ESKOM GENERATION

Proposed Installation of an additional 500m^3 Bulk Storage Fuel Oil Tank at Grootvlei Power Station, Mpumalanga Province

Desk Top Biodiversity Assessment

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PROPOSED 500m^3 BULK STORAGE FUEL OIL TANK

DESK TOP BIODIVERSITY ASSESSMENT

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DESK TOP BIODIVERSITY ASSESSMENT

1 INTRODUCTION

SiVEST has been appointed by the Eskom Generation to undertake a desk top biodiversity assessment for the proposed installation of an additional 500m^3 bulk storage fuel oil tank at Grootvlei power station, Mpumalanga Province. Grootvlei Power Station is a coal fired power station, approximately 538.9 hectares in size. The proposed additional 500m^3 bulk storage fuel oil tank is an addition to the six existing six storage tanks.

This assessment identifies and addresses possible biodiversity (floral and faunal) and therefore informs the preferred site for the placement of the proposed development. Because the study area is already heavily transformed, this is a concise biodiversity assessment focusing mainly on the status of study site that is, present vegetation and habitat availability, as well as implications and impacts of the proposed development.

2 SITE ASSESSMENT

The study site is described based on the following categories:

- General land use description
- Vegetation type
- Faunal habitat provision and faunal species of concern
- Implications for development

2.1 General land use description

According to ENPAT data, the immediate surroundings of proposed fuel oil tank site is considered to be cultivated land. The wider area within the boundaries of the power station site includes land uses such as vacant/ unspecified land as well as a small portion of residential (ENPAT data). However in reality the study site is located within the boundaries of the Grootvlei Power Station

and is completely transformed by activities associated with the power generation activities (Figure 1 and Figure 2).

Figure 1: Portion of study site. Site Alternative 1 indicating major anthropogenic activities

Figure 2: Portion of study site. Site Alternative 2 indicating major anthropogenic activities

2.2 Vegetation type and dominant species

The study site falls under the Soweto Highveld Grassland vegetation unit of the Grassland Biome. The Soweto Highveld Grassland is endangered with a conservation target of 24%. Conservation only occurs in a few state owned and private nature reserves such as Waldrift Nature Reserve and Avalon Nature Reserve (Mucina *et al*, 2006). According to Mucina and Rutherford, (2006), almost half of the area is already transformed by cultivation, urban sprawl, mining and building of road infrastructure. It dominated by graminoids such as *Andropogon appendiculatus, Brachiaria serrata*, *Eragrostis capensis, Heteropogon contortus, Hyparrhenia hirta and Digitaria diagonalis*; herbs e.g. *Haemanthus humilis* subsp. *hirsutus* and *H. Montatus;* Herbaceous climbers such as *Rhynchosia totta* and low shrubs namely Anthospermum hispidulum and *Ziziphus zeyheriana* (Mucina *et al*, 2006).

The study area is severely transformed and as such none of the above species were noted on the site. Species richness and diversity has been determined to be low on the site.
No Red Data species are present on the site.

In terms of GN 1187 published under the National Environmental Management: Biodiversity Act on the 23rd of February 2007 none of the species within the study area are considered to be protected in terms of this legislation

2.3 Faunal habitat provision and faunal species of concern

Faunal populations are dependent on the flora that supports them therefore assumptions regarding the presence of fauna can be made based on the flora present. As indicated above, the study area falls within the Soweto Highveld Grassland vegetation type which potentially hosts a number of faunal species. However due to the current high level of transformation, no habitats remain for faunal species. Moreover in terms of the terrestrial ecosystem status by SANBI Biodiversity GIS, (2007), the study area is located in an area where no natural habitat remains. Furthermore there are no protected areas in the study area (SANBI Biodiversity GIS, 2007). The study area also presents no known species of concern.

No Red Data species are present due to the lack of potential habitat for these species.

It is not anticipated that any species listed in GN 1187 published under the National Environmental Management: Biodiversity Act on the 23rd of February 2007 would occur within the study area given the absence of suitable habitats.

2.4 Implications for development

As indicated above, the study area is heavily transformed and thus no natural vegetation remains. Consequently, no habitat for faunal species is present. Moreover the site for the proposed development lies within an area characterized by similar existing infrastructure. Little to no vegetation clearing is present within the study area.The study area is not considered to be sensitive to the proposed development from a biodiversity perspective.

3 POTENTIAL IMPACTS AND MITIGATION MEASURES

3.1 Potential Impacts During Construction and Operation

3.1.1 During Construction

Generic impacts associated with the clearing of vegetation would relate to the following:

- Potential loss of habitat for both Red Data species and general species utilising the site.
- The development would result in potential loss of species richness and edge effect.

It is however important to note that because the site is heavily transformed, potential impacts of the proposed development are expected to be insignificant.

3.1.2 During Operation

Impacts associated with the proposed development during operation would typically relate to the fragmentation of habitat and the blockage of ecological linkage with surrounding natural areas. However, as mentioned above, the proposed site is already heavily transformed as a result of anthropogenic activities therefore these impacts are expected to be insignificant.

3.2 Mitigation Measures

The following mitigation measures are proposed during construction and operation.

3.2.1 Construction phase

- Construction site specific mitigation measures

    - An Environmental Management Programme compiled for construction and operation phases.
    - Environmental audits by an independent party during this construction period.
    - Construction site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas.
    - The use of pesticides and herbicides in the study area must be discouraged as these impacts on important pollinator species of indigenous vegetation.
    - Soils must be kept free of petrochemical solutions that may be kept on site during construction. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora.

3.2.2 Operation phase

- Operation Site Specific Mitigation Measures

    - No erosion should take place as a result of the development.
    - Six monthly checks of the area should take place for the emergence of invader species.
    - Mitigation measures mentioned for the construction phase above must be implemented for any maintenance of the development that may be undertaken during the operation phase.
    - Regular removal of alien species.

- Achievability of Mitigation Measures

Mitigation measures included within this report are feasible and will be easy to achieve. Several of the mitigation measures included here are generic in nature and have been implemented successfully on several different construction sites.

4 CONCLUSION AND RECOMMENDATIONS

Because the proposed development is located in an environment that exhibits a high level of transformation due to the anthropogenic activities, no sensitive habitats and hence species remain in the study area. Furthermore, because there are already six existing bulk storage fuel oil tanks on site which are viewed as an existing impact, the installation of an additional storage fuel tank in an area with similar existing infrastructure is anticipated to pose no significant impacts from a biodiversity perspective. Due to all four site alternatives being located in very similar environments from a biodiversity perspective, there is no site preference.

5 REFERENCES

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