

Final Basic Assessment
Report for Submission

**Proposed New Wolf-Skilpad-
Grassridge 132KV overhead
transmission line near Kariega
and Kirkwood, Easter Cape
Province**

Wolf Wind Farm (RF) (Pty) Ltd
Report date: 2022/06/14

DFFE Ref No: 14/12/16/3/3/1/2515

4 DESCRIPTION OF THE PROPOSED PROJECT

The proposed project is a critical component for the Wolf Wind Farm project as it will connect the wind farm to the national Eskom electricity grid. The following subsections provide more information on the project context, location, components, activities and alternatives.

4.1 Project Overview

Eskom requires the Applicant to construct a new 132 kilovolt (kV) overhead transmission line between the existing Wolf, Skilpad and Grassridge substations, North of Kariega and West of Kirkwood. The objective of the project is to connect the Wolf Wind Farm to the national grid via a newly constructed transmission line, thereby preventing potential future capacity issues and failure of the infrastructure.

This proposed 132 kV transmission line will run from the Grassridge substation in a north-westerly direction to the Skilpad- and Wolf substations for approximately 46km and 44km respectively, as illustrated in the figures below (A3 maps included in Annexure I). In an effort to minimise the potential negative environmental and social impacts of the project, the transmission line is proposed to run adjacent to an existing 132 kV transmission line as far as possible and has an approximate length of 90km. The existing 132 kV transmission line is expected to be decommissioned in the future, however decommissioning does not form part of the scope of this project and, as such, the impacts associated with the future decommissioning of the existing line have not been assessed and will have to be considered in future.

The servitude for this new transmission line will be 31m wide. A new 3.5m wide access track will be developed within the new servitude and will run for the full length of the proposed transmission line. The new servitude will be accessed via existing access (used for the existing 132 kV transmission line) and farm roads.

Technical specifications are included in Table 4-1 below.

4.2 Infrastructure details and extent of the project

4.2.1 Transmission Line Alignment

The locality and alignment of the proposed transmission line is illustrated in the figures below – A3 maps included in Annexure I.

A list of the pylon coordinates of the proposed new line is included in Annexure F.

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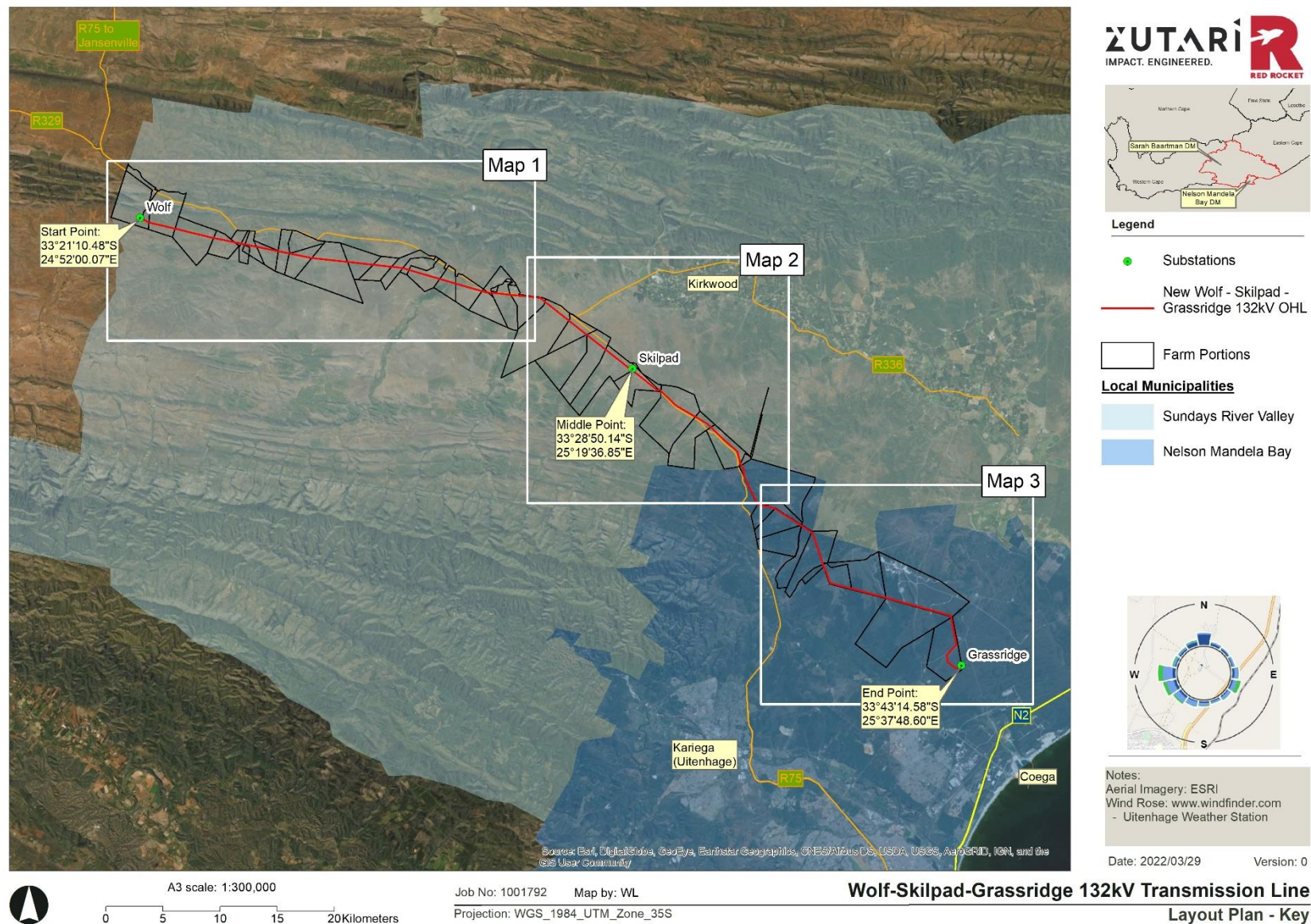


Figure 4-1: Locality plan for the proposed new Wolf-Skilpad-Grassridge Transmission Line – overview and key map.

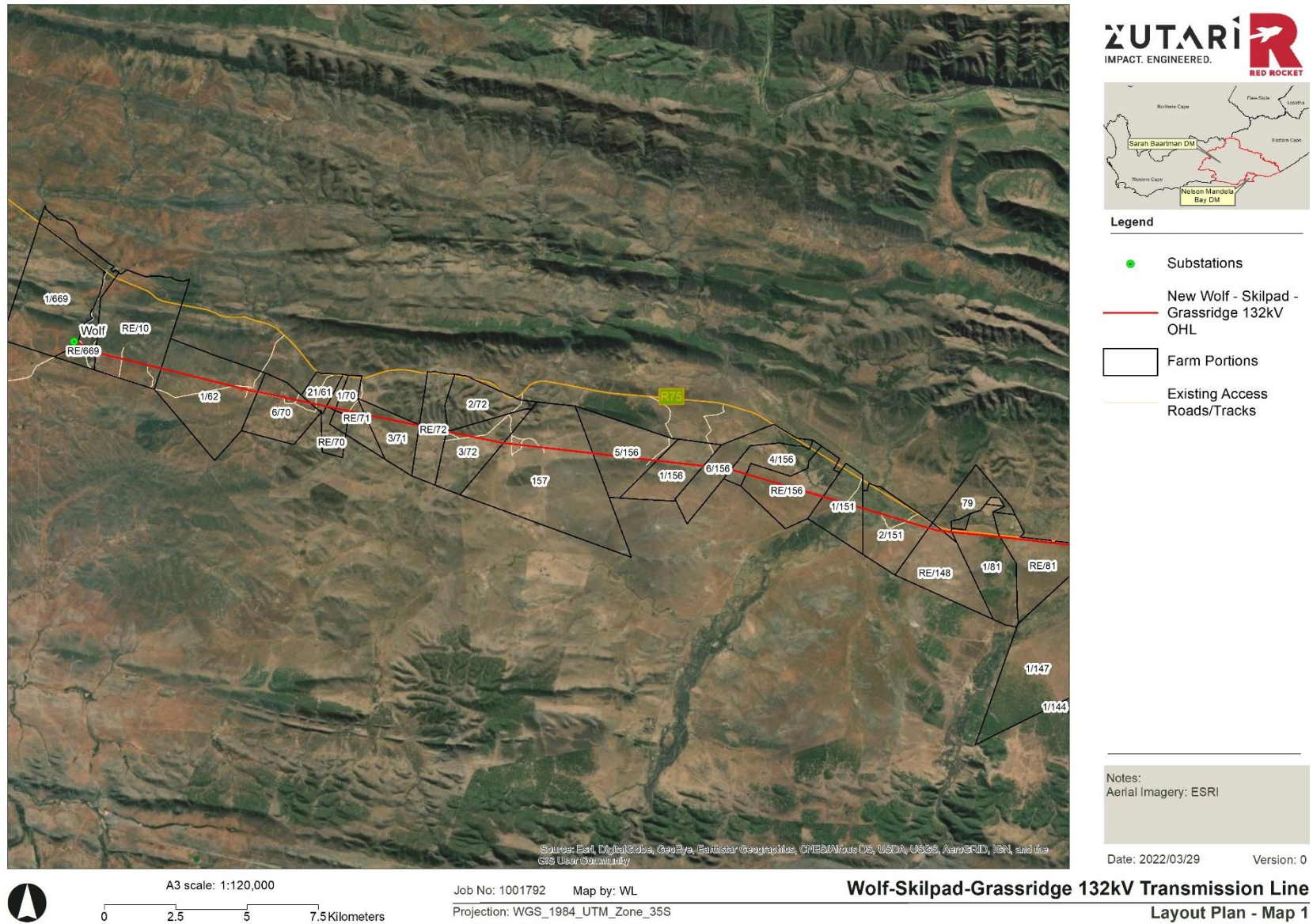


Figure 4-2: Locality plan Map 1, showing the alignment of the proposed new Wolf-Skilpad-Grassridge transmission line.

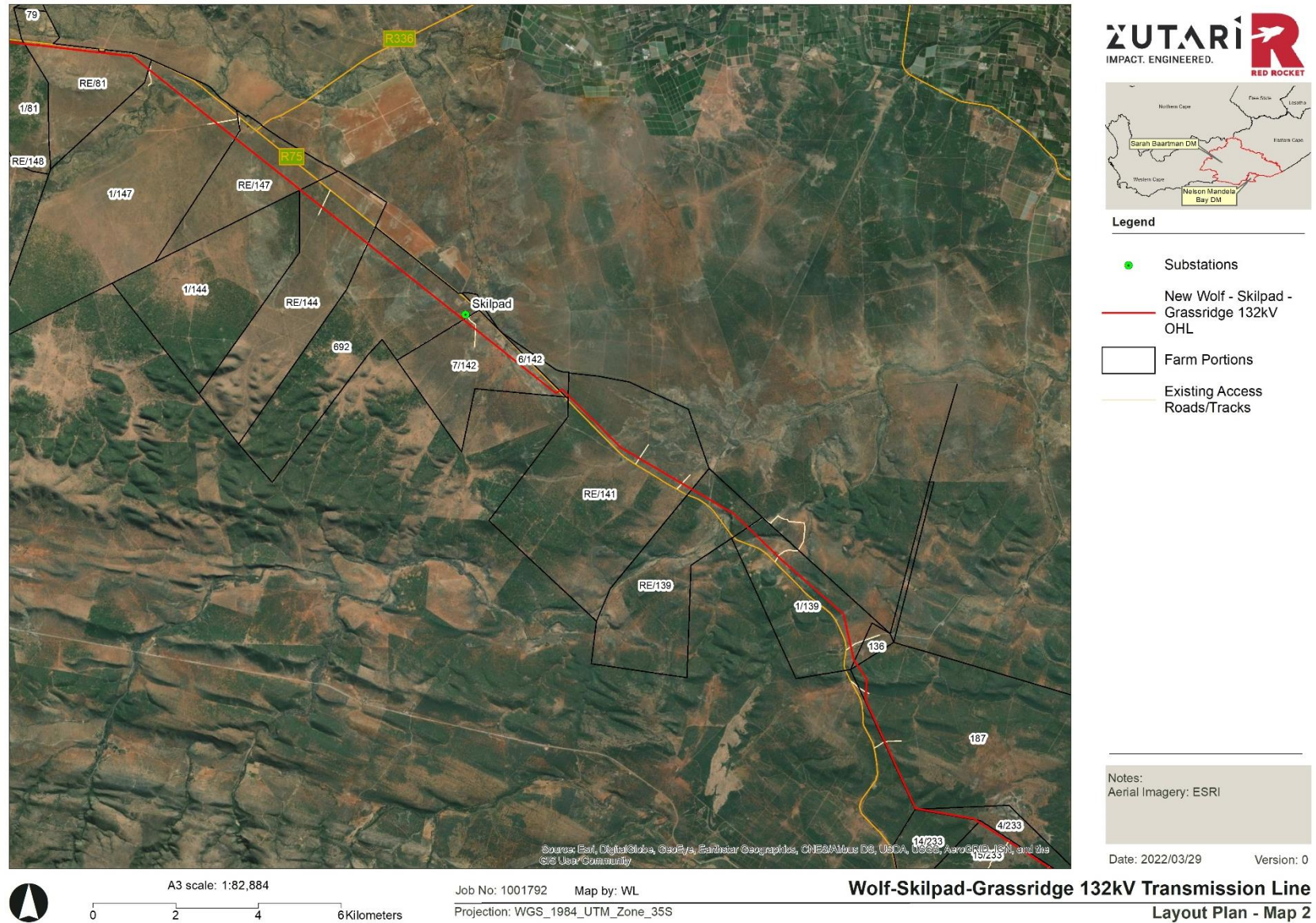


Figure 4-3: Locality plan Map 2, showing the alignment of the proposed new Wolf-Skilpad-Grassridge transmission line.

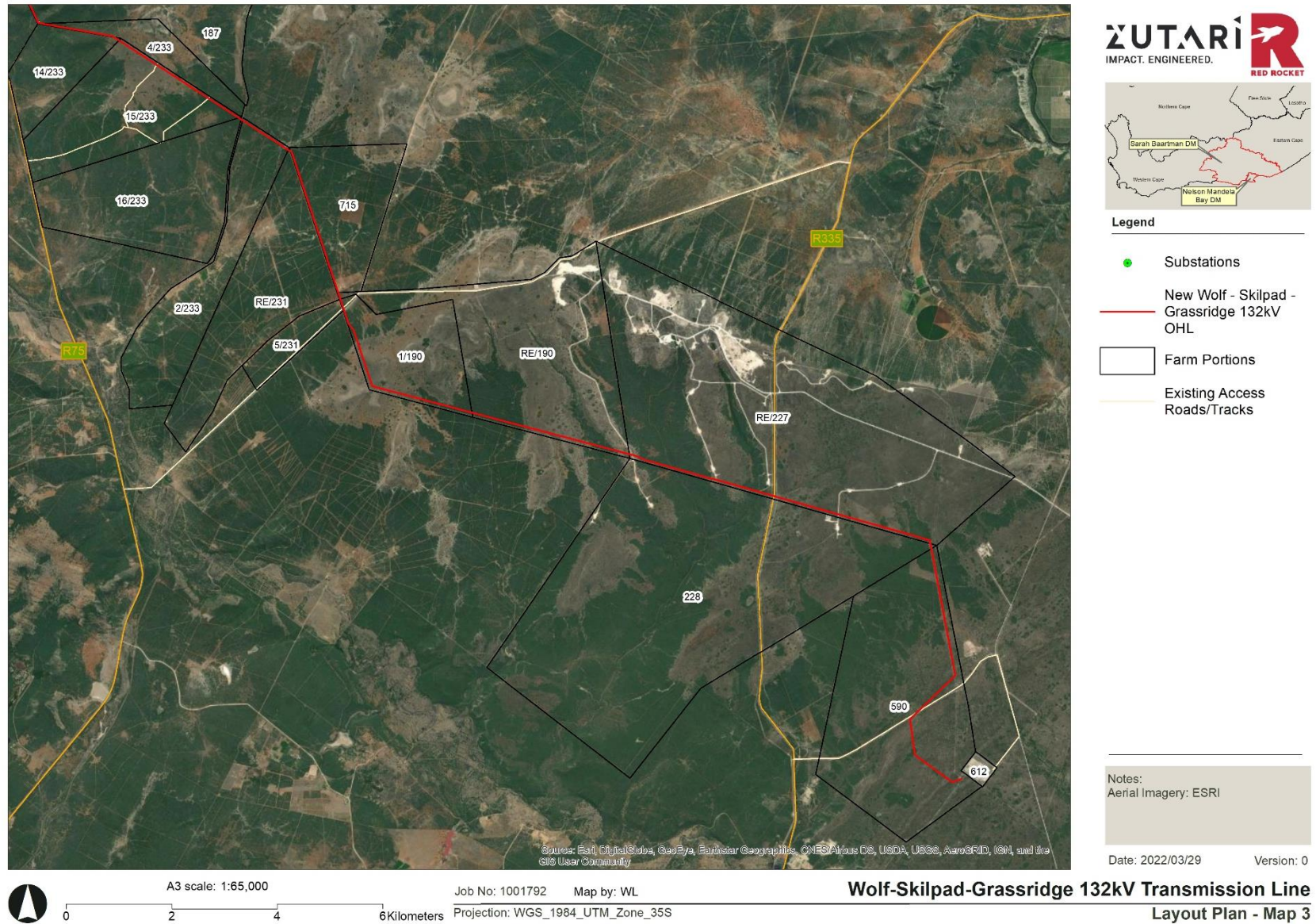


Figure 4-4: Locality plan Map 3, showing the alignment of the proposed new Wolf-Skilpad-Grassridge transmission line.

4.2.2 Transmission line and Pylons structures

A combination of monopoles and lattice structures are proposed to be used for the new line. Pylon structures will be up to a maximum of 40m high and self-supporting structures will be used where required, whilst special structures with horizontal configuration may be used for valley spans. The final design will depend on Eskom's approval of the design. A list of the pylon coordinates of the proposed new line is included in Annexure F.

Table 4-1 contains more detail of the technical components. Example drawings of the proposed pylon structures to be used are in Table 4-2.

These technical details are subject to Eskom's approval and design changes are therefore still possible at this stage.

Table 4-1: Transmission line technical specifications

Component	Description
Overhead Powerline	132kV single-circuit Wolf substation to Skilpad substation - $\pm 46\text{km}$ Skilpad substation to Grassridge substation - $\pm 44\text{km}$ Total length $\pm 90\text{km}$ The transmission line will be located within a new 31m wide servitude.
Alignment	A list of the pylon coordinates of the proposed new line is included in Annexure F.
Access	The line is accessed via existing access/farm roads and the Eskom service track running underneath the existing 132kV line. A new 3.5m access track will be developed inside the new line's servitude and will run for the full length of the line. The new access track will be a brush-cut track (jeep track / 'twee-spoor'). Total service track footprint: $\pm 35.1\text{ha}$
Pylon structures	A combination of monopoles and lattice structures are proposed to be used as the pylon structures. Pylon structures will be up to 40m high. Self-supporting pylon structures will be used where required. Special structures with horizontal configuration will be used for valley crossings and long spans. The number of pylons cannot yet be confirmed but is expected to around 500. The final detail will depend on Eskom's approval of the design. Maximum disturbance footprint of 10m radius per pylon.
Conductor type	Tern
Transmission Line footprint	Approximately 0.5ha total permanent footprint for pylons. Eskom requires the whole servitude area as footprint of disturbance
Laydown area and contractors' yard	3 laydown areas will be required for the contractor: one at Wolf substation, one at Grassridge substation and another in the middle at Skilpad substation. The required area will be approximately 1000m ² each
Total Project Footprint	<p>Temporary:</p> <ul style="list-style-type: none"> ▶ Pylon construction: 15.7ha ▶ Laydown areas: 0.3ha ▶ Total: 16ha <p>Permanent</p> <ul style="list-style-type: none"> ▶ Pylon foundations: $\pm 0.5\text{ha}$ ▶ Maintenance track: $\pm 35.1\text{ha}$ ▶ Total: $\pm 35.6\text{ha}$

7 ENVIRONMENTAL IMPACT STATEMENT

The potential impacts associated with the proposed transmission line for connecting the Wolf Wind Farm to the Eskom national grid are assessed and considered in this report. With mitigation measures in place as set out in Chapter 6 and detailed in the generic EMP's (Annexure G), post mitigation impacts are anticipated to be negligible to moderate negative significance. The proposed project therefore does not result in unacceptable impacts to the environment.

7.1 Specialist statements

The following specialist statements have been captured in the specialist reports as contained in Annexure D. These statements serve as a summary of their findings and their professional opinion on whether the proposed project should be approved or not. A summary of the impacts assessed by the various specialists is included in their respective summaries in Section 6.

7.1.1 Terrestrial biodiversity statement

The proposed project could impact on the floral habitat and diversity as well as floral SCC through fragmentation of habitat units with increased biodiversity importance and sensitivity (specific reference is made to ongoing disturbance and transformation of the ESA 1 and CBA 1 and 2 areas).

The abundance of *Opuntia ficus-indica* and *Acacia Cyclops* within the majority of the Study Area, if not cleared and controlled, will continue to spread and displace floral communities within or outside of the proposed impact area. AIP spread can potentially become severe if such species are not monitored and managed, especially along linear developments that typically serve as a corridor for spread. These species can potentially spread to adjacent natural areas, thus impacting on the indigenous biodiversity of the region.

Notable impacts that are likely to affect the floral and faunal habitat integrity, species diversity and SCC associated with the transmission line project, are listed below:

- ▶ Placement of infrastructure within floral and faunal SCC habitat;
- ▶ Destruction, removal or harvesting of floral SCC during construction and operational activities;
- ▶ Faunal SCC being injured or killed during construction and operational phase due to collisions with equipment and / or human wildlife conflict;
- ▶ Potentially poorly implemented and monitored rescue and relocation of SCC that will be affected by the proposed powerline installation, leading to unsuccessful rescue efforts and loss of SCC individuals;
- ▶ Continued footprint creep resulting in increasingly fragmented habitat;
- ▶ Increase risk of erosion - resulting in loss of soils, the down-slope sedimentation of habitat and the consequent loss of habitat beyond the planned footprint; and
- ▶ AIP proliferation and woody encroachment into natural vegetation, displacing indigenous flora and altering favourable habitat conditions for the establishment of indigenous species.

It is the opinion of the ecologists that the terrestrial biodiversity assessment (Annexure D) provides the relevant information required to implement Integrated Environmental Management (IEM) and to ensure that the best long-term use of the ecological resources in the Study Area will be made in support of the principle of sustainable development.

7.1.2 Aquatic ecology statement

No fatal flaws in terms of freshwater ecological aspects were identified. Should all the powerline support structures be located at least 32 m (as far as possible or feasible) from the delineated extent of a watercourse and the recommended mitigation measures be implemented, it is the opinion of the freshwater specialist that the risk significance of the proposed overhead powerline can be considered

Low. All mitigation measures as provided must be implemented to prevent any negative edge effects from occurring on the watercourses. It is also recommended that no construction activities take place within the identified EDLs as this may have severe impacts to the larger downstream watercourses to which these features are connected too. Development within the PFP is considered acceptable with the implementation of mitigation measures, with specific mention of erosion and sediment control. Water Use Authorisation by means of General Authorisation (GA) in terms of Section 21(c) and (i) water uses may potentially be obtained in consultation with the Department of Water and Sanitation (DWS). However, the DWS, the custodian of water resources in South Africa, must be consulted with regards to the outcome of this assessment.

Based on the findings of the freshwater ecological assessment and the results of the risk assessment, it is the opinion of the ecologist that the proposed overhead powerline poses a low risk to the integrity of the watercourses in the project area provided that adherence to cogent, well-conceived and ecologically sensitive construction plans are implemented and the mitigation measures provided in this report as well as general good construction practices are adhered to, the proposed 132kV powerline is considered acceptable.

7.1.3 Avifauna statement

Approximately 340 bird species occur in the broader area within which the proposed project is located. Included amongst these species are several regionally and globally Red Listed bird species and a number of endemics species. Overall, the topmost priority bird species for this assessment are Ludwig's Bustard; Martial Eagle; Verreaux's Eagle; Lanner Falcon; Denham's Bustard and Blue Crane.

If the mitigation measures are implemented correctly, the impacts of the proposed project are predicted to be at an acceptable level. The avifauna specialist therefore recommends the proposed project be authorised to proceed. It is noted that the old existing power line will be decommissioned and removed in future, once the new line is operational. This means that there will be no nett increase in length of power line in the area.

7.1.4 Agriculture statement

Although an Agricultural Compliance Statement is not required to formally rate agricultural impacts, it is hereby confirmed that the agricultural impact of the proposed development is insignificant. An Agricultural Compliance Statement is only required to indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site. It must provide a substantiated statement on the acceptability, or not, of the proposed development and a recommendation on the approval, or not of the proposed development.

The conclusion of this assessment is that the proposed development will not have an unacceptable negative impact on the agricultural production capability of the site. The proposed development is therefore acceptable. This is substantiated by the fact that all agricultural activities that are viable in this environment, can continue completely unhindered underneath power lines and there is therefore no loss of agricultural production potential underneath power lines.

Therefore, from an agricultural impact point of view, it is recommended that the development be approved.

7.1.5 Heritage and Archaeology statement

The main impact on possible archaeological sites/remains will be the physical disturbance of the material and its context. However, from the investigation, it would appear that the proposed area earmarked for the development is of low archaeological sensitivity.

The disturbance of buildings and structures identified in this report should be avoided during the development and if it cannot be avoided a permit application should be lodged with ECPHRA for any

building or structure older than 60 years before it can be destroyed or altered. A historian / heritage practitioner must be appointed to assess these heritage resources if it is suspected that the structure is older than 60 years. It is anticipated that further buildings or structures may be located in the densely vegetated areas and the same procedure should be followed if any of these structures are discovered during the course of the development.

The graves that are located within the servitude are not older than 60 years and therefore falls under the Human Tissues Act, No. 65 of 1983, as well as any local and regional laws and by-laws. Due to the cultural and spiritual significance of graves and burial sites to communities, any disturbance of these sites should be avoided. Due to the number of farmsteads and other settlements in close proximity to the proposed transmission line and servitude it is possible that more graves (including graves older than 60 years) may be discovered during the course of the development. All burial grounds and graves that are older than 60 years are protected in terms of Section 36 of the National Heritage Resources Act, No. 25 of 1999.

It is recommended that:

1. Should any significant in situ archaeological remains such as human remains and / or other archaeological remains / sites such as freshwater shell middens, as well as historical material / sites be exposed during construction, all work must cease in the immediate area (depending on the type of find) and it must be reported to the archaeologist at the Albany Museum in Makhanda (Grahamstown) (Tel: 046 6222 312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 7450 888), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation (See appendix B of the specialist report attached in Appendix D) for a list of possible archaeological sites that maybe found in the area).
2. All clearing activities must be monitored and managers/foremen should be informed before clearing/construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. The ECO can be trained to monitor the clearing of the vegetation and to report finds.
3. An archaeologist/ heritage practitioner should conduct a walkthrough of a section of the proposed new servitude for the transmission line after vegetation clearing and before construction starts from: the Remaining Extent of the Farm Brakhill No. 139 (GPS reading: 33.31.328 ; S 25.23.426 E) to the Grassridge substation.

7.1.6 Palaeontological statement

Although the desktop assessment and fossil record indicate a high palaeontological sensitivity, the site visit and field survey confirmed there are NO FOSSILS of the Early Cretaceous Kirkwood Formation flora and fauna even though fossils have been recorded from rocks of a similar age and type in South Africa. There are NO FOSSILS in the Devonian Bokkeveld or Witteberg Groups or in the Alexanra Formation along the powerline route. There is a small chance that fossils may occur below the ground surface in the central and eastern two-thirds of the route so a Fossil Chance Find Protocol should be added to the EMP. If fossils are found by the contractor or environmental officer, or other responsible person once excavations and drilling have commenced, then they should be rescued and a palaeontologist called to assess and collect a representative sample.

7.1.7 Visual Landscape statement

Based on the findings from both the desktop and field assessments it is evident that there are limited receptors located within a 2 km radius along the entire proposed 90 km transmission line and is mostly confined to Game Farm farmhouses and associated infrastructure and a network of roads. The proposed transmission line is located in a remote area with isolated farmsteads, mostly associated with the surrounding Game Farms, and small villages. The terrain is a unique combination of mountains and

plains and undulating topography, which is characterised by thickets, shrubland and scattered bushclumps. Even though the proposed transmission line is situated within a remote area, existing overhead powerlines and substations are present within the landscape, thus the landscape character has already been affected by energy transmission infrastructure. As such, the receptors within the surrounding area have grown accustomed to these structures, therefore the proposed transmission line is expected to have a low visual impact on the landscape character within the region.

With the unique landscape of mountains, hills, valleys and plains, there are significant topographical variety in the area, therefore the visual quality and viewing experience of the landscape is considered high. However, with the existing overhead powerlines and substations and other anthropogenic structures such as houses, gravel roads and fences, the proposed transmission line will not introduce discordant elements into the environment. Furthermore, during the field assessment it was evident that with the permeability of the existing support towers, the overhead powerlines were not significantly visually intrusive.

The VAC of the area is considered high, indicating that the proposed transmission line will be absorbed in the area resulting in a low visual intrusion. The main contributing factor to the high VAC is the visual variety presented by the region in the form of undulating topography and the mountainous backdrop with plains and valley thickets, as well as the permeability of the proposed infrastructure. The existing overhead powerlines in the area serve to reduce the visual impact. As noted, the structures associated with the proposed transmission line are permeable and comprise of a smaller powerline and support tower, thus the proposed transmission line will be less visually intrusive on the receiving environment.

Given the relatively low scale of anthropogenic activities and development, the vast landscape is appealing to one's visual senses, which may fill the observer with a sense of calmness, tranquillity and wellbeing. These characteristics have led to the development of a number of lodges and conservation areas, notably the Addo Elephant National Park (AENP) and a number of game farms and private reserves. As such this landscape offers a unique sense of place which can be described as calm, tranquil and peaceful and being one with nature. As there are already overhead powerlines, wind farms, and substations present in the landscape the proposed project will not have a highly significant effect on the sense of place of the area. To reiterate further the AENP will not be affected by the proposed transmission line due to the distance and relatively low height of the proposed support towers, as such the sense of place experienced at AENP will not be affected.

The proposed transmission line further falls within the Eastern Corridor of the Strategic Transmission Corridors, in terms of GNR 113 of 16 February 2018. When considering the landscape value of an area, one has to take into consideration the services that may be provided by the landscape, as such with the area falling within the Eastern Corridor, the landscape value of the area is considered moderately high. As the proposed project forms part of the renewable energy projects (transmission line for the Wolf Wind Energy Facility) for the region, it will not have a significantly negative impact on the landscape value of the area, as it will provide services to the receptors in the landscape. Additionally, it is likely to increase the economic growth of the municipality.

The proposed transmission line is located within a remote area where the lighting environment of the region is considered natural and intrinsically dark. Since the proposed transmission line support towers itself will not have any sources of lighting, the proposed project will not be a source of light pollution within the area. However, should construction and emergency maintenance activities occur at night, security lights from vehicles may potentially be a source of light pollution, however for a short, relatively localised and intermittent duration.

Based on the impact assessment, it was evident that the proposed transmission line will have a low visual impact during the development phases of the project, prior to mitigation measures being implemented. The main visual impact is attributed to the vegetation clearing during the construction phase and increased human activity and vehicles in a quiet area. Once operational, the proposed project will not have significant visual impacts and human activity, apart from routine maintenance of the support tower structures will be limited.

Based on the outcome of the visual assessment it is the specialist's opinion that the proposed transmission line may be considered for authorisation with the knowledge that the significance of risk to the receiving environment is limited.

7.1.8 Conclusion of specialist statements

The proposed construction of the new 132 kV transmission line was assessed and found to be acceptable by all specialists, providing that the proposed mitigation measures are, as far as possible, incorporated into the project's design and construction management. The EMPr in Annexure G, which includes these mitigation measures, must be adhered to.

It is therefore the reasoned opinion of the EAP, based on the information presented in this report, that the proposed project should be authorised.

No-go alternative:

The no-go alternative implies that the status quo of the site would be maintained. This option would prevent the new Wolf Wind Farm from exporting their energy to the national grid as the existing old transmission line is unreliable and prone to regular failure. This would mean that the positive impacts associated with the development of the Wolf Wind Farm (and this associated grid connection infrastructure), such as job creation, local economic development, energy security and a decreasing reliance on fossil fuel industries would not be realised. It would also mean that the current negative impacts associated with the existing line, such as not having BFD's, will persist.

7.2 Site Sensitivity Maps

The various specialist reports and sensitivity spatial data provided by the specialists were used to generate sensitivity maps for the site, these are presented below.

8 CONCLUSIONS AND WAY FORWARD

Eskom requires Wolf Wind Farm (RF) (Pty) Ltd to construct a new 132 kilovolt (kV) overhead transmission line between the existing Wolf, Skilpad and Grassridge substations, North of Kariega and West of Kirkwood. The objective of the project is to connect the Wolf Wind Farm to the national grid via a newly constructed transmission line, thereby preventing potential future capacity issues and failure of the infrastructure.

As with any development, environmental, social and heritage resource aspects are potentially negatively impacted upon while the socio-economic aspects, if correctly managed, have the potential to empower, uplift and benefit the affected community.

It is the EIA process's objective to compare these negative impacts to the benefit of approving the proposed project, considering the alternative source of electricity which will continue to be used, should the 132 kV powerline, which is required to connect the Wolf WEF to the national grid, not be approved.

The key intended outcomes of this project are:

- ▶ **Reduced Carbon Footprint:** By constructing this new 132 kV transmission line to convey the electricity produced by the Wolf WEF to the Eskom National Grid.
- ▶ **Improved Energy Security:** By generating and transmitting reliable energy from the latest renewable energy technology via a new, reliable transmission line.

The need for renewable energy is well documented and reasons for the desirability of wind energy include:

- ▶ Utilising an abundant natural resource available to the specific area;
- ▶ Meeting nationally appropriate emission targets in line with global climate change commitments under the Paris Accord;
- ▶ Enhancing energy security by diversifying generation; and
- ▶ Creating a more sustainable economy.

As per the requirements of NEMA, this BA has reviewed the array of potential environmental impacts associated with the proposed activities on the 132 kV transmission line site. Table 8-1 provides a summary of the description of the preferred alternative for the proposed project (Chapter 4).

Table 8-1: Summary of proposed project description (preferred alternative)

Component	Description
Overhead Powerline	132kV single-circuit Wolf substation to Skilpad substation - ± 46km Skilpad substation to Grassridge substation - ± 44km Total length ± 90km The transmission line will be located within a new 31m wide servitude.
Alignment	A list of the pylon coordinates of the proposed new line is included in Annexure F.
Access	The line is accessed via existing access/farm roads and the Eskom service track running underneath the existing 132kV line. A new 3.5m access track will be developed inside the new line's servitude and will run for the full length of the line. The new access track will be a brush-cut track (jeep track / 'twee-spoor'). Total service track footprint: ±35.1ha
Pylon structures	A combination of monopoles and lattice structures are proposed to be used as the pylon structures. Structures will be up to 40m high. Self-supporting monopole structures will be used where required. Special structures with horizontal configuration will be used for valley crossings and long spans.

	The number of pylons cannot yet be confirmed but is expected to around 500. The final detail will depend on Eskom's approval of the design. Maximum disturbance footprint of 10m radius per pylon.
Conductor type	Tern
Transmission Line footprint	Approximately 0.5ha total permanent footprint for pylons. Eskom requires the whole servitude area as footprint of disturbance
Laydown area and contractors' yard	3 laydown areas will be required for the contractor: one at Wolf substation, one at Grassridge substation and another in the middle at Skilpad substation. The required area will be approximately 1000m ² each
Total Project Footprint	<p>Temporary:</p> <ul style="list-style-type: none"> ▶ Pylon construction: 15.7ha ▶ Laydown areas: 0.3ha ▶ Total: 16ha <p>Permanent</p> <ul style="list-style-type: none"> ▶ Pylon foundations: ±0.5ha ▶ Maintenance track: ±35.1ha ▶ Total: ±35.6ha

Based on the information presented within this BA Report and associated annexures, the specialist impact assessments and taking the proposed mitigation measures into account, but pending the outcome of the comments received during the public review period, it is preliminarily recommended that the preferred alternative for the proposed Wolf-Skilpad-Grassridge 132 kV transmission line be granted Environmental Authorisation.

The Draft BA Report has been updated where necessary following the 30-day public comment period and converted into this Final BAR. All comments received on the BAR have been collated, responded to, and included in the Final BAR. The Final BAR is being submitted to the DFFE for review and decision-making whereby an Environmental Authorisation will be granted or refused. All registered I&APs will be notified of the outcome.

The Eskom cost estimate letter (CEL) issued by Eskom indicated that construction of a new Wolf-Skilpad-Grassridge transmission line is required in order to connect the Wolf Wind Farm to the national grid. The Wolf Wind Farm SIP is therefore critically linked and dependent on the construction of the new line and cannot be viewed or considered in isolation.

Considering that the project is linked to the construction of the Wolf Wind Farm, a preferred bidder in the REIPPPP Bid Window 5 (confirmation of preferred bidder included in Annexure N) and SIP project (SIP letter included in Annexure O), the Applicant is hereby applying that the EMPr's associated with the project be approved as part of the environmental process as the project is time constrained due to its preferred bidder status. The EMPr's are attached to the Final BAR as Annexure G.