Ankerlig to Omega 400kV Line

Site Specific Environmental Management Plan

Avifaunal Walkdown Report

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1. BACKGROUND

Eskom Holdings Limited (Eskom) will be constructing a 400kv powerline between the Ankerlig Power Station and Sterrekus Substation. The Endangered Wildlife Trust (EWT) was appointed to conduct the final avifaunal walkdown and the site visit was completed on the 12-13th August. The proposed development will take place alongside existing transmission lines for the majority of the route and will impact on farmland that has already been altered through grazing and agricultural practices, stands of alien vegetation (figure 1) and few natural stands of vegetation. Figure 3 indicates prominent landscape features and vegetation in the study area.

The most important potential impacts of the proposed development will be collision of certain bird species with power lines and roosting potential for birds on tower structures. Habitat destruction and disturbance of birds is also likely to have an impact as a result of roads, foundations and maintenance which will all be part of the development. The potential impacts will however be minimized through mitigation as set out in this report. Proposed tower positions were investigated during the site visit and are deemed acceptable. Recommendations made will concern marking the earth wire of certain spans on the line and minimizing disturbance during construction.

The terms of reference provided to EWT were as follows:

- Review EIA report (including any other relevant specialist impact reports) as well as tower profiles provided;
- Undertake a site and approved route investigation of each of the proposed tower profiles and identify any potential impacts on Avifauna (including photographic record); and
- Consideration of alternatives and recommendations for mitigation of any adverse impacts effects during and after construction.

Figure 1 Dense stands of Alien vegetation close to Ankerlig Power Station

2. RESULTS

As the 400kv tower structure poses no risk of electrocution to birds perching on the structure (the gap between the structure and live conductor is larger than any wingspan)**,** the focus is on collision risk, habitat destruction and disturbance. Whereas habitat destruction and disturbance would be applicable to all species in the area, collision risk is mainly applicable to larger, slow flying birds often associated with waterbodies and includes the **Great White Pelican** *(Pelecanus onocrotalus),* **Greater Flamingo** *(Phoenicopterus roseus),* **Lesser Flamingo** *(Phoeniconaias minor),* **Blue Crane** *(Anthropoides paradiseus),* **Spur-Winged Goose** *(Plectropterus gambensis),* **Eqyptian Goose** *(Alopochen aegyptiacus),* and **Black-Headed Heron** *(Ardea melanocephala)* all of which occur in the study area.

A number of birds were noted perching on existing transmission towers in the area (figure 2). Eskom engineers have indicated that all structures will be fitted with bird guards in order to prevent bird pollution on hardware and nesting/perching behavior and as such this will not be discussed further.

Collisions risk

Birds that congregate at water bodies are often at greater risk of collision due to the high frequency of flights undertaken to and from these areas. A number of these areas have been identified during the walkdown and have been indicated in figure 4. To mitigate for collision it is recommended that the outside earth wire of the identified spans (Table 1) should be marked with bird diverters. Spirals are preferred to bird flappers as they are more durable and should require no maintenance during the lifetime of the line. The EWT

is currently testing new devices that are visible at night and in low visibility conditions. This design may be approved at the time of construction and would be preferred. The EWT should be contacted when ordering devices so that the most up to date technology may be applied.

Bird diverters should be placed 10m apart, alternating white and black devices so that all weather conditions are accounted for. All work should be carried out according to the *Eskom Transmission Bird Collision Guideline*, ref TRMAGAAZ8.

Table 1 Spans requiring mitigation

1AT/STE & 2AT/STE tower number	Comment	Risk	Mitigation
35-37 (2 spans)	This traverses a small river, however the water is deep enough and substantial enough to attract Herons (observed), Geese and other water birds	Collision	Mark the line with bird diverters.
40-44 (4 spans)	This is due to the presence of a large dam just west of Sterrekus substation (indicated on figure 4). Large flocks of birds, including pelicans are frequently present. Many of the existing lines around Sterrekus already present a serious threat to these birds. All new lines in the vicinity to be marked.	Collision	Mark the line with bird diverters.
44-47 (3 spans)	This is due to the proximity of Sterrekus dam as well as another small, seasonal dam in this area.	Collision	Mark the line with bird diverters.
44-45 (1 span)	This is due to the proximity of Sterrekus dam as well as another small, seasonal dam in this area.	Collision	Mark the line with bird diverters.

The information may be included in the EMP as follows:

OBJECTIVE: Minimise impact of bird collisions with identified spans of power line

Project component/s	Earth wire of power lines
Potential Impact	Collision of bird species, specifically larger slow flying birds
Activity/risk source	Collision with the earth wire due to poor visibility
Mitigation: Target/Objective	No reported collisions of sensitive bird species with the earth wires

Mitigation: Action/control	**Responsibility**	**Timeframe**
Fit suitable anti-collision marking devices to the power line during construction. Monitor the line during operation.	Construction Manager, Transmission lines maintenance staff	Operational lifespan

Performance Indicator	No avian fatalities recorded on marked sections of line
Monitoring	Eskom Transmission maintenance team

Figure 2 An African Fish Eagle perched on existing infrastructure in the area

<u>Habitat destruction</u>

This section is applicable to all tower positions. Care should be taken to minimize the destruction of habitat that may be important to birds.
The information may be included in the EMP as follows:

OBJECTIVE: Minimize impact on the natural vegetation during the construction of the project.

Project component/s	Leveling and foundations for tower positions, clearing of servitudes for construction and maintenance of power lines.
Potential Impact	Loss of habitat for terrestrial birds
Activity/risk source	Indiscriminate bush clearing for tower sites, lay down areas and servitudes. Construction of unnecessary new roads.
Mitigation: Target/Objective	All construction and maintenance activities should be carried out according to generally accepted environmental best practices.

Mitigation: Action/control	Responsibility	Timeframe
All construction and maintenance activities should be carried out according to generally accepted environmental best practices. Existing roads to be used during construction and maintenance activities as far as possible.	Contractor ECO	Construction and maintenance

Performance Indicator	No additional habitat destruction or disturbance beyond the tower positions, no additional habitat destruction beyond the new access roads
Monitoring	ECO to monitor the extent of habitat destruction

Disturbance

This section is applicable to all tower positions. Construction activities will inevitably lead to some disturbance in the area although this is temporary and reversible. Further information may be included in the EMP as follows:

OBJECTIVE: Minimize disturbance of birds during the construction and maintenance activities of the project.

Project component/s	Leveling and foundations for tower positions and clearing of servitudes for construction and maintenance of power lines.
Potential Impact	Disturbance of foraging/breeding birds
Activity/risk source	Disturbance of breeding birds may result in nests being abandoned. Foraging birds may be disturbed but should return to the area
Mitigation: Target/Objective	All construction and maintenance activities should be carried out according to generally accepted environmental best practices.

Mitigation: Action/control	Responsibility	Timeframe
All construction and maintenance activities should be carried out according to generally accepted environmental best practices. Birds that are breeding should be allowed to do so without interference. If red listed species are involved, the EWT should be contacted for further advice	Contractor ECO	Construction and maintenance

Performance Indicator	No active bird nests to be disturbed during construction
Monitoring	ECO to monitor construction sites and alert contractor of any breeding birds

3. CONCLUSION

The discussion above has been summarized in the two maps below, (figures 3 and 4). Where tower positions in figure 3 have been assigned a sensitivity score of 0, this is actually indicating the start end points of spans to be marked, as explained in Table 1. Figure 4 illustrates the affected area of the site (closer to Sterrekus substation) in greater detail and indicates these spans in yellow. Note the location of Spur-winged Goose remains located during the site walkdown. This incidentally is situated in an area identified as high risk for collision.

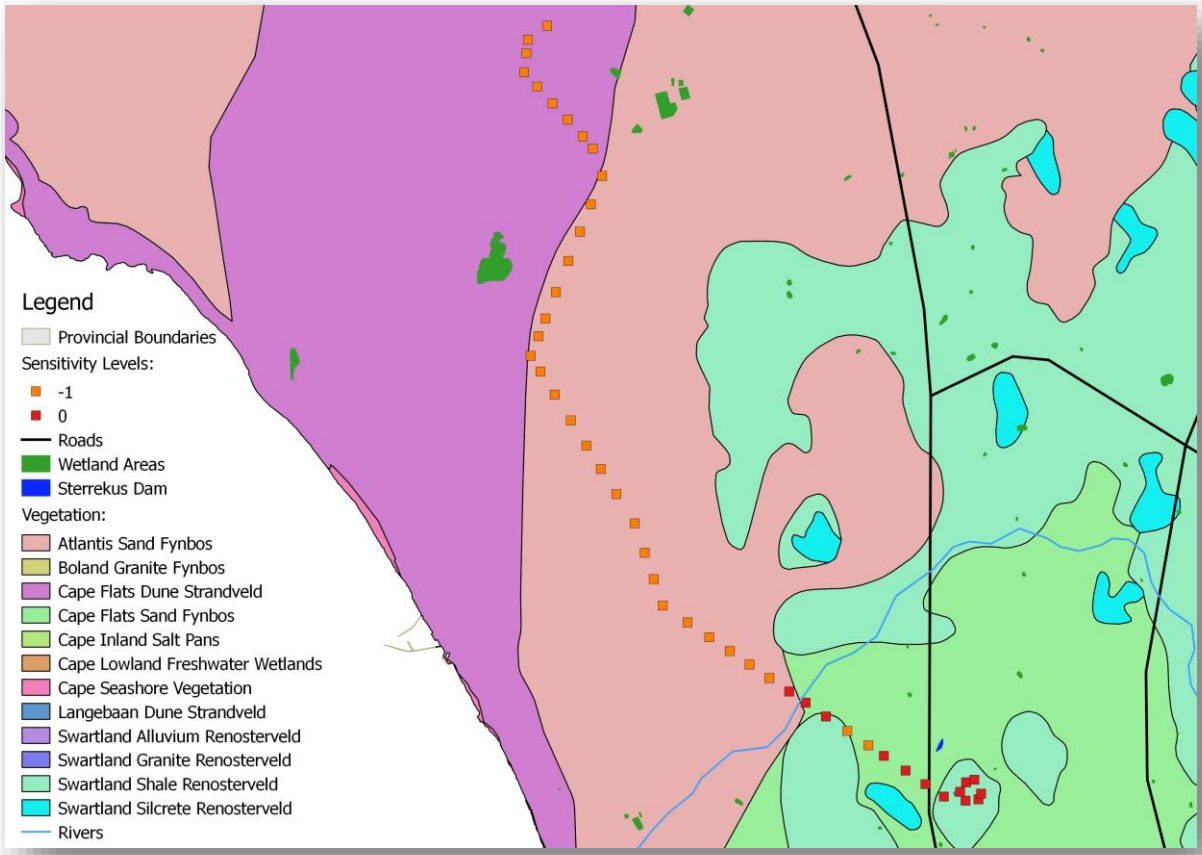

Figure 3 Map of the study area indicating vegetation types, landscape features and sensitivity levels of tower positions

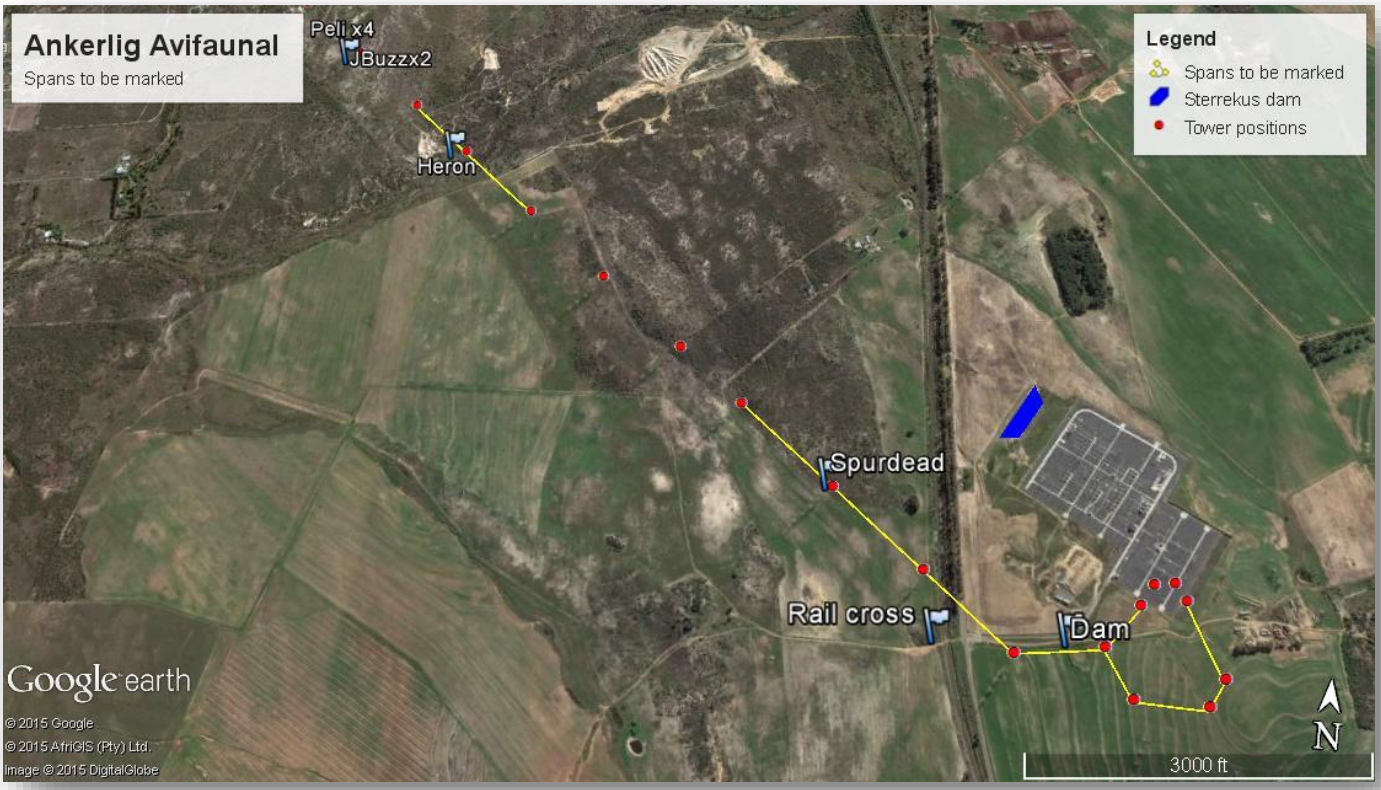

Figure 4 Google image indicating the spans to be marked with spirals

Should the above recommendations be accepted and implemented, the impact on birds in the area should be adequately mitigated.