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**Archaeological Scoping Report For The Proposed Establishment Of The Umbani  
Coal-Fired Power Plant Near Kriel, Mpumalanga Province**

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Prepared For

**Savannah Environmental (Pty) Ltd**

By



**HERITAGE**

Contracts and Archaeological Consulting

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I, Jaco van der Walt as duly authorised representative of Heritage Contracts and Archaeological Consulting CC, hereby confirm my independence as a specialist and declare that neither I nor the Heritage Contracts and Archaeological Consulting CC have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Savannah Environmental was appointed as Environmental Assessment practitioner, other than fair remuneration for work performed on this project.



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## EXECUTIVE SUMMARY

**Site name and location:** The site of the proposed Umbani power plant is located approximately 5 km east of Kriel and 27 km north-west of Bethal, adjacent to the Dorstfontein East Coal Mine under the ownership of Total Coal.

**1: 50 000 Topographic Map:** 2629AB and 2629AD

**EIA Consultant:** Savannah Environmental (Pty) Ltd.

**Developer** ISS Global Mining

**Heritage Consultant:** Heritage Contracts and Archaeological Consulting CC (HCAC).

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**Date of Report: 10 February 2014**

### Findings of the Assessment:

This scoping study revealed that a range of various heritage sites can occur in the greater area. Previous work in the area indicated that graves, historical structures as well as stone walled sites can be expected in the greater study area.

It is recommended that an archaeological impact assessment should be conducted prior to the development to determine whether the development footprint will impact on heritage significant sites and to recommend suitable mitigation measures if this is the case.

A Palaeontological desktop study by Dr Barry Millsteed also indicated that the development can commence if the mitigation measures and recommendations in his report are adhered to. His report is included as Annexure A (Millsteed 2014).

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- » The technology described in any report
- » Recommendations delivered to the Client.

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**Annexure A – Paleontological Desktop Study**

**ABBREVIATIONS**

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMP: Environmental Management Plan
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

*\*Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

**GLOSSARY**

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (2 million to 300 000 years ago)

Middle Stone Age (300 000 to 30 000 years ago)

Late Stone Age (30 000 years ago until recent)

Historic (approximately AD 1840 to 1950)

Historic building (over 60 years old)

Lithics: Stone Age artefacts

## **1. INTRODUCTION**

Heritage Contracts and Archaeological Consulting CC was contracted by Savannah (Pty) Ltd to conduct a Heritage Scoping report for the proposed Umbani Power Ptation Development.

ISS Global Mining is proposing the construction of a coal-fired power plant on a site close to Kriel in the Mpumalanga Province. The power plant would have a capacity of 500MW. The site of the proposed power plant is located approximately 5 km east of Kriel and 27 km north-west of Bethal, adjacent to the Dorstfontein East Coal Mine under the ownership of Total Coal. The project is to be known as the Umbani Power Plant. Coal is proposed to be sourced from, but not limited to, the Dorstfontein East Coal-Mine located north-east of the proposed power station site

The heritage scoping report forms part of the EIA for the proposed project.

The aim of the scoping report is to conduct a desktop study to identify possible heritage resources within the project area and to assess their importance within a Local, Provincial and National context. The study furthermore aims to assess the impact of the proposed project on non - renewable heritage resources and to submit appropriate recommendations with regards to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage legislation.

The report outlines the approach and methodology utilized for the Scoping phase of the project. The report includes information collected from various sources and consultations. Possible impacts are identified and mitigation measures are proposed in the following report. It is important to note that no field work was conducted as part of the scoping phase but will be conducted as part of the Impact Assessment phase of the EIA.



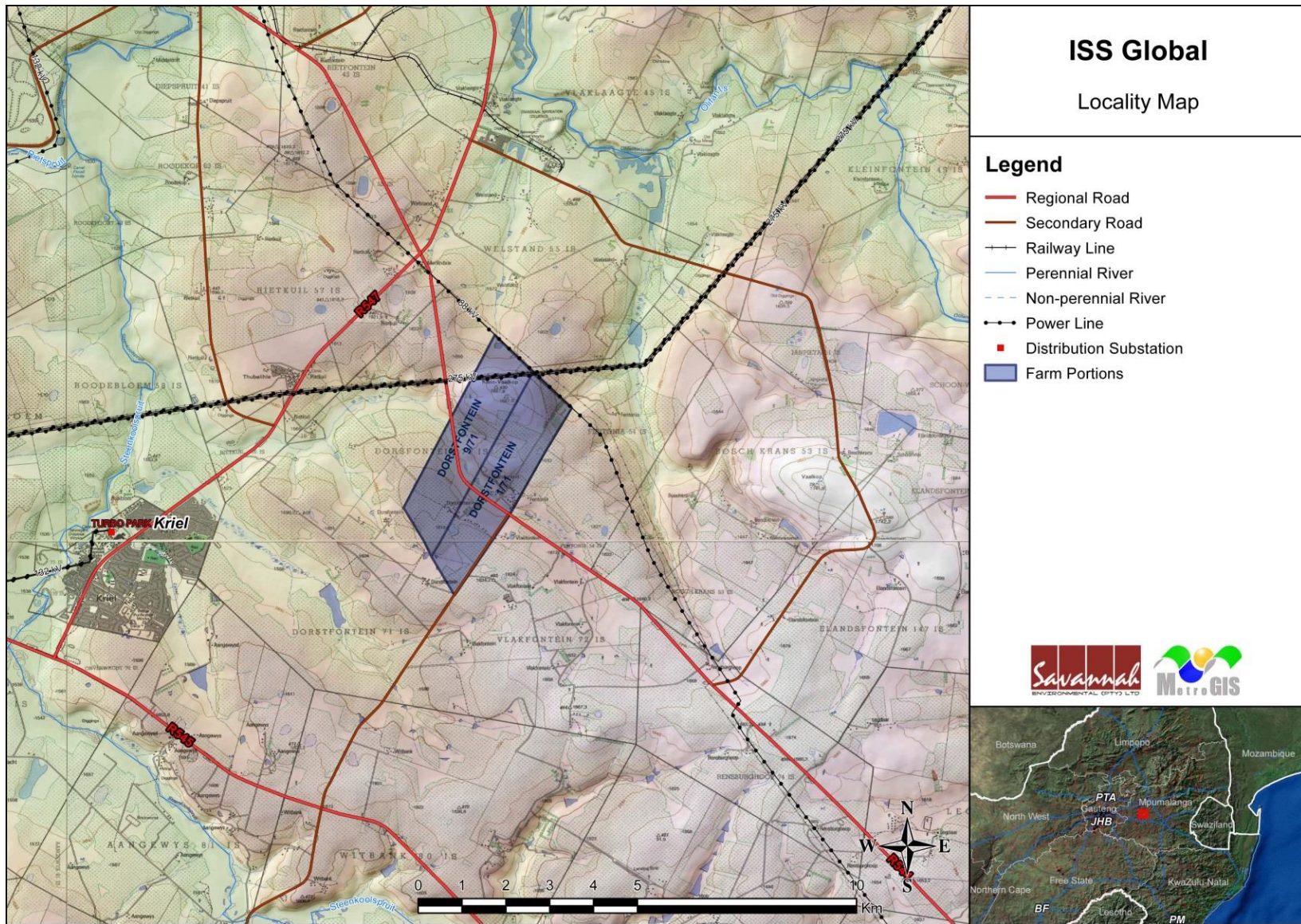


Figure 1: Location Map of the proposed Umbani Power plant.

## **1.2 Terms of Reference**

The main aim of this scoping report is to determine if any known heritage resources occur within the study area and to predict the occurrence of any possible heritage significant sites that might present a fatal flaw to the proposed project. The objectives of the scoping report were to:

- » Conduct a desktop study:
  - \* Review available literature, previous heritage studies and other relevant information sources to obtain a thorough understanding of the archaeological and cultural heritage conditions of the area;
  - \* Gather data and compile a background history of the area;
  - \* Identify known and recorded archaeological and cultural sites;
  - \* Determine whether the area is renowned for any cultural and heritage resources, such as Stone Age sites, Iron Age sites, informal graveyards or historical homesteads.
  
- » Report

The reporting of the scoping component is based on the results and findings of the desk-top study, wherein potential issues associated with the proposed project will be identified, and those issues requiring further investigation through the IA Phase highlighted. Reporting will aim to identify the anticipated impacts, as well as cumulative impacts, of the operational units of the proposed project activity on the identified heritage resources for all 3 development stages of the project, i.e. construction, operation and decommissioning. Reporting will also consider alternatives should any significant sites be impacted on by the proposed project. This is done to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage Legislation.

## **1.3 Nature of the development**

The proposed facility would have a generating capacity of approximately 500MW. The main infrastructure includes:

- » Access roads (access from existing mine or R544 to be considered).
- » Conveyor belts and coal handling areas.
- » Power plant production unit/s (boilers / furnaces, turbines, generator and associated equipment, control room).
- » Ash dumps.
- » Water infrastructure such as Raw-Water Storage Dam, purification works and reservoirs.
- » A substation.
- » Pipeline for supply of water to the facility.
- » Office and maintenance area/s.

It is expected that the generated power can be evacuated into the electricity grid via a new 400 kV transmission line to either Kriel or Matla power stations or the existing 400 kV power line traversing the site.

#### **1.4 The receiving environment**

The power plant is proposed to be located on Portions 1 and 9 of the Farm Dorstfontein 71 IS, adjacent to the existing Dorstfontein East Coal Mine owned by Total Coal.

The topography of the area is relatively flat with a hill in the northern portion of the study area known as Klein-Vaalkop. Some portions of the study area is under cultivation while other areas consist of open veld. Several structures occur in the study area.

The study area falls within the Mesic Highveld Grassland Bioregion as described by Mucina et al (2006) with the vegetation described as Eastern Highveld Grassland. Land use in the general area is characterized by extensive mining and agriculture.

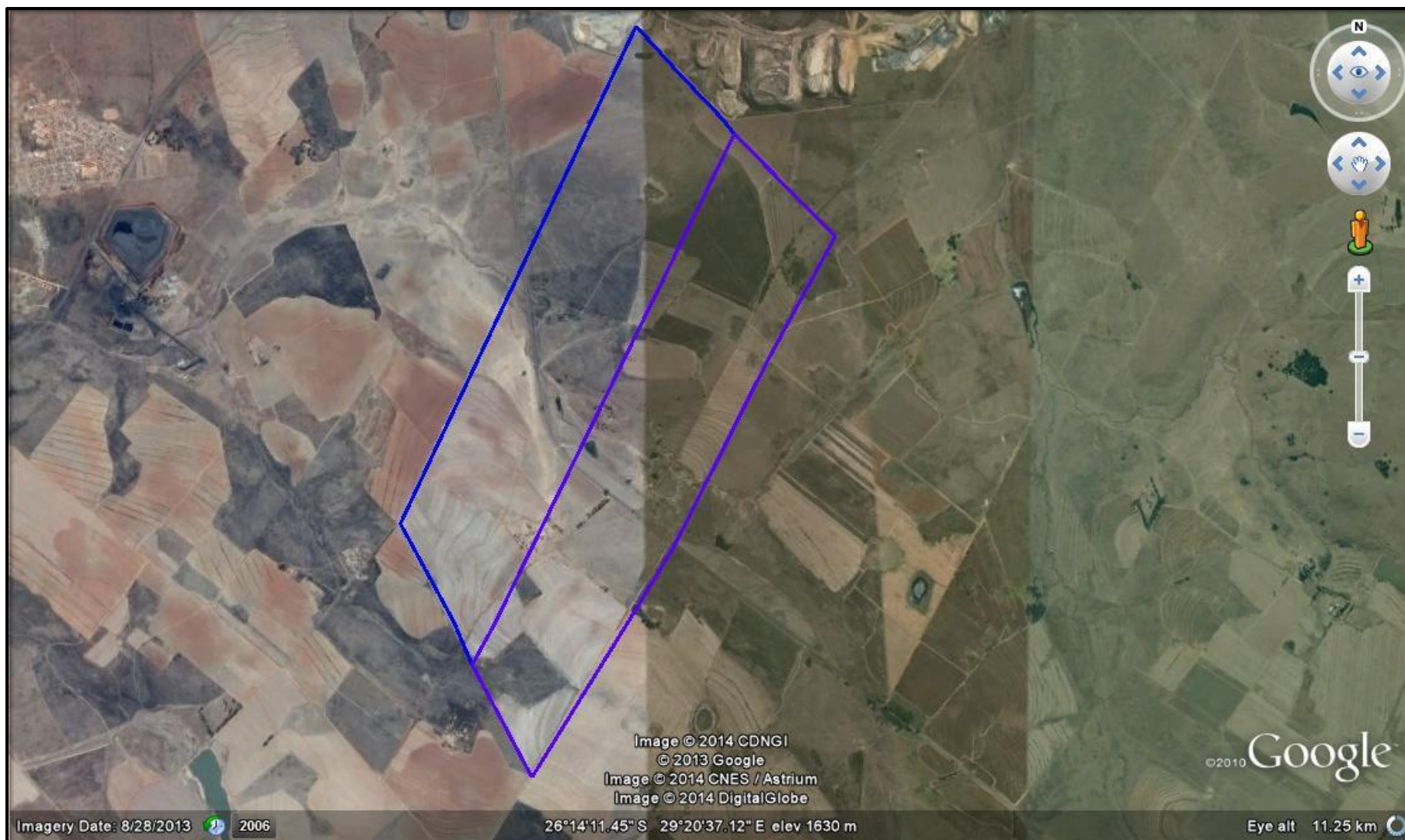


Figure 2: Google image of the study area.

## **2. APPROACH AND METHODOLOGY**

The assessment is to be undertaken in two phases, a desktop study as part of the Scoping phase and an Archaeological Impact Assessment as part of the Environmental Impact Assessment phase. This report concerns the scoping phase. The aim of the scoping phase is to cover archaeological and cultural heritage data available to compile a background history of the study area. In order to identify possible heritage issues or fatal flaws that should be avoided during development.

This was accomplished by means of the following phases (the results are represented in section 4 of this report):

### **2.1 Literature search**

Utilising data from published articles on the archaeology and history of the area. The aim of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves of the area.

### **2.2 Information collection**

The SAHRA report mapping project (Version 1.0) and SAHRIS was consulted to further collect data from CRM practitioners who undertook work in the area to provide the most comprehensive account of the history of the area where possible.

### **2.3 Public consultation**

A full public consultation process is facilitated by Savannah Environmental.

### **2.4 Google Earth and mapping survey**

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological sites might be located.

### **2.5 Genealogical Society of South Africa**

The database of the genealogical society was consulted to collect data on any known graves in the area.

### 3. LEGISLATION

For this project the National Heritage Resources Act, 1999 (Act No. 25 of 1999) is of importance and the following sites and features are protected:

- 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. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The national estate that includes the following:

- 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 features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Archaeological and palaeontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

Section 34 (1) of the act deals with structures which is older than 60 years. Section 35(4) of this act deals with archaeology, palaeontology and meteorites. Section 36(3) of the National Heritage Resources Act, deals with human remains older than 60 years. Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

### 3.1 Heritage Site Significance and Mitigation Measures

The presence and distribution of heritage resources define a Heritage Landscape. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. National and Provincial Monuments are recognised for conservation purposes. The following interrelated criteria were used to establish site significance:

- » The unique nature of a site;
- » The integrity of the archaeological/cultural heritage deposit;
- » The wider historic, archaeological and geographic context of the site;
- » The location of the site in relation to other similar sites or features;
- » The depth of the archaeological deposit (when it can be determined or is known);
- » The preservation condition of the site;
- » Potential to answer present research questions.

The criteria above will be used to place identified sites with in SAHRA's (2006) system of grading of places and objects which form part of the national estate. This system is approved by ASAPA for the SADC region. The recommendations for each site should be read in conjunction with section 10 of this report.

<b>FIELD RATING</b>	<b>GRADE</b>	<b>SIGNIFICANCE</b>	<b>RECOMMENDED MITIGATION</b>
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C	-	Low significance	Destruction

(GP.C)			
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## 4. REGIONAL OVERVIEW

### 4.1 General Information

#### 4.1.1. Literature search

No reference could be found relating to known heritage sites for the study area.

#### 4.1.2. Information collection

Previous heritage studies were conducted in the immediate vicinity of the study area (SAHRA report mapping project V1.0 and SAHRIS). Studies consulted for this scoping study include Van Vollenhoven (2009, 2011, 2012), van der Walt (2013) as well as van Schalkwyk 1997. These studies recorded graves and historical structures older than 60 years. Pelser et al (2007) also recorded stone wall foundations as well as numerous shallow burials.

#### 4.1 3. Public consultation

A full public participation process should be facilitated by Savannah environmental as per the EIA process.

#### 4.1.4. Google Earth and mapping survey

Google Earth and 1:50 000 maps of the area was utilised to identify possible places where archaeological sites might be located.

#### 4.1.5. Genealogical Society of South Africa

No grave sites are indicated within the study area.

### 4.2. Palaeontology

The palaeontology of the area has been assessed at a desktop level by Dr Barry Millstead. He concluded and recommended the following:

"The project area is extensively underlain by Permian sedimentary rocks of the Vryheid Formation, but a large portion of the northern half of the project area is dominated by outcrops of Palaeoproterozoic igneous rocks of the Rooiberg Group and the Lebowa Granite Suite. The probability of a negative impact on the fossil heritage of the area can be quantified in the following manner. The probability of a negative impact on the palaeontological heritage of the Vryheid Formation is moderate due to the generally scarce and erratic distribution of fossils within the unit; but both plant macrofossils and trace fossils tend to occur in prolific numbers where they do occur. Any negative impact upon the fossil assemblages contained within this geological unit is characterised as potentially scientifically and culturally significant. It is pertinent to note that the area of any potential negative impact caused by the project is characterised as local in extent. Similarly, the zone of permanent disruption is vertically restricted to the maximum depth of any excavations associated with the proposed constructions. The rocks of the Selons River Formation (Rooiberg Group) and the Lebowa Granite Suite are considered to be unfossiliferous. Thus, the proposed project poses no probability of any negative impact upon the palaeontological heritage of these two units. The project has been assessed as being socially beneficial, herein, as it would provide energy to a stressed South African power grid. A series of recommendations are outlined herein that, if implemented, would minimise the possibility of any negative impact on the palaeontological heritage of the project area. A potential positive outcome of these mitigation protocols could be that fossil materials become available for scientific study that would otherwise have been hidden within or beneath the



regolith. Should such new palaeontological material be located as a result of this site investigation this could prove to have a positive effect on the understanding of the fossil record of South Africa and positively affect the palaeontological heritage of the country. In summary, this desktop study has not identified any palaeontological reason to prejudice the progression of this project, subject to adequate mitigation programs being put in place.” (Millstead 2014)

## **4.2 Archaeological and Historical Information Available on the Study Area**

The following report will endeavour to give an account of the history of the greater area of the proposed development and also a brief overview of the history of the district in which it is located. The report has been divided into several sections that will focus on the following aspects:

- General history of human settlement in the area
- The history of black and white interaction in the farm area
- A history of specific land ownership and development of the farm, where this could be traced

### ***4.2.1. Historiography And Methodology***

It was necessary to use a range of sources in order to give an accurate account of the history of the area in which the farms are located. Sources included secondary source material, maps, online sources and archival documents. This study is by no means all-inclusive, and there are doubtlessly still sources to be found on the history of the properties and areas researched in this study. Owing to the constraints in time and resources, this study should be viewed as an introduction to the history of the Witbank area and the specific farms under investigation.

### ***4.4.2. Maps Of The Area Under Investigation***

Since the mid 1800's up until the present, South Africa had been subdivided into various different districts (Geschiedenisatlas van Suid-Afrika 1999: 17, 20-27).

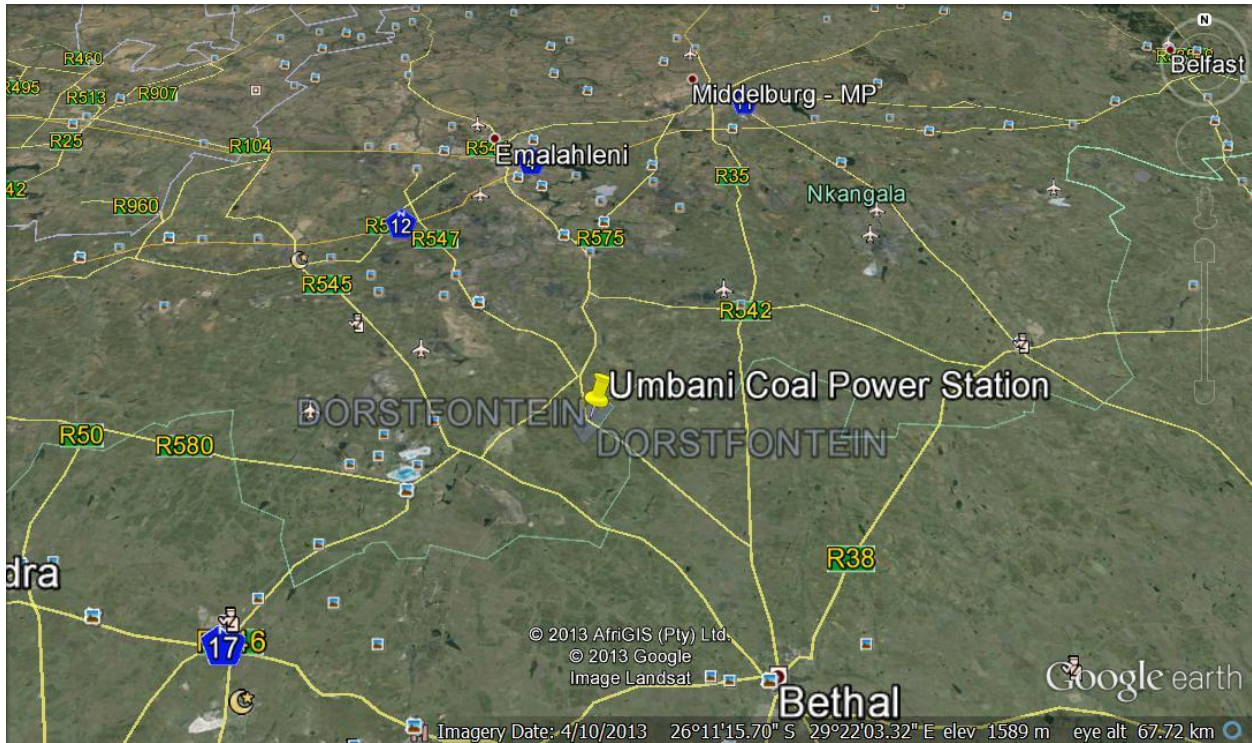


Figure 3 The study area in relation to Emalahleni (Witbank) and Bethal.

#### **4.2.3. A Brief History Of Human Settlement And Black And White Interaction In The Farm Area**

When writing about the Mpumalanga Province, it is perhaps best to briefly glance back to prehistoric times, when coals formed in vast swamps from rotting forests between 200 and 300 million years ago. Massive seams of vast coal fields have been discovered and extracted in the southern areas in the province. The areas surrounding the towns of Witbank, Middelburg, Bethal, Hendrina, Ermelo and Carolina had long provided South Africa with an abundant source of cheap energy. This discovery has also had unfortunate effects on these areas, since the toxic by-products of burning coal in such quantities had severely polluted the ground and atmosphere in this area. (*Mpumalanga* 2007: 36-37)

J. S. Bergh's historical atlas of the four northern provinces of South Africa is a very useful source for the writing of local and regional histories. According to this source no signs of major Stone Age or Iron Age terrains are present in the vicinity of the farm area. (*Geskiedenisatlas van Suid-Afrika* 1999: 4-5, 7). The closest known Stone Age occurrence is that of rock art close to the Olifants River to the south of Witbank.

Iron Age sites have been identified to the south of the area, around Bethal (*Geskiedenisatlas van Suid-Afrika* 1999: 6-7). These all are dated to the Late Iron Age. It is also known that the early trade routes did not run through this area (*Geskiedenisatlas van Suid-Afrika* 1999: 9).

No major black tribes seem to have settled very close to the area where the study area is located today by the start of the nineteenth century, but the Phuthing Tribe was prominent in the area to the north thereof. (*Geskiedenisatlas van Suid-Afrika* 1999: 10)

In a few decades, the sociographic nature of the then Transvaal province would change forever. The Difaqane (Sotho), or Mfekane ("the crushing" in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820's until the late 1830's. (Geskiiedenisatlas van Suid-Afrika 1999: 109-115) It came about in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka's Zulus to attack other tribes. (Geskiiedenisatlas van Suid-Afrika 1999: 14; 116-119) Mzilikazi and his raiders had moved from the Northern Nguni area to the area north of the Vaal River by 1821. It has been recorded that the Ndebeles first attacked the Phuthing tribe, which in turn migrated to the south of the Vaal River and joined groups of Southern Sotho speakers. The Phuthing and Southern Sotho tribes moved westward and northward and started raiding Tswana communities in the surrounding area. The Phuthing were commanded first by Chief Tshane, and later Ratsebe. As the Phuthing under Ratsebe moved eastwards along the Vaal River, they collided with Mzilikazi's Ndebele once more. The Phuthing and other raiding groups were finally taken captive in 1823 by Mzilikazi's men. (Geskiiedenisatlas van Suid-Afrika 1999: 110-111) It is unlikely that these events would have had a great influence on the area where the farms under investigation are located today, but it is still important to understand the social dynamics of the larger area.

During the time of the Difaqane, a northwards migration of white settlers from the Cape was also taking place. Some travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa – some as early as in the 1720's. One such an adventurer was Robert Scoon, who formed part of a group of Scottish travellers and traders who had travelled the northern provinces of South Africa in the late 1820s and early 1830s. Scoon had gone on two long expeditions in the late 1820s and once again ventured eastward and northward of Pretoria in 1836. During the latter journey, he passed by the area where Witbank is located today. (Geskiiedenisatlas van Suid-Afrika 1999: 13, 116-121)

By the late 1820's, a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek.

The first Voortrekker groups of Hans van Rensburg and Louis Tregardt also passed close to this area (Geskiiedenisatlas van Suid-Afrika 199: 13-14). The first white farmers only settled here during the late 1850's.

This migration resulted in a massive increase in the extent of that proportion of modern South Africa dominated by people of European descent. (Ross 2002: 39) As can be expected, the movement of whites into the northern provinces would have a significant impact on the black people who populated the land. By 1860, the population of whites in the central Transvaal was already very dense and the administrative machinery of their leaders was firmly in place. Many of the policies that would later be entrenched as legislation during the period of apartheid had already been developed. (Geskiiedenisatlas van Suid-Afrika 1999: 170)

Much can be said about the systematic oppression of black people in South Africa. In 1904 about a half of the black population in the Transvaal was living on private land, owned by whites or companies. According to the Squatters' Law of 1895, no more than five families of "natives" could live on any farm or divided portion of a farm, without special permission of the Government in the Transvaal. (Massie 1905: 97)

Black and white relations were however at times also interdependent in nature. After the Great Trek, when white farmers had settled at various areas in the northern provinces,

wealthier farmers were often willing to lodge needy white families on their property in exchange for odd jobs and commando service. This bywoner often arrived with a family and a few cows. He would till the soil and pay a minimal rent to the farmer from the crops he grew. The farmer did not consider him a laborer, but mostly kept black workers for hard labour on the farm. After the Anglo-Boer War, many families were left destitute. Post war years of severe droughts and locust plagues did not ameliorate this state of affairs. All of these factors resulted in what became known as the 'poor white problem'. On the advent of commercial farming in South Africa, white landowners soon found bywoners to be a financial burden, and many were evicted from farms. In many cases, wealthier landlords found it far more profitable to rent their land to blacks than to bywoners. This enabled them to create reservoirs of black labour (for which mine recruiting agencies were prepared to pay handsome commissions), while it was also possible to draw more rent from their black tenants. This practice was outlawed by the 1913 Natives Land Act, which forbade more than five black families from living on white farms as peasant squatters. (Readers Digest 1992: 329-332)

The discovery of diamonds and gold in the northern provinces had very important consequences for South Africa. After the discovery of these resources, the British, who at the time had colonized the Cape and Natal, had intentions of expanding their territory into the northern Boer republics. This eventually led to the Anglo-Boer War, which took place between 1899 and 1902 in South Africa, and which was one of the most turbulent times in South Africa's history. Even before the outbreak of war in October 1899 British politicians, including Sir Alfred Milner and Mr. Chamberlain, had declared that should Britain's differences with the Z.A.R. result in violence, it would mean the end of republican independence. This decision was not immediately publicized, and as a consequence republican leaders based their assessment of British intentions on the more moderate public utterances of British leaders. Consequently, in March 1900, they asked Lord Salisbury to agree to peace on the basis of the status quo ante bellum. Salisbury's reply was, however, a clear statement of British war aims. (Du Preez 1977)

During the British march into the Transvaal between February and September 1900, several troops passed by the area where Witbank is situated today. The battalions of Lieutenant Generals J. French, R. Pole-Carew and F. Roberts all travelled close by the Witbank area and through Middelburg. A railway line ran along this route at the time. (Geschiedenisatlas van Suid-Afrika 1999: 51)

During the Anglo-Boer War, two railway stations were located in the vicinity of the Witbank area, and close to each a black concentration camp had been established. At Middelburg, about 20 kilometres to the east of Witbank, one white and one black concentration camp was also set up. During the Anglo-Boer War the highveld areas saw much action consisting of various skirmishes between Boer and Brit. It however is not possible to indicate how close these came to the farm Dorstfontein (Geschiedenisatlas van Suid-Afrika 1999: 54).

An Anglo-Boer war battle took place on the farm Donkerhoek. The battle lasted between 11 and 12 June 1900. Other skirmishes also took place here during this war (Geschiedenisatlas van Suid-Afrika 1999: 52-53). Blockhouses were also erected in the vicinity by the British (Van Vollenhoven & Van den Bos 1997: 42-46). One may therefore expect to find farm buildings and objects as well as artifacts related to the Anglo-Boer War during construction activities (Van Vollenhoven 2013)

Van Vollenhoven recorded 2 sites on the farm Dorstfontein, an old homestead with little historical value and a cemetery with high social value (Van Vollenhoven 2009).

## 5. PROBABILITY OF OCCURRENCE OF SITES

Based on the above information, it is possible to determine the probability of finding archaeological and cultural heritage sites within the study area to a certain degree. For the purposes of this section of the report the following terms are used – low, medium and high probability. Low indicates that no known occurrences of sites have been found previously in the general study area, medium probability indicates some known occurrences in the general study area are documented and can therefore be expected in the study area and a high probability indicates that occurrences have been documented close to or in the study area and that the environment of the study area has a high degree of probability having sites.

» Palaeontological landscape

Fossil remains. *Medium probability.*

» Archaeological And Cultural Heritage Landscape

NOTE: *Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface.*

*Archaeological* remains dating to the following periods can be expected within the study area:

» Stone Age finds

ESA: *Low-Medium Probability*  
MSA: *Low-Medium Probability*  
LSA: *Low-Medium Probability*  
LSA –Herder: *Low Probability*

» Iron Age finds

EIA: *Low-Medium Probability*  
MIA: *Low Probability*  
LIA: *Medium- High Probability*

» Historical finds

Historical period: *Low-Medium Probability*  
Historical dumps: *Low-Medium Probability*  
Structural remains: *Low-Medium Probability*  
Cultural Landscape: *low probability*

» Living Heritage

For example rainmaking sites: *Low Probability*

» Burial/Cemeteries

Burials over 100 years: *Low-Medium Probability*

Burials younger than 60 years: *Medium Probability*

Subsurface excavations including ground levelling, landscaping, and foundation preparation can expose any number of these.

## **6. ASSUMPTIONS AND LIMITATIONS**

The study area was not subjected to a field survey as this will be done in the EIA phase. It is assumed that information obtained for the wider area is applicable to the study area.

## **7. FINDINGS**

The heritage scoping study revealed that the following heritage sites, features and objects that can be expected within the study area.

### **7.1. Palaeontological**

Any construction or servitude operations for this site must be done taking the recommendations made by Dr Millstead in Annexure A into account to ensure that it does not impact on the fossil record of South Africa.

### **7.2. Archaeology**

#### **7.2.1 Archaeological finds**

There is a low - medium likelihood of finding MSA sites scattered over the study area similar to finds made to the north (Huffman 1999).

Around Klein-Vaalkop in the north of the study area some ephemeral stone wall foundations might be found dating to the Later Iron Age. Some stone wall foundations were recorded by Pelsler (2007) at the Kriel Colliery with numerous shallow burials.

#### **7.2.2 Nature of Impact**

The construction phase of the project could directly impact on surface and subsurface archaeological sites.

#### **7.2.3 Extent of impact**

The project could have a low to medium impact on a local scale.

### **7.3. Historical period**

#### **7.3.1 Historical finds: I**

Historical finds include middens, structural remains and cultural landscape. Several homesteads/structures are visible on the 1:50 000 maps of the area as well as on google earth e.g (S 26 14 39.11 E 29 19 45.90, S 26 14 25.43 E 29 20 30.50, S 26 14 17.91 E 29 20 24.08). Without a field survey it is not possible to determine the age of the buildings. Historical sites were identified by Van Vollenhoven (2009) on Dorsfontein.

#### **7.3.2 Nature of Impact**

The construction of the project can directly impact on both the visual context and sense of place of historical sites.

#### **7.3.3 Extent of impact**

The construction phase of the project could have a low – medium impact on a local scale.

## **7.4. Burials and Cemeteries**

### **7.4.1 Burials and Cemeteries**

Graves and informal cemeteries can be expected anywhere on the landscape and the location of any graves will have to be confirmed during a field visit, Van Vollenhoven (2009, 2011 and 2012) confirmed the presence of graves in the greater study area.

### **7.4.2 Nature of Impact**

The construction and operation of the proposed project could directly impact on marked and unmarked graves.

### **7.4.3 Extent of impact**

The project could have a low to medium impact on a local scale.

## **8. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES**

Based on the current information obtained for the area at a desktop level it is anticipated that any archaeological sites that occur within the proposed development area will have a Generally Protected B (GP.B) field rating and all sites should be mitigatable and no red flags are identified. Graves are of high social significance and can be expected anywhere in the landscape.

## 9. CONCLUSIONS AND RECOMMENDATIONS

This scoping study revealed that a range of heritage sites occur in the larger region and similar sites can be expected within the study area. Every site is relevant to the Heritage Landscape, but it is anticipated that no site in the study area could have conservation value. The following conclusions are applicable to the following sites:

### » Archaeological sites

All sites could be mitigated either in the form of conservation of the sites with in the development or by a Phase 2 study where the sites will be recorded and sampled before the client can apply for a destruction permit for these sites prior to development.

### » Historical finds and Cultural landscape

Several structures occur within the study area and could possibly be older than 60 years and protected by heritage legislation. This assumption will however have to be verified in the field.

### » Burials and cemeteries

Formal and informal cemeteries as well as pre-colonial graves occur widely across Southern Africa. It is generally recommended that these sites are preserved with in a development. These sites can how ever be relocated if conservation is not possible, but this option must be seen as a last resort and is not advisable. The presence of any grave sites must be confirmed during the field survey and the public consultation process.

### » General

It is recommended that as part of the public consultation process the presence of graves, archaeological and historical sites should be determined.

## 10. PLAN OF STUDY

This scoping study highlighted the fact that Iron Age settlements, historic homesteads and graves can occur in the study area. Therefor in order to comply with the National Heritage Resources Act (Act 25 of 1999) a Phase 1 Archaeological Impact Assessment must be undertaken. During this study sites of archaeological, historical or places of cultural interest must be located, identified, recorded, photographed and described. During this study the levels of significance of recorded heritage resources must be determined and mitigation proposed should any significant sites be impacted upon, ensuring that all the requirements of SAHRA are met.

Dr Barry Millsteed completed a desktop paleontological assessment of the area and did not record any reasons why the development cannot continue if the recommendations in his report are adhered to. His letter is included as Annexure A. It is incumbent upon the developer to ensure that these recommendations are implemented before construction starts.



**11. LIST OF PREPARERS**

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**12. STATEMENT OF COMPETENCY**

The author of the report is a member of the Association of Southern African Professional Archaeologists and is also accredited in the following fields of the Cultural Resource Management (CRM) Section, member number 159: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. Jaco is also an accredited CRM Archaeologist with SAHRA and AMAFA.

Jaco has been involved in research and contract work in South Africa, Botswana, Mozambique, Zimbabwe, Tanzania and the DRC and conducted well over 300 AIAs since he started his career in CRM in 2000. This involved several mining operations, Eskom transmission and distribution projects and infrastructure developments. The results of several of these projects were presented at international and local conferences.

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