



Specific Environmental Management Plan

Proposed 132 kV Power Line for the Lodestone Mine

October 2020



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1 INTRODUCTION

The specific requirements in this document will become an Appendix to the overall EMP for the project, which spells out generic requirements for construction and operation.

2 LEGAL REQUIREMENTS

Summarized below (**Table 1**) are the activities associated with the construction and operation of the power line that will require permits under national legislation.

Table 1: Activities requiring permits under National Legislation

LEGISLATION	ACTIVITY REQUIRING PERMIT
RoN Revised Compensation Policy and Guidelines	A compensation plan needs to be devised for the project.
Labour Act 11 of 2007	Regulations relating to the health and safety of employees at work are contained in GN 156/1997 (GG 1617). Must be complied with on this project.
Forestry Act No 27 of 2004	No living tree, bush, or shrub within 100m from any river, stream, or water course may be removed without a permit . Certain tree species may not be removed without a permit . Permits should be obtained for the removal of the protected trees within the project corridor if they cannot be preserved, as well as for all trees within 100m from the river. The cost of the permits are up to N\$30 per tree. Contact: Mr Abel Aushona Eenhana Forestry Office (081-148 2825/065 263 040)
National Heritage Act No 27 of 2004	No archaeological/heritage site or cultural remains may be removed, damaged, altered or excavated. No grave or other historical and archaeological sites have been identified on this project, but any person who discovers a grave or any other archaeological/historical/ heritage site must notify the National Heritage Council.)See the chance find procedure below that will be applicable.) Contact: Karl Aribeb(061-244 375)

ARCHAEOLOGICAL CHANCE FIND PROCEDURE

ACTION	WHO RESPONSIBLE
Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, a "change find" procedure should be applied. The details of this procedure are highlighted below:	NamPower/Lodestone
<ul style="list-style-type: none"> • If operating machinery or equipment stop work • Identify the site with flag tape • Determine GPS position if possible • Report findings to foreman 	Person identifying archaeological or heritage material
<ul style="list-style-type: none"> • Report findings, site location and actions taken to superintendent • Cease any works in immediate vicinity 	Foreman
<ul style="list-style-type: none"> • Visit site and determine whether work can proceed without damage to findings • Determine and mark exclusion boundary • Site location and details to be added to project GIS for field confirmation by archaeologist 	Superintendent
<ul style="list-style-type: none"> • Inspect site and confirm addition to project GIS • Advise the National Heritage Council (NHC) and request written permission to remove findings from work area • Recovery, packaging and labelling of findings for transfer to National Museum 	Archaeologist
Should human remains be found, the following actions will be required: <ul style="list-style-type: none"> • Apply the chance find procedure as described above. • Schedule a field inspection with an archaeologist to confirm that remains are human. • Advise and liaise with the NHC and Police • Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory. 	Archaeologist NHC Police

compensation action plan and land owner interactions

2.1 Description

The route affects some ten (10) commercial farms. Even though it has been routed to avoid homesteads, dams, boreholes, and other structures on their farms, a strip of land is affected on each farm.

2.2 Mitigation, Management and monitoring

MITIGATION/MONITORING ACTION	REPSONSIBILITY	SCHEDULE
<p>Compensation Devise a compensation action plan, including the following:</p> <ul style="list-style-type: none"> • Surveyed diagram of each portion affected within the servitude and the surveyed size. • Appoint a valuer to determine the applicable compensation amount for each portion • Compile agreements with each affected farm owner, which should include a Code of Conduct of how construction, operation and maintenance will occur. • Visit each farm owner, explain and conclude the agreements. 	Lodestone/NamPower	During design phase
Implement a grievance procedure for the affected farm owners to submit their concerns/complaints during construction and operation.	Lodestone/NamPower.	Immediately after compensation and relocation has been completed.
Encourage the contractor to use labour and equipment from these farms as far as possible.	NamPower, Lodestone/Contractor.	Before construction.
<p>Interaction with Land owners</p> <ul style="list-style-type: none"> • All structures, infrastructure affected will be identified and where possible, the route will be moved to avoid these. • Where this is not possible, the Developer will negotiate fair compensation as set out above. • The construction schedule should be discussed with the commercial farmers to enable them to plan the rotation of livestock accordingly. Their limitations should be accommodated, where possible. • The schedule and approach to construction must be presented to the directly affected receptors and constituency leaders for input prior to finalisation. 	Contractor/Lodestone	Before and during construction

MITIGATION/MONITORING ACTION	REPSONSIBILITY	SCHEDULE
<ul style="list-style-type: none"> • Before work commences, NamPower should inform all affected landowners and authorities about the project, at least 14 days before the start of the project. • NamPower should secure all rights of way to cross over private properties. The contractors may not stray from the NamPower servitude. The contractor shall inform the owner or his legal representative before entering onto any private property, of his intention to do so and shall make such arrangements with such owner or his legal representative as may be necessary to ensure free and unhampered entry to, and movement on or over the property concerned, for the duration of the project. This should be done at least one month in advance and written proof of such communication should be available at all times. • Whenever reasonably possible, the contractor shall meet with the landowner / representative of the property, introduce himself and the company he represents and explain the scope of the work. The landowner / representative must have knowledge of the planned route and duration of work on the property prior to the commencement of the work. This shall be done in due courtesy to the owner / representative. • The contractor must ensure that the owner or his legal representative fill in forms containing the following information, before and after the contractor has worked on the property . <p>Before entry, to be completed and signed by the farm owner:</p> <ul style="list-style-type: none"> • The state of their properties and assets prior to construction; the inclusion of photographs should be encouraged. Activities to be conducted on the farm (e.g. camping, construction etc.). • Specific conditions to be met on the farm. • Dates when entry is needed. • Farmer's signature (if the farmer or his legal representative does not agree to sign the form, this must be noted on the form along with a list of names of all the people present at the meeting). • Contractor's signature of commitment to adhere to the requirements. <p>Upon leaving the farm, to be completed and signed by the farm owner:</p> <ul style="list-style-type: none"> • Post-construction, the site should be reassessed to ensure that the farm is left in an acceptable state. • Post-construction, the affected landowners or 		

MITIGATION/MONITORING ACTION	REPSIBILITY	SCHEDULE
<p>users should be invited to join NamPower and the appointed contractor for a 'walk down' the power line route to identify any outstanding issues.</p> <ul style="list-style-type: none"> • Remarks on compliance and misconduct • Issues still to be resolved <ul style="list-style-type: none"> • The success of the project depends on good relations with the landowners. Thus, the landowners must have knowledge of any changes to the construction and maintenance programme that might occur, but only if they are affected by it. • A system of communication must be devised by the contractor and made available to NamPower, in order to inform NamPower about all incidents and accidents (including those affecting the environment) and injuries sustained. • Appropriate contact numbers shall be made available to the landowner, to ensure open channels of communication and prompt responses to any queries and claims. • The rights if the landowner shall be respected at all times and all staff shall be sensitised to the fact that they are working on private property. • Where lines cross an inhabited area, all the necessary precautions shall be taken by the contractor to safeguard the lives and property of the inhabitants. • The contractor shall not interfere, under any circumstances, with build infrastructure belonging to the landowners. • A register shall be kept of all complaints from landowners. All claims shall be handled immediately to ensure timely rectification. 		
<p>Access to private property</p> <ul style="list-style-type: none"> • The movements of the Contractor, subcontractor, or their employees, are restricted to the areas of the servitude and any further encroaching on private property at any time are subject to the owner's permission. • Movement of construction vehicles across the farms during the erection of the towers and the stringing of the lines needs to be limited as far as possible. Existing tracks should be used to at least reach the tower sites rather than to drive through the fields. A detailed plan with routes to the poles should be produced and availed to the contractor. • Roads marked with no entry signs, shall not be used. 		

MITIGATION/MONITORING ACTION	REPONSIBILITY	SCHEDULE
<ul style="list-style-type: none"> • Fences or gates of landowners shall not be damaged when gaining access to the servitude. • Gates and locks shall be regularly monitored to ensure that they are secure. • If no gates are available at crossing points, landowners shall be informed prior to the loosening and crossing of fences. Fences loosened and crossed shall be immediately restored to its original state and to the complete satisfaction of the landowner. • All gates shall be fitted with locks and kept locked at all times during construction. NamPower/Lodestone must be supplied with three copies of these keys. Once the contractor has left the site, all gates shall be fitted with NamPower locks. 		

3 BIRDS

3.1 Description

Mitigation efforts are directed towards priority species, namely those that have a high biological significance, i.e. primarily Red Data species (including any with migrant status) and/or endemic or near-endemic species. Sixteen priority species are considered to have the potential to be impacted by power line structures, namely:

Eleven Red Data species (five of which are also Globally Endangered)

Raptors (7)

- White-backed Vulture (Critically Endangered, also Globally Critically Endangered)
- Lappet-faced Vulture (Endangered, also Globally Endangered)
- Martial Eagle (Endangered, also Globally Vulnerable)
- Tawny Eagle (Endangered)
- Booted Eagle (Endangered) and a non-breeding Palearctic migrant
- Secretarybird (Vulnerable, also Globally Vulnerable)
- Verreaux's Eagle (Near Threatened)

Large terrestrial (cursorial) species (1)

Kori Bustard (Near Threatened, also Globally Near Threatened)

Semi-aquatic species (1)

Marabou Stork (Near Threatened)

Other smaller, Namibian near-endemic species (2)

Violet Wood hoopoe (Endangered)

Rüppell's Parrot (Near Threatened)

Seven species near-endemic to Namibia:

Violet Wood Hoopoe, Rüppell's Parrot, Damara Red-billed Hornbill, Monteiro's Hornbill; Rockrunner, White-tailed Shrike, Carp's Tit

To address the collision risk, the marking of more sensitive sections of power line with bird flight diverters to increase visibility is recommended, at identified sites and according to specified design, namely for three sections (total 12.8 km) of the 132 kV line crossing ephemeral river systems, and in the area where several power lines will converge at the Auas Transmission Station.

Mitigations to reduce the impacts of electrocutions include the fitting of a simple

perch on the 132 kV towers.

Recommendations are also made to reduce the impacts of physical disturbance to birds, road mortalities and poaching of birds and habitat destruction/modification of bird habitats during the construction of the power lines.

Should monitoring results indicate that any nesting activity by Sociable Weavers poses a threat of disrupting the power supply, the well tested "dummy pole" mitigation to target poles is recommended.

Detailed monitoring initiatives are recommended that should be conducted by NamPower, with the support of other partners including the Lodestone environmental section.

3.2 Mitigation and Management

MITIGATION/MONITORING ACTION	RESPONSIBILITY	SCHEDULE
For this structure, a simple bird perch device (Figure 53; as already fitted to the top of towers of the existing 132 kV Auas – Naruchas line, is recommended, in order to encourage vultures and other raptors and large species to perch at the top of the tower structure, rather than on the insulators, where there would be an electrocution risk. This form of mitigation is relatively inexpensive and could be applied to every structure of the power line. If possible, the size should allow for two vultures to perch side by side.	Lodestone/NamPower	Plan during design, implement with construction
Inspect proposed power line route for any signs of nests (raptors, Southern Ground-Hornbill and other species) in large trees. If possible, avoid disturbance of these breeding birds.	Lodestone/NamPower	Prior to the commencement of construction
Enforce anti-poaching measures strictly; regularly inspect accommodation quarters of construction workers for signs of poaching (e.g. feathers, bones); fine the Contractor by subtracting an appropriate amount from their remuneration.	Lodestone/NamPower, Contractor	Throughout the whole project
Promote ongoing awareness about the negative impacts of disturbance, especially to breeding birds; and of poaching.	Lodestone/NamPower, Contractor	Throughout the whole project
NOTE: The recommended marking mitigations below should be aligned with those for the proposed 400 kV Kokerboom – Auas II line in the sections where this line runs in close proximity to either of the two proposed power lines in the study area (132 kV or 33 kV). For instance, it would not make sense to fit bird flight diverters to only one of the lines, and not to the other line close by. The recommended marking design for the 132 kV line is also aligned to the existing marking on the 132 kV Auas – Naruchas line, as far as		

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<p>possible. The latter design is considered simple but effective.</p> <ul style="list-style-type: none"> • To address the collision risk, the marking of more sensitive sections of power line to increase visibility is recommended, at identified sites and according to specified design, namely for three sections (total 12.8 km) of the 132 kV line crossing ephemeral river systems, and in the area where several power lines will converge at the Avas Transmission Station. These sections should be regarded as the minimum, and the details should be confirmed once the final route is selected. • The top OPGW (earth/ground) wire should be marked, for the full length of each span. • Recommended devices to use include the following, all made by Preformed Line Products (PLP): <ul style="list-style-type: none"> ◦ The large SWAN-FLIGHT Diverter (SFD) (Figure 2); alternating with ◦ The Viper Live Bird Flapper ("Viper") • The marking distance between devices should be 10 m on the sections of 132 kV line, with offset designs/colours (e.g. black and white). • At this stage, no nocturnally visible marking is recommended, but it should become mandatory should monitoring results indicate the necessity (e.g. repeat collisions of any nocturnal or crepuscular fliers). The need for fitting mitigation for collisions on stay wires should also be based on monitoring results. • The need for reporting power line incidents should be stressed, and reporting procedures clarified (see Monitoring Section below). 		
<ul style="list-style-type: none"> • No mitigation is recommended at this stage, but monitoring is essential to identify (potential) problem areas (see Monitoring below). • Should any nesting activity by Sociable Weavers threaten to disrupt the power supply, apply the well tested "dummy pole" mitigation to target poles, as developed by • NamPower. • Should any nesting activity by crows cause disruptions of the power supply, consult with the Ministry of Environment, Forestry and Tourism (MEFT) in order to discourage and manage such activities, e.g. by removing nests after the nesting season (if applicable). • Ensure effective waste management during construction activities, to discourage an increase in scavenging species such as Pied Crow. 		

Table 7. Recommended sections of power line to be marked with bird flight diverters, for the proposed new 132 kV line

Marking section (see Figure 1 below)	Distance (km)	Start	End
A - A	8.6	22.587975S / 17.367976E	22.660301S / 17.397487E
B - B	0.8	22.678033S / 17.403561E	22.684983S / 17.405848E
C - C	3.4	22.770387S / 17.450440E	22.791956S / 17.471602E



Figure 1: Recommended sections to be marked along the proposed 132 kV power line (based on Google Earth Map, African Conservation Services, 2020)



Figure 2. Example of a power line marking device/ bird flight diverter, used as a mitigation for bird collisions (SWAN-FLIGHT Diverter [SFD], made by Preformed Line Products [PLP]).

3.3 Monitoring

The following monitoring initiatives should be conducted by NamPower, in collaboration with and with the support of other partners including the Lodestone Mine environmental staff. Note that, should numbers and/or nesting activity of any of the target species in the area increase at any stage, or recorded numbers of incidents become a cause for concern, the need for monitoring for power line incidents would increase proportionately.

MITIGATION/MONITORING ACTION	REPONSIBILITY	SCHEDULE
<ul style="list-style-type: none"> • Ensure that the entire 132 kV power line route is monitored in an acceptable way for any signs of bird mortalities resulting from the construction and operation of the line; ideally, regular dedicated monitoring patrols should be carried out once a month for at least the first year after construction, and thereafter at least once per quarter. The NamPower/NNF Strategic Partnership can be contacted for assistance with monitoring procedures (see http://www.nnf.org.na/project/nampowernnf-partnership/13/5/5.html). • Identified sensitive areas (see Table 1) such as those closest to ephemeral river systems should receive particular attention, and preferably surveyed on foot. • Other existing power lines in the area (particularly those in close proximity to the new lines) should also be inspected from time to time, for cumulative impacts, in particular the proposed new 400 kV Kokerboom – Auas II line. • Set up a reporting channel, and clarify monitoring and reporting procedures to all partners. Record all bird mortalities on a standardised form, with the GPS coordinates and power line structure and other details, and photographs of the carcass (especially the head of the bird), power line structure and general habitat. • Monitor the effectiveness of mitigation measures; should repeated collision incidents involving vultures, eagles or any other group of birds, occur, consider the retro-fitting of further mitigation; replace mitigation devices as and when necessary. • Monitor bird nesting and perching activities on power line structures and follow up if any electrocution incidents occur. 	NamPower	Regular dedicated monitoring patrols during operation.

MITIGATION/MONITORING ACTION	REPPONSIBILITY	SCHEDULE
<ul style="list-style-type: none">• Monitor numbers and nesting activity by Sociable Weavers.• Monitor numbers and nesting activity by species such as Pied Crows; also monitor the management of food/vegetable wastes during construction to avoid an increase in crow numbers.		

4 AVOIDING ECOLOGICAL IMPACT

4.1 Description

The power line will be constructed in areas where there are protected tree species and crossing riverbeds which are sensitive habitats. This mitigation is to avoid unnecessary destruction of these species and habitats.

4.2 Management and mitigation

MITIGATION/MONITORING ACTION	REPONSIBILITY	SCHEDULE
The route is to be aligned during the survey so as to avoid the unnecessary removal of trees, particularly those that are protected.	Contractor	During construction.
Sensitive habitats, including riverbed crossings, slopes, and outcrops will be marked and the entire construction team sensitised to work carefully in those areas. They are to be avoided with vehicles, heavy equipment, bull dozing, etc. No vegetation is to be removed or bush clearance done in that area save for what is absolutely necessary and only under supervision by the environmental officer.	Contractor	During construction
Trees to be removed are to be marked coordinates taken and recorded. The environmental officer shall endeavour to retain each tree, but if this proves impossible, they will be marked and only such trees are to be removed upon the EO approval.	Contractor	During construction
The use of herbicides in this environment is strictly prohibited rather the following guidelines should be followed: <ul style="list-style-type: none"> Vegetation should be removed mechanically, i.e. hand pulling/digging/hoeing for annuals, herbs, grasses and smaller shrubs. 	NamPower maintenance staff and tree felling staff of contractor.	During construction and operation.