INITIAL HERITAGE STATEMENT:
PROPOSED OPEN CYCLE GAS TURBINE SITE AND
TRANSMISSION LINES AT MOSSEL BAY
SOUTH WESTERN CAPE

Prepared for

Ninham Shand Consulting

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Executive summary

The Archaeology Contracts Office of the University of Cape Town was appointed by Ninham Shand Consulting to compile a heritage statement on the proposed Open Cycle Gas Turbine Power Station adjacent to the PetroSA facility at Mossel Bay. A site inspection and desktop study revealed that:

The proposed site is likely to have a very low impact on archaeological material or historical material and is in keeping with the dominant industrial landscape created by the massive PetroSA facility.

The three transmission line routes which will carry the output to Proteus Substation have been ranked in terms of possible impacts that may occur. The direct route is marginally favoured.

The proposed OCGT site is considered suitable, provided that on-site monitoring occurs during initial earthworks.
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1 Introduction

The Archaeology Contracts Office of the University of Cape Town was appointed by Ninham Shand Consulting on behalf of their client Eskom to compile a heritage statement with respect to the site of a proposed Open Cycle Gas Turbine plant (OCGT) at Mossel Bay. This report is not a heritage Impact Assessment but a component of the initial stages of the Environmental Impact Assessment and management process.

The terms of reference provided by Ninham Shand for the study are as follows:

- Attend a one-day site inspection on Wednesday 23 February 2005 (completed).
- Review information and participate in the finalisation of the ToR.
- Undertake a heritage study that is reflected in a Heritage Statement. The Heritage Statement will comprise the following:
  - A problem statement, in terms of where, why and how heritage resources may be impacted on;
  - A description of the affected environment;
  - Expected impacts related to the site and route selection in general; and
  - A ranking in terms of heritage impact severity of the transmission line route alternatives in particular.

1.1 The need for the project

Studies completed by Eskom and their various consultants have forecast that the company’s electricity generating capacity will be under pressure to meet the needs of the nation by 2007 considering the current rate of growth of the economy. This is particularly so in the Western Cape Province where local growth rates exceed the national average. Eskom is responding to this situation by taking measures to expand the company’s generating and distribution capacity in a number of ways. Locally this will take the form of various upgrades to the power distribution system as well as the proposed construction of two Open Cycle Gas Turbine power stations which would provide supplementary power during periods of peak electricity usage. These potential sites are located at Atlantis near Cape Town and Mossel Bay – the Mossel Bay site being the subject of this particular study.

Open Cycle Gas Turbines are designed to startup quickly at times of peak need, and contribute large amounts of power into the distribution network for limited periods of time. It is expected that three or more units will be installed at Mossel Bay along with fuel storage tanks and/or gas pipelines from the nearby PetroSA plant, support facilities 400kv distribution line which will link the proposed power station to the national grid via the Proteus substation. Three possible options have been chosen for the routes of the transmission lines which are indicated on Figure 2. These were not subject to any surveys as part of this assessment, however, they are ranked in terms of heritage preference.

This proposed new infrastructure has the potential to impact heritage resources protected by the National Heritage Resources Act of 1999 - namely:

- Archaeological material that is more than 100 years of age
- Buildings that are more than 60 years of age
- Historic landscapes and intangible heritage
1.2 The receiving environment

This is presently agricultural land (grazing) situated immediately west of the PetroSA plant. The landscape between the PetroSA plant and the proposed OCGT site, has been subject to extensive earthmoving when PetroSA was built. Thus the context of the proposed site is in part agricultural but also heavily industrial being bordered to the east by the massive PetroSA facilities. The broader surrounding landscape is characterized by low rolling hills, fields and grazing land. A railway line runs past the north side of the site which is fringed by a row of gum trees. The proposed site has been chosen on account of its relative remoteness’ from the urban areas of Mossel Bay and its proximity to PetroSA – a convenient fuel supplier.

The proposed site is situated well away from known important heritage sites in that it is an area that contains few features or outcrops that would have attracted pre-colonial settlement.

1.3 Archaeological background

The main cave at Cape St Blaize was excavated in 1888 by Lieth (Nilssen pers com) and by Goodwin in the 1920’s revealing an extensive archaeological deposit dating from 200 000 years (Middle Stone Age) to the relatively recent shell middens of pre-colonial San and/or Khoekhoen herders. For many years since the excavations of Cape St Blaize cave, very little archaeological research has taken place in the area until the extensive cave and rock shelters of Pinnacle Point were brought to the Attention of Prof Curtis Marean (Stoneybrook University, New York and Dr Peter Nilssen (Mossel Bay Archaeological Project). A detailed program of research commenced funded by the American National Science Foundation. This has resulted in the excavation of several sites resulting in the discovery of some very early fragmentary human remains and a complex Middle Stone Age sequence. Work is currently in progress. No colonial period archaeological research has ever taken place in the area so very little is known about early colonial period settlement, apart from that which is historically recorded. In terms of the study area itself, no prior studies have taken place.

Since the study lies in rolling open landscape away from the coast, the expectation is that the kind of archaeological material that will be found will consist of open scatters of Early and Middle Stone Age artifacts (with rarer concentrations of later material) which tend to occur ubiquitously throughout Southern Africa. It is only when such scatters are found in association with fossil bone or in clusters of discernable density that significant impacts can occur. Since there are no rocky outcrops, shelters or natural foci in the study area, occurrences of Late Stone Age archaeological material are not expected to be frequent.

2 Method

The proposed site for the OCGT was inspected by archaeologist Tim Hart while on a general site inspection with the other members of the specialist team. At the time of inspection the site was agricultural land that had been ploughed in the past but now vegetated with grass. The dry summer grass provided enough ground surface visibility to gain some idea of the sensitivity of the site.

The three possible power line transmission line routes were not ground proofed but viewed from several vantage points during the group site inspection to get some idea of visual impacts. Once a suitable route is chosen, further fieldwork will be necessary to ground proof tower base locations.
3 Findings

3.1 Fuel pipeline and access from PetroSA

The proposed fuel pipeline and access road from PetroSA to the proposed site crosses land which was heavily disturbed by earthmoving during and after the construction of PetroSA. No impacts are expected.

3.2 OCGT site

A brief visual inspection of the OCGT site showed no surface evidence of significant archaeological material. A single flake of probable MSA origin was noted on the surface.

3.3 Transmission line routes

Three possible transmission line routes are proposed. These are:

Route 1. R327 route which runs adjacent to the R327 road following mainly existing road systems to link up with Proteus substation.
Route 2. Proposed route runs along the servitude of an existing distribution line directly to Proteus Substation.
Route 3. Railway line route that commences adjacent to existing railway line, then diverts across country from Kleinberg Station to Proteus.

3.3.1 Archaeology and artefacts

In terms of impacts to pre-colonial archaeological material, no route can be favoured over any other as not enough is known about the archaeological sensitivity of any of the options. It is however, logical to suggest that route 2, being the most direct and shortest, has the smallest chance of impacting any archaeological sites.

3.3.2 Intangible heritage

Route 1 follows the alignment of the R327 which is a drive with scenic qualities. This option
will cause impacts to “sense of place and sense of remoteness” to the traveler.

Route 2 is a very direct route across the country. Since this option utilizes high ground on the top of a ridge, the lines will be visible against the skyline from certain parts of the R327 and in the distance from the N2. There may be cultural landscape impacts to the homestead on Patrysfontein as it is more than 60 years of age.

Route 3, a rather more indirect route will probably successfully hide the transmission lines and towers against the backdrop of rolling hills and shallow valleys which it crosses. Its construction will probably require the removal of part of the tree line adjacent to the railway line – a source of risk to cultural landscape. The significance of the tree line is unclear, but it was probably a wind break to limit spread of locomotive exhaust embers.

3.4 Ranking of routes

1 (most favoured) 3 (least favoured).

1. Route 2 (on account of remoteness and directness).
2. Route 3 (on account of remoteness)
3. Route 1 (expected to carry visual impacts).

4 Sources of risk

In heritage terms, the chances of impacts at both the proposed OCGT site and proposed routes are considered to be low, however the following factors need to be considered;
4.1 OCGT site

In terms of the proposed OCGT site access road and pipelines, impacts will be of very low significance due to the disturbed nature of the landscape, the existing nearby industrial context and the paucity of heritage material or archaeological sites in the area.

- All though there is very little evidence of surface archaeological material on the proposed site, the existence of sub-surface lenses of archaeological material is unknown. This can only be established once geotechnical/trial excavations are underway.

4.2 Transmission line routes

In terms of the routing of transmission lines, there are unknown factors that could result in impacts to heritage of a moderate intensity. Given existing knowledge, the most direct route is favoured as the chances of direct impacts are decreased. Identified sources of risk are at present:

- A homestead on farm Patrysfontein is known to be more than 60 years of age and is therefore protected by NHRA. While the route will not directly impact any historic fabric, and is unlikely to impact archaeological material associated with the farm, the presence of the transmission lines approximately 600m away could affect the cultural landscape by altering sense of place and ambience associated with the farm buildings. While further work may be required to establish if the presence of the transmission lines represent an acceptable degree of “change” to the place, this issue should be dealt with in the visual impact assessment for this project.
- The as yet un-established presence of archaeological or historical sites along the proposed routes. This can be assessed through on-site monitoring during the initial earthworks.

5 Future requirements

If development of the proposed OCGT site takes place, an archaeologist should be contracted to inspect geotechnical excavations on the site that may precede development, or alternatively be present at the commencement of any bulk excavations that are necessitated by development of the site.

An initial archival assessment and inspection would need to be undertaken to determine the heritage status of the farm buildings at the Patrysfontein farm, should their structural integrity be threatened by the proposed transmission lines. However, it must be noted that there is very little likelihood of this being the case.

Once a transmission line route is favoured, the servitude will have to be ground proofed for archaeological/historical material. If tower bases and service roads pose any impacts, these can be mitigated through minor base location adjustments or archaeological sampling.

6 References

Goodwin, AJH. 1929. The Stone Age Cultures of South Africa.

Above Plate 1: Proposed location of OCGT. West to east aerial view provided by Eskom and PetroSA.

Below: Plate 2: Proposed location of OCGT in immediate foreground. East to west aerial view provided by Eskom and PetroSA.
Plate 3: View over the proposed OCGT site looking east towards PetroSA.

Plate 4: Railway line (Cape Town – Mossel Bay) with tree line.
Plate 5: View over landscape from Proteus Substation (typical).

Plate 6: Flake of Early Stone Age origin found at proposed OCGT site.