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25 May 2023

Attention: Savannah Environmental (Pty) Ltd
Jo-Anne Thomas: joanne@savannahsa.com

To whom it may concern:

ECOLOGICAL SPECIALIST INPUT FOR THE PART 2 AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION (EA) FOR THE PROPOSED ESTABLISHMENT OF THE KAROSHOEK GRID INTEGRATION INFRASTRUCTURE i.e. ON-SITE SUBSTATION/SWITCHING YARD AND 400KV POWERLINE FROM SITE 1.4, 3, 4, AND 5 TO THE FEATURE ESKOM MTS 400KV POWER LINE PROPOSED TO THE WEST OF THE SITE, AS PART OF THE LARGER KAROSHOEK SOLAR VALLEY DEVELOPMENT, 30KM EAST OF UPINGTON, WITHIN THE KHARA HAIS LOCAL MUNICIPALITY IN THE NORTHERN CAPE PROVINCE.

Background

FG Emvelo (Pty) Ltd is proposing to amend the Environmental Authorisation (EA) for the Karoshoek Grid Connection, as part of the Karoshoek Solar Valley Development Project, by extending the EA validity by an additional ten (10) years. Extension of the validity of the EA will ensure that the EA remains valid for the undertaking of the authorised activities.

Savannah Environmental have been appointed as the Registered Environmental Assessment Practitioner (EAP) to prepare the Application. The EA Amendment will be completed in terms of Regulation 30(1)(a) of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended, including additional specialist studies and public participation required by the DFFE. Condition 6 of the First Issue Environmental Authorisation, Issued on 20 March 2013, DEA Reference 14/12/16/3/3/2/288 states that:

"This activity must commence within a period of three (3) years from the date of issue. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken."

Consequent amendments to extend the validity of the authorisation have been made as follows:

- 14/12/16/3/3/2/288/AM1 – authorised on 11 November 2015 extending validity to 20 March 2018
- 14/12/16/3/3/2/288/AM2 – authorised on 11 April 2018 extending the validity to 20 March 2023

The applicant, FG Emvelo (Pty) Ltd thus requests that the Competent Authority amends condition 6 of the EA as amended (DFFE Reference 14/12/16/3/3/2/288/AM2; dated 11 April 2018) as follows:

> **From: "**This activity must commence within a period of three (3) years from the date of issue"
>
> **To:** "This activity must commence within a period of twenty (20) years from the date of issue"

It should be noted that the EA for the project has not been lying dormant for 10 years. All specialists undertook a re-assessment of the potential environmental impacts associated with the PV1 area of the project in 2020.

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The Biodiversity Company was appointed to provide specialist inputs for this Amendment Application. This report is a component of the Ecological Assessment and the Scope of Work for this report is as follows:

- Confirmation of the status of the environment compared to that at the time of the original assessment was done at a desktop level only, and no site visit was conducted.
- An indication as to whether the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA, should the request to extend the commencement period be granted by the Department.
- An indication as to whether there are any new assessments/guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration and addressed in the report.
- A description and an assessment of any changes to the biophysical environment that has occurred since the initial EA was issued.
- A description and an assessment of the surrounding environment, in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following:
    - Similar developments within a 30km radius; and
    - Identified cumulative impacts, and where possible the size of the identified impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.

Assumptions and Limitations

A field survey was not conducted as part of this assessment and the assessment was conducted at a desktop level only. Nevertheless, based on the previous reports and satellite imagery where it is apparent that little has changed in the area since the last field assessment, there is a high level of confidence in the understanding of the present ecological condition. Although the previous assessments did not specifically considered the 400kV powerline, information has been extrapolated for this amendment.

Results and Outcomes

1 The following assessments were considered for this report:

1.1. Simon Todd Consulting. 2012. Proposed Karoshoek Solar Valley Development. Fauna & Flora Specialist Report.

1.2. Savannah Environmental. 2012. Environmental Impact Assessment Process Final Environmental Impact Report. Proposed Establishment of the Karoshoek Grid Integration Infrastructure, As Part of The Larger Karoshoek Solar Valley Development, Northern Cape Province.

1.3. 3Foxes Biodiversity Solutions. 2020. Basic Assessment for the Ilanga PV Solar 1 Facility and Associated Infrastructure, Upington, Northern Cape. Fauna & Flora Specialist BA Report.

1.4. Savannah Environmental. 2020. Upilanga PV1. Final Basic Assessment Report.

2 Vegetation:

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2.1. No Species of Conservation Concern (SCC) were encountered during the previous site visits, although two nationally protected tree species were recorded, *Vachellia erioloba* and *Boscia albitrunca*. These species are mostly associated with the larger drainage lines. Additional protected species were also recorded: *Aloe clavifora; Adenia oleifolium* and *Hoodia gordonii*. The appropriate permit is required for any activities which are likely to directly or indirectly impact the survival of any of these species.

2.2. Quartz patches are known to occur in the area, and although none were recorded during the assessments, these are likely places where flora SCC will occur and should be avoided.

3 Mammals:

3.1. No SCC were encountered during the previous site visits. Two mammal SCC are expected, *Parahyaena brunnea* (near threatened) and *Felis nigripes* (vulnerable), but, should they occur, they are unlikely to be impacted by the developments as they are wide ranging and developments would not result in significant habitat loss for these species.

4 Reptiles:

4.1. Reptile diversity within the project area is expected to be moderate to low, with no SCC recorded during the previous site visits, nor any expected for the region. There do not appear to be any broad habitats of high reptile significance within the site.

5 Amphibians:

5.1. Amphibian diversity is expected to be low, with no SCC recorded during the previous site visits. The only SCC with the possibility of occurring on site is *Pyxicephalus adspersus* (near threatened). Some of the pans present within the site represent suitable breeding habitat for this species, as well as any other species which breed in temporary pools. However, those amphibians which require perennial water are unlikely to occur. Impacts will, therefore, be local in nature and of low magnitude.

6 Impact Risk Factors from the Grid Integration Infrastructure Report included the following:

6.1. Construction Phase:

- Vegetation clearing for roads, etc. could impact listed plant species as well as high-biodiversity plant communities. Vegetation clearing will also lead to habitat loss for fauna and potentially the loss of sensitive faunal species, habitats and ecosystems.

- High erosion risk may result due to the loss of plant cover and soil disturbance created during the construction phase. This may impact downstream riparian and wetland habitats if a lot of silt enters the drainage systems. Although the effects would probably only become apparent during the operational phase, the impact stems from the construction phase and suitable mitigation measures will also need to be applied at this stage.

- Presence and operation of construction machinery on site. This will create a physical impact as well as generate noise, pollution and other forms of disturbance at the site.

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- Increased human presence can lead to poaching, illegal plant harvesting and other forms of disturbance such as fire.

- Loss of connectivity & habitat fragmentation may result due to the presence of the generation infrastructure, roads, site fencing and other support infrastructure of the development.

6.2. Operational Phase:

- Maintenance activities such as vegetation clearing will impact the biodiversity of the site if not conducted in a sensitive manner.

- Persistent avifaunal impacts would potentially result from the presence of power transmission infrastructure at the site.

7 The Vegetation Impact Assessment from the Grid Integration Infrastructure Report included the following:

7.1. Impacts on vegetation and listed plant species

Some loss of vegetation is an inevitable consequence of the development. The vegetation types within the affected area are, however, widespread and the loss of even a few thousand hectares of these vegetation types would be of relatively minor significance when considered at a broad scale. However, the potential impacts on listed plant species is of greater significance given the abundance of certain listed species within the site.

	Without mitigation	**With mitigation**
Extent	Local (2)	Local (1)
Duration	Short term (2)	Short term (2)
Magnitude	Medium (6)	Low (2)
Probability	Highly probable (4)	Probable (3)
Significance	**Medium (40)**	**Low (15)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	
Irreplaceable loss of resources?	Yes	
Can impacts be mitigated?	Yes, to a large extent	

Mitigation:
- ***Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared.***
- ***Sensitive areas as demarcated on the sensitivity map should be avoided as far as possible, and where these areas must be traversed, precautions should be taken to ensure that impacts are minimised.***
- ***Final route to be given a walk-down by an ecologist, at least in the sensitive places.***

Cumulative Impacts:
- ***There are already a number of power lines in the area and the new line will contribute a small to moderate amount to cumulative impacts within the area.***

Residual Impacts:
- ***With careful route planning there would be little residual impact on the vegetation.***

8 The Fauna (excluding avifauna) Impact Assessment from the Grid Integration Infrastructure Report included the following:

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8.1. Faunal Impacts

Increased levels of noise, pollution, disturbance and human presence will be detrimental to fauna. Sensitive and shy fauna would move away from the area during the construction phase as a result of the noise and human activities present. Some mammals and reptiles, such as tortoises, would be vulnerable to illegal collection or poaching during the construction phase as a result of the large number of construction personnel that are likely to be present. The development areas would also amount to habitat loss for most fauna, although there are some species which would potentially increase in the developed areas. Depending on how the development areas were fenced off, the fencing would probably also restrict animal movement and disrupt the connectivity of the landscape for fauna.

	Without mitigation	**With mitigation**
Extent	Local (2)	Local (1)
Duration	Long term (3)	Long term (2)
Magnitude	Medium (4)	Medium-Low (3)
Probability	Probable (3)	Probable (3)
Significance	**Medium (27)**	**Low (21)**
Status (positive or negative)	Negative	Negative
Reversibility	High	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	To some extent	

Mitigation:

- ***Any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person.***
- ***The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the construction site.***
- ***Fires should only be allowed within fire-safe demarcated areas.***
- ***No fuel wood collection should be allowed on-site.***
- ***No dogs should be allowed on site.***
- ***All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.***
- ***No unauthorised persons should be allowed onto the site.***
- ***Staff present during the operational phase should receive environmental education so as to ensure that that no hunting, killing or harvesting of plants and animals occurs.***

Cumulative Impacts:

- ***Fauna are likely to be impacted largely during the construction phase, and if this can be mitigated, there would be little long-term cumulative impact.***

Residual Impacts:

- ***Residual impacts for fauna would be low.***

9 Site sensitivity for the Karoshoek Grid Integration is as follows:

9.1. The Project Area was identified with the Environmental Screening Tool as possessing a Very High sensitivity within a Terrestrial Biodiversity Theme. This is due to overlap with Critical Biodiversity Areas and FEPA subcatchments.

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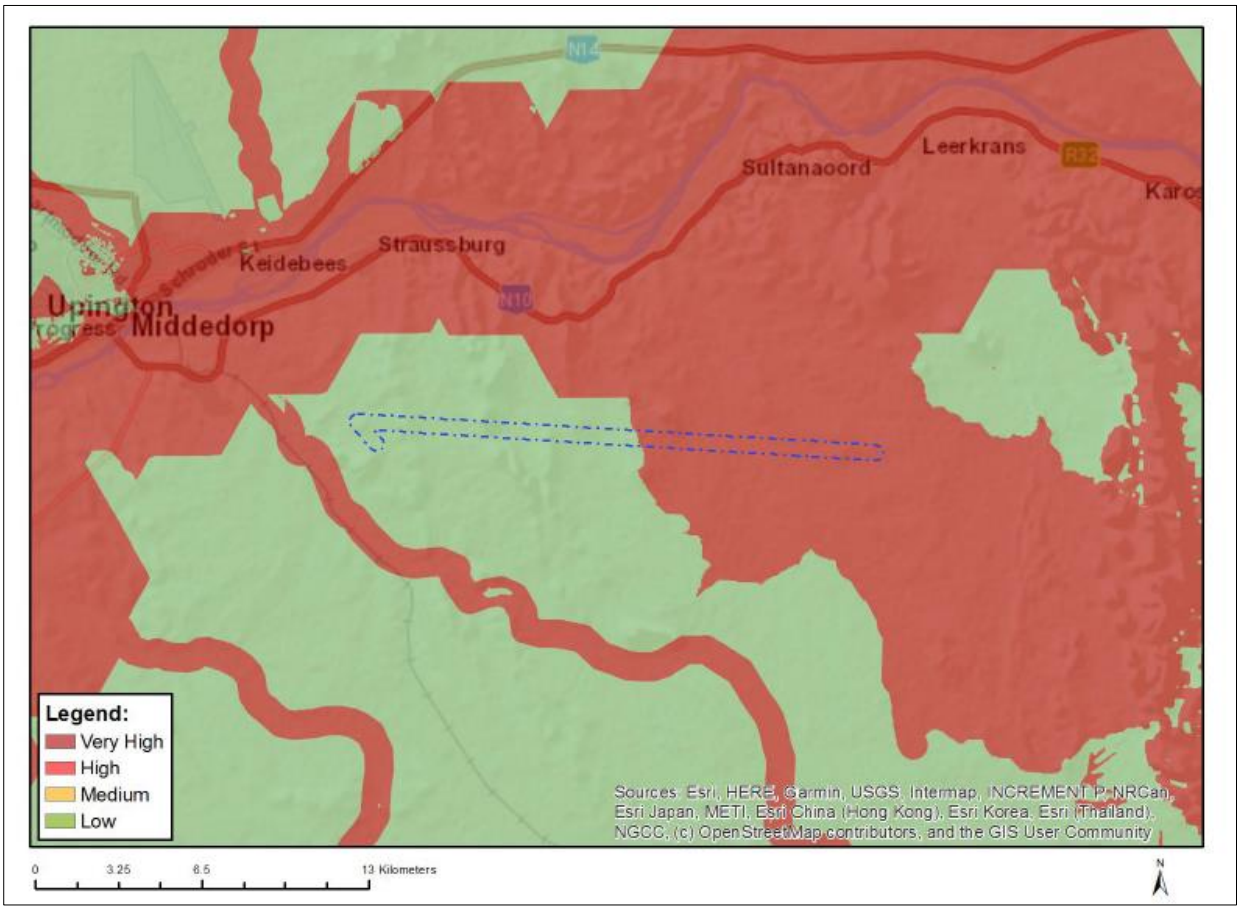

Figure indicating the Relative Terrestrial Biodiversity Theme Sensitivity as identified by the Environmental Screening Tool

9.2. Since the time of release of the Final Environmental Impact Assessment Report for the Karoshoek Grid Integration (Savannah, 2012), the Northern Cape Department of Environment and Conservation released the Northern Cape Critical Biodiversity Areas dataset (NCDENC, 2016). According to this dataset, the site overlaps with a Critical Biodiversity Area 1 and a Critical Biodiversity Area 2. It is important that these limitations are considered going forward.

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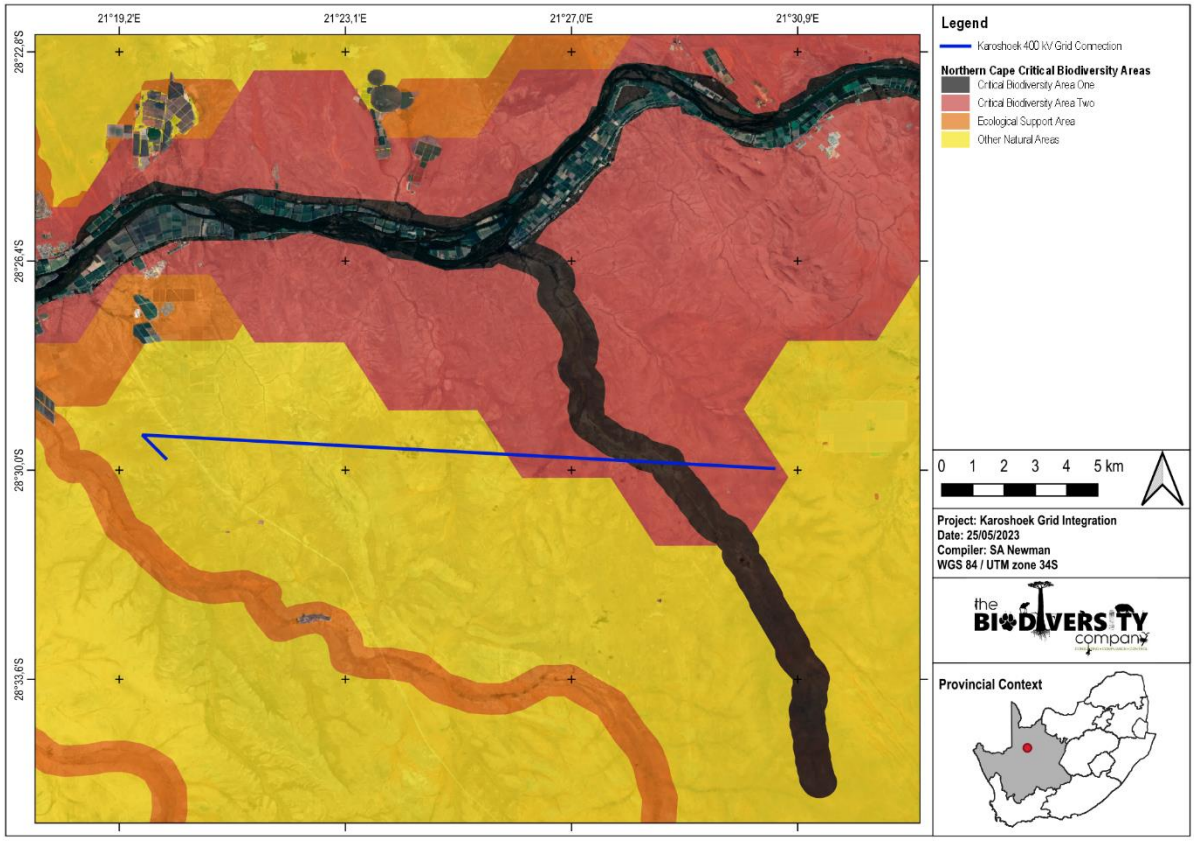

Figure illustrating the site relative to the Northern Cape Critical Biodiversity Areas dataset (2016)

9.3. It can be noted from both the Fauna & Flora Specialist Impact Assessment Report (Simon Todd Consulting, 2012) and the Environmental Impact Assessment Process Final Environmental Impact Report for the Karoshoek Grid Integration (Savannah, 2012) that the site overlaps high and very high sensitivity areas, most of which are within the drainage lines. Provided that the management measures are correctly implemented, the linear infrastructure will have moderate to low significance and can be mitigated to acceptable levels.

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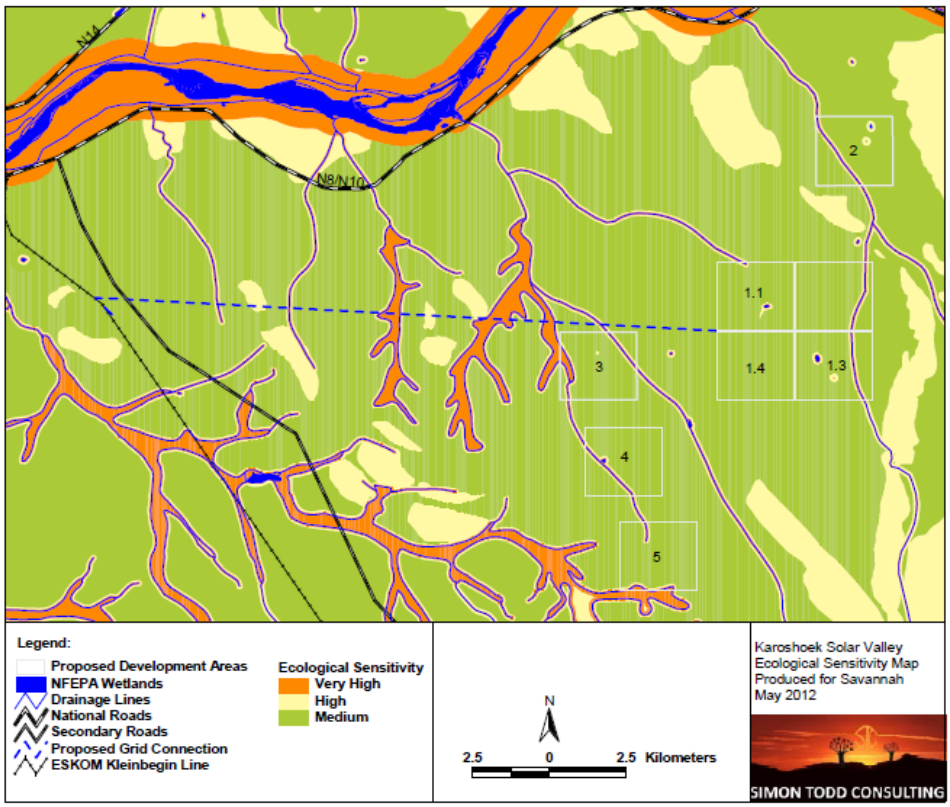
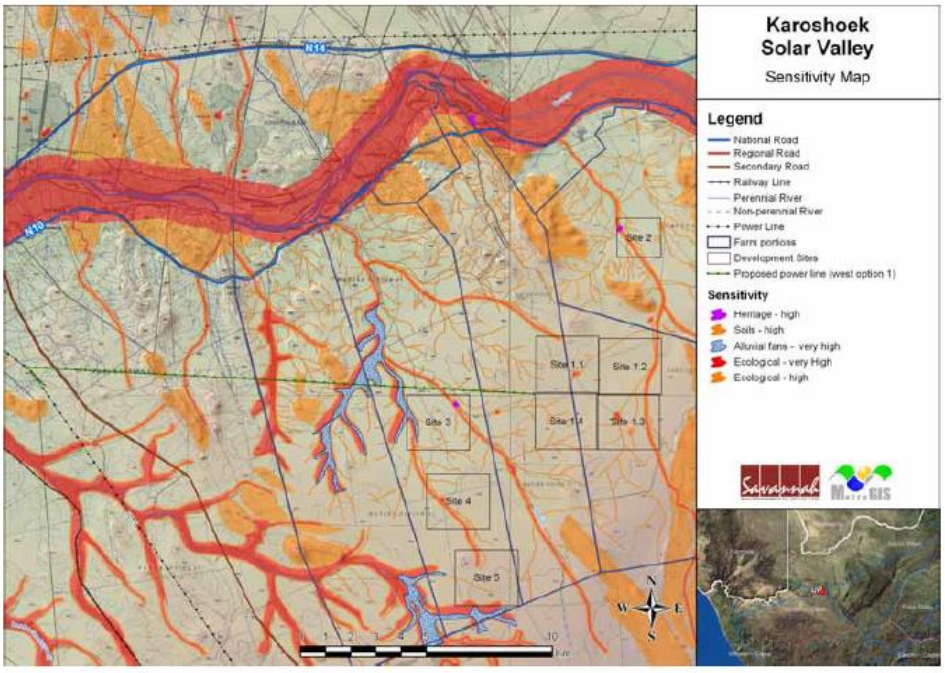


Figure taken from the Fauna & Flora Specialist Impact Assessment Report (Simon Todd Consulting, 2012)



Sensitivity Map taken from the Environmental Impact Assessment Process Final Environmental Impact Report (Savannah, 2012)

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10 Mitigation measures prescribed by each of the reviewed specialist reports remain applicable and must be strictly adhered to.

11 All prescribed mitigation measures and supporting recommendations presented will help to achieve an acceptable residual impact. These measures and recommendations will remain applicable for the requested extension of the EA. To this end, these measures have been included in the updated EMPr for this development as per the requirements of the Environmental Authorisation.

12 In order to manage the impacts effectively, the following additional mitigation management should be put into place for the general impacts associated with flora and fauna:

Impact Management Actions	Implementation Phase	Responsible Party
Clearing of vegetation must be minimised and avoided where possible. All activities must be restricted to flat areas as far as possible. It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon. All disturbed footprints to be rehabilitated and landscaped after construction is complete. Rehabilitation of the disturbed areas existing in the project area must be made a priority. Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to the project area vegetation type.	Life of operation	Project manager, Environmental Officer
Existing servitudes, access routes, and especially roads must be made use of.	Construction/Operational Phase	Environmental Officer & Design Engineer
All laydown, chemical toilets etc. must be restricted to outside of the project area. No materials may not be stored within the project area, and all materials must be removed from the project area once the construction phase has been concluded. No permanent construction structures/formwork should be permitted. No storage of vehicles or equipment will be allowed outside of the designated project areas.	Construction/Operational Phase	Environmental Officer & Design Engineer
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood and wind events. This will also reduce the likelihood of encroachment by alien invasive plant species. All livestock should always be kept out of the project area, especially areas that have been recently re-planted.	Operational phase	Environmental Officer & Contractor
A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. No servicing of equipment to take place within the project area unless necessary. All contaminated soil/yard stone shall be treated in situ or removed and placed in containers. Appropriately contain any diesel or oil storage tanks, machinery spills (e.g., accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them from leaking and entering the environment. Construction activities and vehicles could cause the spillage of lubricants, fuels and waste material potentially negatively affecting the functioning of the ecosystem. All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas outside of the project area.	Life of operation	Environmental Officer & Contractor

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Impact Management Actions	Implementation Phase	Responsible Party
It should be made an offence for any staff to take/ bring any plant species into/out of any portion of the project area, apart from their intended use for rehabilitation purposes. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.	Life of operation	Project manager, Environmental Officer
A fire management plan must be compiled and implemented to restrict the impact that fire might have on the surrounding areas.	Life of operation	Environmental Officer & Contractor
Any protected plant that may be present needs a relocation or destruction permit for any individual that may be removed or destroyed due to the development. If left undisturbed the sensitivity and importance of these species needs to be part of the environmental awareness program. All protected and red-list plants should be relocated, along with as many other geophytic species as possible.	Life of operation	Project manager, Environmental Officer
Plant search and rescue must be conducted prior to construction.	Planning Phase, Pre-Construction	Project manager, Environmental Officer & Contractor
A qualified environmental control officer must be on site when construction begins. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. Should any large nests be observed within the project area construction should stop immediately and a qualified specialist must be contacted.	Construction Phase	Environmental Officer, Contractor
The areas to be developed must be specifically demarcated to prevent movement of staff or any individual into the surrounding environments: • Signs must be put up to enforce this.	Construction/Operational Phase	Project manager, Environmental Officer
The duration of the construction should be minimized to as short term as possible, to reduce the period of disturbance on fauna.	Construction	Project manager, Environmental Officer & Design Engineer
Noise must be kept to an absolute minimum during the evenings and at night to minimise all possible disturbances to nocturnal mammals.	Construction/Operational Phase	Environmental Officer
No trapping, killing, or poisoning of any wildlife is to be allowed: • Signs must be put up to enforce this.	Life of operation	Environmental Officer
All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings, dust and erosion is limited. The speed limits should be restricted to a maximum of 30 km/h within the project area.	Life of operation	Health and Safety Officer
Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible.	Construction/Operational Phase	Project manager, Environmental Officer & Design Engineer
Schedule activities and operations during least sensitive periods, to avoid migration, nesting and breeding seasons: • Driving on access roads at night should be restricted in order to reduce or prevent wildlife road mortalities which occur more frequently during this period.	Life of operation	Project manager, Environmental Officer & Design Engineer

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Impact Management Actions	Implementation Phase	Responsible Party
Any holes/deep excavations must be dug and planted in a progressive manner and should not be left open overnight: • **Should the holes remain open overnight they must be covered temporarily to ensure no small fauna species fall in.**	Planning and Construction	Environmental Officer & Contractor, Engineer
Ensure that cables and connections are insulated successfully and adequately to reduce electrocution risk.	Life of project	Environmental Officer & Contractor, Engineer
Compilation of and implementation of an Alien Invasive Plant Management Plan for the project area.	Life of operation	Project manager, Environmental Officer & Contractor
The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. The footprint of the roads must be kept to prescribed widths.	Construction/Operational Phase	Project manager, Environmental Officer & Contractor
Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests from entering the site	Life of operation	Environmental Officer & Health and Safety Officer
A pest control plan must be put in place and implemented; it is imperative that poisons not be used due to the presence of faunal SCC in the area.	Life of operation	Environmental Officer & Health and Safety Officer
Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes wetting of exposed soft soil surfaces: • **No non-environmentally friendly suppressants may be used as this could result in the pollution of valuable water sources.**	Life of operation	Contractor
Waste management must be a priority and all waste must be collected and stored effectively.	Life of operation	Environmental Officer & Contractor
Litter, spills, fuels, chemical and human waste in and around the project area must be cleared and safely/appropriately stored immediately.	Construction/Operation/Closure Phase	Environmental Officer & Health and Safety Officer
A minimum of one toilet must be provided per 10 persons. Portable toilets must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area.	Life of operation	Environmental Officer & Health and Safety Officer
The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility.	Life of operation	Environmental Officer & Health and Safety Officer
Where a registered disposal facility is not available close to the project area, the Contractor shall provide a method statement with regard to waste management. Under no circumstances may domestic waste be burned on site or stored in pits.	Life of operation	Environmental Officer, Contractor & Health and Safety Officer
Refuse bins will be emptied and secured. Temporary storage of domestic waste shall be in covered waste skips. Maximum domestic waste storage period will be 10 days.	Life of operation	Environmental Officer, Contractor & Health and Safety Officer

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Impact Management Actions	Implementation Phase	Responsible Party
All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within and in close proximity to the project area such as the nearby rocky outcrops and to inform contractors and site staff of the presence of red-listed faunal species (such as the Riverine rabbit), their identification, conservation status and importance, biology, habitat requirements and management requirements in line with the Environmental Authorisation and within the EMPr. The avoidance and protection of the high sensitivity areas must be included in a site induction. Contractors and employees must all undergo the induction and be made aware of the "no-go" areas to be avoided.	Life of operation	Health and Safety Officer
Speed limits of 30 km/h must be put in place to reduce erosion: • **Dust generated, especially by earth moving machinery, must be minimised through wetting of the soil surface and putting up signs to enforce speed limits. Speed bumps must be built to force slow speeds;** • **Signs must be put up to enforce this.**	Life of operation	Project manager, Environmental Officer
Where possible, existing access routes and walking paths must be made use of.	Life of operation	Project manager, Environmental Officer
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events and strong winds. This is to be done according to the Re-vegetation and Habitat Rehabilitation Plan.	Life of operation	Project manager, Environmental Officer
The stormwater must be managed as part of the plan for the existing Gamma substation.	Life of operation	Project manager, Environmental Officer

13 It is the opinion of the specialist, based on the desktop assessment, that the ecological importance of the site has not decreased considerably. In consideration that the Karoshoek Grid Integration has been previously authorised the proposed development may proceed, under the condition that all mitigation measures provided in this report and previous reports are strictly adhered to.

14 We trust you find the above in order. If there are any uncertainties or additional information required, please feel free to contact the undersigned.

Kind regards

Andrew Husted
Project Manager
The Biodiversity Company

Sarah Newman
Environmental Consultant
The Biodiversity Company

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ENVIRONMENTAL IMPACT METHOD

The impact significance rating methodology, as provided by Nala, is guided by the requirements of the NEMA EIA Regulations 2014 (as amended).

Direct, indirect and cumulative impacts associated with the projects must be assessed in terms of the following criteria:

- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The **duration**, wherein it will be indicated whether:
  - the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
  - the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
  - medium-term (5–15 years) – assigned a score of 3;
  - long term (> 15 years) - assigned a score of 4; or
  - permanent - assigned a score of 5;
- The **magnitude**, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability** *of occurrence*, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- the **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- the **status**, which will be described as either positive, negative or neutral.
- 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 *mitigated.*

The **significance** is calculated by combining the criteria in the following formula:

S = (E+D+M) P

S = Significance weighting

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E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
- 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- > 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

Example of Impact table summarising the significance of impacts (with and without mitigation)

Nature: [Outline and describe fully the impact anticipated as per the assessment undertaken]		
	Without mitigation	With mitigation
Extent	High (3)	Low (1)
Duration	Medium-term (3)	Medium-term (3)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (36)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	
Mitigation: "Mitigation", means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible. Provide a description of how these mitigation measures will be undertaken keeping the above definition in mind		
Residual Impacts: "Residual Risk", means the risk that will remain after all the recommended measures have been undertaken to mitigate the impact associated with the activity (Green Leaves III, 2014).		

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25 May 2023

Attention: Savannah Environmental (Pty) Ltd
Jo-Anne Thomas: joanne@savannahsa.com

To whom it may concern:

ECOLOGICAL SPECIALIST INPUT FOR THE PART 2 AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION (EA) FOR THE PROPOSED ESTABLISHMENT OF THE KAROSHOEK GRID INTEGRATION INFRASTRUCTURE i.e. ON-SITE SUBSTATION/SWITCHING YARD AND 400KV POWERLINE FROM SITE 1.4, 3, 4, AND 5 TO THE FEATURE ESKOM MTS 400KV POWER LINE PROPOSED TO THE WEST OF THE SITE, AS PART OF THE LARGER KAROSHOEK SOLAR VALLEY DEVELOPMENT, 30KM EAST OF UPINGTON, WITHIN THE KHARA HAIS LOCAL MUNICIPALITY IN THE NORTHERN CAPE PROVINCE.

Background

FG Emvelo (Pty) Ltd is proposing to amend the Environmental Authorisation (EA) for the Karoshoek Grid Connection, as part of the Karoshoek Solar Valley Development Project, by extending the EA validity by an additional ten (10) years. Extension of the validity of the EA will ensure that the EA remains valid for the undertaking of the authorised activities.

Savannah Environmental have been appointed as the Registered Environmental Assessment Practitioner (EAP) to prepare the Application. The EA Amendment will be completed in terms of Regulation 30(1)(a) of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended, including additional specialist studies and public participation required by the DFFE. Condition 1.7 of the First Issue Environmental Authorisation, Issued on the 27th of July 2011, DEA Reference 14/12/16/3/3/2/288 states that:

"This activity must commence within a period of three (3) years from the date of issue. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken."

Consequent amendments to extend the validity of the authorisation have been made as follows:

- 14/12/16/3/3/2/288/AM1 – authorised on 11 November 2015 extending validity to 20 March 2018
- 14/12/16/3/3/2/288/AM2 – authorised on 11 April 2018 extending the validity to 20 March 2023

The applicant, FG Emvelo (Pty) Ltd thus requests that the Competent Authority amends condition 6 of the EA as amended (DFFE Reference 14/12/16/3/3/2/288/AM2; dated 11 April 2018) as follows:

> **From: "**This activity must commence within a period of three (3) years from the date of issue"
>
> **To:** "This activity must commence within a period of twenty (20) years from the date of issue"

It should be noted that the EA for the project has not been lying dormant for 10 years. All specialists undertook a re-assessment of the potential environmental impacts associated with the PV1 area of the project in 2020.

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The Biodiversity Company was appointed to provide specialist inputs for this Amendment Application. This report is a component of the Soil & Agricultural Potential Assessment and the Scope of Work for this report is as follows:

- Confirmation of the status of the environment compared to that at the time of the original assessment was done at a desktop level only, and no site visit was conducted.
- An indication as to whether the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA, should the request to extend the commencement period be granted by the Department.
- An indication as to whether there are any new assessments/guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration and addressed in the report.
- A description and an assessment of any changes to the biophysical environment that has occurred since the initial EA was issued.
- A description and an assessment of the surrounding environment, in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following:
    - Similar developments within a 30km radius; and
    - Identified cumulative impacts, and where possible the size of the identified impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.

Assumptions and Limitations

A field survey was not conducted as part of this assessment and the assessment was conducted at a desktop level only. Nevertheless, based on the previous reports and satellite imagery where it is apparent that little has changed in the area since the last field assessment, there is a high level of confidence in the understanding of the present ecological condition. Although the previous assessments did not specifically considered the 400kV powerline, information has been extrapolated for this amendment.

Results and Outcomes

1 The following assessments were considered for this report:

1.1. Scherman Colloty and Associates. 2012. Proposed Karoshoek Solar Valley Development.

1.2. ARC-Soil, Climate and Water. 2020. Soils and Agricultural Potential. Upington Ilanga Solar Park Project, Northern Cape - Site 1 (100 MW PV and associated infrastructure)

1.3. Savannah Environmental. 2020. Upilanga PV1. Final Basic Assessment Report.

2 Soils and Agricultural Potential:

2.1. The area comprises red, sandy soils, many of which are shallow with only a limited portion of moderately deep to deep soils. In addition, the very low rainfall in the area means that the only means of cultivation would be by irrigation.

2.2. The remote sensing (satellite) image of the area shows absolutely no signs of any agricultural infrastructure and certainly none of irrigation.

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2.3. The climatic restrictions mean that this part of the Northern Cape is suited at best for grazing and here the grazing capacity is very low, around 40-50 ha/large stock unit.

2.4. The dominant class of agricultural potential is low.

2.5. The climatic restrictions mean that the potential impacts will be relatively low, from the viewpoint of soils or agricultural potential. Using the latest land cover data, no areas classed as degraded (such as erosion areas) were present in the vicinity.

2.6. The main recommendation is that care should be taken within all aspects of the construction phase to ensure that erosion is managed and mitigated appropriately.

2.7. The Upington-Ilanga project site is a dry area, with fragile vegetation and sandy topsoils and will be susceptible to uncontrolled topsoil removal by wind

2.8. Key impacts considered included:

2.8.1. Loss of potentially productive agricultural land.

2.8.2. Increased soil erosion hazard by wind.

2.8.3.

2.9. Cumulative impacts were not assessed quantitatively but were regarded as potentially being low.

3 The Site Sensitivity Verification for the Part 2 Amendment was not conducted. No sensitivity classification was provided by ARC-Soil, Climate and Water (2020).

4 The conclusions of the Site Sensitivity Verification for the Karoshoek Grid Integration is as follows:

4.1. The Project Area was identified with the Environmental Screening Tool as possessing predominantly a Low, with isolated areas of Medium sensitivity within an Agricultural Theme.

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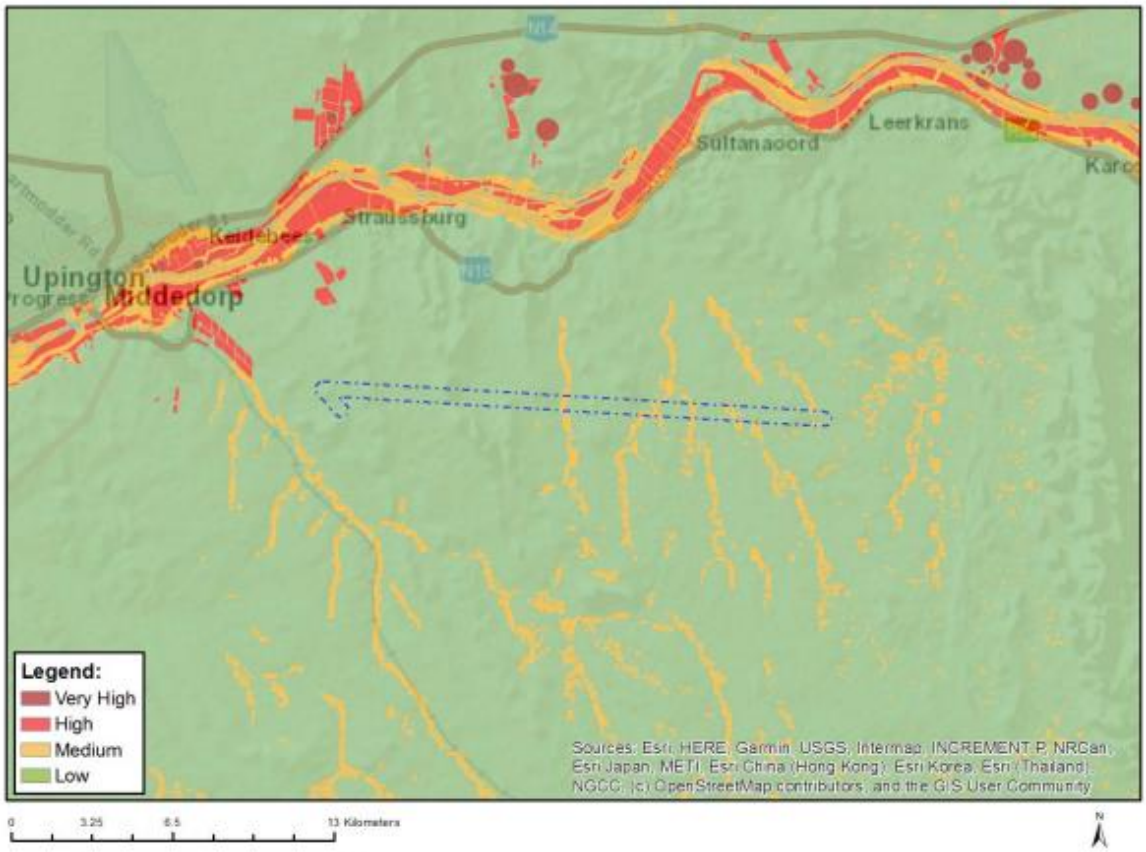
MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

Figure indicating the Relative Agricultural Theme Sensitivity as identified by the Environmental Screening Tool

5 Mitigation measures prescribed by each of the reviewed specialist reports remain applicable and must be strictly adhered to.

6 All prescribed mitigation measures and supporting recommendations presented will help to achieve an acceptable residual impact. These measures and recommendations will remain applicable for the requested extension of the EA. To this end, these measures have been included in the updated EMPr for this development as per the requirements of the Environmental Authorisation.

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7 In order to manage the impacts effectively, the following mitigation management should be put into place for the general impacts:

7.1. To minimise the footprint of construction as much as possible. This includes keeping the number of towers to a feasible minimum.

7.2. Use existing access routes and tracks as much as feasible, before new areas are cleared for access.

7.3. Where soil is removed/disturbed, ensure it is stored for rehabilitation and revegetated as soon as possible (within 2-4 weeks).

7.4. Implement the rehabilitation plan from the onset of the construction phase of the project.

7.5. Implement a monitoring plan for the operational phase of the project, prioritising areas of erosion. Any areas of erosion identified as a result of the grid must be addressed, with measures implement to prevent further erosion of these areas.

8 It is the opinion of the specialist that based on the observations made during the field survey, that the ecological importance of the site has not decreased considerably, although there is evidence of some level degradation due to the development of the area. In consideration that the grid infrastructure has been previously authorised the proposed development may proceed, under the condition that all mitigation measures provided in this report and previous reports are adhered to.

9 We trust you find the above in order. If there are any uncertainties or additional information required, please feel free to contact the undersigned.

Kind regards

Andrew Husted

Project Manager

The Biodiversity Company

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25 May 2023

Attention: Savannah Environmental (Pty) Ltd
Jo-Anne Thomas: joanne@savannahsa.com

To whom it may concern:

ECOLOGICAL SPECIALIST INPUT FOR THE PART 2 AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION (EA) FOR THE PROPOSED ESTABLISHMENT OF THE KAROSHOEK GRID INTEGRATION INFRASTRUCTURE i.e. ON-SITE SUBSTATION/SWITCHING YARD AND 400KV POWERLINE FROM SITE 1.4, 3, 4, AND 5 TO THE FEATURE ESKOM MTS 400KV POWER LINE PROPOSED TO THE WEST OF THE SITE, AS PART OF THE LARGER KAROSHOEK SOLAR VALLEY DEVELOPMENT, 30KM EAST OF UPINGTON, WITHIN THE KHARA HAIS LOCAL MUNICIPALITY IN THE NORTHERN CAPE PROVINCE.

Background

FG Emvelo (Pty) Ltd is proposing to amend the Environmental Authorisation (EA) for the Karoshoek Grid Connection, as part of the Karoshoek Solar Valley Development Project, by extending the EA validity by an additional ten (10) years. Extension of the validity of the EA will ensure that the EA remains valid for the undertaking of the authorised activities.

Savannah Environmental have been appointed as the Registered Environmental Assessment Practitioner (EAP) to prepare the Application. The EA Amendment will be completed in terms of Regulation 30(1)(a) of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended, including additional specialist studies and public participation required by the DFFE. Condition 1.7 of the First Issue Environmental Authorisation, Issued on the 27th of July 2011, DEA Reference 14/12/16/3/3/2/288 states that:

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The applicant, FG Emvelo (Pty) Ltd thus requests that the Competent Authority amends condition 6 of the EA as amended (DFFE Reference 14/12/16/3/3/2/288/AM2; dated 11 April 2018) as follows:

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It should be noted that the EA for the project has not been lying dormant for 10 years. All specialists undertook a re-assessment of the potential environmental impacts associated with the PV1 area of the project in 2020.

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The Biodiversity Company was appointed to provide specialist inputs for this Amendment Application. This report is a component of the Freshwater Ecological Assessment and the Scope of Work for this report is as follows:

- Confirmation of the status of the environment compared to that at the time of the original assessment was done at a desktop level only, and no site visit was conducted.
- An indication as to whether the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA, should the request to extend the commencement period be granted by the Department.
- An indication as to whether there are any new assessments/guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration and addressed in the report.
- A description and an assessment of any changes to the biophysical environment that has occurred since the initial EA was issued.
- A description and an assessment of the surrounding environment, in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following:
    - Similar developments within a 30km radius; and
    - Identified cumulative impacts, and where possible the size of the identified impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.

Assumptions and Limitations

A field survey was not conducted as part of this assessment and the assessment was conducted at a desktop level only. Nevertheless, based on the previous reports and satellite imagery where it is apparent that little has changed in the area since the last field assessment, there is a high level of confidence in the understanding of the present ecological condition. Although the previous assessments did not specifically considered the 400kV powerline, information has been extrapolated for this amendment.

Results and Outcomes

1 The following assessments were considered for this report:

1.1. Scherman Colloty and Associates. 2012. Proposed Karoshoek Solar Valley Development. Water Resource Assessment Report.

1.2. Savannah Environmental. 2012. Environmental Impact Assessment Process Final Environmental Impact Report. Proposed Establishment of the Karoshoek Grid Integration Infrastructure, As Part of The Larger Karoshoek Solar Valley Development, Northern Cape Province.

1.3. EnviroSci. 2020. Basic Aquatic Impact Assessment for the proposed Upington Upilanga Solar Park PV Facility in the Northern Cape.

1.4. Savannah Environmental. 2020. Upilanga PV1. Final Basic Assessment Report.

2 Freshwater:

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2.1. The dry river beds and the associated riparian systems in proximity to the development area are rated as extremely sensitive to development, in particular the Klein-leerkransspruit and Majties (Matjes) River (2012).

2.2. Overall, these watercourses within the study area are largely in a natural state, when compared the associated Orange River reach, which has modified floodplains and flows (2020).

2.3. The systems in the area are ephemeral, thus the observed development area systems don't support any wide riparian zones and the vegetation associated with these watercourses was between 0.25 m and 5 m wide were mostly terrestrial (2020).

2.4. Implementation of suitable mitigation measures will result in the development having limited impact on the riparian systems. The overall residual impacts for the development were determined to be low, with the exception of water abstraction from the Orange River (2012).

2.5. The sensitivity of the alluvial watercourses (including the Majties River) and minor drainage lines was determined to be minor-moderate, moderate (2020).

2.6. The proposed development would not have a detrimental impact on delineated Very High sensitivity areas (DEA Screening Tool) and mainstem rivers and pans. The overall residual impact would be low (2020).

2.7. Key impacts considered included:

2.7.1. Impact 1: Impact 1: Loss of High Sensitivity systems, namely the major alluvial water courses and or pans through physical disturbance.

2.7.2. Impact 2: Impact on secondary water courses (Moderate Sensitivity), through physical disturbance.

2.7.3. Impact 3: Impact on all riparian and wetland systems through the possible increase in surface water runoff on riparian form and function through hydrological changes.

2.7.4. Impact 4: Increase in sedimentation and erosion.

2.7.5. Impact 5: Risks on the aquatic environment due to water quality impacts.

2.8. The following recommendations from the 2020 are reiterated:

2.8.1. Vegetation clearing should occur in a phased manner in accordance with the construction programme to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment, and suitable dust and erosion control mitigation measures should be included in the environmental management programme (EMP) to mitigate.

2.8.2. All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms / bunds to avoid spread of any contamination / leaks outside of any delineated waterbodies and their buffers. Washing and cleaning of equipment should also be done in berms or bunds, to trap any cement / hazardous

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substances and prevent excessive soil erosion. Mechanical plant and bowsers must not be refuelled or serviced within or directly adjacent to any channel.

2.8.3. It is also advised that an Environmental Control Officer (ECO), with a good understanding of the local flora be appointed during the construction phase. The ECO should be able to make clear recommendations with regards to the re-vegetation of the newly completed / disturbed areas along aquatic features, using selected species detailed in this report.

2.8.4. All alien plant re-growth must be monitored and should these alien plants reoccur these plants should be re-eradicated. The scale of the operation does however not warrant the use of a Landscape Architect and / or Landscape Contractor.

2.8.5. It is further recommended that a comprehensive rehabilitation plan be implemented from the project onset within watercourse areas (including buffers) to ensure a net benefit to the aquatic environment. This should from part of the suggested walk down as part of the final EMP preparation preconstruction.

2.9. Cumulative impacts were not assessed quantitatively but were regarded as potentially being low.

3 The Site Sensitivity Verification for the Part 2 Amendment was not conducted. EnviroSci (2020) indicated the sensitivity of the alluvial watercourses (including the Majties River) and minor drainage lines to be traversed by the infrastructure to be minor-moderate, moderate.

4 The conclusions of the Site Sensitivity Verification for the Karoshoek Grid Integration is as follows:

4.1. The Project Area was identified with the Environmental Screening Tool as possessing a portion of Very High sensitivity within an Aquatic Biodiversity Theme. This is due to overlap with FEPA subcatchments, Rivers (AB) and wetlands.

4.2. It is noted from the EnviroSci (2020) report sensitivity of the alluvial watercourses (including the Majties River) and minor drainage lines was determined to be minor-moderate, moderate (2020).

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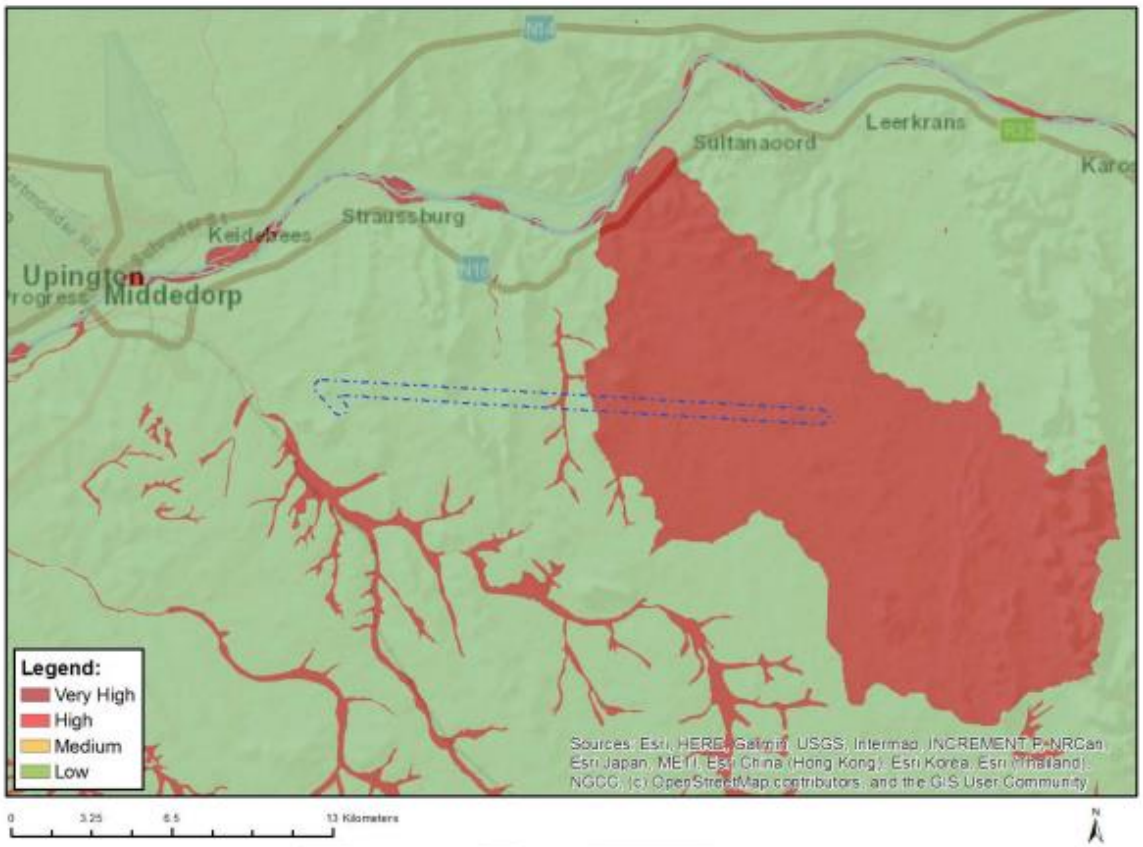
MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	FEPA Subcatchment
Very High	Rivers_AB
Very High	Wetlands_(River)

Figure indicating the Relative Aquatic Biodiversity Theme Sensitivity as identified by the Environmental Screening Tool

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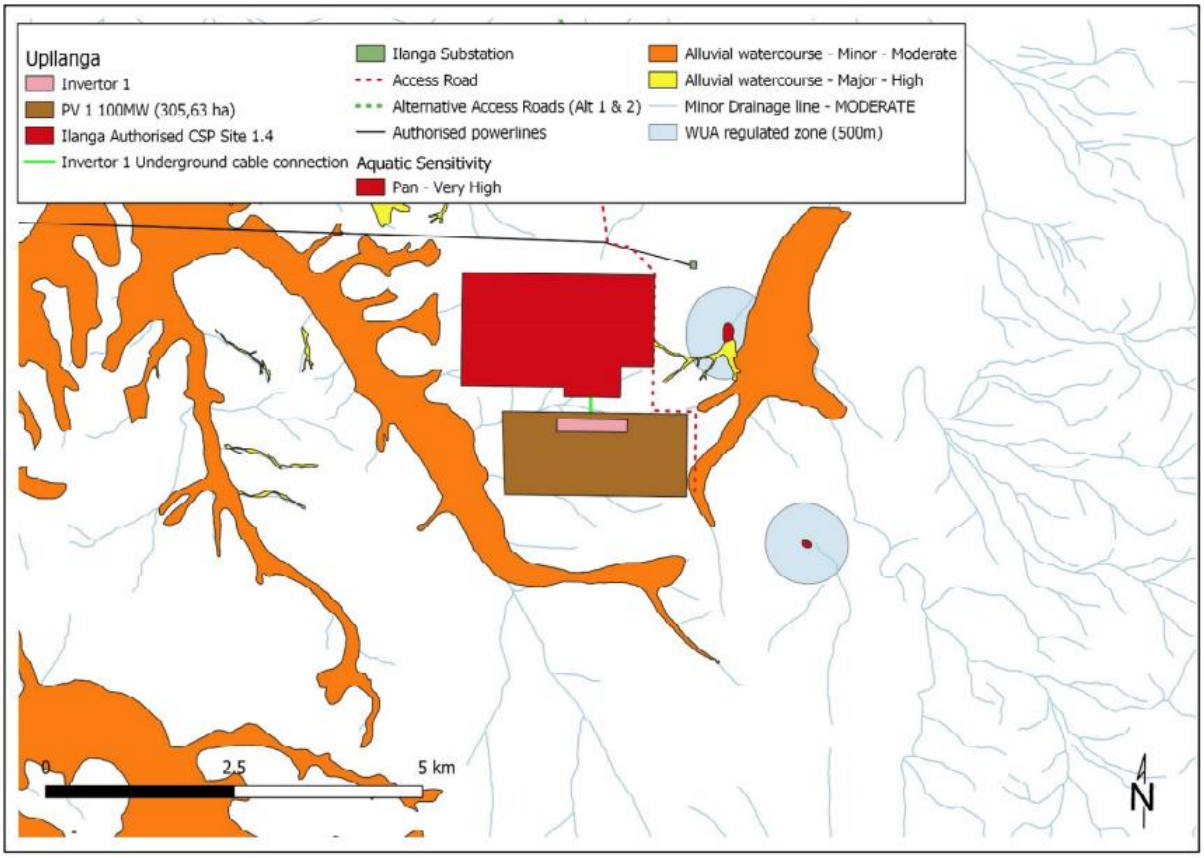

Figure taken from EnviroSci (2020) - Wetlands and watercourses within the study area in relation to the activities, with buffers, sensitivity ratings and the 500m regulated WULA zone.

5 Mitigation measures prescribed by each of the reviewed specialist reports remain applicable and must be strictly adhered to.

6 All prescribed mitigation measures and supporting recommendations presented will help to achieve an acceptable residual impact. These measures and recommendations will remain applicable for the requested extension of the EA. To this end, these measures have been included in the updated EMPr for this development as per the requirements of the Environmental Authorisation.

7 In order to manage the impacts effectively, the following additional mitigation management should be put into place for the general impacts:

7.1. Avoid watercourses and buffers where feasible.

7.2. Implement a rehabilitation plan. Cleared areas must be rehabilitated and stabilised to avoid impacts to adjacent wetland and buffer areas.

7.3. Reduce the disturbance footprint and the unnecessary clearing of vegetation when traversing the identified watercourses.

7.4. Do not situate any of the construction material laydown areas within any watercourse or buffer area.

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7.5. No machinery should be allowed to be parked in any watercourses or buffer areas.

7.6. Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete) in such a way as to prevent them leaking and entering watercourses or buffer areas.

7.7. Mixing of concrete must under no circumstances take place within the watercourses or buffer areas.

7.8. Provide appropriate sanitation facilities for workers during construction and service them regularly.

7.9. The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected must be disposed of at a licensed disposal facility;

7.10. The Contractor must be in possession of an emergency spill kit that must be complete and available at all times on site.

7.11. Any possible contamination of topsoil by hydrocarbons must be avoided. Any contaminated soil must be treated in situ or be placed in containers and removed from the site for disposal in a licensed facility.

8 It is the opinion of the specialist, based on the desktop assessment, that the ecological importance of the site has not decreased considerably. In consideration that the grid infrastructure has been previously authorised the proposed development may proceed, under the condition that all mitigation measures provided in this report and previous reports are adhered to.

9 We trust you find the above in order. If there are any uncertainties or additional information required, please feel free to contact the undersigned.

Kind regards

Andrew Husted

Freshwater Ecologist

The Biodiversity Company