland is, by definition, either high or very high sensitivity.
2. Its land capability rating as per the Department of Agriculture's updated and refined, country-wide land capability mapping (DAFF, 2017). Land capability is defined as the combination of soil, climate, and terrain suitability factors for supporting rain-fed agricultural production. The direct relationship between land capability rating, agricultural sensitivity, and rain-fed cropping suitability is summarised by this author in Table 1.

These two inputs operate independently, and the screening tool's agricultural sensitivity is simply determined by whichever of these two gives the highest sensitivity rating. The agricultural sensitivity of the site, as classified by the screening tool, is shown in Figure 1.

The true agricultural sensitivity of any land is equivalent to its actual suitability for crop production on the ground, rather than being determined by a parameter that serves as a proxy for crop suitability in a dataset. The land's suitability for cropping directly determines how important it is to conserve that land as agricultural production land. To determine suitability for crop production, and hence sensitivity, requires a site-specific assessment, as has been conducted in this assessment, rather than a reliance on data sets that have significant limitations.

Table 1: Relationship between land capability, agricultural sensitivity, and rain-fed cropping suitability.

Land capability value	Agricultural sensitivity	Rain-fed cropping suitability	
		Summer rainfall areas	Winter rainfall areas
1 - 5	Low	Unsuitable	Unsuitable
6	Medium		Suitable
7			
8 - 10	High		
11 - 15	Very High		

Note: There is an error in the screening tool whereby a land capability of 8 is classified as medium sensitivity, but according to NEMA's agricultural protocol, should in fact be classified as high sensitivity. This assessment follows the agricultural protocol definition and classifies a value of 8 as high sensitivity.

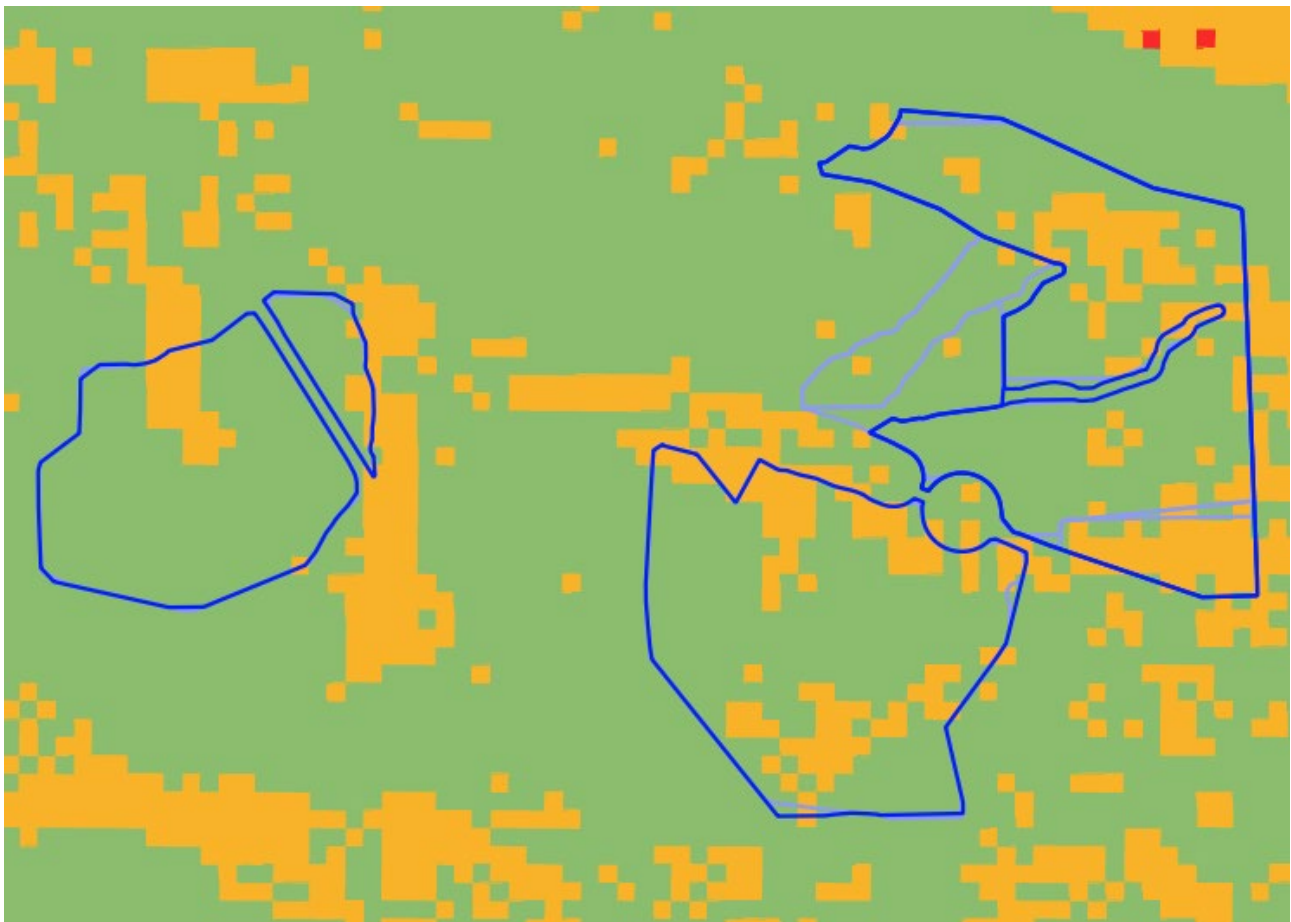


Figure 1. The assessed development footprint overlaid on agricultural sensitivity, as classified by the screening tool (green = low; yellow = medium; red = high; dark red = very high). The footprint of the preferred alternative is shown in bold blue and that of the other alternative is shown in pale blue.

The screening tool classifies the assessed site as ranging from low to medium agricultural sensitivity and therefore classifies the overall site sensitivity, which is the highest sensitivity encountered across the site, as medium. The site is not at all suitable for viable crop production due to extreme climate and soil limitations and its true sensitivity, as assessed on the ground, is therefore low/medium. This assessment therefore confirms the low/medium sensitivity classification by the screening tool because of the site's assessed cropping potential. Note that there is no real difference between low and medium agricultural sensitivity and whether land is low or medium, has no implications for agricultural impact.

Cumulative Impact

This cumulative impact assessment of this development determines the quantitative loss of agricultural land if all renewable energy project applications within a 30 km radius become operational, even though not all will necessarily ever become operational. These projects are listed in Table 2 of this report. Note that electrical grid infrastructure projects do not contribute to a loss of agricultural land and are not therefore included in this calculation of cumulative land loss. The area of land taken out of agricultural use as a result of all the projects listed in Table 2 (total generation capacity of 1120 MW) will amount to a total of approximately 2184 hectares. This is calculated using the industry standards of 2.5 and 0.3 hectares per megawatt for solar and wind energy generation respectively, as per the Department of Environmental Affairs (DEA) Phase 1 Wind and Solar Strategic Environmental Assessment (SEA) (2015). As a proportion of the total area within a 30 km radius (approximately 282,700 ha), this amounts to only 0.77% of the surface area. This is assessed as being within an acceptable limit in terms of loss of agricultural land. The cumulative agricultural impact of the proposed development is therefore assessed here as being of low significance and therefore as acceptable. The development will not have an unacceptable negative impact on the agricultural production capability of the area, and it is therefore recommended, from a cumulative agricultural impact perspective, that the development be approved.

Table 2: Table of all projects that were included in the cumulative impact assessment.

DFFE Reference	Project name	Technology	Capacity (MW)
14/12/16/3/3/2/773	Proposed Establishment of the Beaufort West Solar Power Plant Site 2, Western Cape Province	SEF	90
14/12/16/3/3/2/774	Proposed Beaufort West Solar power plant site 3 near Beaufort West, Western Cape Province	SEF	90
14/12/16/3/3/2/2043	Nuweveld West Wind Farm, Beaufort West Municipality, Western Cape Province	WEF	280
12/12/20/2286/AM4	The Proposed Beaufort West Photovoltaic Park On Portion 9 Of The Farm 161 Kuilspoort in The Western Cape Province	SEF	85
14/12/16/3/3/1/2332	Proposed 75MW Beaufort West Photovoltaic (PV) Project, Western Cape Province	SEF	75
14/12/16/3/3/1/2921	he Proposed Development of the Solar Photovoltaic Facility, “Rhino” on Remainder of Farm Rhenosterkop 155 and “Sunnyside” on Farm 400, Beaufort West, Western Cape Province	SEF	500
Total solar			840
Total wind			280
Total			1120

Our assessment of the impacts of the proposed amendments confirms that:

1. The amendments do not change the nature or significance of the impact as previously assessed, including the cumulative impact.
2. There are no required changes or additions to the mitigation measures as a result of the proposed amendments.
3. There are no required changes to the EMPr as a result of the proposed amendments.
4. The proposed amendments are acceptable in terms of agricultural impact.

From an agricultural impact point of view, it is recommended that the proposed amendments be approved.

A handwritten signature in black ink, appearing to read 'J. Lanz', with a stylized, flowing script.

Johann Lanz (Pr.Sci.Nat. Reg. no. 400268/12)

19 February 2025

References

Beck, H.E., N.E. Zimmermann, T.R. McVicar, N. Vergopolan, A. Berg, E.F. Wood. 2018. Present and future Köppen-Geiger climate classification maps at 1-km resolution, Nature Scientific Data. Available at: <https://gis.elenburg.com/apps/cfm/>.

Crop Estimates Consortium, 2019. *Field Crop Boundary data layer, 2019*. Pretoria. Department of Agriculture, Forestry and Fisheries.

Department of Agriculture Forestry and Fisheries (DAFF). 2018. Long-term grazing capacity map for South Africa developed in line with the provisions of Regulation 10 of the Conservation of Agricultural Resources Act, Act no 43 of 1983 (CARA), available on Cape Farm Mapper. Available at: <https://gis.elenburg.com/apps/cfm/>

Department of Agriculture, Forestry and Fisheries (DAFF). 2017. National land capability evaluation raster data layer, 2017. Pretoria.

Department of Agriculture, Forestry and Fisheries (DAFF). 2002. National land type inventories data set. Pretoria.

Department of Environmental Affairs (DEA). 2015. Strategic Environmental Assessment for wind and solar photovoltaic development in South Africa. CSIR Report Number CSIR: CSIR/CAS/EMS/ER/2015/001/B. Stellenbosch.



forestry, fisheries & the environment

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APPENDIX 1: SPECIALIST DECLARATION FORM AUGUST 2023

Specialist Declaration form for assessments undertaken for 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)

REPORT TITLE: An Environmental Authorisation Amendment for the authorised Beaufort West Solar Energy Facility Western Cape Province

Kindly note the following:

- This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
- This form is current as of August 2023. 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.dffe.gov.za/documents/forms>.
- An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
- The specialist must be aware of and comply with '*the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020*', where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Agricultural Assessment
Specialist Company Name	SoilZA (sole proprietor)
Specialist Name	Johann Lanz
Specialist Identity Number	6607045174089
Specialist Qualifications:	M.Sc. (Environmental Geochemistry)
Professional affiliation/registration:	Registered Professional Natural Scientist (Pr.Sci.Nat.) Reg. no. 400268/12 Member of the Soil Science Society of South Africa
Physical address:	1a Wolfe Street, Wynberg, Cape Town, 7800
Postal address:	1a Wolfe Street, Wynberg, Cape Town, 7800
Telephone	Not applicable
Cell phone	+27 82 927 9018
E-mail	johann@soilza.co.za

2. DECLARATION BY THE SPECIALIST

I, **Johann Lanz** declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. “the Protocols”) and in Government Notice No. 1150 of 30 October 2020.
- 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 –
 1. any decision to be taken with respect to the application by the competent authority; and;
 2. 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 NEMA Act.



Signature of the Specialist

SoilZA (sole proprietor)

Name of Company:

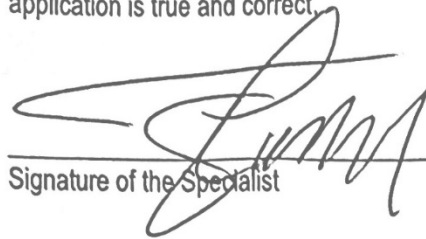
18 February 2025

Date

SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, **Johann Lanz**, swear under oath that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

SoilZA – sole proprietor

Name of Company

18/02/2025

Date



Signature of the Commissioner of Oaths

2023/02/18.

Date



53 Dummer Street

Somerset West

7130

Cell 082 883 8055

email: toni@bluescience.co.za

8 April 2025

SRK Consulting (South Africa) Pty Ltd,
254 Walmer Boulevard
South End
Gqeberha
6001
Attention: Ms Rump

Dear Nicola

PART 2 ENVIRONMENTAL AUTHORISATION AMENDMENT APPLICATION FOR THE PROPOSED BEAUFORT WEST SOLAR PV ENERGY FACILITY ON THE REMAINDER OF FARM OUDE VOLKS KRAAL NO. 164, FARM QUAGGAS FONTEIN NO. 166, PORTION 1 AND 3 OF FARM STEENROTSFOUNTAIN NO 168, AND PORTION 10 OF FARM WELTEVREDEN NO. 170, NEAR BEAUFORT WEST IN THE WESTERN CAPE PROVINCE: AQUATIC BIODIVERSITY SPECIALIST ASSESSMENT

Background

The proposed Mulilo Beaufort West Solar PV Energy Facility (SEF) on the Remainder of Farm Oude Volks Kraal No. 164, Farm Quaggas Fontein No. 166, Portion 1 and 3 of Farm Steenrotsfontein No 168, and Portion 10 of Farm Weltevreden No. 170, near Beaufort West in the Western Cape Province, was granted an Environmental Authorisation (EA) in 2023. The proposed changes mainly entail a revision of the footprint of the SEF, within the area previously assessed by me in the original Basic Assessment for the project. The capacity and components of the SEF are not proposed to change, just the configuration of the arrays and various other components within the site, and the area allocated to some of them (e.g. increased access and internal road widths – 8 m and 6 m respectively, increased laydown area (11 ha) and infrastructure areas but also consolidated them on the eastern portion), and inclusion of diesel fuel storage on site (<80 m³).

This aquatic biodiversity impact assessment statement is intended to address the following Terms of Reference that were provided:

- The implications of the proposed amendments, if any, in terms of the potential impacts within your area of expertise;
- An assessment of all impacts (within your area of expertise) related to the proposed amendments, i.e. a re-assessment of the significance (before and after mitigation) of the identified impact(s) considering the proposed amendments (as required in terms of the 2014 EIA Regulations, as

amended), for the construction, operational and decommissioning (where relevant) phases, including consideration of the following:

- Cumulative impacts;
- The nature, significance, and consequence of the impact;
- The extent and duration of the impact;
- The probability of the impact occurring;
- The degree to which the impact can be reversed;
- The degree to which the impact may cause irreplaceable loss of resources;
- The degree to which the impact can be avoided, managed, or mitigated;

Note: If you are of the opinion that the proposed amendments would have no implications in terms of potential impacts within your area of expertise, and that a re-assessment is therefore not required, the inclusion of only the summary impact table in your specialist statement/ report would also be acceptable.

- A statement as to whether the proposed amendment will result in an increased level or change in the nature of the impact.
- Any limitations or assumptions made in your re-assessment;
- An outline of the potential advantages and disadvantages of the proposed amendments in terms of potential impacts (within your area of expertise), if any.
- The specialist statement/ report must please include an impact summary table outlining the findings of your re-assessment in terms of the above-mentioned assessment criteria.
- Your specialist statement/ report must include the impact summary tables for the proposed amended project.
- Confirm whether the proposed amendment will require any changes or additions to the mitigation measures or impact management outcomes recommended in your specialist report for the authorised project. If so, provide a detailed description of the recommended measures to ensure avoidance, management and mitigation of impacts associated with the proposed amendments.
- A concluding statement regarding the acceptability of the proposed amendments to the EA and Final Layout Plan.

Summary of findings of Aquatic Biodiversity Specialist Assessment for the project, dated November 2022

The aquatic features within the study area consist of the Kwagga River, a tributary of the Gouritz River System. The ecological habitat integrity of the rivers within the study area is largely natural to moderately modified. The larger watercourses in the study area have a high ecological importance and sensitivity while the smaller tributaries/drainage features are of moderate ecological importance and sensitivity. The recommended ecological condition of the aquatic features in the area would be that they remain in their current ecological condition and should not be allowed to degrade further.

The catchment of the Kwagga River is mapped as an Upstream Sub-catchment There are also natural FEPA wetlands mapped in the southeastern extent of the study area, outside of the areas indicated for the proposed PV facilities. These wetlands are also included in the National Wetland Map as Lower Karoo Bioregion depressions with an Ecosystem Threat Status (2018) of Least Concern. The mainstem of the Kwagga River, particularly in its lower reach where instream wetland habitat occurs, is mapped

as an aquatic Critical Biodiversity Area (CBA)s (Figure 6) with the wider river corridor also being mapped as a terrestrial CBA. All of the remaining watercourses are mapped as aquatic Ecological Support Areas that are not essential for meeting biodiversity targets, but that play an important role in delivering ecosystem services. The ecological functioning of these watercourses should not be compromised by the proposed project activities.

The proposed layout for the project avoids all mapped natural FEPA wetlands and aquatic CBAs. There is however a pan mapped in the eastern extent of the proposed PV facilities.

*The Screening Tool has mapped the mainstem of the Kwagga River and the mapped wetlands as being of very high sensitivity while the remainder of the site is considered of low Aquatic Biodiversity Combined Sensitivity. This assessment thus largely concurs with the **Very high/high** Aquatic Biodiversity Combined Sensitivity mapping of the screening tool for the Kwagga River and the large pans south of the river. The other smaller watercourses, as well as the recommended buffer areas (100m for the larger streams and 30m for the smaller watercourses), are considered **Low** Aquatic Biodiversity Combined Sensitivity.*

With mitigation, the potential freshwater impacts of the proposed PV Facilities for the construction, operation and decommissioning phases are likely to be low. One can also expect that the cumulative impact of the proposed project would not be significant provided mitigation measures are implemented. In particular, while the current proposed layout has taken into account the initial specialist constraints mapping, the pans in the eastern extent of the site had not been mapped and also need to be considered in a revised layout.

Impact Statement

Based on the findings of this specialist assessment, there is no reason from a freshwater perspective, why the proposed activity (with the implementation of the above-mentioned mitigation measures) should not be authorized with the proposed layout change. The PV facilities are in general located where limited aquatic features occur.

The risk assessment determined that the proposed development of the WEF poses a low risk of impacting aquatic habitat, water flow and water quality. The assessment assumes that the proposed layout will be changed to avoid the depression wetlands in the eastern extent of the site. The water use activities associated with the proposed project could potentially be authorised through the general authorisations for Section 21(c) and (i) water uses. A Water Use Licence may however be required for the abstraction of water for the PV Facility which would require that an application for a WUL be submitted to the Department of Water and Sanitation (DWS) for the entire project-related activities.

A summary of the original assessment of the potential impacts of the proposed activities and the associated recommended mitigation measures is provided on the following page

Table 1. Summary Impact Table for the Original Aquatic Biodiversity Specialist Assessment – Construction Phase:

Environmental Parameter	Nature	Significance Before Mitigation	Recommended Mitigation Measures	Significance After Mitigation
Construction Phase				
Loss of aquatic habitat and biota	Disturbance and possibly loss of aquatic habitats within the watercourses with the associated impact on sensitive aquatic biota	Low negative	Avoid disturbing aquatic habitats	Low negative
Aquatic ecosystem integrity	The removal of aquatic vegetation has the potential to reduce the ecological integrity and functionality of the watercourses; and alien vegetation infestation within the aquatic features due to disturbance.	Low negative	Minimise any works within aquatic ecosystems; Rehabilitate disturbed aquatic habitats by revegetating with suitable local indigenous vegetation, make sure that any construction materials brought onto the site are certified to be free of alien plant seed; Rehabilitate disturbed aquatic habitats once construction works are complete.	Low negative
Stressed water resources	Demand for water for construction could place stress on the existing available water resources.	Low negative	The water should be obtained from an existing water allocation to the property or should be provided from a viable water source for construction purposes.	Low negative
Flow modification	Road crossing structures if not adequately designed could impede flow in the watercourses.	Low negative	The road crossing structures should be designed in such a manner as to not impede flow in the watercourses. For this area, a low water crossing, and concrete slab through the watercourses are preferred.	Low negative
Water quality	Increased sedimentation and risks of contamination of surface water runoff during construction	Low negative	Construction near sensitive aquatic features should preferably be undertaken in the dry season; if necessary, sediment traps should be placed downstream of works to capture sediment; Construction sites and laydown areas should be placed at least 30m away from the delineated aquatic features; Good housekeeping measures should be implemented at the construction sites that are set out in the EMPr and monitored by an appointed ECO for the project.	Low negative

Table 2. Summary Impact Table for the Original Aquatic Biodiversity Specialist Assessment – Operation and Decommissioning Phases:

Environmental Parameter	Nature	Significance Before Mitigation	Recommended Mitigation Measures	Significance After Mitigation
Operation Phase				
Loss of aquatic habitat and biota	Ongoing disturbance of aquatic features and associated vegetation along access roads or adjacent to the infrastructure that needs to be maintained	Low negative	The moderate to high-sensitivity aquatic habitats should be avoided in the layout design such that it is only the low-sensitivity habitats that would be disturbed during construction. The disturbance of these habitats would only result in a slight alteration to aquatic ecosystems and processes.	Low negative
Aquatic ecosystem integrity	Modified runoff characteristics from hardened surfaces at the PV facilities and the substation as well as along the access roads that have the potential to result in the erosion of hillslopes and watercourses	Low negative	Develop a stormwater management plan for the proposed development that addresses the stormwater runoff from the developed site.	Low negative
Stressed water resources and water quality impacts	Possible increase in water consumption and potential for water quality impacts (such as contamination from sewage generated onsite) as a result of the operation of the site	Low negative	The water consumption of the proposed PV is low and unlikely to result in any water use requirement that is more than the General Authorisation for groundwater use. Nevertheless, a sustainable water supply should be sought. The sewage generated within the site should be discharged to a conservancy tank that is properly serviced and the content timeously evacuated to a nearby wastewater treatment works.	Low negative
Decommission Phase				
Loss of aquatic habitat and biota	Increased disturbance of aquatic habitat due to the increased activity on the site	Low negative	Minimise works within aquatic ecosystems as far as possible. If the layout of the WEF has avoided these areas, the decommissioning of the WEF would also be able to avoid aquatic habitats on the property. Rehabilitate disturbed areas.	Low negative
Aquatic ecosystem integrity	Increased sedimentation and risks of contamination of surface water runoff	Low negative	Decommission works near aquatic features should preferably be undertaken in the dry season; if necessary, sediment traps should be placed downstream of works to capture sediment; Laydown areas should be placed at least 30m away from the delineated aquatic features; Good housekeeping measures should be implemented for the decommissioning activities that are set out in the EMP and monitored by an appointed ECO for the project.	Low negative

Table 3. Summary Impact Table for the Original Aquatic Biodiversity Specialist Assessment – Cumulative Construction, Operation and Decommissioning Phases:

Environmental Parameter	Nature	Significance Before Mitigation	Recommended Mitigation Measures	Significance After Mitigation
Construction Phase				
Loss of aquatic habitat and biota	Increased disturbance of aquatic habitat due to the increased activity in the wider area	Low negative	Minimise works within aquatic ecosystems as far as possible. Construct in the dry season. Rehabilitate disturbed areas. Rationalise infrastructure as far as possible by sharing the infrastructure of using existing disturbed areas. Manage stormwater impacts.	Low negative
Operation Phase				
Aquatic ecosystem integrity	Degradation of ecological condition of aquatic ecosystems	Low negative	Monitor and manage for impacts such as alien vegetation growth and erosion. Limit disturbance and rehabilitate disturbed areas. Ensure there is sufficient stormwater management to prevent erosion along roads. Ensure road crossings structures are properly designed to not result in blockage in the watercourses or erosion. Limit and monitor water use.	Low negative
Decommission Phase				
Loss of aquatic habitat and biota	Increased disturbance of aquatic habitat due to the increased activity in the wider area	Low negative	Decommission works near aquatic features should preferably be undertaken in the dry season. Minimise disturbance and rehabilitate.	Low negative

Comment on any changes to the aquatic ecosystems within the site.

The proposed project is located to the south of Beaufort West. Land use comprises natural areas and grazing of livestock. A revisit to the site was conducted on 24 February 2025, following recent rainfall. This land use has not changed since the initial assessment, nor have the aquatic features associated with the project. It can thus be said that no change in the ecological condition (largely natural to moderately modified) or the ecological importance and sensitivity (Kwagga River high and minor tributaries moderate) of these aquatic features has taken place since the initial assessment. **The ecological integrity of the river and wetland habitat at the site thus appears to be essentially unchanged from the 2022 assessment.**

Comment on Site Sensitivity Verification

The Screening Tool (shown below with the preferred amended layout for the PV areas) has indicated that the wider area surrounding the site is mapped as being of low Aquatic Biodiversity Combined Sensitivity with the larger Kwagga River and the depression wetlands to the southeast being of very high sensitivity. The areas of high sensitivity are mostly linked to the depression wetlands in the southeast of the project area of influence that have been included in the National Wetland Map version 5 (NWM5), National Freshwater Ecosystem Priority Area (NFEPA) wetland mapping and in the Western Cape Biodiversity Spatial Plan (WCBSP) as aquatic Critical Biodiversity Areas (CBAs). Sections of the Kwagga River are mapped as aquatic CBAs and Ecological Support Areas. The approved PV footprints avoided all of the high-sensitivity areas however the amended PV footprint extends into some of the areas. These areas were specifically ground-truthed in the recent 24 February 2025 site visit.

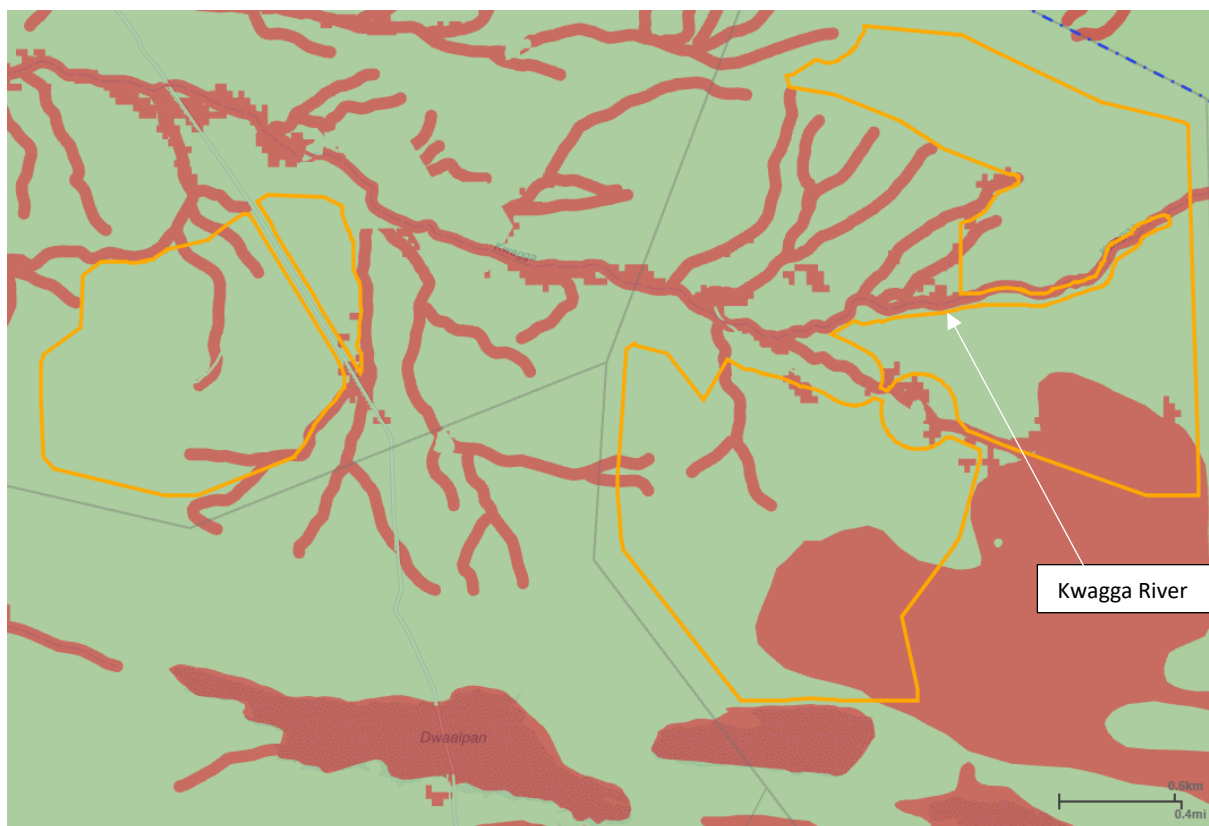


Figure 1. Screening Tool mapping for Aquatic Biodiversity Sensitivity with the proposed amended PV footprint indicated by the orange polygons.

Specialist review of the proposed amendment

The aspects of concern with regards to the proposed amendment are the change to the footprint of the PV areas and the associated infrastructure areas that include the laydown area, O&M buildings, construction camp, Eskom switching station, BESS and IPP substation. The widening of access roads where they cross watercourses can easily be mitigated such that there would be no increase in impact. The areas where the PV modules and associated infrastructure have extended into the areas mapped as being of very high sensitivity in the southeast of the project area are within an area mapped as a depression wetland. This area in the ground-truthing was found to often be a higher-lying area with areas devoid of vegetation and was not associated with any wetland habitat. The other areas mapped as being of very high sensitivity related to smaller watercourses that are tributaries of the Kwagga River that have been mapped as aquatic ESA but ground-truthing determined them to comprise minor watercourses and drainage features of little aquatic ecosystem significance and providing little in terms of ecological services. The upper reaches of the larger Kwagga River and a 30m buffer that is mapped as an aquatic CBA are avoided by the proposed amended layout.

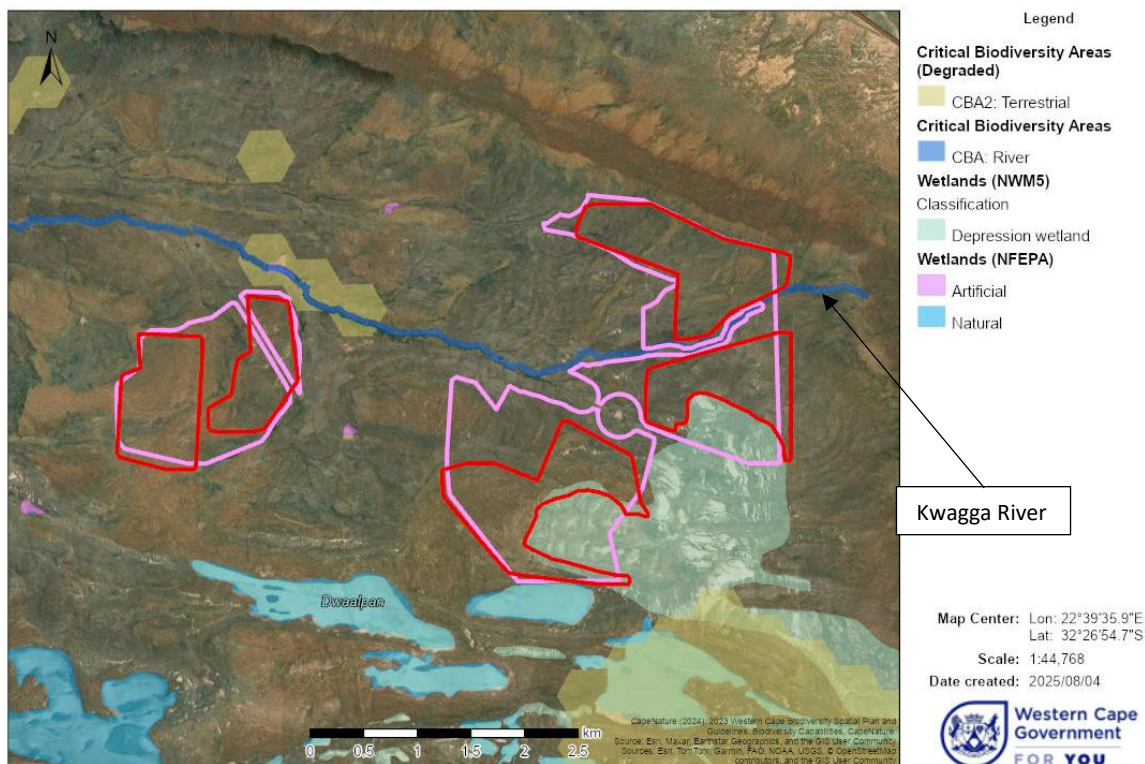


Figure 2. Mapping of the 2023 WCBSP CBAs, NWM5 and the NFEPA Wetlands for the proposed project area of influence.

Figure 3 shows the proposed amended layout for the Beaufort West SEF, together with the mapped aquatic features as well as the recommended setback areas. I, Antonia Belcher who undertook the initial aquatic biodiversity assessment for the proposed project, confirm that the proposed amended layout does not alter the findings of the aquatic ecosystem impact assessment dated November 2022 i.e. **the proposed amended layout slightly increases the risk to the aquatic ecosystems as it is closer to the ground-truthed and mapped features, but does not result in any significant increase in level or change in the nature of impacts. The mitigation measures provided in the original aquatic ecosystem assessment report are deemed sufficient to manage the increase in risk and still maintain the ecosystems in their current ecological state, providing the same level of ecosystem goods and services.**

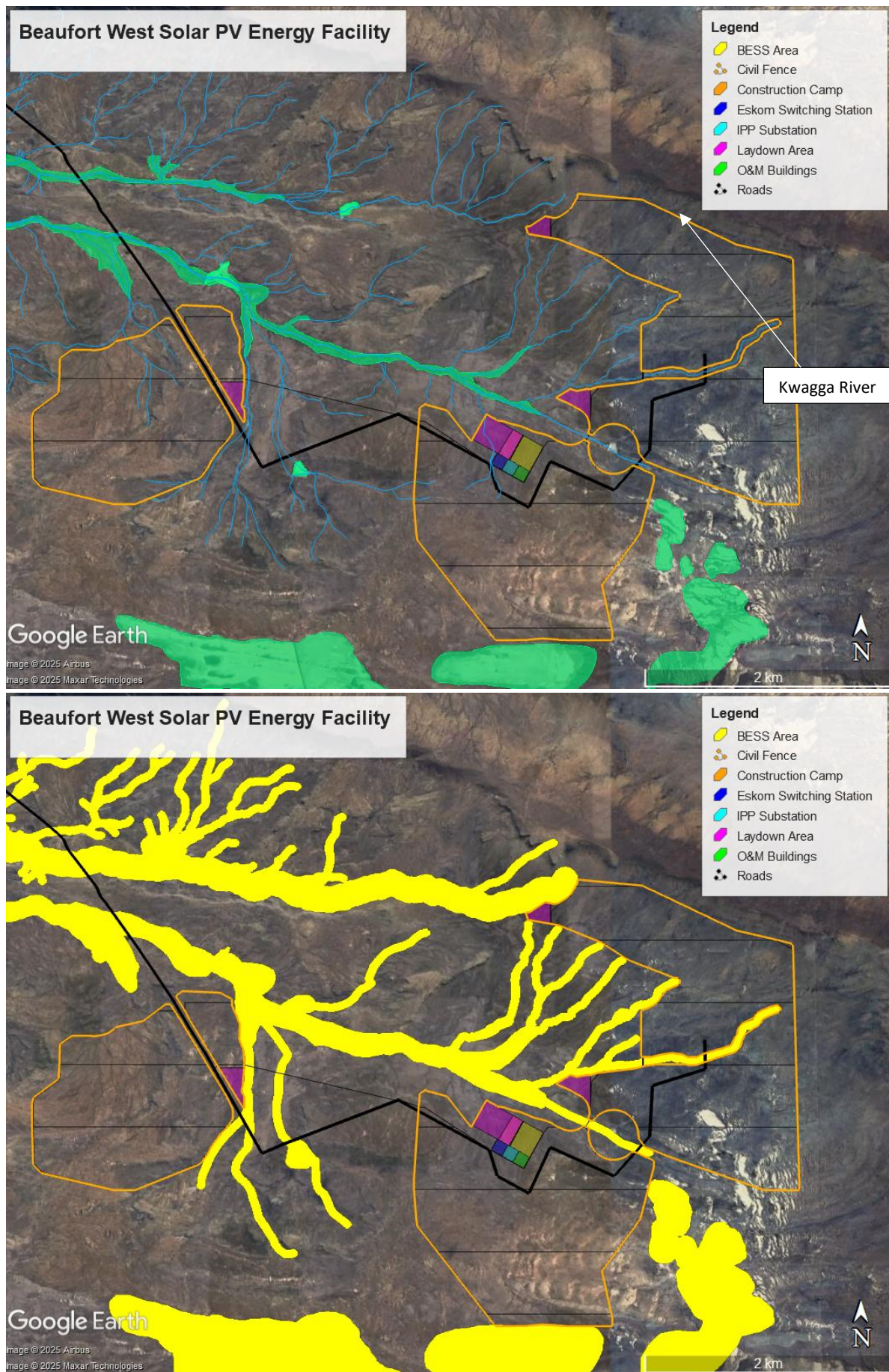


Figure 3. Google Earth image with the proposed amended layout for the project, shown together with the mapped aquatic features (top image) and the recommended buffer or setback areas (bottom image).

Comment on the proposed alternatives

In terms of the proposed alternative layouts, the Preferred alternative is preferred to all of the other alternative layouts proposed that would result in the loss of the very upper reaches of the Kwagga River which is mapped as an aquatic CBA in the 2023 WCBSP. The figures below show a comparison of the preferred and alternative layouts as well as the additional alternatives for the eastern portion of the project.

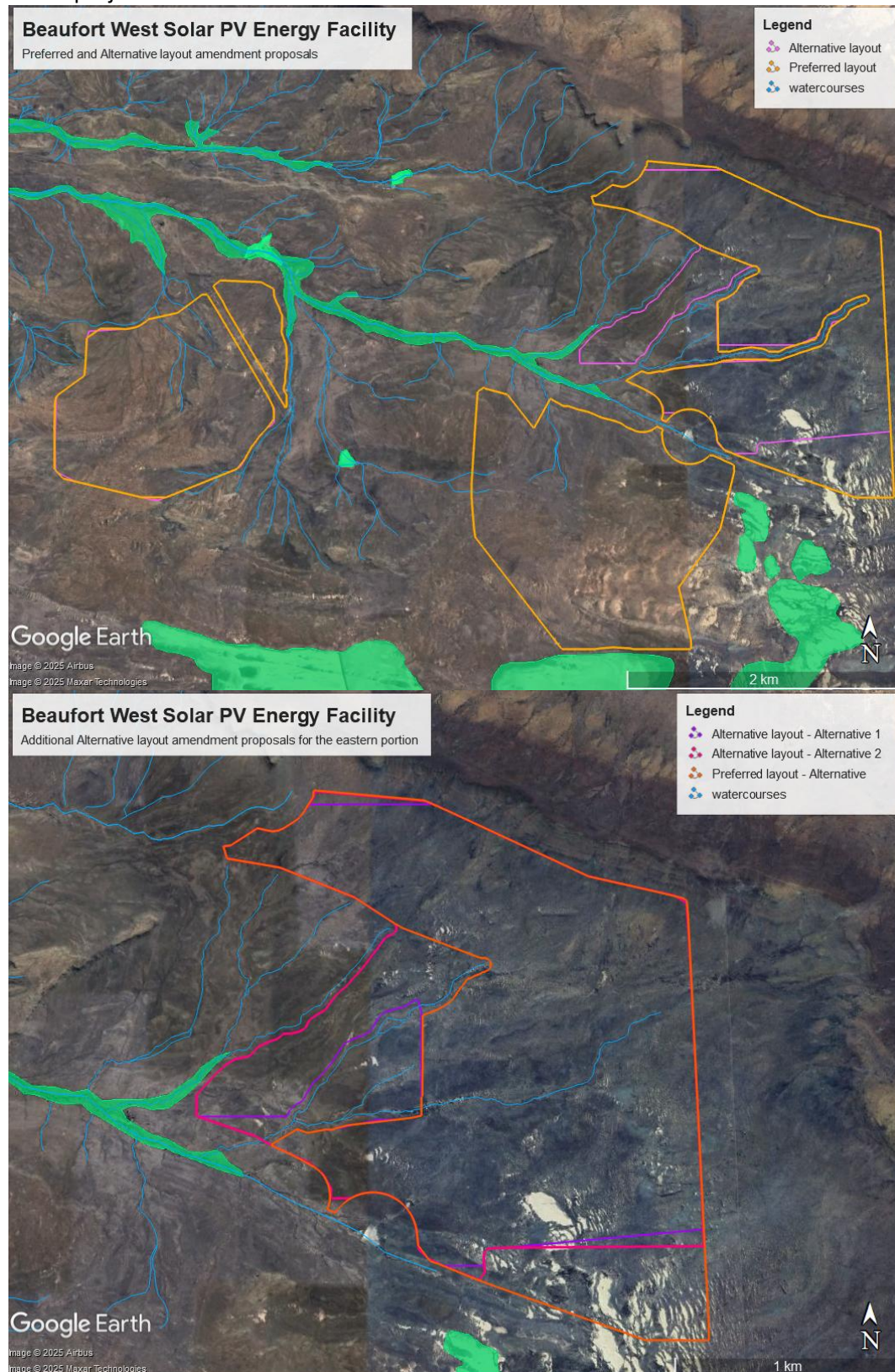


Figure 4. Google Earth image with the proposed amended layout alternatives for the project, shown together with the mapped aquatic features.

General comment on impact significance

No significant changes to the baseline environment have occurred since the previous assessment, and the potential aquatic impacts are well understood. In addition, the impact of the proposed amended layout will not change in significance from that previously assessed. **The assessed impact ratings (Low with mitigation) are thus not likely to alter because of the proposed amendment.**

Comment on Cumulative Impacts

There are several renewable energy projects within a 30km radius of the Beaufort West SEF. Figure 5 shows the renewable energy projects within a 30 km radius of the site and the details are provided in Table 4. The projects primarily occur in the Gamka River Catchment. Cumulative impacts on this river system, given that they are the same catchment, are possible if they are not adequately mitigated. The nature of the proposed projects and their associated infrastructure however allows them to have minimal impact on the surface water features since the project infrastructure can be placed far enough away from the freshwater features to not impact them as is the case for this project.

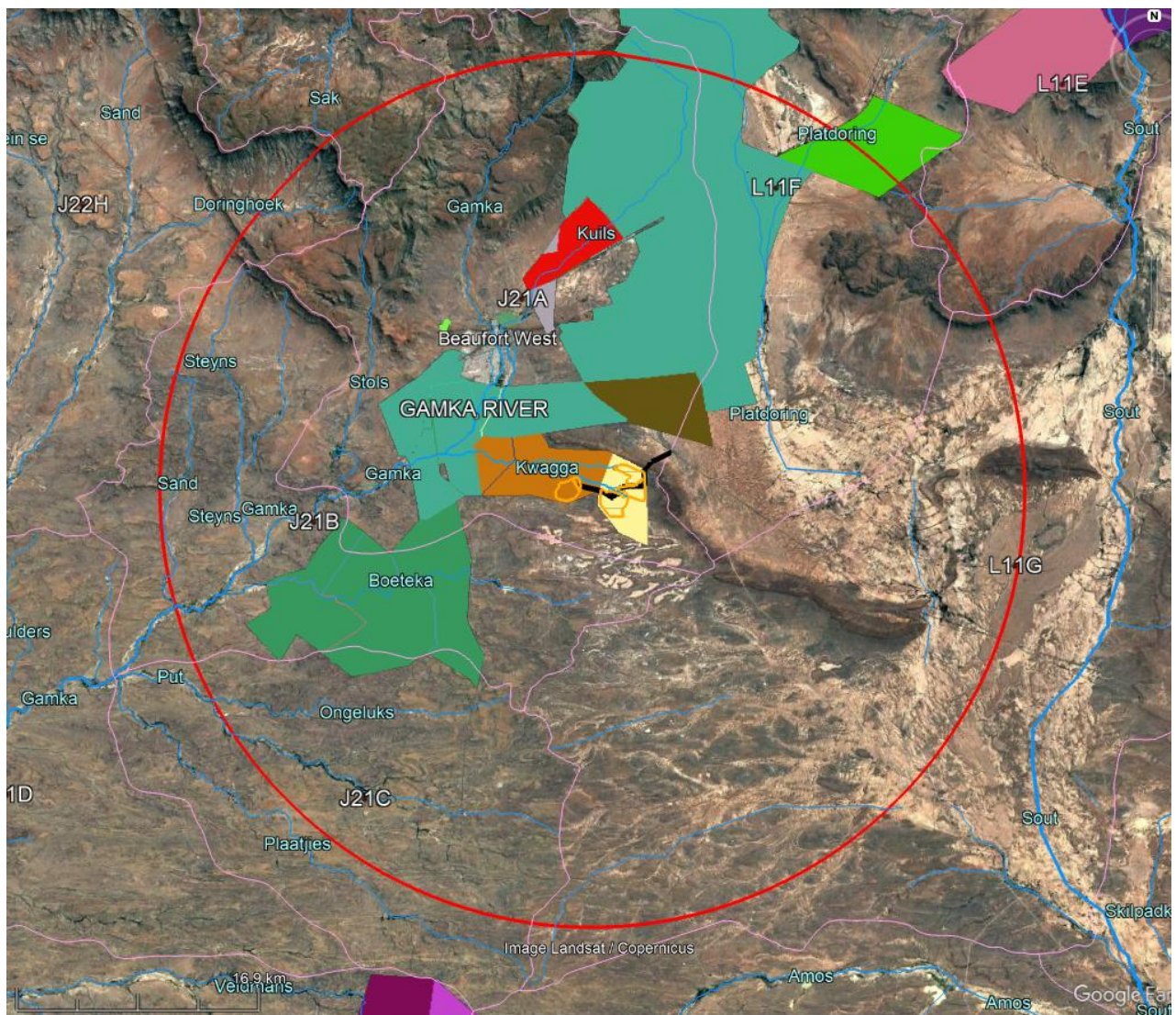


Figure 5. Image showing the renewable energy projects and river systems within 30 km of the proposed project. The project details are provided in the table on the following page.

Table 4. Details of other Renewable Energy Projects within 30 km of the project.

DEA_REF	14/12/16/3/3/1/2571	14/12/16/3/3/1/2336	14/12/16/3/3/1/2522	14/12/16/3/3/1/2336	14/12/16/3/3/1/2921	14/12/16/3/3/1/2332	12/12/20/2286/AM4
EIA_PROCES	IEM-REDZ	IEM-REDZ	IEM-REDZ	IEM-REDZ	IEM-REDZ	BAR	Amendment
PROJ_TITLE	The proposed Jessa S grid connection near Beaufort West in the Western Cape	Development of the 120km up to 400KV Nuweveld gridline west of the town Beaufort West in the Western Cape Province	Proposed Salsola PV in the Western Cape Province	Development of the 120km up to 400KV Nuweveld gridline west of the town Beaufort West in the Western Cape Province	Proposed Solar Photovoltaic Facility, "Rhino" on Rem of Farm Rhenosterkop 155 and "Sunnyside" on Farm 400, Beaufort West, Western Cape Province	Proposed 75MW Beaufort West Photovoltaic (PV) Project, Western Cape Province	The Proposed Beaufort West Photovoltaic Park on Portion 9 of Farm 161 Kuilspoor in The Western Cape Province
APP_RECEIV	2022/06/20	2021/05/19	2022/04/13	2021/05/19	2024/01/31	2021/05/13	2014/07/31
APPLICANT	ENERTRAG South Africa Pty (Ltd)	Red Cap Nuweveld North (Pty) Ltd	Salsola PV (Pty) Ltd	Red Cap Nuweveld North (Pty) Ltd	K2022578692 South Africa (Pty) Ltd	Beaufort West Photovoltaic (Pty) Ltd	EAB Astrum Energy (Pty) Ltd

The significance rating for cumulative impacts would remain unchanged with the proposed amendment. ***One could thus expect that the cumulative impact of the proposed project would not be significant provided mitigation measures as originally recommended and included in the existing authorisation process are implemented.***

Recommendations

I, Antonia Belcher who undertook the initial aquatic biodiversity assessment for the project proposed to be amended, confirm that the proposed amendments and changes to the layout do not alter the findings of the aquatic ecosystem impact assessment dated November 2022. Accordingly, the proposed amendment will not increase the level or change the nature of the impacts.

In addition, the mitigation measures stated in the aquatic ecosystem impact study dated November 2022 that have been taken up in the existing authorisation for the PV facility remain the same, with **no additional mitigation measures being required.**

Concluding Statement

The proposed amended layout plan for the Beaufort West Solar PV Energy Facility is acceptable in terms of the potential aquatic ecosystem impacts. The level or nature of these impacts is not expected to change in any way because of the proposed amendment to the authorised layout plan. The potential aquatic ecosystem impacts for the proposed layout would thus remain of low significance. No new mitigation measures are required because of the proposed amendment to the layout plan. Therefore, there is **no objection to the proposed amendments to the Environmental Authorisation.**

Please feel free to contact me should you have any questions regarding the above.

Kind regards



Toni Belcher

Aquatic Ecologist (SACNASP 005681)