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1 EXECUTIVE SUMMARY

Ash generated by Tutuka Power Station is currently being disposed by means of 'dry ashing' within the premises of the Tutuka Power Station, on Eskom owned land. This existing ash dump was initially designed for the planned life of operation of the Tutuka Power Station. Although the station has not reached the end of its life and the ashing operations have not used all the design land, additional ashing facilities are required to be able to continuously ash to 2055 (based on an ash production rate of 4,624 million tonnes per annum).

A technically suitable area was identified south and east of the existing ashing facility. To allow for a robust environmental process, all land within a radius of 8km (the study area) will be assessed in order to identify potential alternatives sites should sensitive aspects limit the suitability of the preferred portion of land. Eskom has appointed Lidwala Consulting Engineers as the Environmental Assessment Practitioner (EAP) for the project. Bathusi Environmental Consulting cc was appointed as independent ecologists to conduct an ecological EIA study of the area and to compile an impact identification report for the terrestrial biodiversity component of this project.

1.1 Biophysical Attributes

The study area is situated within the Lekwa District Municipality, which comprises 458,519ha. The 2007 Biodiversity GIS (BGIS) assessment indicates that approximately 63.8% of the municipality are currently considered untransformed, but this is regarded an overestimation of the true extent of remaining natural (pristine) grassland habitat in the region. Severity of impacts resulting from, particularly commercial agriculture (maize production), is evident from the mosaical appearance of land cover in the immediate region. Limited natural habitat remains within the greater area, reflecting similar trends on a municipality and provincial level. Pockets of remaining natural grassland are in a relatively advanced state of degradation, fragmentation and habitat isolation levels are high, rendering the connectivity in most parts low. Road and railway infrastructure in the region caused a high degree of habitat fragmentation and isolation.

Although no formally declared area of conservation is present within the 8km radius, two areas of conservation are present in the general region, including Bloukop and Reitvaal Nature Reserves. These areas are unlikely to be affected directly by the proposed development.

The Environmental Potential Atlas (2004, (ENPAT) database revealed no topographically variable habitat in the surrounds where slopes exceed 8%). The regional topography is categorised as 'Slightly undulating plains' (ENPAT, 2003). Altitude of the study area varies around 1,600m above sea level. Geological formations present in the study area include the Vryheid Arenites, Karoo Dolerites and Volksrust Shales and land types conform to the Ea17 land type unit.

The Lekwa District Municipality, in which the study area is situated, comprises approximately 20,950ha of wetlands. Areas of surface water are present in the study area in the form of rivers, perennial and non-perennial steams, artificial and natural impoundments and, in particular, moist grassland/ seepages and ephemeral grasslands. Larger rivers and streams include the Leeuspruit in the east and the Wolwespruit in the southeast. The study area is situated within the Vaal Primary Catchment area.

The 8km radius study area comprises four of the Mpumalanga Biodiversity Conservation Plan (MBCP) categories, namely:

- Highly Significant;
- Important & Necessary;
- No Natural Habitat Remaining; and
- Least Concern.

The MBCP (Lötter & Ferrar, 2006) suggests that 'Irreplaceable' and 'Highly Significant' categories should remain unaltered and be managed for biodiversity conservation purposes. Other categories incorporate increasing options for different types of land use that should be decided by the application of EIA procedures and negotiation between stakeholders. The proposed development relates to 'Major Development Projects' (Land Use Type 15 – Surface Mining, Dumping & Dredging). Extensive parts of the study area are situated within areas where major developments are restricted according to the MBCP. Specialist studies are therefore required to show that the proposed development will not add to existing cumulative impacts, regional degradation and habitat transformation and the loss of biodiversity on a local or regional scale.

1.2 Botanical Assessment

The study site corresponds to the Grassland Biome as defined by Mucina & Rutherford (VegMap, 2006). The vegetation of the study area corresponds to an ecological type known as Soweto Highveld Grassland and comprehends a gently to moderately undulating landscape on the Highveld plateau supporting short to medium-high, dense, tufted grassland. This vegetation type is regarded '**Endangered**' and almost half of the area is already transformed by cultivation, urban sprawl, mining and road and railway infrastructure.

Information obtained from the South African National Botanical Institute database (POSA, 2012) indicates the known presence of approximately 390 plant species within the ¼-degree grids that are sympatric to the study area. The high floristic diversity of the immediate region reflects the regional diversity context of the Grassland Biome. An appraisal of the growth forms reflects the diverse grassland physiognomy with 142 herbs, 27 grasses, 31 geophytes and 31 dwarf shrubs. The physiognomical dominance of the grassland biome is also illustrated by the absence of large trees and low diversity of shrubs. Data records indicate the presence of only two plant species of conservation importance within the region, including *Drimia elata* (Data Deficient) and *Cineraria austrotransvaalensis* (Near Threatened).

In addition to the species currently captured in the SANBI infobase, the following provincially protected plants are known to occur within the region of the study area (Mpumalanga Nature Conservation Act No.10 of 1998):

- *Eucomis autumnalis* subsp*. clavata*
- *Eulophia ovalis* var*. ovalis*
- *Gladiolus dalenii* subsp*. dalenii*
- *Gladiolus elliotii*
- *Gladiolus longicollis subsp. platypetalus*
- *Haemanthus humilis* subsp*. hirsutus*
- *Haemanthus montanus*

For the purpose of this assessment, the following habitat types were delineated:

- Natural Terrestrial Grassland Habitat - characterised by a short, low cover of herbaceous species, physiognomically dominated by grasses, but with a high diversity of forbs. All natural grassland