



ARCUS

**TERRESTRIAL BIODIVERSITY COMPLIANCE
STATEMENT FOR THE PROPOSED MULILO TOTAL
HYDRA STORAGE PROJECT: GRID INTERCONNECTION
NEAR DE AAR, NORTHERN CAPE PROVINCE**

For

Mulilo Total Hydra Storage (Pty) Ltd

February 2021



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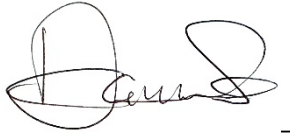
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1 SPECIALIST DETAILS

- Dr Owen Rhys Davies (Phone: +27 (0) 72 558 0080; Email: OwenD@arcusconsulting.co.za)
- SACNASP registration for Ecological Science (member # 117555).
- Experience: 5 years of consulting, primary expertise in Avifauna.
- *Curriculum vitae* attached.

2 STATEMENT OF INDEPENDENCE

I, Owen Rhys Davies, as the appointed Terrestrial Biodiversity Specialist, hereby declare/affirm the correctness of the information provided in this compliance statement, and that I: meet the general requirements to be independent and have no business, financial, personal or other interest in the proposed development and that no circumstances have occurred that may have compromised my objectivity; and am aware that a false declaration is an offence in terms of regulation 48 of the EIA Regulations (2014).



Signature

12 February 2021

Date

3 INTRODUCTION

3.1 Background

Mulilo Total Hydra Storage (Pty) Ltd ('MTHS') is applying for environmental authorisation for a self-build grid interconnection project which will consist of a short overhead powerline, switching station and access road ('proposed development') as part of the Mulilo Total Hydra Storage Project.

The Mulilo Total Hydra Storage Project is a hybrid electricity generation plant comprising of solar photovoltaic (PV) technology, a battery energy storage system (BESS) and emergency backup Diesel / Gas generator installations (Gensets). The Mulilo Total Hydra Storage Project was bid in the Risk Mitigation Independent Power Producers Procurement Program (RMI4P), and if selected as a preferred bidder, the project would obtain SIP1 status. The Mulilo Total Hydra Storage Project is located 5km South East of De Aar in the Northern Cape and roughly 8km north of the Eskom Main Transmission Substation (MTS), Hydra.

In terms of the Self-Build agreement for the proposed development, Eskom has provided an indicative Cost Estimate Letter to connect MTHS to the national electricity network (Grid). All environmental approvals for MTHS are in place however the Grid connection works had to be adjusted and a separate Environmental Authorisation is required to be issued for all the infrastructure which is handed over to Eskom on completion.

The following Self-Build works are proposed as part of this Environmental Application.

3.1.1 MTHS Self Build Grid Interconnection (Overhead power line):

The overhead powerline (OHPL) will evacuate electricity generated from the Mulilo Total Hydra Storage Project and is to be approximately 8 km in length, with a capacity of up to 132 kV. The proposed OHPL follows the existing 132 kV Eskom Hydra-Bushbuck OHPL for

the most part, and will run in a south easterly direction to the Eskom Hydra Main Transmission Substation (MTS). A single track service road will be required for the construction and maintenance of the OHPL and would run directly below the OPHL. The intended end-user for this project is Eskom, and responsibility will be handed over to Eskom should favourable environmental authorisation be granted and the project successfully commissioned.

The grid connection route considered in this application was previously assessed as a 200m wide corridor (100m on either side of the line) for the 400 kV grid connection associated with the Mulilo De Aar 2 South Wind Energy Facility ('DA2S WEF') (Arcus, 2021). The specialist assessments conducted for this route have been used to inform the baseline environment and impacts for this proposed development

- Design and construct ± 8 km of single circuit 132 kV overhead power line (OHPL), between the Hydra MTS and Mulilo Total Hydra Storage Project;
- The overhead power line is to be strung with twin tern conductor;
- Preferred technology to be that of bird friendly steel monopole structures. These are to be used with a maximum height of 25m.
- Telecommunication via fibre optic is required on the 8km HV Line.

Associated infrastructure will include:

- Foundations and insulators;
- Existing access roads and jeep tracks; and
- Line and servitude clearances to meet the statutory requirements.

3.1.2 MTHS Self-Build Associated Infrastructure:

This associated infrastructure is being mentioned as part of this report as they form part of the Grid Interconnection Project to be handed over to Eskom for commissioning responsibility.

3.1.2.1 Switching Station Access Road:

A 6km long, 12 m wide access road is required for construction and maintenance of the self-build switching station. Access begins off the N10 highway and terminates at the self-build switching station. A <6m service road continues along the proposed OHPL route within the servitude, and as far as possible, this road will be used.

3.1.2.2 Self-Build Switching Station:

A 132 kV, double busbar switching station, is required to be constructed at the Mulilo Total Hydra Storage Project site. The switching station is named the Self Build Switching Station, and will house the required metering and protection equipment inside various substation buildings. In addition, there will be spatial provision to establish at least four additional outgoing feeder bays with access to the property for at least two additional incoming line bays to cater for future expansions. The switching station will eventually contain six bays but would start with the initial two bays as required by the Mulilo Total Hydra Storage project. The land required would be 100 m x 100 m for the 2-bay phase, increasing to 200 m x 100 m for six bays and with a maximum height of 25 m.

3.1.3 Additional Project Considerations:

The following two project considerations have been proposed by MTHS as part of the self-build agreement with Eskom. These will be commissioned in terms of Eskom's Build guidelines and preference.

3.1.3.1 Upgrades at Hydra MTS:

As part of the above-mentioned self-build, MTHS intend on extending the existing 132kV double busbars by one bay and establishing a new 132kV feeder bay at the Eskom Hydra MTS. This upgrade will also include protection and metering components.

3.1.4 Alternatives Considered:

Should an alternative powerline route be required, MTHS have identified a possible solution and have engaged with the Eskom Grid Access Unit to establish its viability.

MTHS are proposing to perform a "loop in loop out" onto one circuit of the existing Eskom Hydra-Bushbuck double circuit 132kV OHPL and to restring the remaining portion of that circuit (if required) between the Project and the Hydra Substation. The purpose of the proposed restring is provide additional electricity evacuation option to Eskom and to the Mulilo Total Hydra Storage Project and to minimise any potential servitude or feeder bay constraints at the Hydra Substation. This proposed commission will not trigger any additional activities other than those being applied for.

3.2 Previous Assessment

The proposed grid connection route considered in this application and specialist assessment was one of the connection route options previously assessed for the 400 kV grid connection associated with the Mulilo De Aar 2 South Wind Energy Facility ('DA2S WEF'). The proposed grid connection route follows the route of an existing power line throughout its length.

3.3 Scope of Study

The scope of this assessment included:

- Confirmation of findings of the 200 m corridor previously assessed as part of the DA2S WEF Grid Connection report and a determination of their suitability for this assessment;
- Updating the description of habitats and terrestrial species that may occur within the area applicable to this assessment;
- Updating of GIS and sensitivity maps applicable to this assessment;
- Updating of potential impacts on Terrestrial Species applicable to this assessment;
- Updating of potential mitigation measures required to reduce the impacts of the development; and
- A substantiated statement, based on the findings of this specialist assessment regarding the acceptability, or not, of the proposed development, if it should receive approval or not and any conditions to which the statement is subjected.

3.4 Assumptions and Limitations

The resolution and reliability of distribution records and available databases is largely dependent on the sampling effort conducted in the area. Private property is often poorly sampled and therefore database queries may not adequately represent the actual fauna present on the site. The two main approaches taken to reduce the effect of this limitation were; 1) the desk-top database search was expanded beyond the immediate project site to cover a larger area with similar vegetation and habitat types, and 2) an extended site visit was conducted on the proposed development site and included a much larger area sharing the same vegetation types and habitats as those found in the grid connection corridor considered for this application. The site work was concluded prior to the publication of the Species Environmental Assessment Guidelines² and therefore some of the

² South African National Biodiversity Institute (SANBI). 2020. Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 1.2020.

methodologies outlined and recommended therein were not employed. This limitation is not however considered to compromise the outcome of the impact assessment as the on-site experience gathered during the assessment of the larger DA2S WEF grid connection corridor (that included the grid connection corridor considered for this application) offered the specialist a greater understanding of the biodiversity relevant to the broader area and the development footprint considered for this application. This complies with the precautionary approach prescribed the National Environmental Management Act, Act No. 107 of 1998 (NEMA).

3.5 Legislative Context

The applicable legislation relevant to this assessment is provided in more detail in Appendix I, however the National Gazette, No. 43110 of 20 March, 2020: "National Environmental Management Act (107/1998) Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of sections 24 (5) (a) and (h) and 44 of the Act, when applying for Environmental Authorisation" is of particular relevance to the production of this report. It lists protocols and minimum report requirements for environmental impacts on terrestrial biodiversity. The assessment and minimum reporting requirements are associated with a level of environmental sensitivity identified by the national web-based screening tool³.

The proposed project site falls within an area identified by the screening tool as 'very high sensitivity' in the Terrestrial Biodiversity Theme as the proposed development footprint falls wholly within an Ecological Support Area (ESA). The ecological support area is, however, a result of the large Important Bird Area surrounding De Aar and beyond. Furthermore, this legislation makes provision for linear activities such as power lines (i.e. the proposed development) by stating that the assessment and reporting requirements for 'very high sensitivity' need not apply if the potential impacts on terrestrial biodiversity are temporary.

As the proposed grid connection route runs adjacent to an existing power line, and the land disturbed by the power line development, in the specialist's opinion, can be returned to the current state within two years of the completion of the disturbance, a Terrestrial Biodiversity Compliance Statement applies.

4 METHODOLOGY

Various databases of distribution records were consulted during a desk-top study to determine the potential species of flora and fauna that could occur on the site, these are described in more detail below. In addition to the desk-top study a five-day site walkthrough was conducted between 10 and 14 February 2020. Important habitats and species present or potentially present (i.e. suitable habitat was identified) within approximately 200 m of the proposed line were assessed through a site walk-through, the different habitats, biodiversity features and landscape units were investigated and their position and sensitivity were mapped in the field. Field notes were transcribed onto publically available satellite imagery and mapped in GIS. Active searches for reptiles and amphibians were also conducted within habitats likely to be important for such species such as around rocky outcrops and wetlands.

4.1 Desktop Study

4.1.1 Site Screening

Following the protocol listed in National Gazette, No. 43110 of 20 March, 2020: "National Environmental Management Act (107/1998) Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of sections 24 (5) (a)

³ <https://screening.environment.gov.za/>

and (h) and 44 of the Act, when applying for Environmental Authorisation”, the information presented by the online screening tool³ was consulted to determine the sensitivity of the project site prior to the field site visit and ground-truthing.

4.1.2 Existing Studies

Several existing ecological studies in the area were consulted in the formulation of this assessment report, including:

- The Proposed 132kV Power line associated with the Castle Wind Energy Facility on a site near De Aar, Northern Cape Province (Savannah Environmental, 2015),
- The Environmental Impact Assessment for the Proposed Castle Wind Energy Facility and Associated Infrastructure near De Aar, Northern Cape. DEA Ref No. 14/12/16/3/3/2/278 Fauna & Flora Specialist Impact Assessment Report compiled by Todd (2014) for Savannah Environmental,
- Appendix F: Assessment of Potential Impacts and Possible Mitigation Measures for the Proposed 132 kV transmission line corridor adjacent to the existing Eskom transmission line from Longyuan Mulilo De Aar 2 North Wind Energy Facility (WEF) to the Hydra Substation in De Aar, Northern Cape (Aurecon 2013),
- Bird Impact Assessment Study Longyuan Mulilo De Aar 2 North Wind Energy Facility DEFF REF. NO. 12/12/20/2463/2 (Chris van Rooyen Consulting, 2014),
- Castle Wind Energy Facility Avifaunal Impact Assessment (WildSkies Ecological Services, 2014, Unpublished Report),
- Operational phase bird monitoring at the Longyuan Mulilo De Aar 2 North Wind Energy Facility, Year 1 (Chris van Rooyen Consulting, 2018 Unpublished Report),
- Operational phase bird monitoring at the Longyuan Mulilo De Aar 2 North Wind Energy Facility, Year 2 Quarters 1-3 (Chris van Rooyen Consulting, 2018, Unpublished Report), and
- Zingesele Wind Energy Facility Final Pre-construction Bird Monitoring and Avifaunal Impact Assessment Scoping Report (Arcus Consulting, 2019, Unpublished Report).

4.1.3 Vegetation

Broad vegetation types were mapped using the updated National Vegetation Map 2018 (NVM 2018) database⁴ and the vegetation descriptions were obtained from Mucina & Rutherford (2006)⁵.

4.1.4 Species

The list of plant species previously recorded in the wider area were obtained from the Database of Southern Africa (BODATSA) database⁶ on the SANBI website⁷. An area of roughly 50 km around the project site (centred on -30.655040, 24.169673) was searched for potential species of concern. The lists of fauna were collated from interrogating multiple databases and sources including the various atlassing projects of the Virtual Museum⁸ and

⁴ South African National Biodiversity Institute (2006-2018). The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Online, <http://bgis.sanbi.org/Projects/Detail/186>, Version 2018 accessed January 20 2020.

⁵ Mucina, L. and Rutherford, M.C. (eds) 2006. The vegetation of South Africa, Lesotho and Swaziland, in *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.

⁶ South African National Biodiversity Institute. 2016. Botanical Database of Southern Africa (BODATSA) [dataset]. doi: to be assigned.

⁷ <http://newposa.sanbi.org/> accessed January 20 2020.

⁸ http://vmus.adu.org.za/vm_projects.php (QDS 3024C) accessed January 20 2020.

the GBIF⁹ network. Road mortality records were obtained from the Endangered Wildlife Trust (EWT) Wildlife and Roads Project¹⁰.

4.1.5 Ecosystems

Freshwater and wetland information was extracted from the National Freshwater Ecosystem Priority Areas assessment¹¹. Important catchments and protected expansion areas were extracted from the National Protected Areas Expansion Strategy 2008 (NPAES). Critical Biodiversity Areas were extracted from the SANBI BGIS Database¹². These data incorporate biodiversity features (both pattern and process, and covering terrestrial and inland aquatic realms), their condition, current Protected Areas and Conservation Areas, and opportunities and constraints for effective conservation. Priorities from existing plans such as the Namakwa District Biodiversity Plan, the Succulent Karoo Ecosystem Plan, National Estuary Priorities, and the National Freshwater Ecosystem Priority Areas were incorporated. Targets for terrestrial ecosystems were based on established national targets, while targets used for other features were aligned with those used in other provincial planning processes.

4.1.6 Species of Conservation Concern

Species of concern were considered to be those listed by conservation authorities as being on a 'Red List' and at risk of extinction and those listed by National or Regional legislation as being protected. Red List plant species were obtained from the SANBI¹³ website and the Species Environmental Assessment Guidelines¹⁴, it must be noted however that the conservation status listed by SANBI considers only the populations of species within South Africa's geopolitical borders and does not take into account the global population size for non-endemic species. The regional or national assessment of a species may therefore differ to the global status on the IUCN Red List. National and regional legislation was evaluated to determine which species that may occur on site are protected species. Regional threat status was obtained for mammals¹⁵, reptiles¹⁶, frogs¹⁷, dragonflies¹⁸ and butterflies¹⁹. The IUCN²⁰ threat status was used for species where no regional assessment was available.

⁹ <http://gbif.org> accessed January 20 2020.

¹⁰ <https://www.ewt.org.za/resources/resources-biodiversity-data/> accessed 04 March 2020.

¹¹ Nel, J.L., Murray, K.M., Maherry, A.M., Petersen, C.P., Roux, D.J., Driver, A., Hill, L., van Deventer, H., Funke, N., Swartz, E.R., Smith-Adao, L.B., Mbona, N., Downsborough, L., Nienaber, S. (2011). Technical Report for the National Freshwater Ecosystem Priority Areas project. WRC Report No. K5/1801.

¹² Northern Cape Department of Environment and Nature Conservation. 2016 Northern Cape Critical Biodiversity Areas. <http://bgis.sanbi.org/SpatialDataset/Detail/658> accessed January 20 2020.

¹³ <http://redlist.sanbi.org> accessed January 20 2020.

¹⁴ South African National Biodiversity Institute (SANBI). 2020. Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 1.2020.

¹⁵ Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. 2016. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

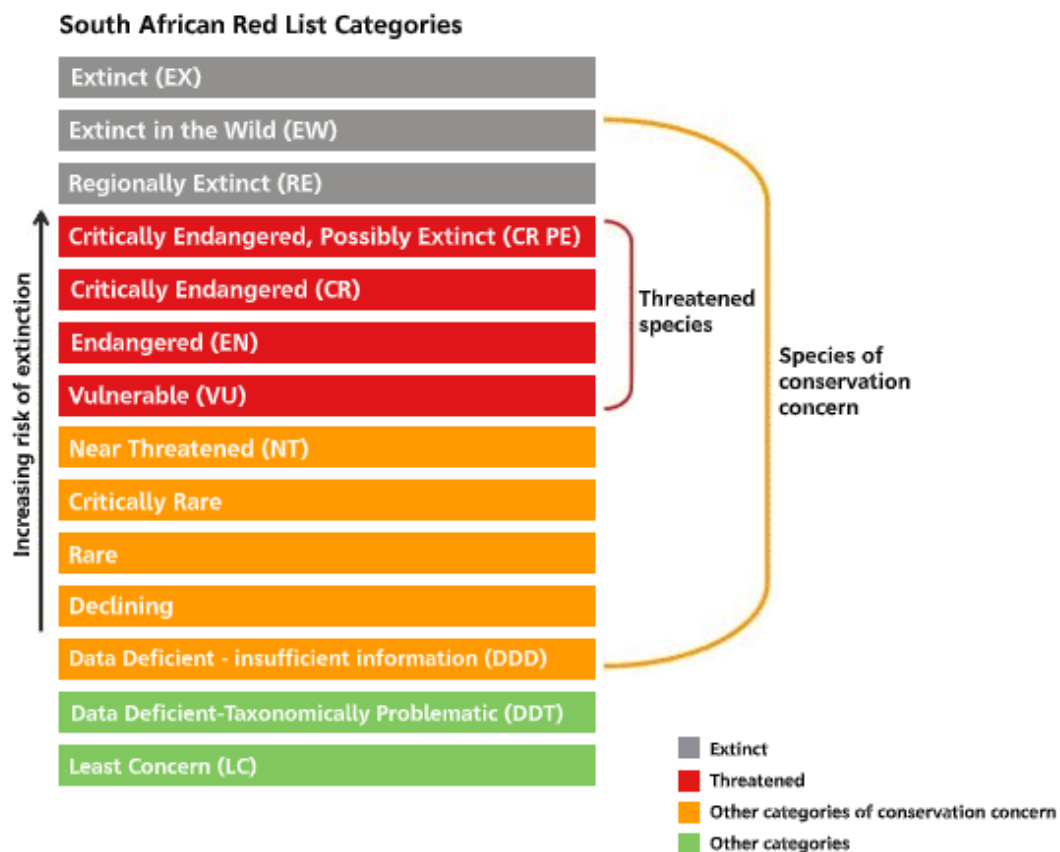
¹⁶ Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland. 2014. Edited by Michael F. Bates, William R. Branch, Aaron M. Bauer, Marius Burger, Johan Marais, Graham J. Alexander & Marianne S. de Villiers. SANBI, Pretoria.

¹⁷ Minter LR, Burger M, Harrison JA, Braack HH, Bishop PJ & Kloepfer D (eds). 2004. Atlas and Red Data book of the frogs of South Africa, Lesotho and Swaziland. SI/MAB Series no. 9. Smithsonian Institution, Washington, D.C.

¹⁸ Samways, M.J. & Simaika, J.P. 2016. Manual of Freshwater Assessment for South Africa: Dragonfly Biotic Index. Suricata 2. South African National Biodiversity Institute, Pretoria.

¹⁹ Mecenero, S., J.B. Ball, D.A. Edge, M.L. Hamer, G.A. Hening, M. Krüger, E.L. Pringle, R.F. Terblanche & M.C. Williams (eds). 2013. Conservation assessment of butterflies of South Africa, Lesotho and Swaziland: Red List and atlas. Saffronics (Pty) Ltd., Johannesburg and Animal Demography Unit, Cape Town.

²⁰ <http://iucnredlist.org> accessed 24 November 2019.



4.1.7 Modelling

No modelling was required.

4.2 Site inspection details

- Date: 10 February 2020 – 14 February 2020
- Duration: 5 Days
- Season: Summer
- Season Relevance: As a summer rainfall region, the conditions during the site visit were excellent for the field assessment as the area had received a good amount of rainfall allowing for a thorough assessment of features such as temporary wetlands, vleis, drainage lines, seeps and water-filled depressions to be conducted. Plant species such as grasses and herbs were flourishing during the site visit.

5 RESULTS

The study conducted for the area assessed as part of the DA2S WEF Grid Connection report are suitable and applicable for this assessment.

5.1 Baseline Description of Biodiversity and Ecosystems of the site

5.2 Vegetation

The broad vegetation type that occurs in the study area is classified⁵ as Northern Upper Karoo (NKu3, Figure 2) and is considered to be Least Threatened. The vegetation in the assessment corridor has suffered from overgrazing by varying degrees across the project site. As this vegetation type is fairly widespread throughout the broader region and largely

untransformed the vegetation type is considered to be *Least Threatened* and floral species found on the site are not at significant risk of negative impact from the development.

5.2.1 Plant Species

5.2.1.1 Red List plant species of the study area

An area of roughly 50 km around the project site (centred on -30.662761; 24.165841) was searched for potential species of concern. Despite this broad search, there are very few species that were evaluated to be of conservation concern that could potentially occur in the project area. Only a single species, Transkei Medusa's Head (*Euphorbia flanaganii*, *Vulnerable*), was evaluated to be of conservation concern on the BODATSA database search for the area, however it is the specialist's opinion that this record may have been a misidentification of the similar looking Karoo Spiny Milkweed (*E. arida*, *Least Concern*) given the distribution of the former species²¹. The potentially endemic *Chasmatophyllum maninum* was listed as Data Deficient. None of the plant species observed on site were listed in any threat category.

5.2.1.2 Protected plants (NEMBA)

None of the plant species listed on the BODATSA database for the study area or recorded on site were listed as protected by NEMBA.

5.2.1.3 Protected plants (Northern Cape Nature Conservation Act)

Fifty-one plant species that were listed on the BODATSA database for the study area and could potentially occur in the study site are protected under the Northern Cape Nature Conservation Act (Appendix II). A number of species were found on site that are protected according to the Northern Cape Nature Conservation Act. From the field survey, the following species were observed on or around the project site: Steekvy (*Ruschia intricata*), Eastern Candelabra (*Brunsvigia radulosa*), Krimpsiektebos (*Lessertia annularis*), Sorrel (*Oxalis depressa*) and Cape Saffron (*Jamesbrittenia aurantiaca*).

Despite not being threatened, they are protected and any impacts on these species requires a permit from the relevant authorities. It must be noted that many of these species are widespread and not of any conservation concern, but protected due to the fact that the Northern Cape Nature Conservation Act protects entire families of flowering plants irrespective of whether some members are rare or common. The implication is that a comprehensive list of species occurring within the footprint of the proposed infrastructure is required and a permit application submitted for any of those listed as protected. A walk-through survey is therefore required once the final pylon positions and layout have been decided in order to obtain the number of applicable plants for which permits are required for their destruction. This is a permitting requirement rather than a requirement needed to effectively assess the impacts.

5.2.1.4 Protected trees

One tree species, the Shepherd's Tree (*Boscia albitrunca*) is listed to occur in both habitat types present on the study site and is protected under the National Forest Act. However, this species was not recorded to be present on the study site during the ecological survey. No indigenous forests are present near the development footprint.

²¹ <http://redlist.sanbi.org/species.php?species=574-126>

5.2.2 Plant Sensitivity

Overall, the plant sensitivity of the project site is low and the proposed development is unlikely to have a significant negative impact on the plants species or vegetation in the area.

5.3 Vertebrate Species

Threatened (*Critically Endangered*, *Endangered* or *Vulnerable*), near threatened²² or important vertebrate species that could occur in the development footprint and have habitat preferences that include habitats available on the site, are summarised further below.

5.3.1 Mammal Species

There are 61 mammal species that could occur in the study area, 12 of which are listed as threatened or near threatened. Based on the habitats present in the development corridor and surrounding areas, it is considered likely that some of these species could potentially occur on site. Given the habitats present the listed species with a geographical range that include the site (and therefore may be present) are Riverine Rabbit (*Bunolagus monticularis*) listed as Critically Endangered, Southern Mountain Reedbuck (*Redunca fulvorufula fulvorufula*) listed as Endangered, Black-footed Cat (*Felis nigripes*) and White-tailed Rat (*Myodomys albicaudatus*) listed as Vulnerable with Grey Rhebok (*Pelea capreolus*), South African Hedgehog (*Atelerix frontalis*), Spectacled Dormouse (*Graphiurus ocellaris*) and African Striped Weasel (*Poecilogale albinucha*) listed as Near-threatened. Riverine Rabbits are dependent on soft and deep alluvial soils along river courses and no major rivers are present along the development corridor. This species may be susceptible to vehicle collisions, particularly at night. The major threats to Southern Mountain Reedbuck and Grey Rhebok include increased rates of poaching, disturbance by human presence such as cattle herders and illegal hunting by dogs²³. These species are unlikely to frequent the development corridor as they are sensitive to disturbance and are likely to already avoid the area due to the proximity of the site to De Aar and the Hydra MTS. If they were to occur on the development corridor, as mobile species they would temporarily move away from any disturbance associated with the development and would unlikely be negatively affected by the project. The most serious long-term threats for Black-footed Cats are the loss of key resources, such as den sites and prey, from anthropogenic disturbance or habitat degradation (for example, from overgrazing)²⁴. While some areas along the corridor have experienced overgrazing this species could potentially occur on the project site. As they are unable to create or maintain their own dens or burrows they rely on those made by other species such as Springhare **Error! Bookmark not defined.** An interesting observation made during the site visit was the presence of active burrow systems dug in close proximity to existing power line pylons (Figure 3). This observation indicates that these structures did not exclude burrowing animals, which appear to potentially take advantage of the disturbed/loosened soil and short grasses surrounding the pylons. The possibility therefore exists that the development may provide a benefit to certain burrowing species such as Springhare, and therefore potentially Black-footed Cats.

²² As listed in Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The 2016 Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

²³ Taylor A, Avenant N, Schulze E, Viljoen P, Child MF. 2016. A conservation assessment of the *Redunca fulvorufula fulvorufula*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

²⁴ Wilson B, Sliwa A, Drouilly M. 2016. A conservation assessment of *Felis nigripes*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.



Figure 3: Active burrows in close proximity to power line infrastructure, indicating that the presence of these structures did not deter burrowing animals from the site. Springhare potentially take advantage of the disturbed soil and short grasses surrounding the pylons.

White-tailed Rat, South African Hedgehog and Spectacled Dormouse prefer habitats associated with rocky outcrops, dolerite slopes and ridges. This habitat type only occurs in a small section of the development corridor and is more prevalent in the surrounding areas therefore the development is unlikely to have a significant negative impact on these species. This habitat type has nevertheless been classified as high sensitivity on the sensitivity map. South African Hedgehog may be especially susceptible to vehicle collisions, particularly at night.

5.3.2 Avian Species

The proposed development corridor falls within the large Platberg-Karoo Conservancy (SA037, Figure 1). The conservancy covers the entire districts of De Aar, Philipstown and Hanover in the south-eastern portion of the Northern Cape Province. Although the land in the IBA is primarily used for grazing and agriculture, it includes the suburban towns of De Aar, Philipstown, Petrusville and Hanover. This huge area lies in the plains of the central Great Karoo, forming part of the South African plateau and holds vitally important populations of two globally threatened species (Blue Crane, *Anthropoides paradiseus* and Lesser Kestrel, *Falco naumanni*), several biome-restricted species and important populations of other arid-zone birds²⁵.

Power lines in the district have been identified as a high threat to large terrestrial birds such as cranes and bustards, which collide with them, and to raptors, which have been electrocuted while perching on them. Power lines can, however, also be beneficial to large raptors such as Martial Eagle (*Polemaetus bellicosus*) which breed on them in areas where large trees are uncommon.

Particular attention has been given to the potential impact on the Endangered Ludwig's Bustard (*Neotis ludwigii*) in this assessment as some areas around the project site are known to be important breeding and 'lekking' grounds. 'Lekking' is a mating system where males congregate in an area to display to females, Ludwig's Bustards exhibit an 'exploded' or 'dispersed' lekking system in which the displaying males are more widely spread over an area than typical of more conventional lekking arenas observed in other species²⁶. While the project site is not directly within these areas, the species could potentially be impacted upon while traversing the project site to and from these areas.

Many existing power lines traverse the area (Figures 4 and 5) and therefore most of the potential impacts already exist in and around the project site and the proposed power line

²⁵ <http://datazone.birdlife.org/site/factsheet/platberg-karoo-conservancy-iba-south-africa/text>

²⁶ Allan DG: Ludwig's Bustard. In Roberts Birds of Southern Africa. 7th edition. Edited by: Hockey PAR, Dean WJR, Ryan PG. Trustees of the John Voelcker Bird Book Fund, Cape Town; 2005:293–294.

route is adjacent to existing power lines. The proposed development is therefore unlikely to have a significant negative impact on bird species in the area.



Figure 5: Multiple electricity transmission lines exist in the area, converging on the Hydra Main Transmission Substation.

The proposed power line presents an opportunity to increase the visibility of the existing power line and potentially reduce collisions of heavy-bodied birds such as bustards. The installation of flappers and bird flight diverters (BFDs) may effectively increase the visibility of both the proposed and the existing power lines. Similarly, should it be feasible to stagger the pylons of the proposed power line in relation to the existing power line this may also increase the visibility to birds susceptible to power line collisions.

5.3.3 Amphibian Species

There are 13 amphibian species that have a geographical distribution that includes the project site. The Giant Bullfrog (*Pyxicephalus adspersus*) is listed by NEMBA as a *Protected Species*. This species was located in the broader area surrounding the project site and could potentially occur in the development corridor near temporarily inundated depressions. They can tolerate habitat alteration, but not urbanization²⁷.

Their preferred habitats are widespread in the broader area and only a small section occurs along the development corridor, therefore given the small development footprint the project is highly unlikely to significantly negatively impact amphibian species in the area.

5.3.4 Reptiles Species

There are 23 reptile species recorded in databases or observed from in or around the area project site that could occur in the area. The Karoo Padloper (*Chersobius [Homopus] boulengeri*) is listed as Near Threatened in the Regional Red List²⁸, however a more recent assessment²⁹ lists the species as Endangered as most localities where populations previously occurred no longer harbour viable populations and that the species is no longer being found by farmers. The Karoo Padloper is associated with dolerite ridges and rocky-outcrops in dwarf shrubland containing succulent and grassy elements. Such habitat is present on the project site and it could potentially occur in the area, albeit with a low probability. Nevertheless these habitats have been classified as high sensitivity on the

²⁷ IUCN (International Union for Conservation of Nature), Conservation International. 2013. *Pyxicephalus adspersus*. The IUCN Red List of Threatened Species. Version 2019-3.

²⁸ Boycott, R.C. 2014. *Homopus boulengeri* (Duerden, 1906), In M.F. Bates, W.R. Branch, A.M. Bauer, J. Marais., G.J. Alexander & M.S. de Villiers (eds.) Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland. Suricata 1. Pg. 73. South African National Biodiversity Institute, Pretoria.

²⁹ Hofmeyr, M.D., Loehr, V.J.T., Baard, E.H.W. & Juvik, J.O. 2018. *Chersobius boulengeri*. The IUCN Red List of Threatened Species 2018: e.T170521A115656360. <http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T170521A115656360.en>.

sensitivity map and as tortoises are susceptible to vehicle collisions mitigation measures such as strict adherence to speed limits will reduce the potential impact.

More common reptile species, such as the Namaqua Sand Lizard (*Pedioplanis namaquensis*, Least Concern) observed most frequently in the lowland plains, and Western Rock Skink (*Trachylepis sulcata*, Least Concern) observed amongst the rocky outcrops, were encountered in the proposed development corridor. These species are widespread through the area and as their habitats are largely contiguous and undisturbed it is highly unlikely that the proposed development will have a significant negative impact on these, and other reptile species in the area given the relatively small development footprint.

5.3.5 Vertebrate Sensitivity

The habitats present in the proposed development corridor are widespread and contiguous in the broader area. This, combined with the relatively small size of the development footprint and its route adjacent to an existing power line makes it highly unlikely that the development will have a significant negative impact on these species. The potential impacts can be further reduced through the implementation of mitigation measures such as the avoidance of particularly sensitive habitat features, the maximal utilisation of existing access roads, strict observance to speed limits and the avoidance of night time driving. Habitats that may be particularly sensitive have been identified and assigned elevated sensitivity in the sensitivity map such as rocky outcrops, slopes and areas that may be temporarily inundated.

5.4 Invertebrate Species

There are 159 invertebrate species recorded from various databases that could occur on the project site. While this list cannot be considered to be complete, a single species with a distribution range that potentially overlaps the project site is listed by the IUCN as *Vulnerable*, namely the Harlequin Sprite (*Pseudagrion newtoni*). This damselfly is currently known from only a single location in Mpumalanga, the probability for this species to occur on site is low, however the impact on this species would nevertheless be low as it has a preference for wetland habitats and these areas have been classified as high sensitivity in the sensitivity map and would be largely excluded from development.

5.4.1 Invertebrate Sensitivity

The overall sensitivity of the invertebrate species that could occur in the development corridor is considered to be low and the proposed development is unlikely to have a significantly negative impact on invertebrates in the area.

5.5 Habitats

The broad vegetation type that occurs in the study area represents the Nama-Karoo biome. The Nama-Karoo flora is not particularly species rich with a very low local endemism, it is dominated by low dwarf shrubs intermixed with grasses, succulents, geophytes and annual forbs on extensive plains. The Nama-karoo is largely homogenous with few notable different habitat categories.

5.5.1 Lowland Plains Vegetation

The low lying areas are dominated by dwarf karoo shrubs scattered grasses and occasional large shrubs typical of the Northern Upper Karoo⁵ vegetation type. This vegetation type was the most widespread and was fairly uniform across the project site, occurring on all the flat plain areas. The floral species most commonly associated with this vegetation type included Three-awn (*Aristida*) and Lovegrasses (*Eragrostis*) grasses, with low Sheepbush (*Pentzia*) shrubs and the occasional tall shrub *Lycium cinereum* scattered in clumps. Faunal

species such as Aardvark (*Orycteropus afer*), African Mole Rat (*Cryptomys hottentotus*), Bat-eared Fox (*Otocyon megalotis*), Cape Fox (*Vulpes chama*), Black-footed Cat, Yellow Mongoose (*Cynictis penicillata*), Meerkat (*Suricata suricatta*), Aardwolf (*Proteles cristata*), Scrub Hare (*Lepus saxatilis*), Springhare and South African Ground Squirrel (*Xerus inauris*) are among those species which show preference to the lowland plains.

This habitat type represents the majority of the proposed development footprint and it is widespread and contiguous across the broader area.

5.5.2 Rocky Ridges and Outcrops

Cliffs and rocky outcrops are associated with sediment layers more resistant to weathering and are associated with outcrops in the low lying plains. They are characterised by the presence of boulders and loose rocks with an open canopy of medium to tall woody shrubs above a sparse layer of grasses. The common woody shrubs include *Searsia*, *Euclea* and *Diospyros* species. These features provide potential habitat for animals such as Spectacled Dormouse, Hewitt's Red Rock Hare, Cape Elephant Shrew, Eastern Rock Elephant Shrew, Round-Eared Elephant Shrew, Western Rock Elephant Shrew, Cape Dassie, Southern Rock Agama, Western Rock Skink, Karoo Girdled Lizard and Common Banded Gecko amongst others.

These habitats and microhabitats are widespread in the area and only occur on a small section of the proposed development, therefore the localised impact associated with the footprint would be negligible.

5.5.3 Washes & Drainage Lines

The proposed development corridor traverses two lower lying areas which direct water towards drainage lines through which water is channelled during rainfall events. These areas are important for maintaining downstream habitats through the supply of water and sediment. Larger drainage lines downstream are often associated with deeper, looser soils which offer burrowing opportunities for various species and the larger downstream depressions collect sufficient water during the wet season to provide habitat, refuge, shelter and an increase in palatable vegetation for a variety of species that rely on such features in an otherwise arid landscape. These habitats are susceptible to impacts associated with erosion and the invasion of alien plant species, however these impacts can be very effectively mitigated.

5.5.4 Habitat Sensitivity

Slopes and rocky ridges have a higher sensitivity than the surrounding lowland areas. The footprint of the development would be relatively small and no highly significant impacts to habitats are likely to result from the development if mitigation measures are adhered to. Erosion poses a significant threat to habitats in arid environments, with both terrestrial and aquatic habitats being susceptible to the removal, transportation and deposition of topsoil and silt following rainfall events. It is critical that erosion control measures are implemented to mitigate impacts on habitats on and around the proposed development corridor.

5.6 Ecosystem and Biodiversity Conservation

5.6.1 Existing Biodiversity Areas

The Northern Cape Critical Biodiversity Area (CBA) Map was published in 2016³⁰ and it "updates, revises and replaces all older systematic biodiversity plans and associated

³⁰ Oosthuysen, E. & Holness, S. 2016. Northern Cape Critical Biodiversity Areas (CBA) Map. Department of Environment and Nature Conservation & Nelson Mandela Metropolitan University.

products for the province". This includes the Namakwa District Biodiversity Sector Plan (Desmet & Marsh 2008), from which the Northern Cape CBA Map derived identified CBA1 and CBA2 areas (and added additional CBA1 and CBA2 areas). The rationale for defining the recent CBA areas is derived from the earlier (2008) conservation plan. Areas in the 2016 map include the following areas:

- Important Bird Areas (IBAs);
- Succulent Karoo Ecosystem Plan (SKEP) expert identified areas;
- Threatened species locations;
- Features from previous conservation plans (including CBA1 and CBA2 areas from the Namakwa District Biodiversity Sector Plan);
- Areas supporting climate change resilience, e.g. areas of high diversity, topographic diversity, strong biophysical gradients, climate refugia, including kloofs, south-facing slopes and river corridors;
- Conservation Plans from adjacent provinces; and
- Landscape structural elements, e.g. rocky outcrops, koppies, dolerite dykes, boulder fields, woody vegetation on outwash plains.

The Northern Cape CBA map classifies the natural vegetation of the province according to conservation value in decreasing value, as follows:

- Protected Areas;
- Critical Biodiversity Area 1 (Irreplaceable Areas);
- Critical Biodiversity Area 2 (Important Areas);
- Ecological Support Areas; and
- Other Natural Areas.

The proposed development corridor considered here does not include any CBA1 or CBA2 areas but is positioned wholly within an area classified as an ESA. This ESA is largely due to the presence of the Platberg-Karoo Conservancy IBA. The conservancy covers the entire districts of De Aar, Philipstown and Hanover in the south-eastern portion of the Northern Cape Province. Although the land in the IBA is primarily used for grazing and agriculture, it includes the suburban towns of De Aar, Philipstown, Petrusville and Hanover.

The position of the proposed development alongside multiple existing power lines converging on the Hydra MTS and the relatively small size of the development footprint makes it highly unlikely that the proposed development will have a significant negative impact on the functioning and goals of the ESA or the biodiversity in the area.

5.6.2 Important, Proposed and Protected Areas

The proposed development corridor does not fall within any protected areas or areas earmarked by the National Parks Area Expansion Strategy ('NPAES'). The De Aar Region SWSA covers a broad region from De Aar extending some 70 km towards Hanover. While not formally protected, these areas are important for sustained supplies of groundwater, critical for towns and agriculture in this area and significant alterations to runoff and recharge rate of underground aquifers should be avoided. Mitigation measures such as the maximal use of existing access roads and servitudes, as well as erosion control measures will reduce the impact of the development on moisture regimes, erosion, runoff, recharge rates and therefore the SWSA. It is highly unlikely that the proposed development will have a significant negative impact on the integrity of the De Aar Region SWSA. The proposed development corridor is not located near any National Freshwater Ecosystem Priority Areas (FEPAs).

5.7 Sensitivity Assessment

An ecological sensitivity map (Figure 6) was produced through the integration of the information collected during the site visit with the available biodiversity data in the literature and available resources previously listed. Sensitive features such as rocky outcrops and drainage ditches were mapped and rated. The ecological sensitivity rating of landscape features were categorised as follows:

- **Low** – Areas with a low sensitivity where there is likely to be a low impact on terrestrial biodiversity and ecological processes. The impact of development is likely to be local in extent and of low significance with the implementation of mitigation measures.
- **Medium** – Areas with a medium sensitivity where there is a possibility of a medium impact on terrestrial biodiversity and ecological processes. The impact of development in these areas is likely to be largely local in extent but of medium significance as there exists a risk of secondary impact such as erosion which could potentially degrade surrounding areas. Development within these areas can proceed provided that appropriate mitigation measures are adhered to.
- **High** – Areas with a high sensitivity where there is a possibility of high impact on terrestrial biodiversity and ecological processes. The impact of development in these areas is likely to extend beyond the immediate development footprint and be of higher significance as there exists a direct risk of impact to ecological processes and critical or unique habitats for species of conservation concern. These areas are essentially no-go areas from a development perspective in terms of the construction of new infrastructure such as towers or pylons. Spans of the pylons may cross these areas. Existing infrastructure such as access roads and servitudes must be used when traversing these areas.

6 IDENTIFICATION OF POTENTIAL IMPACTS

Potential impacts of developments on the Terrestrial Biodiversity of the area include the following:

- Impacts on biodiversity: Any impacts on populations of species of concern (flora and fauna) and on overall species richness, genetic variability, population dynamics and habitats important for species of concern;
- Impacts on sensitive habitats: Impacts on any sensitive or protected habitats, including indigenous grassland and wetland vegetation that leads to direct or indirect loss of such habitat;
- Impacts on threatened ecosystems: Any impacts on threatened or protected ecosystems, critical biodiversity areas, areas of high biodiversity and centres of endemism;
- Impacts on ecosystem functions: Any impacts on processes or factors that maintain ecosystem health and character, including the following:
 - Habitat fragmentation;
 - Disruption to ecological corridors;
 - Changes to abiotic environmental conditions;
 - Changes to disturbance regimes, e.g. increased or decreased incidence of fire;
 - Disruption to nutrient-flow dynamics;
 - Impedance of movement of material or water;
 - Changes to successional processes;
 - Effects on pollinators; and
 - Increased invasion by alien plants.
- Cumulative impacts: this includes an assessment of the impacts of the proposed project taken in combination with the impacts of other known projects for the area or

secondary impacts that may arise from changes in the social, economic or ecological environment.

6.1.1 Construction Phase Impacts

Construction phase impacts for this project will include the following:

- Loss and/or fragmentation of indigenous natural vegetation due to clearing;
- Loss of faunal habitat and refugia;
- Loss of individuals of protected plant species;
- Direct mortality of fauna due to machinery, construction and increased traffic;
- Displacement and/or disturbance of fauna due to increased activity and noise levels;
- Increased poaching and/or illegal collecting due to increased access to the area; and
- Contamination of the environment by construction vehicles and machinery.

6.1.2 Operational Phase Impacts

Ongoing operational impacts for this project will include the following:

- Direct impact to fauna through increased traffic, illegal collecting, poaching, electrocution and collisions and/or entanglement with infrastructure;
- Indirect impact to fauna through disturbance or displacement;
- Establishment and spread of alien invasive plant species due to the presence of migration corridors and disturbance; and
- Runoff and erosion due to the presence of hard surfaces that change the infiltration and runoff properties of the landscape.

6.1.3 Cumulative Impacts

Impacts on broad-scale ecological processes and cumulative habitat loss, connectivity or potential for the area to meet long-term conservation objectives (such as CBAs, ESAs, IBAs and NPAES areas).

7 ASSESSMENT OF IMPACTS

The position of the proposed development corridor adjacent to multiple existing power lines converging on the nearby Hydra MTS makes it unlikely that the proposed development will significantly contribute, amplify or add to the impacts that already exist on the site following the implementation of mitigation measures. Indeed, the proposed development could potentially reduce the likelihood of bird collisions with the existing electricity distribution infrastructure, particularly for large bodied birds traversing the area, by increasing the visibility of obstacles in the landscape.

The proposed switching station position is located in an area of low sensitivity for Terrestrial Biodiversity and the access road follows the route of existing farm roads. The vegetation types and habitats present in the proposed development corridor are not unique to the site, are not threatened and are largely undisturbed and contiguous in the surrounding area. The relatively small size of the development footprint in this context makes it unlikely that the proposed development will have a significant negative impact or threaten populations of any species of conservation concern, sensitive habitats or ecological functions and processes in the area.

The proposed development will not reduce the functioning or goals of the IBA or ESA and will not have a significant negative impact on the ecosystem or biodiversity conservation objectives in the area.

8 PROPOSED MITIGATION MEASURES

The following proposed impact management actions or mitigation measures must be included in the EMPr to reduce the potential impacts of the proposed development:

- Preconstruction walk-through of the development footprints (pylon bases, new servitudes, access road, switching station, lay-down areas and temporary infrastructure) once finalised for micro-siting to ensure that sensitive habitats are avoided where possible and to collate a list of protected plants that may require permits;
- Pylons must conform to all Eskom standards in terms of bird friendly pole monopole structures with Bird Perches on every pole-top (to mitigate bird electrocution);
- Transmission lines must be fitted with anti-bird collision line marking devices (e.g. bird flight diverters to mitigate bird collision) for the whole length of the line;
- Pylon tower footprints to be constructed outside of high sensitivity areas (line spans may cross these areas);
- Ensure that lay-down and other temporary infrastructure are within low sensitivity areas;
- Minimise the development footprint as far as possible and rehabilitate areas disturbed during construction that are not required by the operational phase of the development (i.e. a Habitat Rehabilitation Programme is required);
- Any topsoil removed during excavation activities must be kept aside and used for the rehabilitation of temporarily disturbed areas;
- Construction activities in or near drainage lines, washes or temporary inundated depressions must only take place during the dry season;
- General maintenance should be conducted during the dry season where possible;
- Utilize existing servitudes and access roads wherever possible, any new roads or the upgrading of roads should be minimized as far as possible and not be larger than required;
- All construction vehicles should adhere to clearly defined and demarcated roads, no off-road driving should be allowed;
- Ensure that sufficient erosion control measures are constructed and/or rehabilitated on all servitudes and access roads on and to the project site;
- All roads and other hardened surfaces should have runoff control features which redirect water flow and dissipate energy in the water stream which may pose an erosion risk;
- Regular monitoring for erosion is to take place regularly throughout the lifespan of the project (e.g. during routine maintenance) and reported for prompt intervention with appropriate erosion control solutions;
- An environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. Including topics such as avoiding fire hazards, no littering, appropriate handling of pollution and chemical spills, minimizing wildlife interactions, remaining within demarcated construction areas, avoidance of sensitive habitats (i.e. wetlands);
- Site access should be controlled and no unauthorised persons should be allowed onto the site;
- The collection or harvesting of any plants or animals at the site should be strictly forbidden;
- Personnel should not be allowed to wander off the demarcated construction site;
- All vehicles should adhere to a low speed limit (30km/h) and speed limits must apply within the project site to avoid collisions with susceptible species;
- Night driving must be avoided where possible;
- Any trenches or pits opened during construction must not be left open for extended periods of time to prevent entrapment of species (such as tortoises), any open trenches or pits must be regularly checked for entrapped species;

- Any fauna directly threatened by the construction activities should be removed to a safe location by the environmental control officer or other suitably qualified person;
- Construction camps should be lit with as little light as practically possible, with the lights directed downwards where appropriate to reduce the disturbance and foraging activities of nocturnal species;
- No dogs or cats other than those of the landowners should be allowed on site as these animals cause unnecessary disturbance such as chasing fauna;
- Disturbed areas such as road verges, lay-down areas and areas utilised by temporary construction facilities must be regularly monitored to detect the establishment of alien species and those species should be eradicated before they spread (i.e. an Alien Species Control Programme is required);
- Regular alien clearing should be conducted, as needed, using the best-practice methods for the species concerned, the use of herbicides should be avoided as far as possible ; and
- The use of herbicides (if absolutely required) for the control and eradication of alien grasses should be done in accordance with an alien eradication programme to reduce unintended ecological impacts.

In the specialist's opinion, based on the mitigation and remedial measures proposed above, the land within the proposed development corridor can be returned to the current state within two years of completion of the construction phase.

9 ADDITIONAL REQUIREMENTS

Micrositing of infrastructure such as pylon bases is required after finalization of locations and prior to construction to ensure sensitive areas are avoided where possible and to compile a list of floral species that may be cut, chopped, uprooted, broken, damaged or destroyed to obtain any relevant permits necessary for these restricted activities.

10 IMPACT STATEMENT

The proposed grid connection and associated infrastructure are unlikely to generate significant negative impacts on Terrestrial Biodiversity following mitigation. **It is the specialist opinion that the proposed development will have a low potential impact to Terrestrial Biodiversity and therefore the proposed development can be approved from a Terrestrial Biodiversity perspective.**

APPENDIX I: LEGISLATIVE REQUIREMENTS

Relevant legislation is provided below to provide a description of the applicable legal considerations of relevance to the proposed project.

Convention on Biodiversity (CBD)

The CBD requires signatory states to implement objectives of the Convention, which are the conservation of biodiversity; the sustainable use of biological resources and the fair and equitable sharing of benefits arising from the use of genetic resources. South Africa became a signatory to the CBD in 1993, which was ratified in 1995. Article 14 (a) of the CBD states that *“Each Contracting Party, as far as possible and as appropriate, shall: (a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures”*.

National Environmental Management Act (Act No. 107 of 1998, NEMA)

Section 24 of the Constitution of the Republic of South Africa provides the right to every person for a non-harmful environment and simultaneously mandates the government to protect the environment. NEMA is the framework to enforce Section 24 of the Constitution.

NEMA requires, amongst others, that:

- Development must be socially, environmentally, and economically sustainable;
- Disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; and
- A risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.

Government Notice No. 40733 of 2017: Draft National Biodiversity Offset Policy published under NEMA is to ensure that significant residual impacts of developments are remedied, thereby ensuring sustainable development as required by section 24 of the Constitution of the Republic of South Africa, 1996. This policy should be taken into consideration with every development application that still has significant residual impact after the mitigation has been followed. The mitigation sequence entails the consecutive application of avoiding or preventing loss, then at minimizing or mitigating what cannot be avoided, rehabilitating where possible and, as a last resort, offsetting the residual impact.

The National Gazette, No. 43110 of 20 March, 2020: “National Environmental Management Act (107/1998) Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of sections 24 (5) (a) and (h) and 44 of the Act, when applying for Environmental Authorisation” lists protocols and minimum report requirements for environmental impacts on terrestrial biodiversity. The assessment and minimum reporting requirements are associated with a level of environmental sensitivity identified by the national web-based screening tool **Error! Bookmark not defined.** The proposed project site falls within an area identified by the screening tool as ‘very high sensitivity’ in the Terrestrial Biodiversity Theme due to the proposed route crossing a small section delineated as critical biodiversity areas as well as an ecological support area. The ecological support area is, however, a result of the Important Bird Area surrounding De Aar. Furthermore, this legislation makes provision for linear activities such as power lines such as the proposed development by stating that the assessment and reporting requirements for ‘very high sensitivity’ need not apply as impacts on terrestrial biodiversity are temporary. The land disturbed by the power line development, in the specialist’s opinion

can be returned to the current state within two years of the completion of the construction phase, and as such a Terrestrial Biodiversity Compliance Statement applies.

National Environmental Management: Biodiversity Act (Act No. 10 of 2004, NEMBA)

NEMBA is the principal national act that regulates biodiversity protection, and is concerned with the management and conservation of biological diversity, as well as the use of indigenous biological resources in a sustainable manner. Section 57 (1) states that a person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7 (2) The Minister may, by notice in the Gazette, prohibit the carrying out of any activity- (a) which is of a nature that may negatively impact on the survival of a listed threatened or protected species. Restricted activities include damaging, uprooting or destroying specimens of listed threatened or protected species as well as movement and possession of these species. NEMBA also aims to, inter alia, (a) prevent the unauthorized introduction and spread of alien species and invasive species to ecosystems and habitats where they do not naturally occur; (b) to manage and control alien species and invasive species to prevent or minimize harm to the environment and to biodiversity in particular and (c) to eradicate alien species and invasive species from ecosystems and habitats where they may harm such ecosystems or habitats.

National Forests Act (Act No. 84 of 1998)

This act lists protected tree species and prohibits certain activities. The prohibitions provide that "*no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister*".

National Water Act (Act No. 36 of 1998)

This act defines a watercourse as: "*a river or spring; natural channel in which water flows regularly or intermittently; wetland, lake or dam into which, or from which, water flows; and any collection of water which the Minister may, by notice in the gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks*". This act regulates certain activities in and around a watercourse and aims, amongst others to protect aquatic and associated ecosystems and their biological diversity and reduce and prevent pollution of water resources.

Conservation of Agricultural Resources Act (Act No. 43 of 1983 as amended in 2001)

This act lists declared weed and invader species of plants and prescribes the required actions to combat their spread depending on their listed category, the three categories are:

- Category 1 plants: prohibited and must be controlled;
- Category 2 plants: may be grown in demarcated areas providing that there is a permit and that steps are taken to prevent their spread; and
- Category 3 plants: may not be planted; existing plants may remain as long as reasonable steps are taken to prevent their spread, except within the flood line of watercourses and wetlands.

National Veld and Forest Fire Act (Act No. 101 of 1998)

The purpose of the National Veld and Forest Fire Act, as amended by the National Fire Laws Amendment Act, is to prevent and combat veld, forest and mountain fires throughout South Africa. The Act applies to the open countryside beyond the urban limit and puts in place a range of requirements. It also specifies the responsibilities of land owners. The

term 'owners' includes lessees, people in control of land, the executive body of a community, the manager of State land, and the chief executive officer of any local authority. The requirements include, but are not limited to, the maintenance of firebreaks and availability of firefighting equipment to reasonably prevent the spread of fires to neighbouring properties.

Northern Cape Nature Conservation Act (Act No. 9 of 2009)

This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst other regulations, the following may apply to the current project: Aquatic habitats may not be destroyed or damaged restricted activities involving protected animals and plants, including the uprooting, breaking, damage or destruction of listed plant species. The Act provides lists of species offered protection in the Province.

APPENDIX II: POTENTIAL PROTECTED PLANT SPECIES ON THE PROJECT SITE

Plant species listed by BODATSA database that have been recorded within an area that includes the study area as well as similar habitats in surrounding areas and offered protection by the Northern Cape Conservation Act.

Family	Species	Family	Species
Aizoaceae	<i>Chasmatophyllum maninum</i>	Fabaceae	<i>Lessertia annularis</i>
	<i>Delosperma</i> sp.	Geraniaceae	<i>Pelargonium aestivale</i>
	<i>Galenia pubescens</i>		<i>Pelargonium althaeoides</i>
	<i>Galenia sarcophylla</i>		<i>Pelargonium pseudofumarioides</i>
	<i>Galenia secunda</i>		<i>Pelargonium tragacanthoides</i>
	<i>Mesembryanthemum coriarium</i>	Hyacinthaceae	<i>Daubenya comata</i>
	<i>Oscularia deltoides</i>		<i>Lachenalia ensifolia</i>
	<i>Ruschia</i> sp.		<i>Ornithogalum nanodes</i>
<i>Tetragonia fruticosa</i>	Iridaceae	<i>Gladiolus dalenii</i>	
<i>Brunsvigia radulosa</i>		<i>Gladiolus ecklonii</i>	
<i>Cyrtanthus huttonii</i>		<i>Gladiolus permeabilis</i>	
<i>Apium graveolens</i>		<i>Moraea falcifolia</i>	
<i>Asclepias gibba</i>		<i>Moraea pallida</i>	
Apocynaceae	<i>Brachystelma rubellum</i>	Orchidaceae	<i>Syringodea concolor</i>
	<i>Ceropegia multiflora</i>		<i>Disa pulchra</i>
	<i>Gomphocarpus fruticosus</i>		<i>Orthochilus foliosus</i>
	<i>Microloma armatum</i>		<i>Satyrium longicauda</i>
	<i>Pachypodium succulentum</i>	<i>Satyrium membranaceum</i>	
	<i>Stapelia grandiflora</i>	Oxalidaceae	<i>Oxalis depressa</i>
<i>Stenostelma eustegioides</i>	Scrophulariaceae	<i>Jamesbrittenia aurantiaca</i>	
<i>Dianthus micropetalus</i>		<i>Jamesbrittenia filicaulis</i>	
<i>Adromischus caryophyllaceus</i>		<i>Manulea fragrans</i>	
<i>Crassula corallina</i>	Tecophilaeaceae	<i>Nemesia linearis</i>	
<i>Tylecodon ventricosus</i>		<i>Cyanella lutea</i>	
<i>Euphorbia arida</i>			
Euphorbiaceae	<i>Euphorbia flanaganii</i>		
	<i>Euphorbia juttae</i>		

02/03/2021

Attention: Ms Ashleigh von der Heyden
Arcus Consultancy Services South Africa (Pty) Ltd
Office 607 Cube Workspace
Cnr Long Street and Hans Strijdom Ave
Cape Town, 8001

REVIEW OF PROPOSED MULILO TOTAL HYDRA STORAGE PROJECT NEAR DE AAR: POWERLINE TERRESTRIAL BIODIVERSITY AND PLANT COMPLIANCE STATEMENTS AND ANIMAL SPECIALIST ASSESSMENT

B A C K G R O U N D

Mulilo Total Hydra Storage (Pty) Ltd ('MTHS') are seeking environmental approval to construct a ±8 km of single circuit 132 kV overhead power line and its associated infrastructure near De Aar in the Northern Cape Province. Jamie Pote has been appointed by Arcus to conduct an independent review of the Terrestrial Biodiversity and Plant Species Compliance Statements and Animal Species Specialist Assessment compiled by Arcus Consultancy Services South Africa (Pty) Ltd. This review encompasses all three of the separate reports described above, namely the Terrestrial Biodiversity and Plant Species Compliance Statements as well as the Animal Species Specialist Assessment.

T E R M S O F R E F E R E N C E

The independent review of the Mulilo De Aar Powerline Terrestrial Biodiversity Reports includes the following:

- 1) Confirmation of independence (*attached as Annexure A*).
- 2) A CV clearly showing the expertise of the peer reviewer (*attached as Annexure A*).
- 3) Acceptability of the terms of reference of the specialist studies.
- 4) The suitability of the different assessment methodology used for data gathering and analysis.
- 5) Evaluate the validity of the findings (review data evidence).
- 6) Discuss the suitability of the mitigation measures and recommendations.
- 7) Identify any shortcomings and mitigation measures to address the mitigation measures.
- 8) Evaluate the appropriateness of the reference literature and data.
- 9) Indicate whether a site inspection was carried out as part of the peer review.
- 10) Indicate whether the article is professionally written and easy to understand.

I N D E P E N D E N T R E V I E W

Terms of Reference of Report

The specialist scope of study is adequate and acceptable and includes a desktop component (vegetation types and status and red listed & protected flora & fauna) and site verification to confirm status. A single 5-day walkdown site visit would be deemed adequate in this case, as no significant red flags are raised in the preliminary site screening and it would serve to identify any higher risk areas to be avoided or mitigated. The season in which the site visit was conducted is furthermore suitable.

Assessment Methodology Acceptability

The assessment methodology utilised is applicable and includes consultation of standard available databases, distribution records and other literature sources for red listed species, as well as records of potential regional protected species and regional threat status. Data sources are comprehensive and include the standard available sources and covered an appropriate area (approximately 50 km surrounding site). The National Web Based Screening Tool was furthermore utilised to identify potential biodiversity related sensitivities.

Furthermore, the site visit was conducted during the summer rainy season and followed substantial rainfall, which would allow for better opportunity to identify and assess potential wetland or other aquatic features where present.

Validity of Findings

The terrestrial biodiversity report has identified the following:

- 1) A single vegetation unit is present in the affected area (Northern Upper Karoo), having a Least Threatened (NEMBA) or Least Concern (IUCN) conservation status.
- 2) The Northern Cape Critical Biodiversity Area (CBA) informs that no CBAs occur on the project site, however it falls within an Ecological Support Area (ESA) mostly due to the presence of the extensive Important Bird Area (IBA) surrounding De Aar. The report correctly concludes that the proposed powerline would not significantly compromise the functioning of the ESA due to its small footprint and would thus be unlikely to disrupt broad scale ecological processes. Furthermore, the siting of the powerline within an existing powerline corridor would potentially increase visibility.
- 3) The site falls outside any area identified in the National Parks Area Expansion Strategy (NPAES). It is thus unlikely to have any negative impact on Biodiversity Planning.
- 4) The writer records that the site is comprised of habitat that would be suitable to a range of faunal species, but also that this habitat is relatively uniform and widespread in the area and thus not unique to the site.
- 5) The report confirms that the writer did not record the presence of any NEMBA listed flora species on the site during site visit, however several species protected in terms of the Northern Cape Nature Conservation Act, which would require a permit and it is recommended that a final walk-through survey be conducted before commencement to obtain final counts for permit application requirements followed by a plant relocation (if required).
- 6) The report correctly concluded that although within the distribution range of the Critically Endangered Riverine Rabbit (*Bunolagus monticularis*), it is unlikely to be present in the project site itself, being outside of its preferred habitat. Regarding other mammal species, it is concluded that burrowing species are unlikely to be significantly affected and further noted that burrows were observed near pylons that had been previously installed, indicating that some faunal species may in fact not be overly affected by the powerlines. Other threatened or near threatened species are generally mobile and transient species that are unlikely to be significantly impacted. The habitat provided by the site is generally also widespread.
- 7) The write correctly concludes that the significance of impacts to amphibian species is likely to be low.
- 8) It is noted that there is a low probability that the Karoo Padloper (*Chersobius [Homopus] boulengeri*) could be present within the site and surrounding area, as the habitat is suitable. Localised habitat loss is however unlikely to be significant due to small footprint, but it is correctly recommended that and measures be implemented to mitigate mortalities. These should include measures relating to vehicles on access roads, but should include measures implemented during site clearing, as tortoises are generally not able to move away from construction vehicles.
- 9) The site falls within the Platberg-Karoo Conservancy Important Bird Area (IBA) which covers a large area and is vitally important habitat for two globally threatened bird species, namely Blue Crane (*Anthopoides paradiseus*, Near Threatened) and Lesser Kestrel (*Falco naumanni*), as well as several biome-restricted species and important populations of other arid-zone birds. Other species typical of the area may experience localised disturbance and displacement from potential foraging and nesting habitat. The report also concludes that electrocutions and collisions with the proposed powerline is likely to be within acceptable limits, with the implementation of the proposed mitigation measures. The overall impact on birds is thus considered to be low.

- 10) The only invertebrate species of concern recorded in databases is the damselfly (*Pseudagrion newtoni*), which is recorded from an area in Mpumalanga. The writer correctly concludes that the probability of this species being present is low, as it is outside of its known distribution range (Mpumalanga).
- 11) The report concludes that the site is not located near any National Freshwater Ecosystem Priority Areas (NFEPA's) and no seasonally inundated depressions or wetlands are likely to be affected, as they can be spanned by the powerline. It further correctly notes that the site is situated within a vegetation type and habitat that is widespread and not having any elevated protection status.
- 12) The site Sensitivity Assessment was conducted through the integration of the information collected during the site visit with the available biodiversity data in the literature and available resources and takes cognisance of the wider surrounding area and concludes that the overall area generally has a low sensitivity, and that medium and high sensitivity areas can generally be avoided.

Mitigation and Recommendations Suitability

The mitigation measures contained within the report are appropriate to the type of project and the associated ecological and biodiversity risks and include the following key aspects:

- 1) Pre-construction walkdown to locate and identify protected species and to inform any permit requirements.
- 2) Construction may commence only after permit applications have been obtained.
- 3) Appropriate environmental awareness must be mandatory for all staff.
- 4) Site clearing must be contained to the required footprint, vehicles must not deviate from roads and erosion protection measures to be adequate.
- 5) Faunal consideration must include observing speed reduction on roads, avoid night driving, access control, no hunting or collection to be permitted, no dogs or cats to be permitted on site, any fauna to be safely removed from site, open excavations to not be left for extended time periods, monitor, and respond to for possible avifaunal risks and No-Go areas to be adhered to and clearly delineated where appropriate.
- 6) Operation mitigation measures correctly further stipulate measures to minimise further additional disturbance and management of the site and immediate surrounds, including erosion measures and management of alien species and weeds, which are usually problematic during and after any construction activity and can become problematic if not addressed efficiently. Additional faunal measures appropriately address procedures for correct operational monitoring and dealing with specific risk, such as implementing nesting deterrents where necessary on a case-by-case basis.

Shortcomings of mitigation measures

Mitigation measures are appropriate and generally address the requirements of the type of project and biodiversity risk profile adequately.

The review confirms that no further mitigation measures are deemed to be necessary over and above those recommended by the author.

Appropriateness of Reference Literature and Data

Referenced literature, databases and other sources is adequately comprehensive for the requirements.

Site Inspection

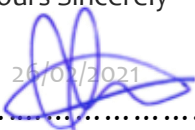
The 5-day site visit and route walkdown is deemed to be adequate for the purposes of the reporting. An additional site inspection was not carried out for the purposes of the independent review, and is not deemed to be required, as the author has clearly assessed the project with an appropriate level of detail.

Acceptability of Report and General Comment

The writer has given due and careful consideration to all the biodiversity components and processes in a comprehensive manner. The author concludes that although the site was identified in the web-based screening tool as having an elevated sensitivity for terrestrial biodiversity and fauna (animal species), this sensitivity is largely related to the site falling within the extensive Platberg-Karoo Conservancy IBA. Since the proposed powerline is within a corridor already having several powerlines, the cumulative impact will be proportionately low and could in fact increase overall visibility. It will also not significantly fragment habitat unnecessarily. The report correctly concludes that the impacts of the proposed powerline to biodiversity would be low risk and within acceptable levels with the implementation of the recommended mitigation measures.

The content, findings and recommendations of the report are deemed appropriate, sufficiently detailed and I confirm and concur with the overall biodiversity compliance assessment mitigation measures, recommendations, and overall conclusions.

Yours Sincerely



26/02/2021

.....
Mr Jamie Pote BSc (Hons) Pr. Sci. Nat (115233)

[Report Ref: Mulilo-De Aar Powerline - Biodiversity Reporting Review - Jamie Pote \(20210302\).docx](#)



Jamie Pote

SENIOR ECOLOGIST AND ENVIRONMENTAL SCIENTIST

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EDUCATION

- Bachelor of Science
Rhodes University
2001 (Botany & Environmental Science)
- Bachelor of Science (Honours)
Rhodes University
2002 (Botany)
- Professional Natural Scientist
SACNASP
2016

SERVICES

- Terrestrial Biodiversity/Ecological Assessments*
- Environmental & Ecological Risk-Assessments*
- Bioremediation, Restoration & Rehabilitation Plans*
- Environmental Management Plans & Programmes*
- GIS Mapping & Analysis & Web maps*
- Alien Invasive Management (Terrestrial)*
- Environmental Auditing & Monitoring (ECO)*
- Flora Search & Rescue & Relocation*
- Independent Environmental & Ecological review*
- Permit and License applications*
- Environmental & Mining Applications*

ABOUT ME

16 years broad professional experience in Biodiversity, Ecological and Vegetation Assessments on over 220 projects in southern, western and central Africa. Senior Environmental Consultant and EAP on over 50 projects in the mining, infrastructure, housing and agricultural sectors. Environmental monitoring and auditing on over 50 civil infrastructure and construction projects. Have managed all aspects of projects from inception through to implementation. GIS mapping and analytics.

EXPERIENCE AND CLIENTS

Key Sectors

- *Wind, Solar Energy Facilities*
- *Infrastructure and Housing*
- *Agriculture and Forestry*
- *Mining and Industrial*

Key Projects

- *Over 220 independent Biodiversity/Ecological Assessments throughout southern, western and central Africa.*
- *Mining applications and construction auditing on over 40 projects and more than 300 gravel borrow pits for the Eastern Cape Department of Roads and Public Works, Department of Transport and the South African National Roads Agency (SANRAL) throughout the Eastern Cape.*
- *South-End Precinct Mixed Use Development for Mandela Bay Development Agency - Environmental application, Ecological assessments and Construction monitoring.*
- *Coega Development Corporation IDZ projects – Ecological assessments, Flora search & rescue and Construction monitoring.*
- *Environmental applications, construction monitoring and auditing for a wide range of projects, including infrastructure and housing for various clients including the Department of Transport and SANRAL.*
- *Various agricultural expansion and infrastructure projects.*
- *Various wind and solar energy and associated infrastructure projects.*
- *Numerous infrastructure projects including electrical, water and roads.*
- *Various Environmental Management and Rehabilitation Plans.*

* Comprehensive list of projects conducted is available on request.



herewith certifies that
Jamie Robert Claude Pote
Registration Number: 115233
is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)
Ecological Science (Professional Natural Scientist)

Effective **20 July 2016**

Expires **31 March 2021**



A handwritten signature in black ink, appearing to read 'Botha', written over a horizontal line.

Chairperson

A handwritten signature in black ink, appearing to read 'M. Priddy', written over a horizontal line.

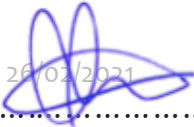
Chief Executive Officer



To verify this certificate scan this code

I, Mr Jamie Pote declare that:

- I act as the independent specialist in this application.
- I have performed the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- I declare that there are no circumstances that may compromise my objectivity in performing such work.
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity.
- will comply with the Act, regulations, and all other applicable legislation.
- I have no, and will not engage in, conflicting interests in the undertaking of the activity.
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing:
 - any decision to be taken with respect to the application by the competent authority.
 - the objectivity of any report, plan, or document to be prepared by myself for submission to the competent authority.
- all the information furnished by me in this form are true and correct.
- I realise that a false declaration is an offence and is punishable in terms of section 24F of the Act.

26/02/2021


.....

Signature of the specialist:

Mr Jamie Pote BSc (Hons) Pr. Sci. Nat (115233)



ARCUS

**TERRESTRIAL BIODIVERSITY SITE SENSITIVITY
VERIFICATION REPORT FOR THE PROPOSED MULILO TOTAL
HYDRA STORAGE PROJECT: GRID INTERCONNECTION NEAR DE
AAR, NORTHERN CAPE PROVINCE**

For

Mulilo Total Hydra Storage (Pty) Ltd

February 2021



Prepared By:

Arcus Consultancy Services South Africa (Pty) Limited

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1 INTRODUCTION

The National Gazette, No. 43110 of 20 March, 2020: "National Environmental Management Act (107/1998) Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of sections 24 (5) (a) and (h) and 44 of the Act, when applying for Environmental Authorisation" lists protocols and minimum report requirements for environmental impacts on terrestrial biodiversity and provides the criteria for the assessment and reporting of impacts on terrestrial biodiversity for activities requiring environmental authorisation. This protocol replaces the requirements of Appendix 6 of the Environmental Impact Assessment Regulations.

The assessment and minimum reporting requirements of this protocol are associated with a level of environmental sensitivity identified by the National Web Based Screening Tool¹ ('Screening Tool'). These regulations, however, state:

"If any part of the proposed development footprint falls within an area of "very high" sensitivity, the assessment and reporting requirements prescribed for the "very high" sensitivity apply to the entire footprint, excluding linear activities for which impacts on terrestrial biodiversity are temporary and the land in the opinion of the terrestrial biodiversity specialist, based on the mitigation and remedial measures, can be returned to the current state within two years of the completion of the construction phase, in which case a compliance statement applies."

A desk-top study and a site visit was conducted by the Terrestrial Biodiversity Specialist to determine the likelihood that the development site could be returned to the current state within two years of the completion of the construction phase.

2 METHODS

2.1 Desk-top Study

The Screening Tool was used to generate the potential environmental sensitivity of the site. The outputs were compared with satellite imagery and GIS maps of the project site. Broad vegetation types were mapped using the updated National Vegetation Map 2018 (NVM 2018) database² and the vegetation descriptions were obtained from Mucina & Rutherford (2006)**Error! Bookmark not defined.** A list of plant species previously recorded in the wider area were obtained from the Database of Southern Africa (BODATSA) database³ on the SANBI website⁴. An area of roughly 50 km around the project site was searched for potential species of concern. Lists of faunal species were collated from interrogating multiple databases and sources including the various atlasing projects of the Virtual Museum⁵ and the GBIF⁶ network as well as several available ecological assessments for neighbouring projects.

These species lists were used to highlight any habitats or taxa that may be particularly sensitive to impacts from the development and indicate any features that could occur on the project site which may require increased attention during the site visit.

¹ <https://screening.environment.gov.za/screeningtool/>

² South African National Biodiversity Institute (2006-2018). The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Online, <http://bgis.sanbi.org/Projects/Detail/186>, Version 2018.

³ South African National Biodiversity Institute. 2016. Botanical Database of Southern Africa (BODATSA) [dataset]. doi: to be assigned.

⁴ <http://newposa.sanbi.org/>

⁵ http://vmus.adu.org.za/vm_projects.php

⁶ <http://gbif.org>

2.2 Site Visit

A site walk-through was conducted during the survey of the site between 10 February 2020 and 14 February 2020. The conditions of the site visit were ideal for the assessment as the area receives summer rainfall and a significant amount of rainfall had fallen during the season, allowing for a thorough assessment of features such as temporary wetlands, vleis, drainage lines, seeps and water-filled depressions to be conducted. Plant species such as grasses and herbs were flourishing during the site visit.

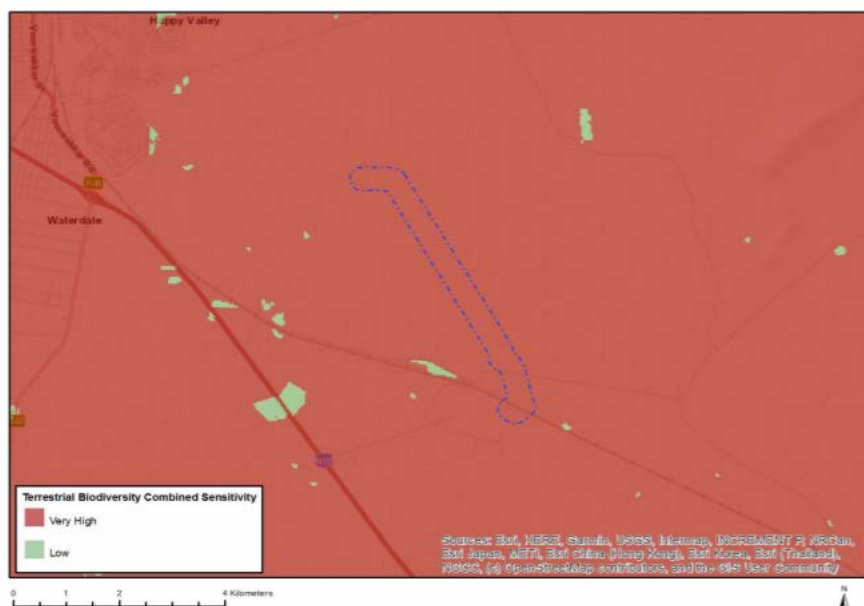
3 RESULTS

3.1 Desktop Study

3.1.1 Screening Tool

The Screening Tool identified the project site to be of **Very High Sensitivity** in the Terrestrial Biodiversity Theme (Figure 1) due to the presence of an Ecological Support Areas (ESA). The ESA is largely a result of the large Important Bird Area (IBA) that surrounds De Aar.

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Ecological Support Area

Figure 1: Results of the National Web-based Screening Tool.

3.1.2 GIS and Satellite Imagery

The project site was mapped using publically available satellite imagery and GIS to determine the relative importance of the site in relation to the ESA (Figure 2).



Figure 2: Grid connection corridor (green) in relation to existing electricity transmission infrastructure (blue) converging on the Hydra Main Transmission Substation near De Aar, with a small portion of the large ESA and IBA covering a large portion of the region indicated with orange hatching.

3.2 Site Visit

The site visit confirmed the indication from satellite imagery and GIS mapping that multiple existing power lines exist in the immediate vicinity of the project site, converging on the nearby Eskom Hydra Main Transmission Substation (Figure 3). The site visit also confirmed that the proposed route of the grid connection power line to be assessed runs adjacent to an existing power line.



Figure 3: Multiple electricity transmission lines exist converging on the Hydra Main Transmission Substation.

4 CONCLUSION

The results from the desk-top study, GIS and satellite mapping and site visit indicate that the recommendations of the Terrestrial Biodiversity protocol as gazetted are appropriate, that the site can be returned to its current state within two years of the completion of the construction phase and therefore a compliance statement applies.