Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

SCOPING REPORT AND HERITAGE IMPACT ASSESSMENT FOR THE KYALAMI STRENGTHENING PROJECT, MIDRAND, GAUTENG

For:

SAVANNAH ENVIRONMENTAL (PTY) LTD

On behalf of:

ESKOM

REPORT: **AE812**

By:

Dr. A.C. van Vollenhoven (L.AKAD.SA.) & Anton J Pelser

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Archaetnos
P.0. Box □31064
WONDERBOOMPOORT
0033
Tel: **083 291 6104**/083 459 3091/082 375 3321
Fax: 086 520 4173
Email: antonv@archaetnos.co.za

SUMMARY

Archaetnos cc was appointed by Savannah Environmental (Pty) Ltd to conduct a scoping survey and specialist input for the Kyalami strengthening project. This included a proposed new substation and the associated power lines.

The scope of the survey was to investigate the areas for three alternative substation sites and five alternative transmission line corridors. The aim was to evaluate these alternatives in order to indicate a preferred substation site and power line development corridor from a heritage perspective.

The investigated area mainly consists of the site where the Leeuwkop prison is situated, but some of the alternative power line corridors run into the surrounding residential areas. This is in Midrand, Gauteng.

From the fieldwork undertaken no real difference between the indicated sites and corridors could be determined. However, some of these areas may have a high potential of revealing heritage resources during the construction phase as sites may be buried. These possibilities are indicated.

It is concluded that from a heritage perspective, none of the alternative sites for the substation or the alternative corridors for the power lines is preferred and that any of these could be used.

1. INTRODUCTION

Archaetnos cc was appointed by Savannah Environmental (Pty) Ltd to conduct a scoping survey and specialist input (Heritage Impact Assessment) for the Kyalami strengthening project. The project includes a proposed new substation and the associated power lines.

The scope of the survey was to investigate the areas for three alternative substation sites and five alternative transmission line corridors. The aim was to evaluate these alternatives in order to indicate a preferred substation site and power line development corridor from a heritage perspective.

2. PROJECT OVERVIEW

Eskom Transmission is proposing the establishment of a new 400 kV substation on a site within the Midrand/Kyalami are, Gauteng Province. In addition, Eskom is proposing the construction of three 400 kV transmission power lines looping in and out of the proposed Bravo (Kendal B) – Lulamisa 400 kV line (in the vicinity of the Lulamisa Substation) to connect the substation to the Transmission grid. This project includes the following:

- A new 400 kV substation in the Midrand/Kyalami area. This substation will be approximately 400 m x 400 m in extent.
- Construction of three 400 kV transmission power lines looping in and out of the proposed Bravo (Kendal B) – Lulamisa 400 kV line (in the vicinity of the Lulamisa Substation) to connect the substation to the Transmission grid, a distance of approximately 15 km in length, depending on the nominated preferred substation site and Transmission line alignment. A servitude of approximately 55 m is required for each transmission power line.
- Associated works to integrate the proposed new substation and transmission power lines into Eskom's electricity Transmission grid (including the construction of service/access roads, the construction of a communication tower at the substation site, etc).

The purpose of this proposed project is to:

- Improve the reliability of the existing Central Grid Transmission network,
- Accommodate the projected load growth around the year 2013 in the Johannesburg North Area,
- Improve the voltage regulation on the Central Grid Distribution network, and
- Create additional Transmission network capacity to be able to supply the increasing electricity demand in the Central Grid.

3. SCOPE OF WORK

The scope of the heritage study for the project includes a scoping study, detailed HIA as part of the EIA and a walk-through survey in the site-specific EMP stage (following the issuing of an Environmental Authorisation by DEAT, and the negotiation of the servitude by Eskom).

Three alternative substation sites have been identified for the establishment of the proposed 400 kV substation. In addition, a number of alternative transmission line development corridors have been identified for investigation for the proposed three transmission lines. The Scoping study must comparatively evaluate the various alternatives which have been identified for investigation. From this study a preferred substation site and power line development corridor (or corridors) should be nominated from a heritage perspective. Recommendations regarding further studies (if any) which may be required in the detailed EIA phase must also be included with the scoping report.

Detailed studies will then be undertaken in the detailed phase for the nominated preferred alternative/s and the potential impacts must be assessed (in terms of the criteria stipulated in the EIA regulations). Mitigation measures must be provided for inclusion in a management plan for the construction and operation of the power lines.

4. TERMS OF REFERENCE

As it is difficult to conduct a scoping survey without looking into detail, all alternatives were surveyed with the aim of conducting the HIA. This report therefore serves both as scoping report and as HIA on all alternative sites.

The Terms of Reference with reference to the HIA were to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the property (see Appendix A).
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).
3. Review applicable legislative requirements.
4. Indicate possible future impacts on the cultural resources and suitable mitigation measures should these become real.

5. CONDITIONS & ASSUMPTIONS

The following conditions and assumptions have a direct bearing on the survey and the resulting report:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity. These include all sites, structure and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development. Graves and cemeteries are included in this.
2. The significance of the sites, structures and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects.
3. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance may be demolished should there be a need for development in those areas, provided such sites have been recorded in full. Sites with medium cultural significance may or may not require mitigation if future development has an impact thereon. The type of mitigation will be discussed with every individual site. Sites with a high cultural significance are more important than any forseeable future development and should therefore be preserved (see appendix B). Should it be absolutely impossible to preserve these a compromise may be reached, but that will depend on each individual project and circumstances.
4. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information and should not be disclosed to members of the public.
5. All recommendations are made with full cognisance of the relevant legislation.
6. It has to be mentioned that it is almost impossible to locate all the cultural resources in a given area, as it will be very time consuming. The report however indicates how to deal with any cultural resources that may be identified once the development on site occurs.
7. In this particular case it needs to be mentioned that the vegetation was very dense. This makes visibility on the ground extremely difficult and may result in some cultural features not being picked up during the survey (see recommendations).

6. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two Acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

6.1 The National Heritage Resources Act

According to the above-mentioned law, the following are protected as cultural heritage resources:

a. Archaeological artefacts, structures and sites older than 100 years
b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
c. Objects of decorative and visual arts
d. Military objects, structures and sites older than 75 years
e. Historical objects, structures and sites older than 60 years
f. Proclaimed heritage sites
g. Graveyards and graves older than 60 years
h. Meteorites and fossils
i. Objects, structures and sites or scientific or technological value.

6.1.1 *Archaeology, palaeontology and meteorites*

Section 35(4) of this Act states that no person may, without a permit issued by the responsible heritage resources authority:

a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
d. bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above-mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA).

6.1.2 *Human remains*

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

a. destroy, damage, alter, exhume or remove from its original position of otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
b. destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
c. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations** (**Ordinance No. 12 of 1980**) (replacing the old Transvaal Ordinance No. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place.

Human remains can only be handled by a registered undertaker or a n institution declared under the **Human Tissues Act** (**Act 65 of 1983 as amended**).

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

6.2 The National Environmental Management Act

This Act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof made.

7. METHODOLOGY

7.1 Field survey

The survey was conducted according to generally accepted AIA and HIA practices and was aimed at locating possible objects, sites and features of cultural significance in the area of proposed development. If required, the location/position of any site was determined by means of a Global Positioning System (GPS), while photographs were also taken where needed.

In certain areas the survey was undertaken on foot, but it was possible to survey the alternative power line corridors via vehicle, since these areas mainly follows roads and existing power lines. Where it was deemed necessary, specific areas were however also surveyed on foot.

7.2 Documentation

All sites, objects features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS). The information was added to the description in order to facilitate the identification of each locality.

8. DESCRIPTION OF THE AREA

The proposed development area mainly consists of the site where the Leeuwkop prison is situated in Midrand, Gauteng. Some of the alternative power line corridors run into the surrounding residential areas.

The vegetation mainly consists of grass, but certain areas clearly showed signs of previous disturbances. This is indicated by the some pioneer species, weeds and other signs of human influence such as old ploughed fields and eucalyptus trees. Ploughed field usually do not contain heritage resources as any possible cultural remains may have been demolished during the ploughing activities. The maps obtained from the client also indicate that the area has been used for agricultural purposes and that this is even continuing today (Figure 19).

The residential areas are almost entirely developed and include houses, other buildings, roads, lawns, laid-out gardens and animal camps. From the architectural styles most of these seem to have been fairly recent developments minimising the chance of finding anything of heritage value.

It however needs to be indicated that three specific features exist with a high potential of containing heritage resources. These are the Jukskei River in the west and south of the area, an area with a few boulders to the southwest and a hill to the east. Such features are known to have been used by people in prehistoric times and therefore may contain indications of this.

9. DISCUSSION

Before discussing the cultural resources of the study area in detail a background regarding the different phases of human history is needed. This will enable the reader to better understand the terminology used in this report.

9.1 Stone Age

The Stone Age is the period in human history when lithic material was mainly used to produce tools (Coertze & Coertze, 1996:293). In South Africa the Stone Age can be divided in three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. The division for the Stone Age according to Korsman & Meyer (1999:93-94) is as follows:

Early Stone Age (ESA) 2 million – 150 000 years ago
Middle Stone Age (MSA) 150 000 – 30 000 years ago
Late Stone Age (LSA) 40 000 years ago – 1850 - A.D.

Stone Age occurrences are indicated in the broader vicinity of the surveyed area (Bergh, 1999:4). This includes sites next to the Hennops River and at Zwartkops indicating that such occurrences have been found in the vicinity of the surveyed area in the past.

9.2 Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce artefacts (Coertze & Coertze, 1996:346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999:96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.
Late Iron Age (LIA) 1000 – 1850 A.D.

Bergh (1999:7) indicates 125 Late Iron Age sites in the vicinity of Pretoria. The area stretches as far to the south as Midrand. He also indicates that iron was worked to the south of Pretoria (Bergh, 1999:8). He however does not mention specific sites.

9.3 Historical Age

The historical age started with the first credible oral histories and continued when the first people that were able to read and write moved into the area. Mzilikazi probably moved through the Midrand area in 1827 (Bergh, 1999:11).

The early travellers, Robert Moffat and James Archbell visited this area in 1829. They were followed by W C Harris in 1836 and later David Livingstone in 1847 (Bergh, 1999:12-13).

The first white settlers came into the area between 1839 and 1840. These people were farmers and they started with the large scale agricultural activities in the area (Bergh, 1999:15). Pretoria was established in 1855 and Johannesburg in 1886 (Bergh, 1999:21). Farmers, include those in the Midrand area, would have provided these towns with the necessary food.

The most important cultural feature found in the vicinity of the possible development is a grave, but this is outside of any of the power line corridors and therefore no mitigation measures are needed. It does however give some history to the broad area. It is the grave of John Wessel Bell (5/6/1928 – 11/7/1928). The GPS measurement for this site is 26°00'29"S and 28°02'55"E (Figure 17-18). It will not be affected by the development.

9.4 Discussion of the alternative development sites

9.4.1 *Alternative sites for the substation*

- **Site A Leeukop Prison*:***
  The area has been disturbed by past human activities. The grass is very dense and the area overgrown by weeds (Figure 1). The area may have been used for agricultural purposes in the past.

  The GPS measurement of the site is 25°59'30"S and 28°03'04"E.

The site does not have any heritage significance and may therefore be used for the substation. It however needs to be indicated that the archaeological visibility is very low due to the dense vegetation.

- **Site B Leeukop Golf course:**
  This area is extremely disturbed by past human activities. The grass is very dense and th e a rea o vergrown b y w eeds. Eucalyptus trees also i ndicate p ast h uman activities (Figure 2). The area seems to have been used for agricultural purposes in the past.

  The GPS measurement of the site is 26°00'57"S and 28°04'22"E.

  The site does not have any heritage significance and may therefore be used for the substation. It however needs to be indicated that the archaeological visibility is very low due to the dense vegetation.

- **Site C Waterfall Park Estate:**
  This area lies just to the southeast of the Golf Course site and is therefore similar to what has been indicated above. The area was probably also used for agricultural purposes in the past.

  The site does not have any heritage significance and may therefore be used for the substation. It however needs to be indicated that the archaeological visibility is very low due to the dense vegetation.

9.4.2 Alternative power line corridors

- ***Alternative 1:***
  This area clearly shows signs of ploughed fields indicating human disturbance. It also includes residential areas and roads, mostly fairly recent. The Lulamisa substation on the n orth-eastern s ide o f t his a lternative a lso h as a lready i mpacted u pon th is alternative (Figure 3-4).

  In this corridor no sites of heritage value were recorded and it may therefore be used. It however needs to be indicated that the archaeological visibility is very low due to the dense vegetation. No buildings with apparent heritage value were detected but it was not possible to survey individual properties (see recommendations).

- ***Alternative 2:***

  This area also clearly shows signs of human disturbance. This mainly consists of ploughed fields. The Lulamisa substation is also situated on the northeastern side of this alternative and has already impacted upon it (Figure 5).

  At alternative 2 no sites of heritage value were identified and therefore it may be used. It however needs to be indicated that the archaeological visibility is very low due to the dense vegetation. This alternative also includes parts of the Jukskei River which may contain subterranean archaeological features nearby. It unfortunately is impossible to predict exactly where such features may be located, but one would expect it very close to the river.

- ***Alternative 3:***

  This area consists of agricultural holdings. These seem to have been developed fairly recently and shows modern houses and other infrastructure. The Lulamisa substation is also the north-eastern point of this alternative and has already impacted thereon (Figure 6).

  In this corridor there were also no sites of heritage significance identified and it may therefore be used. It however needs to be indicated that the archaeological visibility is very low due to the dense vegetation. No buildings with apparent heritage value were detected but it was not possible to survey individual properties (see recommendations).

- ***Alternative 4:***

  Alternative 4 also clearly shows signs of ploughed fields indicating human disturbance. It also includes residential areas such as the Kyalami castle. These seem to be fairly recent and the buildings are therefore not of heritage significance. The area around the golf course has been used for dumping, a clear indication of human disturbance (Figure 7-10).

  In this case also no sites of heritage significance were identified and it may therefore be used. It however needs to be indicated that the archaeological visibility is very low due to the dense vegetation. The current (and possible future) power lines runs

across a hill which has the potential of containing archaeological material (Figure 11-12). However no sites were found and it seems unlikely that future power line developments will have a further negative impact on this natural feature.

The ruin of an old building was found (Figure 13), but this is not old enough to be protected by law and therefore has a low cultural significance. The GPS measurement for the building is 26°00'55"S and 28°03'55"E. This report is seen as ample mitigation regarding this feature.

- ***Alternative 5:***

  Again this alternative clearly shows signs of ploughed fields indicating human disturbance. It also shows terraces of packed stone which was used for agricultural purposes. Old orchards of fruit trees were also found on the route.

  Some ruins were detected, but these are of no heritage significance. An area with boulders was also detected. This was investigated, but no heritage features were found.

  Two other cultural features were identified. The first was a small metal cross indicating the spot where Jurie Botha committed suicide on 3/4 December 2002 (Figure 14). The GPS measurement for this site is 26°00'37"S and 28°02'24"E. Fresh flowers indicate that the family of the deceased still use the site to mourn and therefore this should be taken into consideration, if this alternative is chosen. As it is likely that access would not be restricted, this probably would not be a problem.

  Mitigation should include the following: Since it is a movable object, the cross can be removed and after completion of the work it can be placed back at the indicated coordinates. Therefore the significance of this cultural feature is indicated as medium.

  The second feature is a water furrow running along this corridor (Figure 15). It is packed with rocks and seems to represent the early farming activities of the historical era. It therefore has a high cultural significance. The GPS measurement for this is 26°00'51"S and 28°03'19"E.

  This seems to be the only feature of heritage value of the entire survey. However, it does not seem as if the power lines here will have an effect thereon as it may be just

outside of the affected area. Therefore it should just be left in situ and no other mitigatory measurement is needed. However ESKOM may consider moving the footprint in order to avoid the site.

Again it can be indicated that the archaeological visibility is very low due to the dense vegetation. A large part of this corridor runs along the Jukskei River which has the potential of containing subterranean archaeological material (Figure 16). However nothing of archaeological importance was identified.

10. CONCLUSIONS AND RECOMMENDATIONS

In conclusion it is clear that not much of heritage value was found. The most important cultural feature found in the surveyed area is the furrow, but the development does not seem to have a direct impact thereon. It is also believed that the development will not have a significant impact on the suicide site identified.

Accordingly it can be indicated that from a heritage perspective no one of the alternative sites for the substations are preferred to any other. Regarding the alternatives for the power line corridors the same can be indicated. Although some heritage features were identified in alternative 4 and 5, these will probably not be directly impacted upon by the power line development. Therefore no alternative is preferred and the development can continue on any of these decided upon by the client.

It has been indicated that the dense vegetation may have resulted in some cultural features being missed. The developer should therefore note that should any archaeological feature be unearthed during construction activities, an archaeologist should immediately be contacted to investigate the find.

All the possible identified areas have been surveyed in detail and it is believed that the chances of finding more sites, features and objects of heritage value are very slim. Even in a season where the vegetation is less dense, such as the end of the winter months, one might still not be able to find more as many archaeological features are contained under ground.

With relation to the buildings it can be stated that on face value these seem to be younger than 60 years and therefore not of heritage significance. Of course it always is possible that on some of the properties an older building may be present. This however would probably be an old farmstead, outbuildings or workers dwellings of which many

have been preserved (for instance at the Willem Prinsloo Agricultural Museum, Pioneer Museum, Suikerbosrand Nature Reserve etc.). Due to such structures clearly not being very unique, the cultural significance thereof will not be high. It also should be kept in mind that the footprint of the power lines will not have a large impact.

Finally it is concluded that this report serves as a mple documentation for both the scoping and EIA (HIA) phases of the project.

11. REFERENCES

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Appendix A

Definition of terms:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidal find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

Appendix B

Cultural significance:

- Low A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.

- Medium Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.

- High Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorised as of a high importance. Also any important object found within a specific context.

Appendix C

List of Figures:

1. General view of the proposed Leeukop Prison substation site.
2. General view of the proposed Leeukop Golf Course substation site.
3. General view of the power line development corridor alternative 1.
4. The Lulamisa substation where development corridors 1, 2 and 3 meet.
5. General view of the power line development corridor alternative 2.
6. General view of the power line development corridor alternative 3.
7. Dumping area in power line development corridor alternative 4.
8. General view of the power line development corridor alternative 4.
9. General view of the power line development corridor alternative 4. Note the ploughed fields and existing power lines.
10. Another view on the dumping area next to the golf course in power line development corridor 4.
11. The hill area in power line development corridor alternative 4.
12. Existing power lines running across the hill in the power line development corridor alternative 4.
13. Ruin of a building identified close to the power line development corridor alternative 4.
14. Cross indicating the suicide site of Jurie Botha in the power line development corridor alternative 5.
15. Old furrow in the power line development corridor alternative 5.
16. The Jukskei River in the power line development corridor alternative 5. Rocky outcrops such as these may contain Stone Age material.
17. Grave found outside of any of the development corridors, but in the vicinity of the development.
18. Inscription on the headstone of the mentioned grave.
19. Map indicating the three alternative sites for the substation and the five alternative power line development corridors.