

**APPENDIX H
SPECIALIST BOTANICAL REPORT**



NICK HELME BOTANICAL SURVEYS

PO Box 22652 Scarborough 7975

Ph: 021 780 1420 Fax: 021 780 1868 cell: 082 82 38350 email: botaneek@iafrica.com

Not registered for VAT

Accounts payable to: N.A. Helme

**BOTANICAL ASSESSMENT OF SITES FOR PROPOSED
ESKOM OMEGA SUBSTATION, EAST OF KOEBERG**

Prepared for: Eyethu Engineers, Durban

Client: Eskom

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1. INTRODUCTION AND STUDY AREA

This botanical assessment was commissioned in order to help inform the EIA process for the proposed development of the new 150ha Eskom Omega substation just north of Cape Town. The property is owned by Eskom, and is known as Groot Oliphantskop 81, and is located about 10km southeast of Koeberg Nuclear Power Station, and just west of the N7 highway, west of Koeberg hill. The farm is currently hired out, and is actively farmed (cattle, wheat, and oats). The site is crossed by the R307 and the Atlantis railway. Three alternative sites were investigated for this study, and the proposed development has a footprint of about 150ha. The study sites range in altitude from about 45masl to about 110masl, and there are no permanent watercourses or vleis within the study areas, but a small seasonal drainage line was noted in the vicinity of Alternative A. It was not possible to get detailed localities for the sites, but Figure 1 was used as a guideline for locating the three sites. There are patches of significant natural vegetation on the farm (a 1ha patch just west of the railway opposite the entrance to the main farmhouse, and a 10ha patch southeast of the farmhouse), but these were not identified as in need of detailed study as they apparently do not fall within the development envelope.

The geology map (Theron 1990) indicates that the primary soils in the area are acid sands of the Springfontyn formation, with significant patches of Tygerberg formation shales, and a small patch of silcrete. The shales are often overlain by the sands, and have contributed to the loamy sands which make agriculture possible.

Most of the property has been very extensively disturbed by decades of intensive agriculture.

2. TERMS OF REFERENCE

The terms of reference for this study were as follows:

- Describe the vegetation within the footprint areas, and note the presence or likelihood of locally and regionally endemic, rare (Red Data Book listed), or near threatened plant species.
- Assess the local (Koeberg - Atlantis) and regional (Malmesbury - Blouberg) conservation value of the site.
- Provide recommendations regarding the suitability of the area for development, and suggest mitigation measures that could reduce identified impacts.

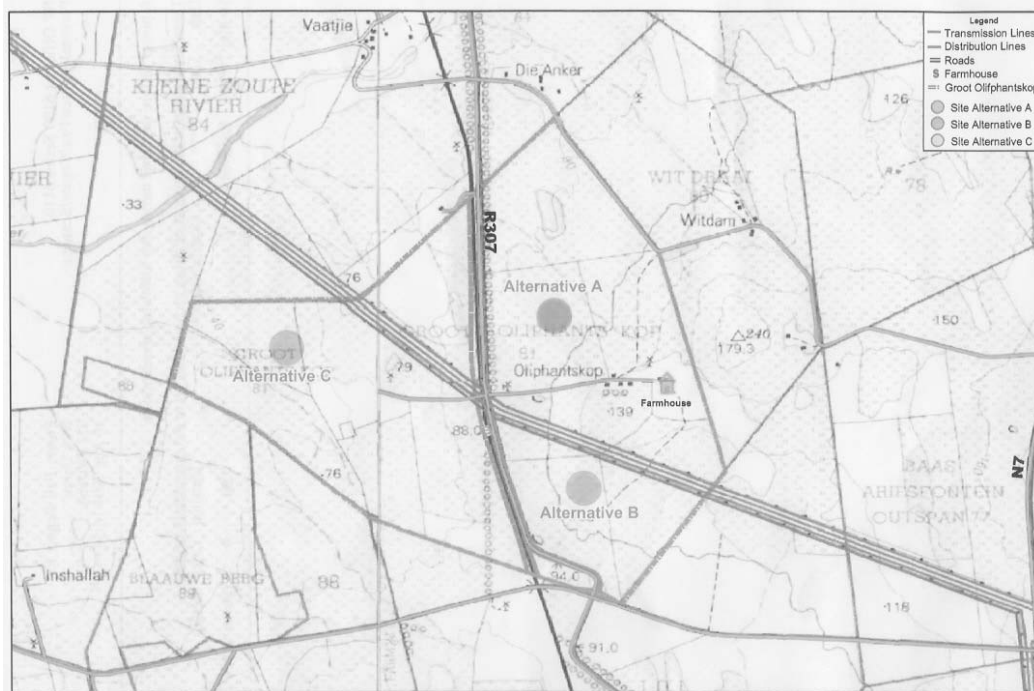


Figure 1: Location of the three Alternative Sites on the property.

3. THE VEGETATION

The vegetation in the study area has been mapped for the new vegetation map of South Africa (Mucina & Rutherford 2003) as Cape Flats Sand Fynbos (on the Springfontyn formation sands) and Swartland Shale Renosterveld (on the Tygerberg formation clays). These vegetation types are restricted to lowland areas in the extreme southwestern Cape. The CAPE project (Cape Action for People and the Environment) has given them both an Irreplaceability rating of 100% (Cowling et al 1999), as both are so reduced and fragmented that 100% of what is left is necessary to achieve conservation targets.

However, all three alternative sites have been totally transformed by intensive agriculture, and today there is no significant natural vegetation in any of the areas. No rare or endemic species were recorded in these areas, and none is likely. These previously disturbed areas have a Very Low local and regional conservation value.

The three alternatives are briefly described below.

3.1 Alternative A

This entire area is currently intensively cultivated, and is under oats (see Plate 1). The only notable feature that may fall within the site is a small seasonal drainage line

(see Plate 1) that runs northwest and empties into a culvert that cross under the R307. The vegetation west of the main road is still fairly intact, and the wetland nature of the site is indicated by the extensive *Juncus kraussii* (steekriet). The only plants noted in the drainage line in the study area are weedy annuals such as *Senecio burchellii* and *Oxalis pes-caprae* (geel suuring), and this area could in theory be rehabilitated.



Plate 1: Alternative A, looking towards the farmhouse and showing the small seasonal drainage line on the far right.

3.2 Alternative B

Alternative B is a fallow land that was once ploughed (see Plate 2), and is currently being used for cattle grazing. The dominant plants are weedy annuals such as *Cotula turbinata*, *Arctotheca calendula*, alien annual grasses, *Cynodon dactylon* (kweek grass), and the toxic succulent *Conicosia pugioniformis*. A small portion of the site near the road could be described as a seasonal wetland, but there is no significant natural vegetation here as it falls within the ploughed lands, with essentially the same plant species composition as noted above.

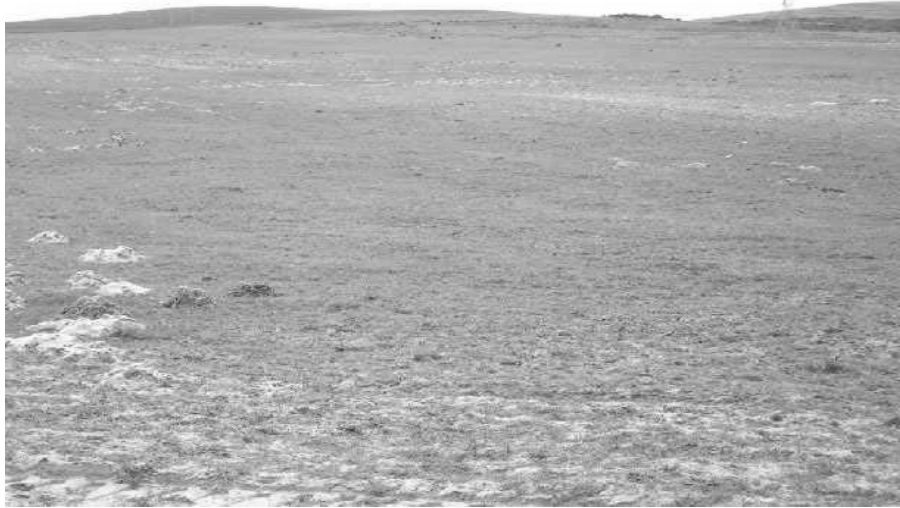


Plate 2: Fallow lands in Alternative B, powerlines in the background.

3.3 Alternative C

Alternative C is an existing cultivated field, with no remaining natural vegetation (see Plate 3). About 200m southwest of the proposed site is a drainage line wetland that is highly degraded as a result of partial ploughing of its edges, intense grazing, and eutrophication by leaching of fertiliser and herbicide runoff. There is no longer any significant natural vegetation in this drainage line, and it has a low botanical conservation value.



Plate 3: View of cultivated lands of Alternative C, looking towards Koeberg Power Station.

4. IMPACT ASSESSMENT

Impact 1: Loss of natural vegetation (Note that there is no extant natural vegetation in the areas of Alternatives A, B, or C)

Suggested mitigation:

- Rehabilitation of seasonal drainage line in Alternative A
- Ongoing removal of alien invasives elsewhere on property

Likelihood of suggested mitigation being implemented:

- 1) By Authorities : High
- 2) By Applicant:: Moderate

	Extent	Duration	Intensity	Probability	Significance	Status	Confidence
Without Mitigation	No natural vegetation in footprint	NA	NA	Definite	Neutral	Neutral	High
With mitigation	No natural vegetation in footprint	NA	NA	Definite	Low	Neutral - Positive	High

5. CONCLUSIONS AND RECOMMENDATIONS

- The three proposed Alternatives support virtually no natural vegetation of any sort, and the local and regional conservation value of all three sites is Very Low.
- The direct impact of developing these sites would be negligible from a botanical point of view.
- The indirect impacts include new powerlines and access roads, etc. These were not assessed as part of this application.
- It should be very easy to avoid impacting any areas of existing natural vegetation on the property when aligning powerlines and roads, and thus avoiding any indirect impacts, and the Eskom planners need to take these areas into account (a 1ha patch just west of the railway opposite the entrance to the main farmhouse, and a 10ha patch south-southeast of the farmhouse).
- It is suggested that a comprehensive alien clearing strategy should be put in place for the areas on the property that still support natural vegetation, and cattle should not be allowed to graze in areas with natural vegetation.
- All alien clearing should be done according to DWAF (probably very similar to Eskom guidelines) approved methodology, and it is important to note that no heavy machinery should impact on the natural areas.
- It is recommended that Eskom undertake to rehabilitate the small seasonal drainage line indicated in Plate 1, which occurs on or near Alternative A. A local landscaper with suitable experience would be recommended (such as Maryke Honig of Eco Logic Ph: 021 4479986; or Deon van Eeeden of Vula Ph : 082 5645748).

REFERENCES

Cowling, R., R. Pressey, A. Lombard, D. Richardson, C. Heijnis, and N. Cole. 1999. Framework for a conservation plan for the Cape Floristic Region. Institute for Plant Conservation Report 9902, University of Cape Town. Cape Town.

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Theron, J. 1990. 1:250 000 geology map of Cape Town area. Council for Geoscience, Bellville.

