

**Prepared for:**

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AND  
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**A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR  
ESKOM'S PROPOSED BRAVO PROJECT ON THE EASTERN  
HIGHVELD IN THE GAUTENG AND MPUMALANGA PROVINCES  
OF SOUTH AFRICA:**

**THE CONSTRUCTION OF TWO 400kV POWER LINES FROM  
KENDAL POWER STATION TO ZEUS SUBSTATION.**

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## EXECUTIVE SUMMARY

Eskom's proposed Bravo Integration Project spans the provinces of Gauteng and Mpumalanga and will be handled as the following five individual Environmental Impact Assessment (EIA) studies):

- Bravo 1: The construction of two 400kV by-pass lines of approximately 10km each from the Sol substation (Kriel) to the Zeus (Secunda) and Cambden substations respectively.
- Bravo 2: The construction of 2X400kV loop-in lines from the Kendal-Apollo and from the Duvha-Minerva lines into the Bravo power station. Each of these lines will be approximately 10km long.
- Bravo 3: The construction of a new 400kV power line from the Bravo power station to the Lulamisa substation which will be approximately 90km long.
- Bravo 4: The construction of 2X400kV power lines from the Kendal power station to the Zeus substation which will be approximately 90km long.
- Bravo 5: The construction of a 400kV by-pass line, approximately 10km in length, on the Bravo-Vulcan line to by-pass Duvha.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the construction of 2x400kV power lines from the Kendal power station to the Zeus substation and which will be approximately 90km long.

The Eskom Project may impact on any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No. 25 of 1999). Consequently, Zitholele Consulting and Eskom commissioned the author to undertake a Phase I HIA study for the proposed Eskom Project Area with the following aims

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur within the perimeters of the Eskom Project Area and, if so, to determine the level of significance of these heritage resources.
- To make recommendations regarding the mitigation or the conservation of any significant heritage resources that may be affected by the proposed Eskom Project.

The Phase I HIA study revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) for the Eskom Project Area, namely:

- Houses and structures older than sixty years with historical significance.
- Graveyards, some older than sixty years and therefore also with historical significance.

The graveyards were geo-referenced and mapped in this report (Figure 3, Table 1). A number of the graveyards are discussed in detail whilst others are merely mentioned and listed (Table 1). The significance of the graveyards is indicated and mitigation measures are outlined should they be affected by the Eskom Project.

Historical structures in close proximity of the proposed power line corridors were not geo-referenced. These structures are not directly threatened by the Eskom Project as Eskom does not demolish structures in order to make way for new power lines. However, the historical significance of these structures is indicated and mitigation measures are outlined should any historical structures be affected by the Eskom Project.

Remains from the more recent past have no significance and are not discussed in this report.

### **The significance of the heritage resources**

It is possible that some of the graveyard may be impacted by the Eskom Project. Consequently, the significance of the graveyards is indicated while mitigation measures are outlined for those graveyards which may be affected by the proposed Eskom Project.

#### *Graveyards*

At least twenty-two graveyards were observed in and near the Eskom Project Area. These graveyards were geo-referenced (Table 1). A number of graveyards close to the Eskom Project Area are also pointed out by Arch View (Figure 3).

It is highly likely that more graveyards may exist but that they were not observed during this survey as a result of no-access to certain stretches of the proposed new power line corridors or that that graveyards may be obscure or inconspicuous as a result of negligence and abandonment.

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

#### *Historical structures*

Houses and structures older than sixty years or which are approaching this age are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999).

The significance of each and every historical house, whenever these structures are to be affected by the Eskom Project, can further be determined according to criteria such as the following: the cultural-historical background of these structures; their scientific or architectural value; their use in the field of tourism, museums or education as well as their aesthetic appearance; their repeatability (scarcity/abundance), or their emotional (ideological) value.

#### **Mitigating the heritage resources**

The following mitigation measures have to be followed whenever graveyards or historical structures may be affected by the Eskom Project.

#### *Graveyards*

Graveyards can be mitigated by following one of the following strategies, namely:

- Graveyards can be demarcated with brick walls or with fences and can be conserved *in situ* beneath power lines. Pylons should be erected on opposite ends of graves or graveyards. Consequently, power lines can be strung across

- and above the latter. Conserving graves and graveyards in power line corridors create the risk that they may be damaged, accidentally, and that Eskom may be held responsible for such damages. Controlled access must exist for any relatives or friends who wish to visit graves or graveyards in power line corridors.
- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

#### *Historical houses*

Houses older than sixty years may not be affected (demolished, renovated, altered) by the Eskom Project *prior* to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA). The historical architect has to acquire a permit from the South African Heritage Resources Authority (SAHRA) *prior* to any of these structures been affected or altered as a result of the Eskom Project

#### **General**

It is possible that this Phase I HIA study may have missed heritage resources in the Eskom Project Area considering the size and extent of the Project Area.

If any heritage resources of significance is exposed during the Eskom Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

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## 1 INTRODUCTION

As part of Eskom's increased electricity supply plan the construction of the new coal-fired Bravo power station between Bronkhorstspuit and Witbank will commence later this year. The Bravo power station is expected to begin delivering electricity around 2013. The proposed Bravo Integration Project is necessary to integrate and connect Bravo into the existing Eskom electricity network. This will foresee that additional electricity supply to areas such as Secunda and Midrand are ensured.

The proposed Bravo Integration Project spans the provinces of Gauteng and Mpumalanga and will be handled as the following five individual Environmental Impact Assessment (EIA) studies):

- Bravo 1: The construction of two 400kV by-pass lines of approximately 10km each from the Sol substation (Kriel) to the Zeus (Secunda) and Cambden substations respectively.
- Bravo 2: The construction of 2X400kV loop-in lines from the Kendal-Apollo and from the Duvha-Minerva lines into the Bravo power station. Each of these lines will be approximately 10km long.
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Focused archaeological research has been conducted in the Gauteng and Mpumalanga Provinces of South Africa for more than four decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as the recording of rock art and historical sites. The Gauteng and Mpumalanga Provinces have a rich heritage comprised of remains dating from



the pre-historical and from the historical (or colonial) periods of South Africa. Pre-historical and historical remains in the Gauteng and Mpumalanga Provinces therefore form a record of the heritage of most groups living in South Africa today.

Various types and ranges of heritage resources that qualify as part of South Africa's 'national estate' as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) occur in the Gauteng and Mpumalanga Provinces (see Box 1, next page).

**Box 1: Types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999).**

The National Heritage Resources Act (Act No 25 of 1999, Section 3) outlines the following types and ranges of heritage resources that qualify as part of the national estate, namely:

- (a) places, buildings structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and paleontological sites;
- (g) graves and burial grounds including-
  - (i) ancestral graves;
  - (ii) royal graves and graves of traditional leaders
  - (iii) graves of victims of conflict
  - (iv) graves of individuals designated by the Minister by notice in the Gazette;
  - (v) historical graves and cemeteries; and
  - (vi) other human remains which are not covered by in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) moveable objects, including -
  - (i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
  - (ii) objects to which oral traditions are attached or which are associated with living heritage;
  - (iii) ethnographic art and objects;
  - (iv) military objects;
  - (v) objects of decorative or fine art;
  - (vi) objects of scientific or technological interest; and
  - (vii) books, records, documents, photographs, positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value ...'. These criteria are the following:

- (a) its importance in the community, or pattern of South Africa's history;
- (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects
- (e) ;its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- (l) sites of significance relating to the history of slavery in South Africa

## **2 TERMS OF REFERENCE**

Eskom intends to implement the proposed Bravo Integration Project on the Eastern Highveld in the Gauteng and Mpumalanga Provinces of South Africa. The Bravo Integration Project involves five independent heritage impact assessment studies for various components of the project.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the construction of 2X400kV power lines from the Kendal power station to the Zeus substation which will be approximately 90km long.

The Eskom Project may impact on any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No. 25 of 1999). Consequently, Zitholele Consulting and Eskom commissioned the author to undertake a Phase I HIA study for the proposed Eskom Project Area with the following aims

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur within the perimeters of the Eskom Project Area and, if so, to determine the level of significance of these heritage resources.
- To make recommendations regarding the mitigation or the conservation of any significant heritage resources that may be affected by the proposed Eskom Project.

### **3 THE ESKOM PROJECT AREA**

#### **3.1 Location**

The Eskom Project Area stretches from the Kendal power station near Ogies in the north to the Zeus substation in the south and cuts across a part of the Eastern Highveld of the Mpumalanga Province of South Africa. The Eskom Project Area stretches across an undulating piece of land which is primarily covered with grass veldt although agricultural fields also occur towards the west.

Few trees occur in the Eskom Project Area. Those that do occur are exotics such as Blue Gum lots, poplar-groves on the banks of streams and Oak trees which are usually located near historical farm homesteads. Most of these trees are anthropogenic as they have been introduced in the area by means of early human activities in the past (2628 East Rand 1:250 000) (Figures 1-2).

This part of the Mpumalanga Province is known for its long standing production of agricultural crops such as maize wheat, sorghum, dairy, potatoes and other vegetables. Cattle and sheep ranching also make a significant contribution to the local economy. Gold and silica mines also occur in the area.

#### **3.2 Within a cultural landscape**

The Eskom Project Area is located in the midst of a cultural landscape that is marked by heritage remains dating from the pre-historical into the historical (colonial) period. Stone Age sites, Iron Age sites and colonial remains therefore do occur in the Eastern Highveld (see Part 7 'Select Bibliography').

The archaeological and historical significance of this cultural landscape therefore must be described and explained in more detail before the results of the Phase I HIA study is discussed (see below, Part 5).



**Figure 1- The Eskom Project Area on the Eastern Highveld in the Mpumalanga Province of South Africa. The Project Area stretches from the Kendal and Matla power stations in the north to the Zeus substation in the south (below).**

**The Eskom Project Area is an undulating piece of land which is characterised by an outstretched grass veldt. This piece of land is dotted with farmstead complexes which are usually associated with Blue Gum avenues or with smaller plantations of these trees.**



**Figure 2- The Eskom Project Area near the Zeus Substation on the Eastern Highveld in the Mpumalanga Province (above).**

## **4 METHODOLOGY**

This Phase I HIA study was conducted by means of the following:

- Surveying the proposed Eskom Project Area with a vehicle and selected spots on foot.
- Briefly surveying literature relating to the pre-historical and historical context of the Eskom Project Area.
- Consulting maps of the proposed Eskom Project Area.
- Consulting archaeological (heritage) data bases.
- Consulting spokespersons regarding the possible presence of graves and graveyards in the project area.
- Synthesising all information obtained from the data bases, fieldwork, maps and literature survey.

### **4.1 Fieldwork**

The proposed Eskom Project Area was surveyed with a vehicle where accessible roads existed while selected, sensitive spots in the project area were surveyed on foot.

### **4.2 Databases, literature survey and maps**

Databases kept and maintained at institutions such as the Provincial Heritage Resources Agency (PHRA) and the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria were consulted to determine whether any heritage resources of significance has been identified during earlier heritage surveys in or near the Eskom Project Area.

The author is not unacquainted with the Eskom Project Area at large as he had done several heritage impact assessment studies near the proposed project area (see Part 8, 'Select Bibliography').

Literature relating to the pre-historical and the historical unfolding of the Eastern Highveld where the Eskom Project Area is located was reviewed (see Part 5, 'Contextualising the Eskom Project Area').

It is important to contextualise the pre-historical and historical background of the Eskom Project Area in order to comprehend the identity and meaning of heritage sites in and near the project area.

In addition, the Eskom Project Area was studied by means of maps on which it appears (2628 East Rand 1: 250 000).

#### **4.3 Assumptions and limitations**

It is possible that this Phase I HIA study may have missed heritage resources in the Eskom Project Area considering the size and extent of the project area.

If any heritage resources of significance is exposed during the Eskom Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

#### **4.4 Some remarks on terminology**

Terms that may be used in this report are briefly outlined in Box 2.



## Box 2. Terminologies that may be used in this report

The Heritage Impact Assessment (HIA) referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage Resources Act, 1999 (Act No 25 of 1999) (See Box 1).

Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

The term 'pre-historical' refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the Eskom Project Area, to the first appearance or use of 'modern' Western writing brought to the Eastern Highveld by the first Colonists who settled in this area during the 1830's.

The term 'relatively recent past' refers to the 20<sup>th</sup> century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, in the near future, qualify as heritage resources.

It is not always possible, based on observations alone, to distinguish clearly between archaeological remains and historical remains, or between historical remains and remains from the relatively recent past. Although certain criteria may help to make this distinction possible, these criteria are not always present, or, when they are present, they are not always clear enough to interpret with great accuracy. Criteria such as square floor plans (a historical feature) may serve as a guideline. However, circular and square floors may occur together on the same site.

The term 'sensitive remains' is sometimes used to distinguish graves and cemeteries as well as ideologically significant features such as holy mountains, initiation sites or other sacred places. Graves in particular are not necessarily heritage resources if they date from the recent past and do not have head stones that are older than sixty years. The distinction between 'formal' and 'informal' graves in most instances also refers to graveyards that were used by colonists and by indigenous people. This distinction may be important as different cultural groups may uphold different traditions and values with regard to their ancestors. These values have to be recognised and honoured whenever graveyards are exhumed and relocated.

The term 'Stone Age' refers to the prehistoric past, although Late Stone Age peoples lived in South Africa well into the historical period. The Stone Age is divided into an Earlier Stone Age (3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 200 years ago).

The term 'Iron Age' refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16<sup>th</sup> century and the 19<sup>th</sup> century and can therefore include the historical period.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the pre-historical, historical or the relatively recent past.

The term 'study area', or 'Eskom Project Area' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types of heritage resources in any given area.

Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavations of archaeological sites; the exhumation of bodies and the relocation of graveyards, etc. Phase II work may require the input of specialists and requires the co-operation and approval of SAHRA.

## **5 CONTEXTUALISING THE ESKOM PROJECT AREA**

The following brief overview of pre-historical, historical, cultural and economic evidence will help to contextualise the proposed Eskom Project Area.

### **5.1 Stone Age sites**

Stone Age sites are marked by stone artefacts that are found scattered on the surface of the earth or as parts of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (the period from 22 000 years ago to 200 years ago).

The Later Stone Age is also associated with rock paintings and engravings which were done by the San, Khoi Khoi and in more recent times by Iron Age farmers.

Heritage surveys up to now have recorded few Stone Age sites, rock paintings and engravings in the Eastern Highveld.

### **5.2 Iron Age remains**

The Iron Age is associated with the first agro-pastoralists who lived in semi-permanent villages and who practised metal working during the last two millennia. The Iron Age is usually divided into the Early Iron Age (covers the 1<sup>st</sup> millennium AD) and the Later Iron Age (covers the first 880 years of the 2<sup>nd</sup> millennium AD).

The Eastern Highveld has not been occupied by Early Iron Age communities but was occupied by Late Iron Age communities such as the Sotho, Swazi and

Ndebele who established settlement complexes that are associated with stone walls.

### **5.3 The historical period**

Towns closest to the Eskom Project Area include Ogies and Delmas in the north, Leandra in the central part and Evander and Secunda in the south. A brief historical background to this region is provided below.

Ogies serves as an important link in the running railway line running between Pretoria and Maputo which was built in 1896. It is also linked via Broodsniersplaas, 35km south of Middelburg to join the railway line between Ermelo and Piet Retief to Richards Bay. This railway line carries some of the longest and heaviest trains in the world. The town of Ogies developed around the railway station which was built on the farm Ogiesfontein in 1928.

Delmas was laid out in 1907 on the farm Witklip ('white stone') which was divided into 192 residential stands, 48 smallholdings of 4 ha each and a commonage of 138ha. The farm belonged to Frank Dumat who originated from France where he grandfather had a small farm. He named the town Delmas which is derived from 'mas' which means a small farm in a southern dialect of French. In 1909 the government added another 5 500 ha to Frank Dumat's original rural settlement.

The town of Leandra's name is derived from two townships, Leslie and Eendrag, which are incorporated in this mining village.

Evander, south of Kinross, was established in 1955 by the Union Corporation as a residential township for the employees of the Winkelkaak. Leslie and Bracken mines. The name Evander is a composite of Evelyn and Anderson, the names of the widow of the managing director of the company when prospecting began in the area.

Secunda developed around Sasol 1 and Sasol 2 in the 1970's. Sasol was born during the oil crisis of 1973 when OPEC virtually quadrupled the price of crude oil overnight. Construction started in 1976 and the first oil was delivered on 1 March 1980. Following the overthrow of the Shah of Iran in 1979, South Africa's major source of crude oil at the time, the government announced the construction of a second plant at Secunda to double output. Sasol 3 delivered its first oil from coal in May 1982. The total costs of the two plants came to R 5,8 billion, mostly financed by levies on motorists.

Sasol 2 and 3 use about 35 million tons of coal a year to produce mostly liquid fuels. The coal is produced by four mines collectively known as Secunda Colliers which is the world's largest underground mining complex and by a new open-cast mine at Syferfontein.

#### **5.4 A coal mining heritage**

Coal mining on the Eastern Highveld is now older than one century and has become the most important coal mining region in South Africa. Whilst millions of tons of high-grade coal are exported annually more than 80% of the country's electricity is generated on low-grade coal in Eskom's power stations such as Duvha, Matla and Arnot situated near coalmines on the Eastern Highveld.

The earliest use of coal (charcoal) in South Africa was during the Iron Age (300-1880AD) when metal workers used charcoal, iron and copper ores and fluxes (quartzite stone and bone) to smelt iron and copper in clay furnaces.

Colonists are said to have discovered coal in the French Hoek Valley near Stellenbosch in the Cape Province in 1699. The first reported discovery of coal in the interior of South Africa was in the mid-1830 when coal was mined in Kwa Zulu/Natal.

The first exploitation for coal was probably in Kwa Zulu/Natal as documentary evidence refers to a wagon load of coal brought to Pietermaritzburg to be sold in 1842. In 1860 the coal trade started in Dundee when a certain Pieter Smith charged ten shillings for a load of coal dug by the buyer from a coal outcrop in a stream. In 1864 a coal mine was opened in Molteno. The explorer, Thomas Baines mentioned that farmers worked coal deposits in the neighbourhood of Bethal (Transvaal) in 1868. Until the discovery of diamonds in 1867 and gold on the Witwatersrand in 1886, coal mining only satisfied a very small domestic demand.

With the discovery of gold in the Southern Transvaal and the development of the gold mining industry around Johannesburg came the exploitation of the Boksburg-Spring coal fields, which is now largely worked out. By 1899, at least four colliers were operating in the Middelburg-Witbank district, also supplying the gold mining industry. At this time coal mining also has started in Vereeniging. The Natal Collieries importance was boosted by the need to find an alternative for imported Welsh anthracite used by the Natal Government Railways.

By 1920 the output of all operating colliers in South Africa attained an annual figure of 9,5million tonnes. Total reserves were estimated to be 23 billion tonnes in Witbank-Springs, Natal and Vereeniging. Total reserves today are calculated to be 121 billion tonnes. The largest consumers of coal are Sasol, Iscor and Eskom.

## 5.5 A vernacular stone architectural heritage

A unique stone architectural heritage was established in the Eastern Highveld from the second half of the 19<sup>th</sup> century well into the early 20<sup>th</sup> century. During this time period stone was used to build farmsteads and dwellings, both in urban and in rural areas. Although a contemporary stone architecture also existed in the Karoo and in the Eastern Free State Province of South Africa a wider variety of stone types were used in the Eastern Highveld. These included sandstone, ferricrete ('ouklip'), dolerite ('blouklip'), granite, shale and slate.

The origins of a vernacular stone architecture in the Eastern Highveld may be ascribed to various reasons of which the ecological characteristics of the region may be the most important. Whilst this region is generally devoid of any natural trees which could be used as timber in the construction of farmsteads, outbuildings, cattle enclosures and other structures, the scarcity of fire wood also prevented the manufacture of baked clay bricks. Consequently stone served as the most important building material in the Eastern Highveld.

Late Iron Age communities who contributed to the Eastern Highveld's stone walled architecture were the Sotho, Pedi, Ndebele and Swazi. The tradition set by these indigenous groups may have influenced the first settlers from Natal and the Cape Colony to utilize the same resources that their predecessors did. Many farmers from Scottish, Irish, Dutch, German and Scandinavian descent settled and farmed in the Eastern Highveld. These colonials brought the knowledge of stone masonry from Europe which compensated for the lack of fire wood necessary to manufacture baked clay bricks.

## **6 THE PHASE I HERITAGE IMPACT ASSESSMENT**

### **6.1 Types and ranges of heritage resources**

The Phase I HIA study revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) for the Eskom Project Area, namely:

- Houses and structures older than sixty years with historical significance.
- Graveyards, some older than sixty years and therefore also with historical significance.

Three graveyards were geo-referenced and mapped in this report (Figure 3, Table 1). A number of the graveyards are discussed in more detail whilst others are merely mentioned and listed (Table 1). The significance of the graveyards is indicated and mitigation measures are outlined should they be affected by the Eskom Project.

Historical structures in close proximity of the proposed power line corridors were not geo-referenced. These structures are not directly threatened by the Eskom Project as Eskom does not demolish structures in order to make way for new power lines. However, the historical significance of these structures is indicated and mitigation measures are outlined should any historical structures be affected by the Eskom Project.

Remains from the more recent past have no significance and are not discussed in this report.

The Phase I HIA study is now briefly discussed and illustrated with photographs.

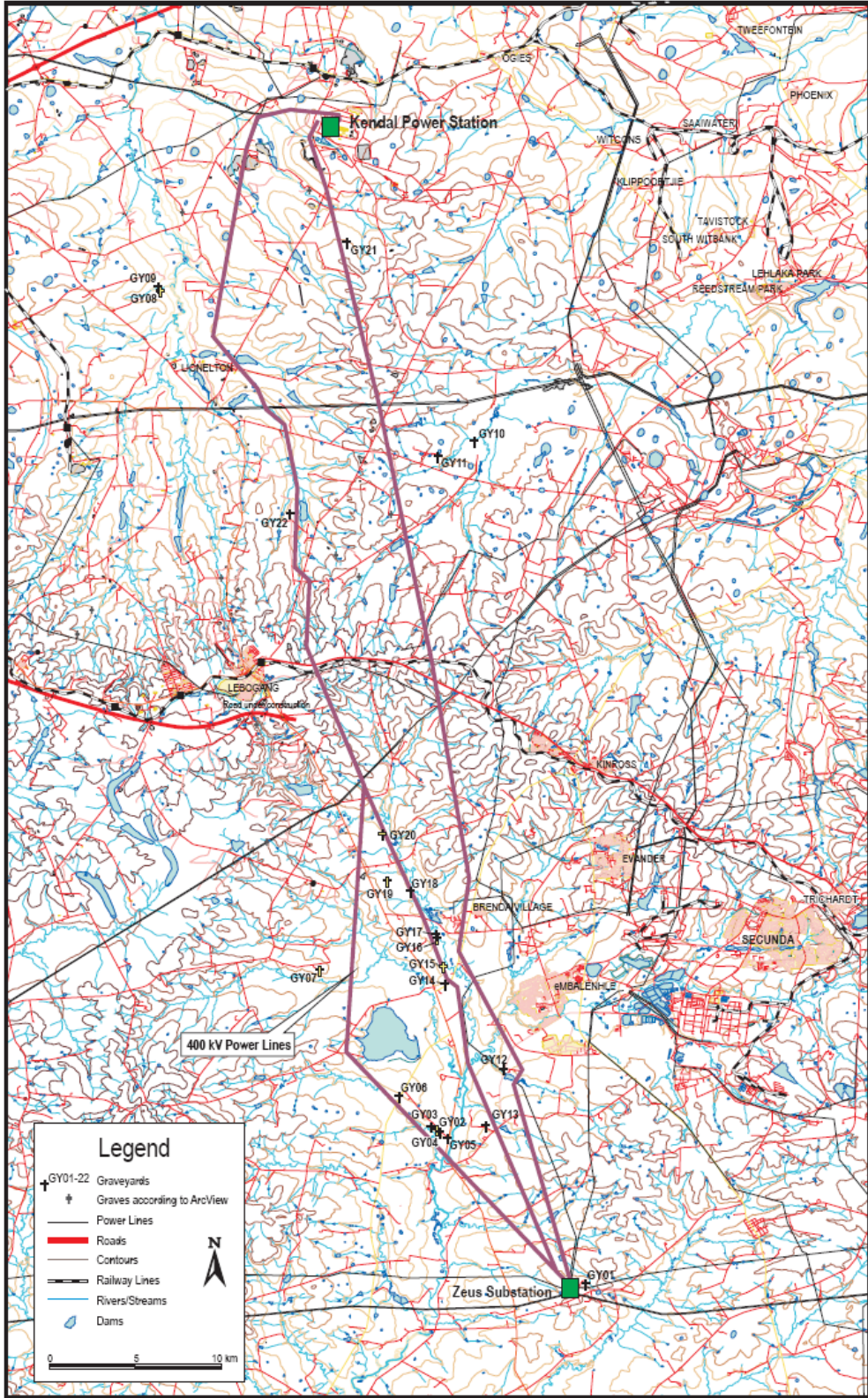


Figure 3- The Eskom Project Area on the Eastern Highveld in the Mpumalanga Province of South Africa (above).

The Eskom Project Area is characterised by heritage resources such as farmstead complexes, historical houses and graveyards. Only graveyards in and near the Eskom Project Area have been geo-referenced as those in close proximity of the proposed new power line may be affected by the Eskom Project.



## **6.2 Graveyards**

At least twenty-two graveyards were observed in and near the Eskom Project Area. These graveyards were geo-referenced (Table 1). A number of graveyards close to the Eskom Project Area are also pointed out by Arch View (Figure 3).

It is highly likely that more graveyards may exist but that they were not observed during this survey as a result of no-access to certain stretches of the proposed new power line corridors or that that graveyards may be obscure or inconspicuous as a result of negligence and abandonment.

### **6.2.1 Graveyard 01**

GY01 is a historical graveyard which is located in close proximity of the Zeus substation in the southern part of the Eskom Project Area.

This graveyard is demarcated with four sandstone corner posts. The graveyard holds five graves. Three of the graves are fitted with sandstone headstones while two of the graves are edged with cement strips. The fourth grave is fitted with a cement headstone.

Two of the headstones have partly decipherable inscriptions which read as follow:

- 'Ter gedachtenis aan Frederik Jacobus Botha Geb 25 Feb 1877 Ovl 28 Feb 1928 Gez 182 Vers 3'
- ... Liewe seun en broer Klasie Joubert'.



**Figure 4- GY01 is a historical graveyard on the eastern outskirts of the Zeus Substation. It holds the remains of at least five individuals and is marked by four sandstone corner posts (above).**

### **6.2.2 Graveyard 02**

GY02 is a historical graveyard in association with a farmstead complex consisting of at least three sandstone structures which comprise residences and a wagon shed.

This graveyard holds nine graves belonging to the Abraham family. Five of the graves are fitted with granite head stones and trimmings while four are edged with cement strips.

Inscriptions on two of the headstones read as follow:

- 'Ter nagedagtenis aan William George Eggberry Abraham Geb 22 Okt 1869 Oorl 21 Mei 1945 Ruwe stormen mogen woeden... Ges 58 V7'
- 'In liefdevolle herinnering aan my eggenote ons moeder Cornelia Jacoba Abraham Geb Scheepers 27-8-1941Oorl 8-8-1941 Lank kan die dood nie skei want in Christus is ons nie geskei nie'



**Figure 5- GY02 belongs to the Abraham family and holds the remains of at least nine members of this family (above).**

### 6.2.3 Graveyard 03

This severely vandalised graveyard is located in what seems to be a sand quarry, next to the farmstead complex of the Abraham family. It holds at least five graves within the confines of an elongated structure which was constructed and demarcated with dolerite stone walls. Another four graves which are covered with piles of stone occur outside the demarcated graveyard.

Two of the graves in the graveyard have been vandalised. It seems as if attempts were made to either rob the graves of possible valuable items or attempts were made to get hold of the human remains - perhaps to be used as 'medicine' by traditional healers.



**Figure 6- GY03 holds the remains of amongst others Daniel Pretorius (born 1821) whose grave is severely vandalised (above).**

The inscriptions on the majestic marble headstone of the main grave, which has been damaged extensively, read as follow:

- 'Pretorius Daniel Pieter Geb 28 Sep 1821 Oorl 8 Sep 1894 In lewen warme Afrikander voorstander zijner kerk vriend van reizigers en vreemdeling'

#### **6.2.4 Graveyard 04**

This graveyard is located next to a two track road. It holds the remains of at least eight individuals which are covered with piles of stone.



**Figure 7- GY04 is an informal graveyard near sand quarries with the remains of eight individuals (above).**

### 6.2.5 Graveyard 05

GY05 is located on the western shoulder of the R50. It contains the remains of at least forty-five individuals. Most of the graves are covered with piles of stone.

Two of the graves are fitted with cement headstones with the following inscriptions:

- 'Simon Sibeko Robele ka kgotso Ntata ohlokahetse kadi 31-12-1963'
- 'Simon Monareng'

### 6.2.6 Graveyard 06

This historical graveyard is located on the eastern shoulder of the R547.



**Figure 8- GY06 is a historical graveyard on the eastern shoulder of the R547 (above).**

### 6.2.7 Graveyard 07

Graveyard 07 on Rietkuil 531 is a historical graveyard which holds the remains of the Du Plooy and Booyesen families. Six graves can be identified. They are all fitted with marble (one), sandstone (three) and cement headstones (three).

These headstones bear the following inscriptions, namely:

- 'Hier rus ons geliefde eggenote en vader Frederik Carel Booyesen Geb 30 Mei 1885 Oorl 28 Junie 1944 Openb 14 V13 Salig is van nouaf die dode wat in die Here sterwe MCB'
- 'Hier rus Francois N Booyesen Geb 8-2-1930 Oorl 30-11-1939'
- 'Cornelle Johannes Du Plooy Geb 14 Junie 1927 Ovl 7 April 1929 Veilig in Jesus Armen Rus in Vrede'
- 'Petrus Nuclaas Johannes Du Plooy Geb 6 April 1922 Ovl 3 April 1928 Gez 181 Vers 4'
- 'Hier rus Frederik J Botha Geb 5-8-1871 Ovl 30-8-1938'

### 6.2.8 Graveyard 08

This large graveyard is located near the eastern border of Vanggatfontein 251 close to the edge of a maize field. It holds at least thirty- five graves of which a number is fitted with cement headstones. An inscription on one of the headstones reads as follows:

- 'Laphakulele libarar marombuka waiaia ogo maaka'(sic) 9-4-1967'

### 6.2.9 Graveyard 09

GY09 contains approximately twenty graves and is located near the eastern border of Vanggatfontein 251. Most of the graves are covered with heaps of

stone. A few cement head stones also occur. Two of these cement headstones bear the following inscription:

- 'Christina 1964-02-14 Nalala Ngorlyaka 1984-02-04 wabekwa (sic) 14-021989'
- 'Maria Msiza'

#### **6.2.10 Graveyard 10**

GY10 on Kortlaagte 67 is located next to a dirt road and contains not less than forty graves, the majority of which are covered with piles of stones. A few are fitted with granite head stones and granite edges. Some graves are edged with bricks or with cement and fitted with cement headstones.

Inscriptions on some of the graves read as follow:

- 'Ellen Mahlangu, 3-4-31, Waduba 12-6-65'
- 'Maria Mahlangu, Waduba 9-7-70'
- 'Lina Mahlangu, 1912, Waduba 5-6-77'
- 'Dina Kabini'
- 'Klara Mubowe, 1944'
- 'In loving memory of our grandfather Swartlaan Kabini, R.I.P'
- 'Manela Shoba, 26-8-61'
- 'Mamako Shoba, 12-74'
- 'Sithole'
- 'Timothy Cindy, Born 1911, Died 24-1-86'

#### **6.2.11 Graveyard 11**

This graveyard on Kortlaagte 67 contains the graves of the Venter family and is historical. At least four graves occur in this graveyard.



## 6.2.12 Graveyard 12

This graveyard is located near Eskom's existing power lines and holds as many as forty graves. Most of the graves are fitted with cement headstones and a few with granite headstones.

Inscriptions on a few of the headstones read as follow:

- 'Jonas Ramokhampe Oompie Mooketsi O hlahle ka 24-10-1937 A hlokahahla KA 16-01-1962'
- 'Andries Mfungeni 18-4-1963 20-12-1963'
- 'Alfred Mawela Mofokeng 1905 1975-09-28'



**Figure 9- GY12 is a historical graveyard located in close proximity of Eskom's existing power lines (above).**

### 6.2.13 Graveyard 13

GY13 is located on the western shoulder of a dirt road running to Kinross. This graveyard is demarcated with sandstone walls. It holds the remains of six to seven individuals. Two of the graves have been severely vandalised. It seems as if attempts were made to excavate the remains of the deceased in these two graves. Inscriptions on two of the graves with granite headstones read as follow:

- 'Jacomina Hendrina Bester Viljoen Geb 17April 1881 Oor 27 Jan 1951  
Nogtans het Hy ons krankheid op hom geneem en ons smart die het Hy gedra'
- 'Hier rus ons moeder Maggel Magrietha Viljoen Geb Labushagne Gebore de 8ste Aug 1846 Overl 17 de Aug 1926 Gez 182 Vers 1'



Figure 10- GY13 is a vandalised graveyard located on the shoulder of a dirt road running to Kinross (above).

#### **6.2.14 Graveyards 14-22**

Nine graveyards are located along the central and northern part of Eskom's proposed new power line corridor. Seven of these graveyards are located along the central part and two of the graveyards along the northern part of the Eskom power line corridor.

The graveyards include varying numbers of individuals. Some may hold a single visible grave but are nevertheless still referred to as graveyards. None of the graveyards can be described as large or containing more than a hundred individuals per graveyard.

Some of the graveyards are older than sixty years and therefore qualify as historical graveyards. Both formal and informal graveyards occur. Some of the informal graveyards are also associated with remains from the recent past.

One of the historical graveyards contains at least three graves with the following inscriptions on their headstones:

- 'JJ Overholster 1890-1945'
- 'Hier rus Josiea Jacobus van der Merwe Geb 17 Feb 1892 Oorl 22 Aug 1925 Ges 20 vers 3'
- 'Hier rus ons moeder Anna Magdalena Geb Junie 1859 Ovl 5 Julie 1939 Ges 17 vers 1'



**Figures 11 & 12- Two of at least nine graveyards located in the central and northern part of Eskom's proposed new power line corridor (above and below).**



## **6.2 The significance of the heritage resources**

It is possible that some of the graveyard may be impacted by the Eskom Project. Consequently, the significance of the graveyards is indicated while mitigation measures are outlined for those graveyards which may be affected by the proposed Eskom Project.

Historical structures in close proximity of the proposed power line corridors were not geo-referenced. These structures are not directly threatened by the Eskom Project as Eskom does not demolish structures in order to make way for new power lines. However, the historical significance of these structures are indicated while mitigation measures are outlined for historical structures whenever they may be affected by the Eskom Project.

### **6.2.1 Graveyards**

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

### **6.2.2 Historical structures**

Houses older than sixty years or structures which are approaching this age are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999).

The significance of each and every historical house, whenever these structures are to be affected by the Eskom Project, can further be determined according to criteria such as the following: the cultural-historical background of these structures; their scientific or architectural value; their use in the field of tourism, museums or education as well as their aesthetic appearance; their repeatability (scarcity/abundance), or their emotional (ideological) value.

### **6.3 Mitigating the heritage resources**

The following mitigation measures have to be followed whenever graveyards or historical structures may be affected by the Eskom Project.

#### **6.3.1 Graveyards**

Graveyards can be mitigated by following one of the following strategies, namely:

- Graveyards can be demarcated with brick walls or with fences and can be conserved *in situ* beneath power lines. Pylons should be erected on opposite ends of graves or graveyards. Consequently, power lines can be strung across and above the latter. Conserving graves and graveyards in power line corridors create the risk that they may be damaged, accidentally, and that Eskom may be held responsible for such damages. Controlled access must exist for any relatives or friends who wish to visit graves or graveyards in power line corridors.
- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation

and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

### **6.3.2 Historical houses**

Houses older than sixty years may not be affected (demolished, renovated, altered) by the Eskom Project *prior* to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA). The historical architect has to acquire a permit from the South African Heritage Resources Authority (SAHRA) *prior* to any of these structures been affected or altered as a result of the Eskom Project

## 7 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA study revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) for the Eskom Project Area, namely:

- Houses and structures older than sixty years with historical significance.
- Graveyards, some older than sixty years and therefore also with historical significance.

These graveyards were geo-referenced and mapped in this report (Figure 3, Table 1). A number of the graveyards are discussed in detail whilst others are merely mentioned and listed (Table 1). The significance of the graveyards is indicated and mitigation measures are outlined should they be affected by the Eskom Project.

Historical structures in close proximity of the proposed power line corridors were not geo-referenced. These structures are not directly threatened by the Eskom Project as Eskom does not demolish structures in order to make way for new power lines. However, the historical significance of these structures is indicated and mitigation measures are outlined should any historical structures be affected by the Eskom Project.

Remains from the more recent past have no significance and are not discussed in this report.

### **The significance of the heritage resources**

It is possible that some of the graveyard may be impacted by the Eskom Project. Consequently, the significance of the graveyards is indicated while mitigation measures are outlined for those graveyards which may be affected by the proposed Eskom Project.



## **Graveyards**

At least twenty-two graveyards were observed in and near the Eskom Project Area. These graveyards were geo-referenced (Table 1). A number of graveyards close to the Eskom Project Area are also pointed out by Arch View (Figure 3).

It is highly likely that more graveyards may exist but that they were not observed during this survey as a result of no-access to certain stretches of the proposed new power line corridors or that that graveyards may be obscure or inconspicuous as a result of negligence and abandonment.

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

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## **Mitigating the heritage resources**

The following mitigation measures have to be followed whenever graveyards or historical structures may be affected by the Eskom Project.

### **Graveyards**

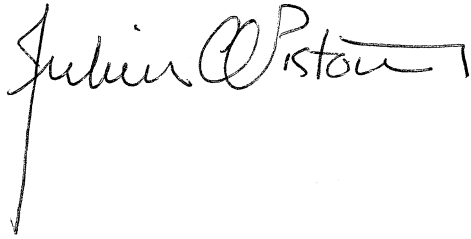
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- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

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Houses older than sixty years may not be affected (demolished, renovated, altered) by the Eskom Project *prior* to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA). The

historical architect has to acquire a permit from the South African Heritage Resources Authority (SAHRA) *prior* to any of these structures been affected or altered as a result of the Eskom Project

A handwritten signature in black ink, reading "Julius CC Pistorius". The signature is written in a cursive style with a long vertical line extending downwards from the end of the name.

**DR JULIUS CC PISTORIUS**  
**Archaeologist &**  
**Heritage Management Consultant**  
**Member ASAPA**

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<b>Heritage resources</b>	<b>Coordinates</b>	<b>Significance</b>
GY01 Near the Zeus substation	26° 41.532' 29° 05.799'	<b>HIGH</b>
GY02. Graveyard of the Abraham family.	26° 36.683' 29° 01.139'	<b>HIGH</b>
GY03. Vandalised historical graveyard.		<b>HIGH</b>
GY04. Eight graves next to a dirt road.	26° 36.756' 29° 01.225'	<b>HIGH</b>
GY05. Approximately 45 graves next to the R50	26° 36.955' 29° 01.468'	<b>HIGH</b>
GY06. Historical graveyard on shoulder of R547.	26° 35.689' 28° 59.972'	<b>HIGH</b>
GY07. The Du Plooy/ Booyesen family graveyard	26° 31.701' 28° 57.450'	<b>HIGH</b>
GY08. Approximately 30 graves on eastern border Vanggatfontein 251.	26° 10.422' 28° 52.472'	<b>HIGH</b>
GY09. Approximately 20 graves near the eastern border of Vanggatfontein 251.	26° 10.290' 28° 52.398'	<b>HIGH</b>
GY10. Located on Kortlaagte 67 next to a dirt road. It holds forty graves.	26° 15.594' 29° 01.160'	<b>HIGH</b>
GY11. This graveyard hold the remains of the Venter family	26° 15.120' 29° 02.313'	<b>HIGH</b>
GY12. Located next to Eskom's existing power line.	26° 34.807' 29° 03.217'	<b>HIGH</b>
GY13. Vandalised graveyard next to the Kinross dirt road.	26° 36.255' 29° 03.194	<b>HIGH</b>
GY14-22. Located along the central and northern part of Eskom's proposed new power line corridors.	26° 32.00.8' 29° 01.35.3 26° 28 0' 29° 04.47.7 26° 31.5.6' 29° 01.30.2 26° 30.59.6' 29° 01.07.4 26° 30.53.3' 29° 01.10.0 26° 29.21.1' 29° 00.17.8 26° 28.9' 28° 59.47.7 26° 27.39.3' 28° 59.38.4 26°08.9' 28° 58.22.5 26° 17.27.7' 28° 56.46.4	<b>HIGH</b> <b>HIGH</b> <b>HIGH</b> <b>HIGH</b> <b>HIGH</b> <b>HIGH</b> <b>HIGH</b> <b>HIGH</b> <b>HIGH</b> <b>HIGH</b>

**Table 1- Coordinates for graveyards in and near the Eskom Project Area (above).**