

132kV power line associated with the Korana Solar Energy Facility near Pofadder, Northern Cape Province

Motivation for Amendment of Environmental
Authorisation

DFFE Ref.: 14/12/16/3/3/1/1347/AM2

April 2022

savannah
environmental

t +27 (0)11 656 3237

f +27 (0)86 684 0547

e info@savannahsa.com

w www.savannahsa.com

Prepared for:

South Africa Mainstream Renewable Power Developments (Pty) Ltd
P O Box 45063
Claremont
7735



Prepared by:



PROJECT DETAILS

Title	:	132kV power line associated with the Korana Solar Energy Facility near Pofadder, Northern Cape Province: Motivation for Amendment of Environmental Authorisation
Authors	:	Savannah Environmental (Pty) Ltd Mmakoena Mmola Jo-Anne Thomas
Specialist Consultants	:	Chris van Rooyen of Chris van Rooyen Consulting Simon Todd of 3 Foxes Biodiversity Solutions (Pty) Ltd John Gribble of ACO Associates cc Lourens du Plessis of LOGIS
Client	:	South Africa Mainstream Renewable Power Developments (Pty) Ltd
Report Status	:	<u>Final Motivation Report for Authority Review and Decision-Making</u>

When used as a reference this report should be cited as: Savannah Environmental (2022) Motivation for the Amendment of the Environmental Authorisation for the 132kV power line associated with the Korana Solar Energy Facility near Pofadder, Northern Cape Province.

COPYRIGHT RESERVED

This technical report has been produced for South Africa Mainstream Renewable Power Developments (Pty) Ltd. The intellectual property contained in this report remains vested in Savannah Environmental (Pty) Ltd. No part of the report may be reproduced in any manner without written permission from Savannah Environmental (Pty) Ltd or South Africa Mainstream Renewable Power Developments (Pty) Ltd.

TABLE OF CONTENTS

	PAGE
PROJECT DETAILS	i
TABLE OF CONTENTS	i
PURPOSE OF THE REPORT	iii
1. OVERVIEW OF THE PROJECT	1
1.1. Location	1
1.2. Potential Environmental Impacts as determined through the BA process	1
1.2.1. Summary of environmental findings	1
2. DETAILS OF THE AMENDMENTS APPLIED FOR	1
2.1. Amendment of the authorised power line from Alternative 1B to Alternative 1A	1
2.2. Amendment of Condition 1 of the EA	1
3. REASONS FOR THE PROPOSED AMENDMENTS	4
3.1. Amendment of the authorised power line from Alternative 1B to Alternative 1A and amendment of Condition 1 of the EA	4
4. CONSIDERATIONS IN TERMS OF THE REQUIREMENTS OF THE EIA REGULATIONS	5
5. POTENTIAL FOR CHANGE IN THE SIGNIFICANCE OF IMPACTS AS ASSESSED IN THE BA AS A RESULT OF THE PROPOSED AMENDMENTS	7
5.1. Impacts on Ecology	7
5.1.1. Comparative Assessment	7
5.1.2. Conclusion	8
5.2. Impacts on Avifauna	8
5.2.1. Comparative Assessment	8
5.2.2. Conclusion	10
5.3. Impacts on Heritage Resources	10
5.3.1. Comparative Assessment	11
5.3.2. Conclusion	12
5.4. Visual Impacts	12
5.4.1. Comparative Assessment	12
5.4.2. Conclusion	13
6. ADVANTAGES AND DISADVANTAGES OF THE PROPOSED AMENDMENTS	14
7. REQUIREMENTS FOR ADDITIONAL MITIGATION AS A RESULT OF THE PROPOSED AMENDMENTS	15
8. PUBLIC PARTICIPATION	16
9. CONCLUSION	17
9.1. Overall Conclusion and Recommendations	17

APPENDICES:

- Appendix A:** Ecology Specialist Comment Letter
- Appendix B:** Avifauna Specialist Comment Letter
- Appendix C:** Heritage Specialist Comment Letter
- Appendix D:** Visual Specialist Comment Letter
- Appendix E:** Public Participation Report
 - Appendix E1: I&AP Database
 - Appendix E2: Consultation with I&APs
 - Appendix E3: Consultation with Organs of State
 - Appendix E4: Advertisements and Site Notices
 - Appendix E5: Public Participation Plan and Approval
 - Appendix E6: Comments and Response Report
- Appendix F:** A3 Maps
- Appendix G:** EAP Declaration and Affirmation
- Appendix H:** Specialist Declarations
- Appendix I:** Consultant CVs

PURPOSE OF THE REPORT

South Africa Mainstream Renewable Power Developments (Pty) Ltd (hereafter 'Mainstream') received an Environmental Authorisation (EA) on 18 May 2015 (DFFE Ref.: 14/12/16/3/3/1/1347) from the Department of Forestry, Fisheries and the Environment (DFFE) for the construction of a 132kV power line associated with the Korana Solar Energy Facility. The project site is located approximately 30km south-west of Pofadder in the Khai-Ma Local Municipality and the Namakwa District Municipality in the Northern Cape Province, on the following affected properties:

- » Portion 2 of the Farm Namies South 212; and
- » Portion 1 of the Farm Namies South 212.

When submitting the Basic Assessment (BA) Report in support of the application for EA for the 132kV power line, two grid alternatives were identified and assessed, namely, Alternative 1A, which is the technically preferred option and will connect the on-site substation to the proposed 400kV Khai-Ma Collector Substation, and Alternative 1B, which will connect the proposed on-site substation directly to the existing Eskom Aggeneys 400kV substation.

The original EA dated 18 May 2015 (DFFE Ref.: 14/12/16/3/3/1/1347) however states Alternative 1B as the approved option. Mainstream is now requesting the DFFE to amend the EA dated 18 May 2015 (DFFE Ref.: 14/12/16/3/3/1/1347) such that Alternative 1A is authorised, as opposed to the currently approved Alternative 1B.

The proposed amendment in itself is not a listed activity and does not trigger any new listed activity as the proposed amendment is within the originally assessed grid corridor and development area, and does not exceed any thresholds for activities already authorised.

In terms of Condition 5 of the original EA and Chapter 5 of the EIA Regulations of December 2014 (as amended on 07 April 2017 and 13 July 2018), it is possible for an applicant to apply, in writing, to the competent authority for a change or deviation from the project description to be approved.

Savannah Environmental (Pty) Ltd (hereafter 'Savannah Environmental') has been appointed to undertake an amendment application process in this regard and has prepared this Motivation Report in support of this amendment application on behalf of Mainstream. This report aims to provide details pertaining to the significance and impacts of the proposed change to the project description in order for Interested and Affected Parties (I&APs) to be informed of the proposed amendment and provide comment, and for the competent authority to be able to reach a decision in this regard. This report is supported by specialist studies in order to inform the final conclusion regarding the proposed amendment (refer to **Appendix A to D** of this report). This main report must be read together with these specialist studies in order to obtain a complete understanding of the proposed amendment and the implications thereof.

The Draft Motivation Report was made available to registered I&APs on the Savannah Environmental Website (<https://savannahsa.com/public-documents/grid-infrastructure/>) for a 30-day review and comment period from **Friday, 25 February 2022 to Monday, 28 March 2022**. The availability of the Draft Motivation Report was advertised in the Volksblad Newspaper on **Monday, 28 March 2022** (refer to **Appendix E3**).

All comments received during the 30-day review and comment period of the Draft Motivation Report have been included within the Comments and Responses Report that is submitted to the DFFE with this Final Motivation Report for decision making purposes. Changes made in this Motivation Report have been underlined for ease of reference.

1. OVERVIEW OF THE PROJECT

1.1. Location

The authorised 132kV power line associated with the Korana Solar Energy Facility is located approximately 30km south-west of Pofadder in the Khai-Ma Local Municipality and the Namakwa District Municipality in the Northern Cape Province, on the following affected properties (refer to **Figure 1.1**):

- » Portion 2 of the Farm Namies South 212; and
- » Portion 1 of the Farm Namies South 212.

1.2. Potential Environmental Impacts as determined through the BA process

From the specialist investigations undertaken within the BA process for the 132kV power line associated with the Korana Solar Energy Facility, the following environmental impacts were identified:

- » Potential ecological impacts;
- » Potential impacts on avifauna;
- » Potential impacts on heritage resources; and
- » Areas of visual impact.

Key conclusions and recommendations of the original BA pertinent to this application, as reported in the final BA Report (Savannah Environmental (Pty) Ltd, 2015)) are detailed below:

1.2.1. Summary of environmental findings

From the specialist investigations undertaken as part of the BA process for the 132kV power line associated with the Korana Solar Energy Facility, no environmental fatal flaws were identified to be associated with the construction of the proposed power line along either alternative. The significance levels of the majority of identified negative impacts can generally be reduced to acceptable levels through implementation of the recommended mitigation measures.

The following summaries were provided for the specialist studies at submission of the final BA Report (2015):

1.2.1.1. Results of the Ecological Impact Assessment

Flora

The site falls within the Nama Karoo Biome, Bushmanland Bioregion, with a marginal part falling within the Richtersveld Bioregion. Three levels of ecological sensitivity were identified within the larger study area, namely, ecological corridors (Ecological Support Areas,) and two levels of Critical Biodiversity Areas (i.e., CBA1 and CBA2). The proposed power line route alternatives will not cross any of the identified CBAs and ESAs.

Three main plant communities or associations were identified within the study area, namely, open plains grassland, low to mid-high shrubland, and drainage line vegetation, all of which fall within the Bushmanland Arid Grassland. A fourth plant community, found to only a limited extent, is Bushmanland Inselberg Shrubland on low hills. The Bushmanland Inselberg Shrubland would not be affected by the proposed power line routes.

The overall impact on vegetation, ecological processes, and functioning as a result of the construction and operation of the proposed power line is likely to be of low significance for Alternative 1A due to the close proximity of the two on-site substation options to the proposed 400kV Khai-Ma Collector Substation, and of low significance for Alternative 1B. Although the impact significance for Alternative 1B is expected to be slightly higher than that for Alternative 1A due to the longer length of this power line alternative and the associated potential for higher levels of disturbance, the significance of the impact may not be higher than expected as this alternative falls within the already approved development footprint for the Korana Wind Energy Facility, which is located adjacent to the Korana Solar Energy Facility, and as a result, the impact of this alternative on vegetation may not be significant as the vegetation would have already been disturbed by the development of the Korana Wind Energy Facility.

Fauna

The site displays a low level of Red List species. Of these species, the Black-footed Cat, Aardvark, Bat-eared Fox, Cape Fox, Shortridge's Rat, Fisk's House Snake, Ludwig's Bustard, Martial Eagle, Baboon Spiders, Trapdoor Spiders, Girdled Lizards and Tent Tortoises are likely to occur on site and have been recorded during the faunal survey. The Tent Tortoises are at most risk of being impacted as a result of the movement of vehicles on site. The Black-footed Cat, Aardvark, Bat-eared Fox and Cape Fox are at most risk of being impacted upon during the construction phase as a result of digging and earthworks.

Three levels of faunal sensitivity were identified within the broader study area, namely, areas of low, moderate and high sensitivity. The areas designated as high sensitivity areas are landscape features providing rock habitats. These rocky habitats are highly sensitive due to the high biodiversity and abundance of fauna that they support. Areas of moderate sensitivity are attributed to the seasonal waterways and water bodies since these water features and their associated habitat support life on site and attract faunal activity within and around them. The proposed power line alternatives will not encroach on any areas regarded to be of high faunal sensitivity. The power lines will however traverse areas of moderate sensitivity, together with their associated buffers.

Faunal disturbance during the construction phase of the project is inevitable. This impact will however be temporary and most fauna are likely to return to the area once construction has been completed. Areas of high sensitivity, including their associated buffers, must be avoided. Provided that the proposed mitigation measures are implemented, the development of the 132kV power line will not lead to significant impacts on terrestrial fauna.

1.2.1.2. Results of the Avifauna Impact Assessment

The pre-construction bird monitoring programme for the site was conducted over four seasons to investigate the potential impact of the Korana Solar Energy Facility, with which the 132kV power line is associated, on avifauna. The primary methods of data capturing were walk transect counts, drive transect counts, focal point monitoring, vantage point counts, and incidental sightings.

A total of eighty-three (83) species were recorded within the broader study area from all primary data sources (drive transects, walk transects, VP watches, focal point counts and incidental sightings). Of these, eight (8) are South African Red Data species; fifteen (15) are southern African endemics; and twenty (20) are near-endemics. This means that 9.6% of the species that could potentially occur in the study area are Red Data species, and 42% are southern African endemics and near-endemics.

The proposed power line will impact on avifauna as a result of displacement and disturbance during construction, and collisions and electrocution during operation. Impacts for both Alternative 1A and 1B are expected to be of medium significance which, in most instances, could be reduced to low impact through appropriate mitigation. Although the impact significance for Alternative 1B is expected to be slightly higher than that for Alternative 1A due to the longer length of this power line alternative and the associated potential for higher levels of disturbance, the significance of the impact may not be higher than expected as this alternative falls within the already approved development footprint for the Korana Wind Energy Facility, which is located adjacent to the Korana Solar Energy Facility, and as a result, the impact of this alternative on avifauna may not be significant as the wind turbines associated with the Korana Wind Energy Facility may present higher impacts to avifauna than the power line.

1.2.1.3. Results of the Heritage Impact Assessment

The Heritage Impact Assessment identified no clear archaeological sites within the proposed site and broader study area. Even the few that were on the landscape failed to attract any form of stable pre-colonial occupation. The typical archaeology of the site is limited to a diffuse litter of stone artefacts, most of which are informal. The only formal artefact recorded was a single small biface made from quartzite. No built environment structures were identified within the proposed site, and along the proposed power line route alternatives.

Given that the farm property on which the power line is proposed to be developed was only granted in the early 20th century, and that all the structures on the property date to this time and later, there are few, if any, cultural landscape elements of concern. The site is very remote and has a distinct sense of place. This pertains to the vast open spaces of Bushmandland which stretch as far as one can see without man-made interruptions.

The impacts to heritage resources resulting from both power line alternatives is expected to be of low significance, largely due to the limited presence of such sites within the study area. Impacts on the cultural landscape are expected as a result of the visual impact associated with the power line. Impacts on cultural landscape would be restricted to the footprint of the solar energy facility with the implementation of Alternative 1A. In the case of Alternative 1B, impacts on cultural landscape would be minimised through placement of the power line adjacent to the existing 400kV power line to the Aggeney's Substation.

1.2.1.1. Results of the Visual Impact Assessment

The visual impact assessment identified no sensitive visual receptors within 2.5km from the site within which the power line alternatives are proposed. Visual receptors were however identified between 2.5km and 5km, as well as between 5km and 10km of the site.

The proposed 132kV power line will impact on sensitive receptors of the study area during both the construction and operation phase. Impacts are expected to be of moderate significance. Opportunities to

mitigate visual impacts are limited due to the nature of the infrastructure proposed. Visual impacts would however be minimised to some extent with the implementation of Alternative 1A as the power line would be restricted to the footprint of the solar energy facility. In the case of Alternative 1B, visual impacts would be minimised through placement of the power line adjacent to the existing 400kV power line to the Aggeneys Substation.

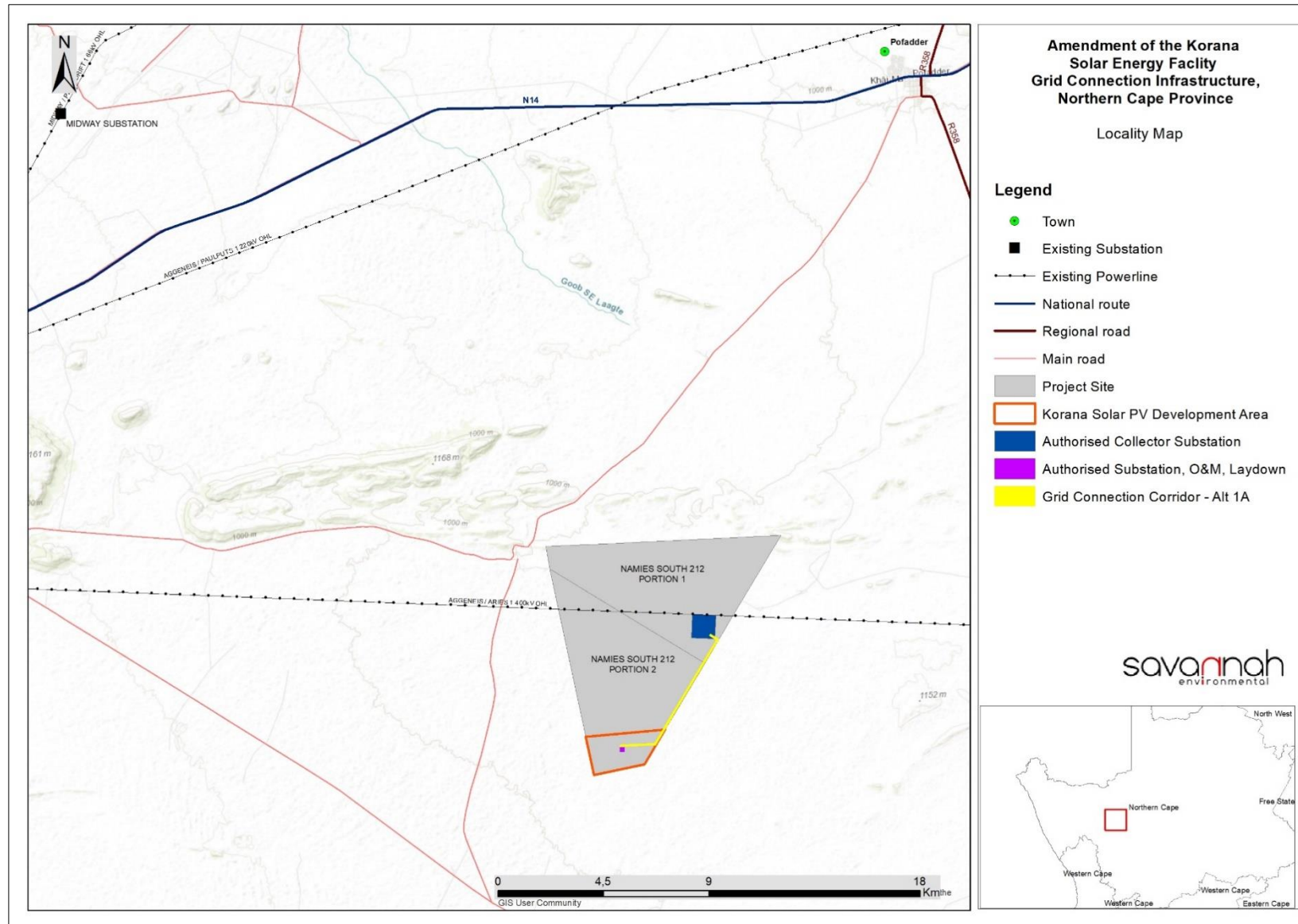


Figure 1.1: Locality map showing the technically preferred grid connection alternative (Alternative 1A) for the proposed 132kV power line associated with the Korana Solar Energy Facility on a site near Pofadder, Northern Cape Province **(A3 Map included in Appendix F)**.

2. DETAILS OF THE AMENDMENTS APPLIED FOR

This section of the report details the amendments considered within this report and by the specialist investigations (refer to **Appendix A – D**).

2.1. Amendment of the authorised power line from Alternative 1B to Alternative 1A

On page 4 of the EA dated 18 May 2015, under activities authorised, it is requested that the authorised power line corridor be amended as follows:

From:

Power line Corridor Alternative 1B	Latitude	Longitude
Starting point of activity	29°22'32.83"	19°14'20.01"
Middle point of activity	29°21'17.37"	19°15'41.62"
End point of activity	29°19'54.51"	19°17'19.54"

To:

Power line Corridor Alternative 1A	Latitude	Longitude
Starting point of activity	29°22'28.41"	19°14' 51.44"
Middle point of activity	29°24'29.51"	19°16'26.21"
End point of activity	29°19'54.51"	19°17'19.54"

2.2. Amendment of Condition 1 of the EA

The Applicant is requesting to change the wording included in Condition 1 of the EA dated 18 May 2015 as follows:

EA Page Reference	Current wording (EA dated 18 May 2015)	Requested amendment wording (amendment underlined)
Page 4 of the EA, Condition 1	The preferred route corridor of the power line using alternative 1B for the proposed construction of the 132kV power line to connect to the proposed onsite substation 2 for the proposed Korana Solar Energy Facility to the proposed Khai-Ma collector substation on a site near Pofadder, within Khai-Ma Local Municipality, in the Northern Cape Province, is approved.	The preferred route corridor of the power line using <u>alternative 1A</u> for the proposed construction of the 132kV power line to connect to the proposed onsite substation 2 for the proposed Korana Solar Energy Facility to the proposed Khai-Ma collector substation on a site near Pofadder, within Khai-Ma Local Municipality, in the Northern Cape Province, is approved.

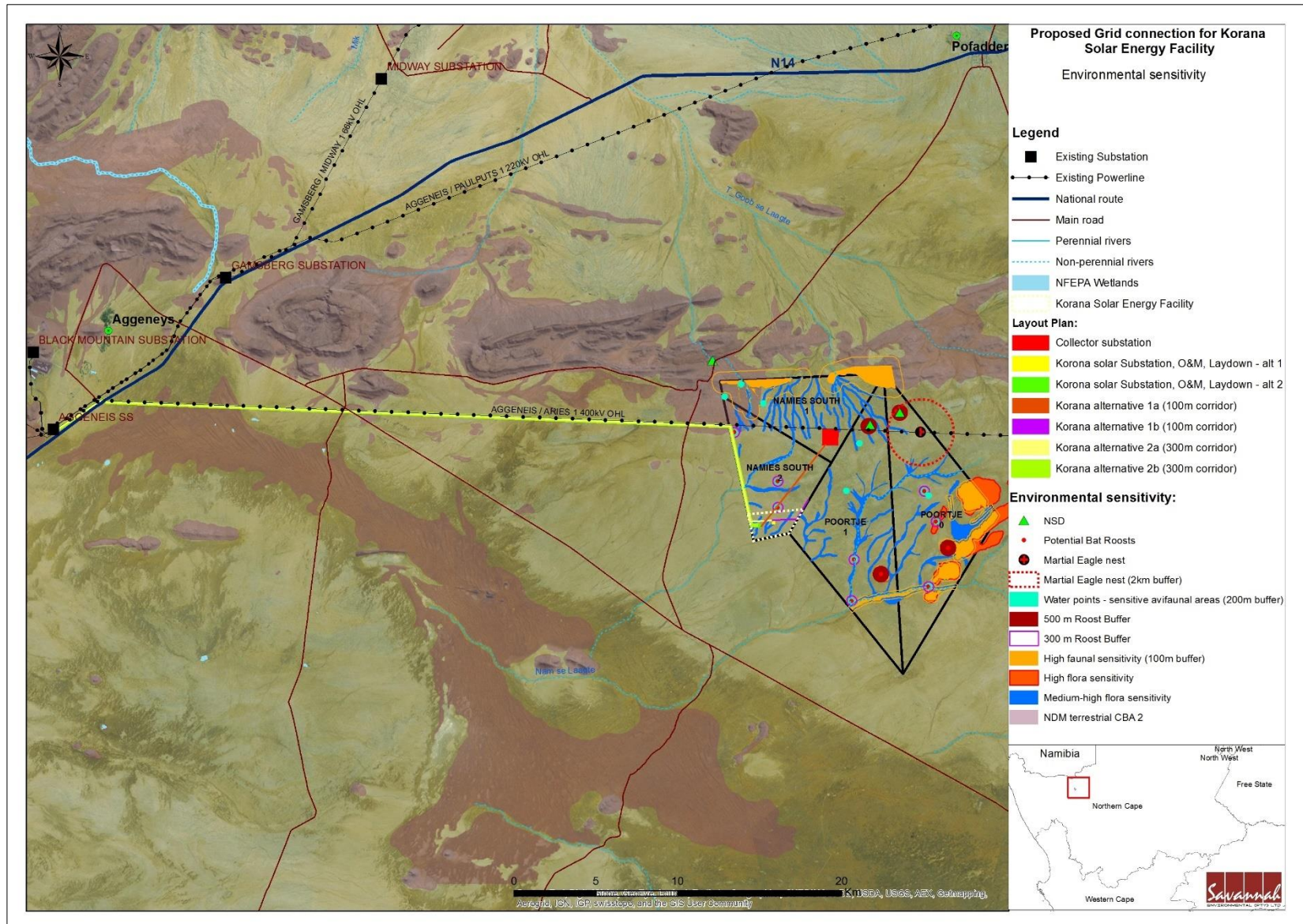


Figure 2.1: Layout of the grid connection alternatives for the proposed 132kV power line associated with the Korana Solar Energy Facility overlain onto the identified sensitivities (2015) (A3 Map included in Appendix F).

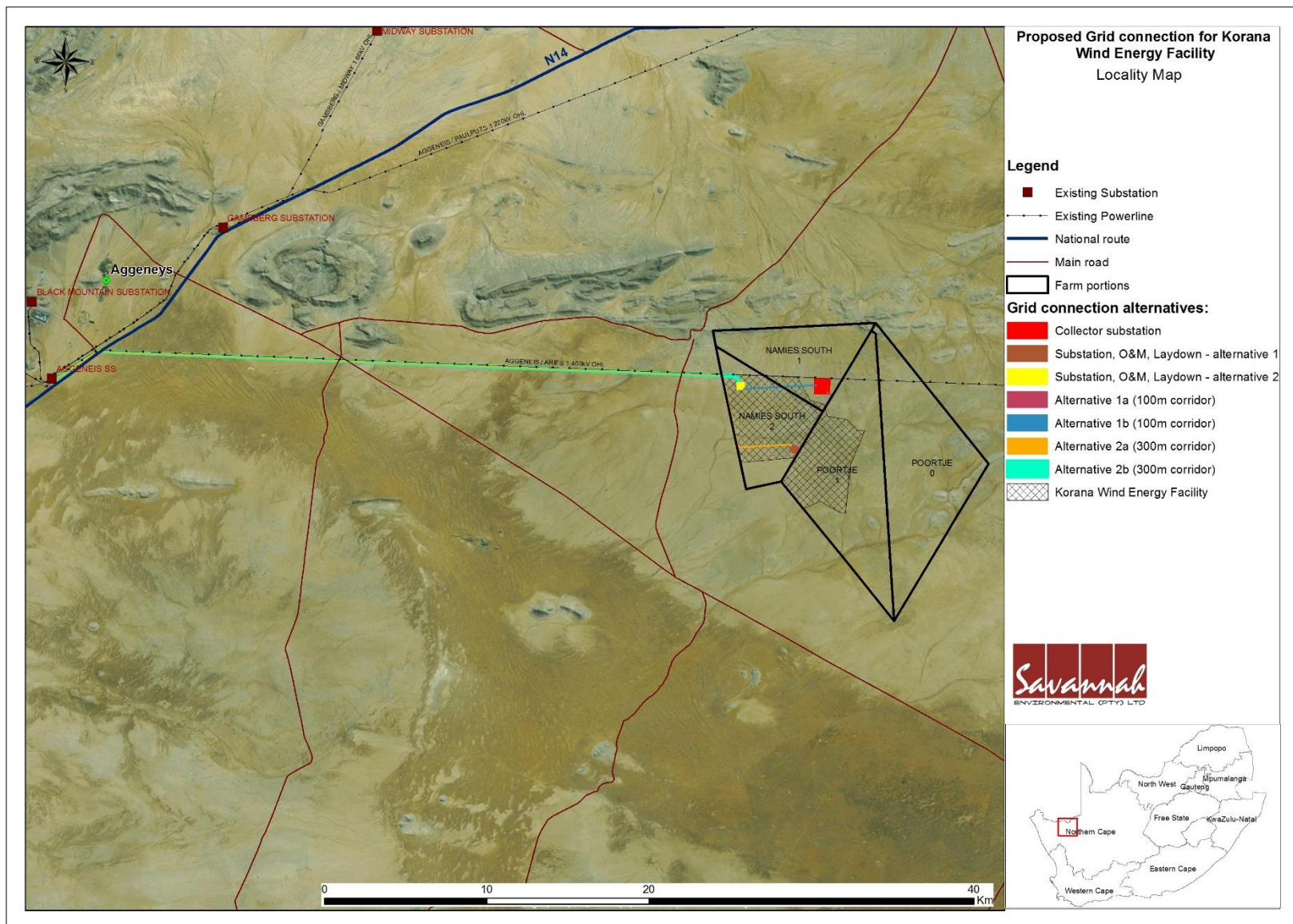


Figure 2.2: Layout of the grid connection alternatives for the proposed 132kV power line associated with the Korana Solar Energy Facility (2015) (A3 Map included in **Appendix F**).

3. REASONS FOR THE PROPOSED AMENDMENTS

This section of the report details the motivation for the proposed amendments included in Section 2 of this report.

3.1. Amendment of the authorised power line from Alternative 1B to Alternative 1A and amendment of Condition 1 of the EA

During the BA process for the 132kV power line associated with the Korana Solar Energy Facility, two grid alternatives were assessed, namely, Alternative 1A and Alternative 1B. The original EA dated 18 May 2015 (DFFE Ref.: 14/12/16/3/3/1/1347) currently states Alternative 1B as the approved option. Mainstream is now requesting the DFFE to amend the EA dated 18 May 2015 such that Alternative 1A is authorised, as opposed to the currently approved Alternative 1B, due to the following reasons:

- » Alternative 1A is linked to Mainstream's other grid lines in the area and does not traverse the development footprint for the Korana Wind Energy Facility, which lies adjacent to the Korana Solar Energy Facility.
- » The implementation of Alternative 1A will eliminate the need to construct two grid lines in order to reach the proposed 400kV Khai-Ma Collector Substation.

4. CONSIDERATIONS IN TERMS OF THE REQUIREMENTS OF THE EIA REGULATIONS

In terms of Regulation 31 of the EIA Regulations 2014, as amended, an environmental authorisation may be amended by following the process in this Part (i.e., a Part 2 amendment) if it is expected that the amendment may result in an increased level or change in the nature of impact where such level or change in nature of impact was not:

- a) Assessed and included in the initial application for environmental authorisation; or
- b) Taken into consideration in the initial authorisation.

Amendment of the EA to state that Alternative 1A is authorised, as opposed to the currently approved Alternative 1B does not, on its own, constitute a listed or specified activity. Therefore, the application is made in terms of Regulation 31 (a).

Savannah Environmental has been appointed as independent consultants to undertake the application for amendment on behalf of Mainstream. This Motivation Report has been prepared in support of this amendment application and aims to provide detail pertaining to the significance and impacts of the proposed change to the project description in order for I&APs to be informed of the proposed amendments and provide comment, and for the competent authority to be able to reach a decision in this regard. This report is supported by specialist studies in order to inform the final conclusion regarding the proposed amendments (refer to **Appendix A to D** of this report). This main report must be read together with these specialist studies in order to obtain a complete understanding of the proposed amendments and the implications thereof.

Neither Savannah Environmental nor any of its specialists are subsidiaries of or are affiliated to Mainstream. Furthermore, Savannah Environmental does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consulting company providing a holistic environmental management service, including environmental assessment and planning to ensure compliance and evaluate the risk of development, and the development and implementation of environmental management tools. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team.

The Savannah Environmental team have considerable experience in basic assessments and environmental management and have been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa, including those associated with electricity generation.

- » **Mmakoena Mmola** holds a B.Sc. Honours in Geochemistry from the University of the Witwatersrand and over 4 years of experience in the environmental management field. Her key focus is on undertaking environmental impact assessments, environmental permitting and authorisations, compliance auditing, public participation, and environmental management programmes. She is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP), Registration Number: 126748. She is responsible for the overall compilation of this Motivation Report; this includes

specialist engagements, reviewing specialists reports and incorporating specialist studies into this Motivation Report.

- » **Jo-Anne Thomas** is a registered EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA) and is the registered EAP for this project (EAPASA - 2019/726). She provides technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental auditing and monitoring, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management. Her key focus is on integration of the specialist environmental studies and findings into larger engineering-based projects, strategic assessment, and providing practical and achievable environmental management solutions and mitigation measures. Responsibilities for environmental studies include project management (including client and authority liaison and management of specialist teams); review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures. She has managed the EIA processes for more than 100 renewable energy projects (including wind, solar and hydro) across South Africa.

5. POTENTIAL FOR CHANGE IN THE SIGNIFICANCE OF IMPACTS AS ASSESSED IN THE BA AS A RESULT OF THE PROPOSED AMENDMENTS

This application is considered to be a Part 2 amendment as contemplated in terms of Regulation 31 of the EIA Regulations (2014), as amended. In terms of Regulation 32(1)(a)(i), the following section provides an assessment of the impacts related to the proposed change. Understanding the nature of the proposed amendments and the impacts associated with the project (as assessed within the BA), the following has been considered:

- » Potential ecological impacts;
- » Potential impacts on avifauna;
- » Potential impacts on heritage resources; and
- » Areas of visual impact.

Amendment of the EA to state that Alternative 1A is authorised, as opposed to the currently approved Alternative 1B is expected to have **no effect** on the findings of the Socio-economic Assessment undertaken as part of the BA process. Therefore, no Socio-economic Specialist Report has been included within this Motivation Report. The potential for change in the significance and/or nature of impacts based on the proposed amendments, as described within this Motivation Report, is discussed below and detailed in the specialists' assessment addendum letters (as applicable) contained in **Appendix A-D**. This section of the main report must be read together with the specialists' addendum letters contained in **Appendix A - D** in order for the reader to obtain a complete understanding of the proposed amendments and the implications thereof.

5.1. Impacts on Ecology

The Faunal Environmental Impact Assessment and the Botanical Impact Assessment for the 132kV power line associated with the Korana Solar Energy Facility were conducted by Werner Marais of Animalia Zoological & Ecological Consultation and David J. McDonald of Bergwind Botanical Surveys & Tours CC. in 2014, respectively. Consideration of the change in impact on fauna and flora associated with the proposed amendment was undertaken by Simon Todd of 3Foxes Biodiversity Solutions in February 2022. The findings of the assessment are detailed below (**Appendix A**).

5.1.1. Comparative Assessment

The two grid alternatives traverse a similar set of habitats, and there are no significant differences in the ecological sensitivity of the affected habitats along each grid alternative. Alternative 1B is however approximately 600m longer than Alternative 1A. As such, the change in preferred alternative from Alternative 1B to Alternative 1A would not increase either the footprint of the development or the overall assessed impacts associated with the grid connection. In addition, there are not likely to be any new or novel impacts associated with the change in route alternative. The change in preferred alternative is not considered ecologically significant and would not represent a significant change from the original assessment development description. As such, there would not be any changes to the impacts as originally assessed.

i. Advantages and disadvantages associated with the proposed change

As the set of habitats affected and sensitivity of the two routes are similar, there are no significant advantages or disadvantages of the changes that would affect the impacts of the development as assessed. Alternative 1A is shorter than Alternative 1B and as such would potentially generate a lower overall ecological impact. The extent of this difference is however not considered ecologically significant.

ii. Measures to ensure avoidance, management and mitigation of impacts

The change to the authorised grid alternative is located within the originally 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 study. In addition, the cumulative impacts associated with the amendment are considered to be the same as those as assessed and thus there would be no changes to the overall cumulative impacts associated with the proposed amendment. All of the mitigation and avoidance measures as recommended in the EMPr are held up by the current study and should be applicable to the amendment as well.

iii. Changes to the EMPr

There are no recommended changes to the EMPr, and all of the mitigation and avoidance measures as recommended in the EMPr are applicable to the proposed amendment.

5.1.2. Conclusion

The change in the preferred grid alternative for the Korana Solar Energy Facility from Alternative 1B to Alternative 1A can be supported from an ecological point of view as the change would not generate novel impacts or increase the severity of existing impacts associated with the Korana PV grid connection. No additional mitigation or avoidance measures, beyond those already recommended in the EMPr are required for the amendment. As such, there are no reasons to oppose the proposed amendment.

5.2. Impacts on Avifauna

The Avifauna Impact Assessment for the 132kV power line associated with the Korana Solar Energy Facility was conducted by Chris van Rooyen in 2014. Consideration of the change in impact on avifauna associated with the proposed amendment was also undertaken by Chris van Rooyen in November 2021 (refer to **Appendix B**). Since the proposed infrastructure and routing present a relatively small subset of the infrastructure that was previously assessed, no additional fieldwork was undertaken as the fieldwork undertaken during the BA process included an assessment of both Alternatives 1A and 1B.

5.2.1. Comparative Assessment

The findings of the Avifauna Impact Assessment conducted in 2014 indicate that the significance of the potential impact on avifauna (i.e., bird collisions, particularly priority species, with the proposed grid connection) with mitigation was assessed to be of medium negative significance for both Alternative 1A and Alternative 1B. Amendment of the EA to state that Alternative 1A is authorised, as opposed to the currently approved Alternative 1B, will not change the nature or significance of the impact previously assessed in a significant manner.

Nature of impact: Bird collisions, particularly priority species, with the proposed grid connection: Option 1A				
	Authorised		Proposed amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Low (5)	Low (5)	Low (5)	Low (5)
Duration	Long-term (4)	Long-term (4)	Long-term (4)	Long-term (4)
Magnitude	Moderate (6)	Low (4)	Moderate (6)	Low (4)
Probability	Highly Probable (4)	Probable (3)	Highly Probable (4)	Probable (3)
Significance	Medium (60)	Medium (39)	Medium (60)	Medium (39)
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Low	Low	Low	Low
Irreplaceable loss of resources?	No	No	No	No
Can impacts be mitigated?	Yes, but not entirely		Yes, but not entirely	
Mitigation measures due to the proposed amendment: » <u>No additional mitigation measures are required as a result of the proposed amendment.</u>				
Mitigation measures as per the original BA » The proposed transmission line for evacuation of the electricity generated by the Solar Energy Facility should be marked with Bird Flight Diverters (BFDs) for its entire length on the earth wire of the line, 5 metres apart, alternating black and white.				

Nature of impact: Bird collisions, particularly priority species, with the proposed grid connection: Option 1B				
	Authorised		Proposed amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Low (5)	Low (5)	Low (5)	Low (5)
Duration	Long-term (4)	Long-term (4)	Long-term (4)	Long-term (4)
Magnitude	High (8)	Moderate (6)	High (8)	Moderate (6)
Probability	Highly Probable (4)	Probable (3)	Highly Probable (4)	Probable (3)
Significance	High (68)	Medium (45)	High (68)	Medium (45)
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Low	Low	Low	Low
Irreplaceable loss of resources?	No	No	No	No
Can impacts be mitigated?	Yes, but not entirely		Yes, but not entirely	
Mitigation measures due to the proposed amendment: » <u>No additional mitigation measures are required as a result of the proposed amendment.</u>				
Mitigation measures as per the original BA » The proposed transmission line for evacuation of the electricity generated by the Solar Energy Facility should be marked with Bird Flight Diverters (BFDs) for its entire length on the earth wire of the line, 5 metres apart, alternating black and white.				

i. Advantages and disadvantages associated with the proposed change

There are no significant advantages or disadvantages associated with the proposed change that would affect the impacts of the development as assessed from an avifaunal perspective. It is however important

to note that Alternative 1A is shorter in length than Alternative 1B and therefore has lower levels of potential for disturbance.

ii. Measures to ensure avoidance, management and mitigation of impacts

No additional management outcomes or mitigation measures in terms of avifaunal impacts would be applicable to the proposed Alternative 1A as the change to the authorised grid alternative is located within the originally assessed development footprint and grid corridor.

iii. Changes to the EMPr

There are no recommended changes to the EMPr from an avifaunal perspective, and all of the mitigation and avoidance measures as recommended in the EMPr are applicable to the proposed amendment.

5.2.2. Conclusion

Considering the proposed amendment to the power line routing, the following conclusions were made:

- » The construction and operation of Alternative 1A will not change the nature or significance of any of the impacts previously assessed in any significant manner.
- » The construction and operation of the proposed Alternative 1A is not likely to result in any additional impacts that were not previously assessed.
- » No additional management outcomes or mitigation measures in terms of avifaunal impacts would be applicable to the proposed Alternative 1A.

It is therefore recommended that the amendment be authorised from an avifaunal perspective. It should be noted that Alternative 1A was the preferred alternative from an avifaunal perspective in the original specialist report as it is shorter in length than Alternative 1B and therefore has lower levels of potential for disturbance.

5.3. Impacts on Heritage Resources

Consideration of the change in impact on heritage resources associated with the proposed amendment was undertaken by ACO Associates (refer to **Appendix C**). The heritage impact assessment (HIA) produced by ACO Associates as part of the BA process in 2014 (Hart *et al* 2014) considered archaeological heritage resources, the historical built environment, cultural landscapes and scenic routes and sense of place. The requirement for a palaeontological assessment as part of the HIA was scoped out at the Scoping stage of the Korana Solar Energy Facility project, with which the grid connection is associated.

The Korana PV HIA (including the grid connection) found the following:

- » Archaeology: No clear archaeological sites were recorded during the survey of the site. The few natural foci for human use in the landscape seem not to have attracted any form of stable or long-term pre-colonial occupation. The typical archaeology comprises a diffuse litter of stone artefacts, most of which were informal. The only formal artefact found was a single small biface made from quartzite. Natural occurrences of quartz and crystal quartz showed limited flaking or harvesting for raw materials.

- » **Built environment:** No elements of the historical built environment were encountered on either of the Korana SPV grid connection route alternatives.
- » **Cultural landscape:** Given the results of the archaeological survey and the fact that the farm Namies South was only granted in the early 20th century and that all the structures date to this time and later, the HIA noted few, if any, cultural landscape elements of concern.
- » **Sense of place and visual impacts:** The site is very remote and has a distinct sense of place. The vast open spaces of Bushmanland mean that visual impacts of power lines are high. However, due to the remoteness of the area, there are very few visual receptors.

The N14 lies a minimum of 22km to the north of both grid connection alternatives and is the only route in the area that can be regarded as significantly scenic. The Solar PV site and the grid connection routes are, however, completely screened from the N14 by the intervening low mountains. From the west, the SPV site and grid connection routes are too distant from the N14 to result in an impact. The R358 is has scenic qualities but being a gravel road, carries far less traffic and also lies some 21km to the east of the grid connection route options.

5.3.1. Comparative Assessment

The Korana PV HIA (including the grid connection) conducted in 2014 made the following assessment of impacts on heritage resources:

- » The study area is not archaeologically sensitive and rescue excavations of archaeological material will not be necessary for any development of the site, along the power line routes or at the proposed substation sites. Generally, the impact of the proposed activity on archaeological material is expected to be very low.
- » No colonial period heritage (i.e. buildings and historical sites of significance) was identified within the boundaries of the study area and no impacts are thus expected.
- » Cultural landscapes are highly sensitive to large scale development activities that change the character and public memory of a place and the cumulative impacts of these. In terms of the National Heritage Resources Act, a cultural landscape may also include a natural landscape of high rarity value, aesthetic, and scientific significance. The construction of a large facility can result in profound changes to the overall sense of place of a locality, if not a region. Given the fact that this particular landscape is of limited aesthetic value, not particularly rare and extremely isolated, the significance of the landscape impact is moderated and was assessed to be low.

Amendment of the EA to state that Alternative 1A is authorised, as opposed to the currently approved Alternative 1B, will not change the nature or significance of the impacts previously assessed.

i. Advantages and disadvantages associated with the proposed change

There are no advantages or disadvantages associated with the proposed change that would affect the impacts of the development as assessed from a heritage perspective.

ii. Measures to ensure avoidance, management and mitigation of impacts

The following heritage mitigation measures were proposed by Hart et al (2014) in the Korana PV HIA (including the grid connection):

- » Archaeological heritage: There is no surface archaeological material that requires any form of mitigation prior to construction work.
- » Built environment and colonial period sites: There are no protected sites or structures that require mitigation.
- » Cultural landscape: No mitigation measures are suggested.
- » Human remains can occur at any place on the landscape and are protected by a range of legislation, including the National Heritage Resources Act (Act No 25 of 1999). In the event of human bones being found during construction activities, SAHRA must be informed immediately, and the remains removed under an emergency SAHRA permit. This process will incur some expense as removal of human remains is at the cost of the developer. Time delays may result while an application is made to the authorities and an archaeologist is appointed to do the work.

No additional mitigation measures are required as a result of the proposed amendment.

iii. Changes to the EMPr

There are no recommended changes to the EMPr from a heritage perspective, and all of the mitigation and avoidance measures as recommended in the EMPr are applicable to the proposed amendment.

5.3.2. Conclusion

The EA amendment application for the Korana Solar PV grid connection arises from the requirement of the applicant to utilise Alternative 1A as opposed to the authorised Alternative 1B route option. Both grid connection options were assessed as part of the 2014 HIA for the project and both were found to be acceptable in terms of potential impacts to heritage resources.

It is the specialist's reasoned opinion that the proposal to amend the EA to use grid connection Alternative 1A will occasion no changes to the identified impacts of the Korana SPV grid connection on heritage resources, provided the relevant mitigation measures recommended in the HIA are implemented.

From a heritage resources perspective, therefore, the proposed amendment to the EA for the Korana Solar PV grid connection route option is considered acceptable.

5.4. Visual Impacts

A visual assessment addendum letter was compiled by LOGIS (**Appendix D**) to evaluate the visual impacts associated with the proposed amendment. The findings of the assessment are detailed below, including the measures to ensure avoidance, management, and mitigation.

5.4.1. Comparative Assessment

There will be no significant change to the development footprint or dimensions of the infrastructure associated with the proposed amendment.

The amendment will not alter the area of potential visual exposure and is therefore not expected to alter the influence of the grid connection infrastructure on *areas of higher viewer incidence* (observers traveling

along the national, arterial/main, or major secondary roads within the region) or *potential sensitive visual receptors* (residents of homesteads in close proximity to the grid connection infrastructure).

In consideration of the proposed amendment, there are no (zero) changes to the significance ratings compared with the original Basic Assessment (BA) VIA report and no additional visual impacts are envisaged.

i. Advantages and disadvantages associated with the proposed change

There are no advantages or disadvantages associated with the proposed change that would affect the impacts of the development as assessed from a visual perspective.

ii. Measures to ensure avoidance, management and mitigation of impacts

Since there are no changes to the significance ratings compared with the original VIA Report and no additional visual impacts are envisaged as a result of the proposed change, no new mitigation measures are required.

iii. Changes to the EMPr

There are no recommended changes to the EMPr from a visual perspective, and all of the mitigation and avoidance measures as recommended in the EMPr are applicable to the proposed amendment.

5.4.2. Conclusion

The proposed amendment is expected to have a neutral effect from a visual impact perspective, i.e., no advantages or disadvantages are expected.

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

6. ADVANTAGES AND DISADVANTAGES OF THE PROPOSED AMENDMENTS

In terms of Regulation 32(1)(a)(ii), this section provides details of the advantages and disadvantages of the proposed amendment.

Advantages of the amendment	Disadvantages of the amendment
General	
Alternative 1A is linked to Mainstream's other grid lines in the area and does not traverse the development footprint for the Korana Wind Energy Facility, which lies adjacent to the Korana Solar Energy Facility.	None
The implementation of Alternative 1A could potentially reduce the need to construct two grid lines in order to reach the proposed 400kV Khai-Ma Collector Substation.	
Avifauna	
Alternative 1A is shorter in length than Alternative 1B and therefore has lower levels of potential for disturbance.	None
Ecology	
Alternative 1A is somewhat shorter than Alternative 1B and as such would potentially generate a lower overall ecological impact.	None
Heritage	
None	None
Visual	
None	None

Based on the above, it can be concluded that the advantages of the proposed change outweigh the disadvantages from an environmental and technical perspective.

7. REQUIREMENTS FOR ADDITIONAL MITIGATION AS A RESULT OF THE PROPOSED AMENDMENTS

As required in terms of Regulation 32(1)(a)(iii), consideration was given to the requirement for additional measures to ensure avoidance, management and mitigation of impacts associated with the proposed change. From the specialist inputs provided into this amendment motivation, it is concluded that the mitigation measures proposed within the EMPr would be sufficient to manage potential impacts within acceptable levels. No additional mitigation measures are provided by the specialists as a result of the proposed amendment.

8. PUBLIC PARTICIPATION

A public participation process has been conducted in support of the Part 2 application for amendment of the EA for the 132kV power line associated with the Korana Solar Energy Facility near Pofadder, Northern Cape Province.

A full I&AP database is included in **Appendix E1**¹. It must be noted that the project is to be developed on the same farm portions as originally authorised, all of which, are privately owned. The landowners were informed of the part 2 amendment process. The amendment to the EA will not result in impacts on any additional I&APs.

The public participation for the proposed amendment process included:

- » The Draft Motivation Report was made available to registered I&APs on the Savannah Environmental Website (<https://savannahsa.com/public-documents/grid-infrastructure/>) for a 30-day review and comment period from **Friday, 25 February 2022 to Monday, 28 March 2022**.
- » Written notification to registered I&APs (refer to **Appendix E2**) and Organs of State (refer to **Appendix E3**) regarding the availability of the Draft Motivation Report was sent on **Friday, 25 February 2022**.
- » Advertisements were placed in the **Volksblad Newspaper** on **Wednesday, 23 February 2022** (refer to **Appendix E4**).
- » Site notices were placed at the site on **Tuesday, 23 November 2021** (refer to **Appendix E4**).

Comments received during the 30-day public review and comment period have been included and responded to in the Comments and Responses Report which has been included as **Appendix E6** to this final Motivation Report submitted to the DFFE for consideration in the decision-making process.

¹ Contact details of I&APs are not included due to POPIA requirements.

9. CONCLUSION

Based on the specialist findings, it is concluded that the proposed amendment to the authorised power line option is not expected to result in an increase to the significance ratings for the identified potential impacts. Specific findings were issued by the respective specialists, summarised below:

- » The **Ecological** specialist found that the amendment of the authorised grid alternative from Alternative 1B to Alternative 1A would not increase either the footprint of the development or the overall assessed impacts associated with the grid connection as Alternative 1B is approximately 600m longer than alternative 1A and would as such potentially generate a higher overall ecological impact when compared to Alternative 1A. As the set of habitats affected and sensitivity of the two routes are similar, there are no significant advantages or disadvantages of the changes that would affect the impacts of the development as assessed. In addition, there are not likely to be any new or novel impacts associated with the change in route alternative. No additional management outcomes or mitigation measures in terms of ecological impacts would be applicable to the proposed Alternative 1A.
- » The **Avifaunal** specialist found that the construction and operation of Alternative 1A will not change the nature or significance of any of the impacts previously assessed in any significant manner, and that the construction and operation of the proposed Alternative 1A is not likely to result in any additional impacts that were not previously assessed. No additional management outcomes or mitigation measures in terms of avifaunal impacts would be applicable to the proposed Alternative 1A.
- » The **Heritage** specialist found that proposal to amend the EA to use grid connection Alternative 1A will occasion no changes to the identified impacts of the Korana SPV grid connection on heritage resources, provided the relevant mitigation measures recommended in the HIA are implemented. No additional mitigation measures are required as a result of the proposed amendment.
- » The **Visual** specialist indicated that there will be no significant change to the development footprint or dimensions of the infrastructure associated with the proposed amendment. The amendment will not alter the area of potential visual exposure and is therefore not expected to alter the influence of the grid connection infrastructure on *areas of higher viewer incidence* (observers traveling along the national, arterial/main, or major secondary roads within the region) or *potential sensitive visual receptors* (residents of homesteads in close proximity to the grid connection infrastructure). In consideration of the proposed amendment, there are no (zero) changes to the significance ratings compared with the original Basic Assessment (BA) VIA report and no additional visual impacts are envisaged. In addition to this, no new mitigation measures are required.

All specialists therefore concluded that the amendment proposed is considered acceptable from their respective specialisation and that the proposed amendment be supported subject to the conditions and recommendations as stipulated in the EA and according to the EMPr and suggested mitigation measures, as provided in the original specialist's assessments reports.

9.1. Overall Conclusion and Recommendations

The amendment in itself does not constitute a listed activity. The mitigation measures described in the original BA document are adequate to manage the expected impacts for the project. No additional mitigation measures are provided by the specialists.

Given the above, Mainstream requests the following amendments as part of this application:

- i. Amendment of the authorised power line from Alternative 1B to Alternative 1A.
- ii. Amendment of Condition 1 of the EA.

Taking into consideration the conclusions of the studies undertaken for the proposed amendments (as detailed in **(Appendix A–D)**), it is the opinion of the EAP that these amendments are considered acceptable from an environmental perspective, provided that the original mitigation measures stipulated herein are implemented.