

# GROOTVLEI POWER STATION

## PROPOSED RETROFITTING OF THE EXISTING ELECTROSTATIC PRECIPITATORS WITH FABRIC FILTER BAGS AT UNITS 2, 3 AND 4

### VISUAL IMPACT DESCRIPTION

PREPARED FOR LIDWALA CONSULTING ENGINEERS

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## 1. Introduction

Grootvlei Power Station is a 1200MW installed capacity base load coal-fired power station, consisting of 6x 200MW units. Eskom commenced construction of Grootvlei in the late 1960's and the station was mothballed in the early 1990's. In 1995, the decision was taken to return the station to service (RTS) due to the increase in electricity demand.

The National Environmental Management Air Quality Act (Act no 39 of 2004), Minimum Emission Standards Notice 248 (31 March 2010) requires that all existing power stations conform to the standard of 100mg/Nm<sup>3</sup> by 2015, and further to 50mg/Nm<sup>3</sup> by 2020 for particulate emissions.

All six units of the Grootvlei Power Station were originally commissioned with Electrostatic Precipitator (ESP) technology for particulate abatement. In 2005, Units 1, 5 and 6 were retrofitted to Fabric Filter Plants (FFPs) while units 2, 3 and 4 were still functioning using Electrostatic Precipitator (ESP) technology. The functioning of the ESP's does not allow the station to meet the new emission standards promulgated by the Department of Environmental Affairs (DEA), and as such it is proposed that the remaining three ESPs (at units 2, 3 and 4 ) be retrofitted with FFPs.

During construction the existing ESP technology will be removed from the casing and the material either recycled or disposed of in line with the station's waste management procedures. The retrofit will be done by removing the roof of the concrete casing and entering from above, via cranes placed adjacent to the ESP casing. The FFP technology will be installed inside the existing casing – although the existing casing will effectively be extended vertically by approximately 1.1 m.

Additional infrastructure that will be introduced to the site area, includes the following:

- A new compressor house to be constructed. The compressor house will be a concrete/brick building with a steel roof enclosure which is no more than 18,5m x 22,0 m in dimensions at the back of unit 3, between the new FFP plant and the existing road at the back of the station;
- A new workshop which is 76m long, 20m wide and 10m high;
- Construction site office and laydown area (temporary).

A Basic Assessment process is being undertaken on behalf of Eskom by Lidwala Consulting Engineers in terms of the EIA regulations. The purpose of this document is to describe the receiving environment and how this may be affected by any visual intrusion caused by the proposed development.

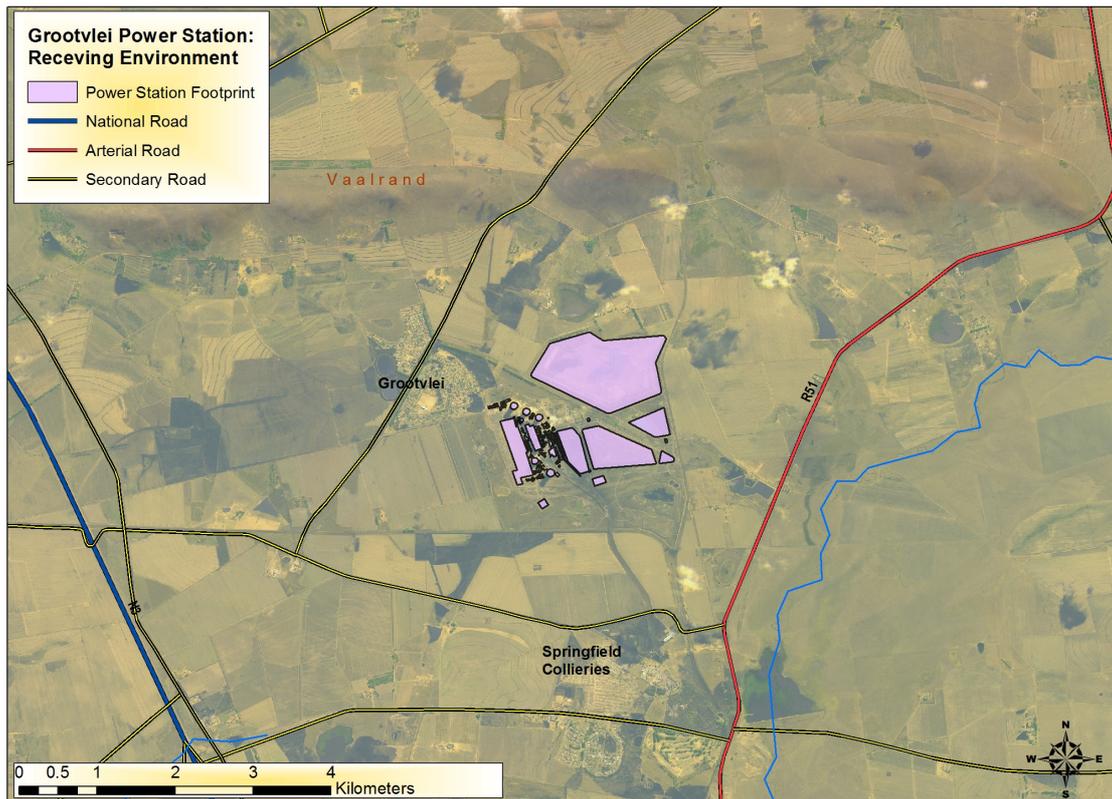
## **2. Description of the Receiving Environment**

The Grootvlei Power Station is located in a rural landscape where agriculture is the primary activity in the region. The surface infrastructure of the power station spans an area of 4 km<sup>2</sup> with large, with tall structures such as the cooling towers, the power house, and the emission stacks dominating the landscape (see Figure 1).

Residential development in the region is associated with Grootvlei and Springfield, two towns that were established with the development of the power station and the coal mine, 2 km south of the power station. These towns provide housing for workers in other sectors as well, but they have not grown significantly over the years. The aerial photograph in Figure 2 shows the location of these towns and the surrounding farmland.



**Figure 1: Grootvlei power station, visually dominating the landscape by virtue of large footprint and vertical intrusion of the skyline.**



**Figure 2: Aerial photograph showing the location of residential areas and roads around the power station.**

Roads transect the study area from all directions, and include a hierarchy of a national road (N2), arterial road (R51) and secondary roads.

### **Sense of Place**

The sense of place is typical of a rural, agricultural region where cultivated land, pastures, farmsteads, roads, and small towns are part of the landscape (refer to Figures 2 and 3).

The Grootvlei power station has been in existence from 1960, and has since become part of the landscape, with a unique ambiance created by the typical architecture of a coal-fired power station, as shown on the photographs in Figure 3. The large, tall structures of the cooling towers, power house and emission stacks dominate views of the landscape from any of the locations where people are concentrated, being it on roads, towns or farmsteads. Smaller infrastructure on site, such as office buildings and the existing EPS casings are currently shielded by the taller structures, as well as objects in the foreground, such as trees.