

**REVISED SPECIALIST REPORT  
PHASE 1 ARCHAEOLOGICAL / HERITAGE IMPACT ASSESSMENT FOR  
PROPOSED REVISED ROUTE ALIGNMENT: 132kV POWER LINES FROM  
DOORNPOORT (EMALAHLENI) - ROCKDALE (MIDDELBURG)**

**MPUMALANGA PROVINCE**

**REPORT COMPILED FOR  
WANDIMA ENVIRONMENTAL SERVICES cc  
MANDLA MBUYANE**

**P.O. Box 1072,  
NELSPRUIT, 1200**

**Tel: 013 - 7525452 / Fax: 013 – 7526877 / e-mail: [mandla@wandima.co.za](mailto:mandla@wandima.co.za)**

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**ADANSONIA HERITAGE CONSULTANTS  
ASSOCIATION OF SOUTHERN AFRICAN PROFESSIONAL  
ARCHAEOLOGISTS  
C. VAN WYK ROWE**

**E-MAIL: [christinevwr@gmail.com](mailto:christinevwr@gmail.com)  
P.O. BOX 75, PILGRIM'S REST, 1290**

## **EXECUTIVE SUMMARY**

A Phase 1 Heritage Impact Assessment (HIA) regarding archaeological and other cultural heritage resources was conducted on the footprint for the proposed 132kV power lines from Doornpoort (Emalahleni) to Rockdale (Middelburg), Mpumalanga Province. ESKOM has changed the proposed route alignment slightly, and this report addresses the revised route.

The study area is situated on topographical maps 1:50 000, 2529 CD, MIDDELBURG, which fall within the Mpumalanga Province, and is situated on the following farms: Municipal land, Zeekoewater, Doornpoort, Rhenosterfontein, Rietfontein, Vaalbank and Uitkyk, under the jurisdiction of the Nkangala district municipality and Emalahleni & Steve Tswete local municipalities.

The National Heritage Resources Act, no 25 (1999)(NHRA), protects all heritage resources, which are classified as national estate. The NHRA stipulates that any person who intends to undertake a development such as a power line, is subjected to the provisions of the Act.

The study area is situated in the scarcely populated rural area between Emalahleni and Middelburg, a distance of approximately 23km. The study area was and still is extensively exploited for agricultural purposes, maize and arigrostis farming, game and cattle grazing, as well as plantation areas. The field survey, literature studies and personal communication with farmers, community members and specialists in the field, revealed that this area is very poor in heritage sites.

A few burial places, ruins and historic farm related foundations, have been encountered during the investigation. One heritage feature H1 might be affected on route Option 1 (preferred option), unless the correct distance is kept. As there are existing lines, it is highly recommended that ESKOM upgrade the existing power lines in this section, in order to avoid having an impact on the heritage feature. No heritage features were encountered on the site for the proposed B MTS substation, as it is entirely situated in highly disturbed cultivated land.

A burial site is situated to the south (approximately 100m) of the proposed route options 1 (preferred option) and 2. Care should be taken to stay the correct distance away from this site, otherwise mitigation measures will have to be implemented.

The 1 km section from the existing Middelburg substation to a new Steve Tswete substation, is entirely disturbed, and there are no archaeological or heritage features in this area. At least 6 power lines run parallel to each other in this section, and it is highly recommended that one of the lines be upgraded. If this is not feasible, a new line may be established.

It is recommended, based on the findings of this report, that the Client use the proposed route Option 1 (purple route in the first section), which continues after the Rockdale substation as Option 3 (purple route, in second section). One heritage feature should be avoided (H1) by taking care of the correct distance. The rest of this line, to the point where it joins an existing line to the Rockdale A substation in Middelburg, poses no problem whatsoever, for the proposed development.

## CONTENTS

EXECUTIVE SUMMARY	2
A. BACKGROUND INFORMATION TO THE PROJECT	5
• Terms of Reference	8
• Legal requirements	8
B. BACKGROUND TO ARCHAEOLOGY AND HISTORY OF THE STUDY AREA	11
• Literature review, museum databases & previous relevant impact assessments	11
C. DESCRIPTION OF AREA TO BE AFFECTED BY DEVELOPMENT	14
D. LOCALITY	14
• Description of methodology	15
• GPS Co-ordinates of the proposed power line routes	16
E. DESCRIPTION OF IDENTIFIED SITES	18
• Doornpoort – Rockdale B MTS	
• Rockdale B MTS – connect with existing Rockdale A	
• Middelburg – new Steve Tswete substation	
F. DISCUSSION ON THE FOOTPRINT OF THE PROPOSED DEVELOPMENT	23
• Summarised identification & cultural significance assessment of affected heritage resources: General issues of site and context	24
• Summarised recommended impact management interventions	28
G. STATEMENT OF SIGNIFICANCE & EVALUATION OF HERITAGE RESOURCES IN THE STUDY AREA	30
• Evaluation methods	30
• NHRA	30
• Graves	31
• Field rating	32
H. RECOMMENDATION	32
I. CONCLUSION	33
J. SOURCES	35
APPENDIX 1: ESKOM proposed lines: Doornpoort – Rockdale & Rockdale MTS – Steve Tshwete	37
APPENDIX 2: Topographical Map: Doornpoort – Rockdale	38
APPENDIX 3: Google Earth image of entire route	39
APPENDIX 4: Google Earth image: Revised route, Section 1	40
APPENDIX 5: Google Earth image: Revised route, Section 2	41
APPENDIX 6: Google Earth image: Proposed Rockdale B MTS substation	42
APPENDIX 7: Google Earth image: Middelburg (Steve Tshwete) substation	43
APPENDIX 8: NJ Van Warmelo, 1935 Map: Bantu Tribes of South Africa	44

APPENDIX 9: Photographs of the study area	45
APPENDIX 10: Standardized set of conventions used to assess the impact of projects on individual heritage features	60

## **PHASE 1 ARCHAEOLOGICAL / HERITAGE IMPACT ASSESSMENT FOR PROPOSED REVISED ROUTE ALIGNMENT: 132kV POWER LINES FROM DOORNPOORT (EMALAHLENI) - ROCKDALE (MIDDELBURG)**

### **A. BACKGROUND INFORMATION TO THE PROJECT**

The Emalahleni-Middelburg (Witbank-Middelburg) power line network is experiencing network constraints in terms of overload under normal and emergency conditions. For that reason ESKOM is proposing the construction of a 132/11kV line from Doornpoort substation to cater for the load growth in the Bethal, Naauwpoort and Middelburg areas. This proposed project will provide flexibility and improve the reliability of the network.

Adansonia Heritage Consultants has completed a *Phase 1 Archaeological / HIA for the proposed 132kV power lines from Doornpoort (Emalahleni) to Rockdale (Middelburg)* in April 2011. ESKOM has proposed a slight change to the route alignment. However, all the farms are still the same. Adansonia Heritage Consultants was asked to revise the existing report, and were appointed by Wandima Environmental Services cc in conjunction with ESKOM. The proposed construction includes:

- 16 km of 132kV power line from Doornpoort substation to Rockdale B MTS: Section 1 (Option 1 = preferred option, purple); (Option 2 = pink); (Options 3 = green);
- 7 km 132 kV power line from Rockdale B MTS to connect a line from Rockdale A: Section 2, (Option 1 = pink); (Option 2 = green); (Option 3 = purple, preferred option);
- 1 km 88 kV from Middelburg substation to a new Steve Tshwete substation, Mpumalanga province.

A literature study, relevant to the study area was done, to determine the most feasible of the proposed routes (see **Appendix 1: ESKOM proposed lines: Doornpoort – Rockdale & Rockdale MTS – Steve Tshwete** & **Appendix 2: Topographical Map: Doornpoort – Rockdale**).

The aims of this report will therefore be to source all relevant information on archaeological and heritage resources in the study area, and to advise the client on sensitive heritage areas and where it is viable for the development to take place in terms

of the specifications as set out in the National Heritage Resources Act no., 25 of 1999 (NHRA). Recommendations for maximum conservation measures for any heritage resource will also be made. The study area is indicated in **Appendix 1: ESKOM proposed lines: Doornpoort – Rockdale & Rockdale MTS – Steve Tshwete.**

- This study forms part of an EIA, Consultant: Wandima Environmental Services, P.O. Box 1072, Nelspruit, 1200, Tel: 013 7525452 / Fax: 013 – 7526877 / e-mail: mandla@wandima.co.za.
- Type of development: 16 km of 132kV Power line from Doornpoort substation to Rockdale B MTS; 7 km 132kV power line from Rockdale B MTS to connect a line from Rockdale A; and 1 km 88 kV from Middleburg substation to a new Steve Tshwete substation, Mpumalanga Province. A section in the study area.
- Location of Province, Magisterial district / Local Authority and Property (farms):  
The area falls within the Mpumalanga Province under the jurisdiction of the Nkangala district municipality, Emalahleni local municipality and Steve Tswete local municipality. It includes the farms below.
- List of Land owners for proposed Doornpoort -Rockdale power line route:  
provided by ESKOM / Ptersa Environmental Management Consultants:

<b>Property detail</b>	<b>Contact detail - owner</b>	<b>Contact number</b>
Middelburg Town & Townlands 287JS	No contact details	No contact details
Portion 3 VAALBANK 289JS	Jasper Visser	013 - 2439500
BHP Billiton Portion 2 UITKYK 290JS Portion 34 GOEDEHOOP 315JS	Muna Forbang	013 – 2493317 / 013 – 6531197 Muna.forbang@bhpbilliton.com
Ingwe Surface Holdings Ltd / Tavistock Colliers Portion 2,4 & 14 of RIETFONTEIN 314JS Portion 8	No contact details	No contact details

HARTEBEEFSFONTEIN 339 JS & remaining extent of portion 12 DOORNPOORT 312JS		
Portion 87 ZEEKOEWATER 311JS	No contact details	No contact details
Portion 88 ZEEKOEWATER 311JS	Manual Viera	013 – 6501024 013 - 6501024
Portion 89 ZEEKOEWATER 311JS	Thalack Holdings	No contact details
Portion 90 ZEEKOEWATER 311JS	Mr. N. van Niewenhuizen	0824662748 0824602748
Portion 91 ZEEKOEWATER 311JS	Mr. P Fulton	0848350431
Portion 121 ZEEKOEWATER 311JS	Emalahleni local municipality	No contact details
Portion 91 ZEEKOEWATER 311JS	Casparus Esterhuizen	013 – 6970971 0836606916 Esterhuizen.cas@gmail.com
Portion 161 ZEEKOEWATER 311JS	Savannah Dancer Investments 73 Pty	No contact details
Portion 165 & 167 ZEEKOEWATER 311JS	Malan Broers boerdery: Johan Malan	0825584018 0828211914
Portion 169 ZEEKOEWATER 311JS	Susarah Kuit	No contact details
Portion 221 ZEEKOEWATER 311JS	Mr Dave Lucas ESKOM Holdings Ltd	011 – 8004514 Dave.lucas@eskom.co.za
Portion 124 DOORNPOORT 312JS	Doornview South Properties Pty Ltd	No contact details
Portion 1 & 3 RHENOSTERFONTEIN	Nelfin Familie Trust	No contact details

318JS		
Portion 6 RHENOSTERFONTEIN 318JS	FGA Trust	No contact details
RIETFONTEIN 314JS no 3	Neels van Niekerk	0828492902
RIETFONTEIN 314JS no 3	C.J. van Dyk	0832291946
RIETFONTEIN 314JS	Dolf Rossouw / Francois Rossouw	0828064785 0828027554

- **Terms of reference:** As specified by section 38 (3) of the NHRA, the following information is provided in this report.
  - a) The identification and mapping of heritage resources where applicable;
  - b) Assessment of significance of the resources;
  - c) Assessment of the impact of the power line development;
  - d) Evaluation of the impact of the power line development;
  - e) Consultation with community members to be affected by the proposed development.
  - f) Alternatives given to affected heritage resources by the power line development;
  - g) Plans for measures of mitigation.

- **Legal requirements:**

The legal context of the report is grounded in the National Heritage Resources Act no. 25, 1999, as well as the National Environmental Management Act (1998) (NEMA):

- **Section 38 of the NHRA**

This report constitutes a heritage impact assessment investigation linked to the environmental impact assessment required for the power line development. The proposed development is a listed activity in terms of Section 38 (1) of the NHRA. Section 38 (2) of the NHRA requires the submission of a HIA report for authorisation purposes to the responsible heritage resources agency, (SAHRA).

Heritage conservation and management in South Africa is governed by the NHRA and falls under the overall jurisdiction of the South African Heritage Resources Agency



(SAHRA) and its provincial offices and counterparts.

Section 38 of the NHRA requires a Heritage Impact Assessment (HIA) to be conducted by an independent heritage management consultant, for the following development categories:

- Construction of a road, wall, **power line**, pipeline, canal or other linear form of development or barrier exceeding 300m in length;

In addition, the new EIA regulation promulgated in terms of NEMA, determine that any environmental report will include cultural (heritage) issues.

The end purpose of this report is to alert Wandima Environmental Services, the client (ESKOM), and interested and affected parties about existing heritage resources that may be affected by the proposed development, and to recommend mitigation measures aimed at reducing the risks of any adverse impacts on these heritage resources. Such measures could include the recording of any heritage buildings or structures older than 60 years prior to demolition, in terms of section 34 of the NHRA and also other sections of this act dealing with archaeological sites, buildings and graves.

The NHRA section 2 (xvi) states that a “heritage resource” means any place or object of cultural significance, and in section 2 (vi) that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Apart from a heritage report assisting a client to make informed development decisions, it also serves to provide the relevant heritage resources authority with the necessary data to perform their statutory duties under the NHRA. After evaluating the heritage scoping report, the heritage resources authority will decide on the status of the resource, whether the development may proceed as proposed or whether mitigation is acceptable, and whether the heritage resource require formal protection such as a Grade I, II or III resource, with relevant parties having to comply with all aspects pertaining to such grading.

- **Section 35 of the NHRA**

Section 35 (4) of the NHRA stipulates that no person may, without a permit issued by SAHRA, destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object. This section may apply to any significant archaeological sites that may be discovered. In the case of such chance finds, the heritage practitioner will assist in investigating the extent and significance of the finds and consult with an archaeologist about further action. This may entail removal of material after documenting the find or mapping of larger sections before destruction.

This section does not apply since no archaeological material was found which might be impacted by the proposed development.

- **Section 36 of the NHRA**

Section 36 of the NHRA stipulates that no person may, without a permit issued by SAHRA, destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority. This section may apply as a burial site was found in the vicinity of the proposed route.

- **Section 34 of the NHRA**

Section 34 of the NHRA stipulates that no person may alter, damage, destroy, relocate etc, any building or structure older than 60 years, without a permit issued by SAHRA or a provincial heritage resources authority. This section does apply since a structure older than 60 years was identified in the study area.

- **Section 37 of the NHRA**

This section deals with public monuments and memorials but does not apply in this report.

- **NEMA**

The regulations in terms of Chapter 5 of the National Environmental Management Act, (107/1998), provide for an assessment of development impacts on the cultural (heritage) and social environment and for specialist studies in this regard.

## B. BACKGROUND TO ARCHAEOLOGY AND HISTORY OF THE STUDY AREA

- **Literature review, museum databases & previous relevant impact assessments**

In order to place the area between Emalahleni and Middelburg in archaeological context, primary and secondary sources were consulted. Ethnographical and linguistic studies by early researchers such as Ziervogel, Theal and Van Warmelo shed light on the cultural groups living in the area since ca 1600. Historic and academic sources by Küsel and Bergh, were consulted, as well as historic sources by Makhura and Webb.

There are no museums in the Emalahleni and Middelburg towns which could be consulted, and no historical information was available at the municipalities or information centres. The author had to rely on the assistance of current farmers and their families who lived in the area since the 1920's, as well as local people documenting history in the area. Very little contemporary research has been done on prehistoric African settlements in the study area, and according to Bergh, there are no recorded sites that date from the Stone Age, (including Rock paintings or engravings), Early or Later Iron Age.<sup>1</sup> *The topographical map 2529CD Middelburg, (Appendix 2)*, revealed that this area was highly disturbed with cultivated land, plantations and mining. This map also shows isolated ruins and one grave in the study area (See **Appendix 2: Topographical Map: Doornpoort - Rockdale**). One of the land owners, Mr. Dolf Rossouw indicated that his family farmed extensively on Rietfontein and Doornpoort since the 1920's.

The area between Emalahleni (Witbank) and Middelburg was sparsely populated in the 19<sup>th</sup> century, and although Bergh,<sup>2</sup> indicates that only the *Ndzundza Ndebele* group is situated to the north of Middelburg, ethnographical and linguistic studies by early researchers such as D. Ziervogel and N.J. Van Warmelo, revealed that the study area (i.e between Witbank and Middelburg), was inhabited by the *Ndzundza abaga* (Ndebele), *Nhlapho abakwa*, and various tribes of the *baSotho* (baKôpa, baPedi). (See **Appendix 8: NJ Van Warmelo, 1935 Map: Bantu Tribes of South Africa**). Van Warmelo based his 1935 survey of *Bantu Tribes of South Africa* on the amount of taxpayers living in the area. One dot on the map represented 10 taxpayers, which were mainly male.

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<sup>1</sup> J. Bergh, *Geskiedenis Atlas, die vier Noordelike provinsies*, pp. 4-7.

<sup>2</sup> *Ibid.*, p.10.

According to Elizabeth Congwane (Ndebele) and Ester Miggels (a coloured woman) who have been living on the farm Rietfontein 314JS for the past 50 years, the Mahlangus (Ndebele), lived in this area. One of the graves, **G1 (Appendix 5)**, south of the N4 was marked as “John Mahlangu”. Most of the graves are unknown but another is marked “Jan Maguanzela Ncongwane”.

### **amaNdebele**

According to Van Warmelo, the *amaNdebele* are the earliest known offshoot of the *Nguni* group. The Ndebele is divided into two groups, the Southern and the Northern, and they are separated from one another. A certain legendary chief *Msi* or *Musi* heads a list of about twenty-five successive chiefs who lived just north of where Pretoria now stands. His two sons were *Manala* and *Ndzundza*, and form the most important tribes of the Southern group. The *abagaNdzundza* moved eastwards and settled near Roos Senekal, north of Middelburg, and it is said that some of *Manala*'s followers, the *abagaManala*, also settled in the Witbank district. The tribes slowly broke up after the days of the Republic.<sup>3</sup>

### **Central Sotho**

The tribes in this group were at one time largely under the rule of the baPedi, who's last independent king was *Sekhukhune*, who's stronghold was also to the north of Middelburg (Steelpoort area) although his domain was extremely large.<sup>4</sup> Great numbers of *baSotho* who belong to the above group, who still speak *sePedi* but which became detribalized, live in the districts of Middelburg, Lydenburg, Witbank and Springs. They mingle freely with other groups such as the Zulu, Swazi and Tonga.

- **History of Witbank (Emalahleni)**

Emalahleni, formerly known as Witbank is situated on the highveld of Mpumalanga, South Africa. The name Witbank is Afrikaans for “White Ridge” and is named after a white sandstone outcrop where wagon transport drivers rested. Witbank Colliery was established by Sameul Stanford and the Neumann group as Zeraatsfontein (Leraatsfontein) and the name “Witbank” was derived from a white quartz outcrop, which according to Thomas Bains, “loomed like a wagon tent in the distance”. The town was

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<sup>3</sup> Van Warmelo, *Preliminary survey of the Bantu Tribes of South Africa*, p. 87.

<sup>4</sup> *Ibid.*, p 108.

laid out by Witbank Colliery in 1903 and Sameul Stanford erected the first wood and iron building consisting of a shop and hotel. In March 2006 the town was renamed Emalahleni, the Nguni word for “the place of coal”. Emalahleni is in the coal mining area with 22 collieries in an area no more that 40km in any direction. There are also a number of power stations as well as a steel mill, Highveld Steel and Vanadium Corporation nearby, which all require coal.

Witbank was established in 1890 and early attempts to exploit the coal deposits failed until the railway from Pretoria reached the area in 1894. It was proclaimed a town in 1903 and became a municipality in 1914. Witbank is today the energy centre of South Africa and the focal point of Africa’s largest coalfields, power stations and steel manufacturing.<sup>5</sup>

Originally the early residents of Witbank area were mainly stock farmers as there was no market for agricultural produce. Wool was produced and sold in Durban. Crops were restricted to the needs of the local families. Early travelers in the area, such as Thomas Bains, mentioned in 1872 that coal was used by local residents as fuel. Evidence has also been found that at first the Black man, and later the Voortrekkers, mined coal from the outcrops and riverbeds, and transported it by ox-wagon to the Witwatersrand.<sup>6</sup>

- **History of Middelburg**

Middelburg was established as Nasareth (meaning root from dry land), in 1864 by the Voortrekkers on the banks of the Klein Olifants river. The name was changed in 1872 to Middelburg to mark its situation halfway between the Transvaal capital of Pretoria and the gold mining town of Lydenburg. A Dutch Reformed Church was built in 1890. The British built a large concentration camp in Middelburg during the Second Boer War. North of Middelburg, the township of Mhluzi developed simultaneously (Botshabelo) and became part of greater Middelburg in 1994.<sup>7</sup>

Middelburg is a large farming and industrial town in Mpumalanga. It is known as the “Stainless Steel Capital” of Africa.

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<sup>5</sup> <[http://www.mpumalanga-happenings.co.za/witbank\\_homepage.htm](http://www.mpumalanga-happenings.co.za/witbank_homepage.htm)>

<sup>6</sup> <<http://www.shtetlinks.jewishgen.org/witbank/WHistory.htm>>

<sup>7</sup> Middelburg Information, <<http://www.infomiddelburg.co.za/history.html>>

### C. DESCRIPTION OF AREA TO BE AFFECTED BY DEVELOPMENT

The proposed project will involve the following:

- 16 km of 132kV power line from Doornpoort substation to Rockdale B MTS: Section 1 (Option 1 = preferred option, purple); (Option 2 = pink); (Options 3 = green);
- 7 km 132 kV power line from Rockdale B MTS to connect a line from Rockdale A: Section 2, (Option 1 = pink); (Option 2 = green); (Option 3 = purple, preferred option);
- 1 km 88 kV from Middelburg substation to a new Steve Tshwete substation, Mpumalanga province.

Information supplied by Wandima Environmental Services & ESKOM (See list of GPS co-ordinates below).

### D. LOCALITY

The site of origin for the power line is the existing Doornpoort substation located at Emalahleni (Witbank) approximately 2 km from the Highveld Mall in a northerly direction. The proposed line will run on an existing servitude following the existing line from Doornpoort, running along the N4 and crossing it before the N4 weigh bridge. The line continues directly to the south of the N4, turns in a south-eastern direction and continues along (west) of the R575, to a point where it crosses the R575 to where a proposed substation is to be situated. From the proposed substation the line will run towards Middelburg where it will join a line from Rockdale A, as indicated by ESKOM and information supplied by Wandima Environmental Services (see **Appendix 1**). The area is within the Mpumalanga Province.

The proposed area for development is situated on eight (8) farms (see **section A**, for list of landowners). These are mainly used for agricultural purposes.

The general study area consists of the Highveld grassland of the Witbank-Middelburg area in central Mpumalanga. The landscape is characterized by sloping plains and the main topographic feature is the Klein Olifants River valley in the western section, including the Witbank Dam and the Doornpoort Dam. The natural vegetation consists of sour grassland with large areas having been transformed for maize production.

Seepage wetlands and pans (depressions, seasonally or permanently filled with water) are common in the landscape. The most serious transformation of the natural environment consists of numerous open cast and underground coal mines and several large power stations that are visible on all horizons. Due to these land uses only fragments of the natural habitats remain in the study area.<sup>8</sup>

The general geology of the area consists of quartzite ridges of the Witwatersrand Supergroup and the Pretoria Group as well as the Selons River Formation of the Rooiberg Group. These geological groups support soils of various qualities depending on the land type.

The study area is situated nationally within the Grassland Biome, and is classified as Banken Veld (Alcocks (1953) and as Moist Sandy Highveld Grassland. This vegetation unit is found around water bodies with stagnant or slow flowing water such as lakes, pans, periodically flooded vleis and the edges of slow flowing rivers.

- **Description of methodology:**

The ESKOM map, (**Appendix 1**), *Topographical map (Appendix 2)*, as well as *Google Earth images (Appendix 3 – 7)*, indicate the study area and were intensively studied to assess the current and historic disturbed areas and infrastructure. In order to reach a comprehensive conclusion regarding the cultural heritage resources in the study area, the following methods were used:

- The desktop study consists mainly of archival sources studied on distribution patterns of early African groups who settled in the area since the 17<sup>th</sup> century, and which have been observed in past and present ethnographical research and studies.
- Literary sources, books and government publications, which were available on the subject, have been consulted, in order to establish relevant information.
- Some specialists currently working in the field of anthropology and archaeology have also been consulted on the subject.

-Literary sources: A number of books and government publications about prehistory and history of the area were consulted, and revealed sparse information;

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<sup>8</sup> D. van der Walt & C van der Walt, *Specialist Biodiversity report, Vegetation & Terrestrial Fauna*, p. 9.

-Archaeological database of the National Cultural History Museum were consulted.

-Personal communication with land owners and community members were conducted (see list in **section A & J**).

- The fieldwork and survey was conducted on foot and with vehicles, with two/three people over 4 days of the proposed power line route, approximately 24< km plus additional sections for options 2 & 3.
- Inhabitants in specific areas and land owners were consulted throughout the survey, and pointed out important features;
- Most of the area is under maize or arigrostis production and large areas are used for cattle grazing. The only natural habitat left, was a strip on the ridge (Doornpoort 312JS), on both sides of the Klein Olifants River, which is used for game or cattle farming.
- The sour grassland terrain was even and accessible.
- The relevant data was located with a GPS instrument (Garmin Etrex) datum WGS 84, and plotted. Co-ordinates were within 4-6 meters of identified sites.
- Evaluation of the resources which might be impacted upon by the footprint, was done within the framework provided by the National Heritage Resources Act, no. 25 (1999);
- Personal communication with relevant stakeholders on the specific study area, were held, such as with land owners and Principal Investigator, Dr. U Küsel, who worked in the area and confirmed that he is not aware and has not encountered any archaeological sites in this study area.

• **GPS: Co-ordinates of the proposed power line route**

<b>COORDINATES – OPTION 1 (preferred route – purple)</b>		
<b>NO</b>	<b>LONG</b>	<b>LAT</b>
A Doornpoort substation	29° 16' 20.226" E	25° 52' 15.866" S
B	29° 16' 45.36" E	25° 52' 28.66" S
C	29° 16' 41.18" E	25° 52' 41.95" S
D	29° 16' 55.73" E	25° 52' 49.82" S
E crossing N4	29° 20' 35.90" E	25° 52' 33.55" S
F south of N4	29° 20' 41.81" E	25° 52' 38.20" S
G (purple & pink route)	29° 22' 22.75" E	25° 51' 44.53" S
H	29° 22' 52.25" E	25° 51' 55.23" S
I	29° 23' 37.10" E	25° 51' 46.90" S
J	29° 23' 40.28" E	25° 51' 49.76" S



K	29° 23' 35.99" E	25° 52' 32.50" S
L	29° 23' 57.61" E	25° 52' 32.38" S
<b>COORDINATES – OPTION 2 (pink)</b>		
<b>NO</b>	<b>LONG</b>	<b>LAT</b>
Points A, B, C & D are the same as Option 1, above		
E	29° 17' 01.34" E	25° 52' 56.26" S
F	29° 17' 25.63" E	25° 52' 46.93" S
G	29° 18' 02.81" E	25° 52' 47.27" S
H	29° 17' 35.39" E	25° 52' 46.21" S
I	29° 18' 48.95" E	25° 52' 58.71" S
<b>COORDINATES – OPTION 3 (green)</b>		
<b>NO</b>	<b>LONG</b>	<b>LAT</b>
Points A,B,C,D (purple & pink), and E & F (pink) are same as above		
G south of N4	29° 17' 37.2" E	25° 53' 19.08" S
H	29° 17' 43.57" E	25° 53' 19.11" S
I	29° 17' 48.36" E	25° 53' 23.79" S
F (purple) joins other options south of N4	29° 20' 41.81" E	25° 52' 38.20" S

<b>COORDINATES - SUBSTATION</b>		
<b>NO</b>	<b>LONG</b>	<b>LAT</b>
A	29° 23' 58.204 E	25° 52' 46.796" S
B	29° 24' 35.700" E	25° 52' 45.294" S
C	29° 24' 35.907" E	25° 52' 11.597" S
D	29° 23' 57.909" E	25° 52' 12.515" S

**Section North-East of proposed Rockdale B MTS substation**

<b>COORDINATES – OPTION 3 (preferred route – purple)&amp; Option 1 pink route)</b>		
M	29° 24' 36.09" E	25° 52' 30.57" S
N	29° 24' 51.64" E	25° 51' 33.94" S
O	29° 25' 18.23" E	25° 51' 07.39" S
P	29° 25' 40.47" E	25° 51' 00.56" S
Q	29° 26' 30.20" E	25° 50.' 31.24" S
R crossing the N4	29° 26' 05.48" E	25° 50' 02.69" S
S North of the N4	29° 25' 55.13" E	25° 49' 49.13" S

**Option 1 (pink route:**

<b>COORDINATES – OPTION 1</b>		
Points M, N, O, P are the same as the above		
Q (pink)	29° 26' 11.48" E	25° 50' 09.14" S

**Option 2**

<b>COORDINATES – OPTION 2</b>		
Option 2 deviates from the purple and pink route at point P (purple & pink); Points R & S are the same as the above		
P (green)	29° 25' 20.59" E	25° 50' 11.52" S

**E. DESCRIPTION OF IDENTIFIED SITES**

All comments should be studied in conjunction with Appendices 1 -10 which indicate the areas, photographs and which correspond with the summary below.

**DOORNPOORT TO ROCKDALE: PROPOSED SUBSTATION B MTS and CONNECTION TO AN EXISTING LINE FROM ROCKDALE A**

- 16 km of 132kV power line from Doornpoort substation to Rockdale B MTS;
- 7 km 132 kV power line from Rockdale B MTS to connect to a line from Rockdale A;
- **Doornpoort to Rockdale B MTS, to the connection with Rockdale A: Option 1 (preferred option), Option 2 & 3:**

Site Location	Description & Comments	Heritage Feature
<b>SECTION 1</b>		
<b>OPTION 1 (purple, preferred option &amp; 2 (pink)</b>		
A – B (purple)	A: Doornpoort existing substation, on farm ZEEKOEWATER. The existing power lines from A to B continue on the boundaries of private smallholdings, which are mainly utilized for cattle grazing and small scale farming. Closer towards point B the area is situated in a wetland.	No archaeological or heritage features were identified in this section, which was also confirmed by the owners. Fig. 1- 4.
B – C (purple)	B - C: still follows existing farm boundaries,	No archaeological or heritage

	situated in wetland section and there are existing power lines, on farm ZEEKOEWATER	features were identified in this section, which was also confirmed by the owners. (Fig. 1 - 4)
C – D (purple)	C – D: the entire ridge is a unique wetland area. Here are existing power lines which are situated on farm DOORNPOORT	No archaeological or heritage features were identified in this section, which was also confirmed by the owners. (Fig. 4)
D – E (purple)	D – E is situated on top of the ridge which forms part of the wetland area. Here are existing power lines which are situated on farm DOORNPOORT.	No archaeological or heritage features were identified in this section, which was also confirmed by the owners. (Fig. 4)
D – E (purple)	Here are existing power lines, which are situated on farm DOORNPOORT. The proposed and preferred route (purple) will continue north of the N4 to point E where it will cross the N4.	No archaeological or heritage features were identified in this section. Fig. 5. Proposed power lines will cross the Klein Olifants River.
D – E (purple)	D - E are existing power lines, parallel to the N4, which are situated on farm DOORNPOORT. One heritage feature (H1) was encountered and is situated approximately 40m north of the power line. This area is utilized for game farming. It is proposed that the existing power lines be upgraded so as not to impact on the heritage feature.	One heritage feature H1, a square stone enclosure is situated on the northern side of the existing power line. This feature is 12 x 12m and in fairly good condition. S25° 52' 39.8" E29° 19' 04.0" Fig. 7 & 8.
E – F (purple)	E -F: At point of crossing the N4 – This is just before the weigh bridge on the N4.	No archaeological or heritage features were identified in this section.
F, G, H, I (Routes purple and pink joins from this point onwards).	This section is situated in arigrostis fields, maize fields and cattle grazing areas. This is intersected with pieces of wetland as well as an undeveloped section at points E - F – G - H.	No archaeological or heritage features were identified in this section. Fig. 12.
F – G, H, I (purple & pink)	The proposed route (purple and pink) will follow the N4 on the south side. A burial site is situated approximately 100m to the	G1: Burial site on farm RIETFONTEIN (south of N4) with approximately 20 graves visible.

J – K (purple & pink)	<p>south of the proposed lines. The proposed route must not be established close to the burial site.</p> <p>The proposed line will continue through disturbed farm land, to where it will cross the R575 to link up with the B MTS substation.</p>	<p>Most graves are unmarked, one grave stone: Jan Magaunzela Ncongwane (1910 – 1967); &amp; John Mahlangu. S25° 52' 32.19" E29° 21' 16.18" Fig. 32 &amp; 33.</p> <p>No archaeological or heritage features were indentified in this section. Fig. 16</p>
<b>OPTION 2 (PINK)</b>		
E, F, G, I (pink route)	The proposed line will cross the N4 into a section on the south of the N4 that belongs to the Witbank municipality. Large sections are wetland.	There are no archaeological or heritage features in this section Fig. 9, 10.
F (purple)	The pink route joins the purple option where it crosses the N4. Highly disturbed section with maize and arigrostis fields.	No archaeological or heritage features were encountered in this section. Fig. 11.
<b>OPTION 3 (GREEN)</b>		
F (pink) G, H, I	The green option is not a preferred option. It is on a section which belongs to the Witbank municipality. Large sections are situated in wetland.	No archaeological or heritage features were encountered in this section. Fig. 9, 10, 11.
<b>B MTS proposed substation</b>		
<b>B MTS substation</b>	<p>The proposed new line is on the farm HARTEBEESTFONTEIN &amp; RIETFONTEIN and is entirely on highly disturbed farmland.</p> <p><b>J: Rockdale B MTS proposed substation</b> (on RIETFONTEIN) is on previously disturbed farmland and currently also wattle plantation.</p>	<p>No archaeological or heritage features were identified in this section. Fig. 17, 18.</p> <p><b>Substation B MTS:</b> S25° 52' 26.20" E29° 24' 05.63" Fig. 19 &amp; 20.</p>

<b>SECTION 2 (after the B MTS substation)</b> <b>OPTIONS 1, 2 &amp; 3 (Preferred option)</b>		
M, N, (purple & pink route) purple (3) = preferred option	<b>From Rockdale B MTS proposed substation:</b> the proposed line is on a portion of RIETFontein and follows the border to GOEDEHOOP. This entire area is on previously disturbed cultivated fields with sections of wetland.	No archaeological or heritage features were identified in this section. (Fig. 19, 20)
O,P (purple & pink)	The proposed line is on the southern border of UITKYK. This was previously disturbed cultivated lands and commercial plantation. Currently it is used for wattle plantations.	No archaeological or heritage features were identified in this section Fig. 21 - 22.
P – Q (purple)	The proposed line is on the southern border of UITKYK crossing the N4. This entire section was previously disturbed by plantation and mining.	No archaeological or heritage features were identified in this section. Fig. 21 – 22.
Q – R – S (purple)	The proposed line is on the eastern border of UITKYK, and was previously disturbed plantation area and currently coal mining area.	No archaeological or heritage features were identified in this section. Fig. 21 - 24.
S (purple)	The site north of the N4 at the point where the proposed line will meet with existing power line from the Rockdale A substation. Heavily disturbed mining areas.	No archaeological or heritage features were identified in this section. Fig. 23 - 24.
P – Q (pink)	This option (1) (not the preferred option), will not follow a boundary but will cross a section on the farm GOEDEHOOP. It is largely disturbed mining land.	No archaeological or heritage features were identified in this section. Fig. 22.

**Please note** that the section from the B MTS substation to the connection with Rockdale A, (point S) is largely cultivated land with commercial farming, plantation and mining and industry. Not one of the options as proposed, poses a problem to heritage features, but the preferred route is Option 3 (purple).

- **Doornpoort – Rockdale B MTS to connection with Rockdale A: Option 2:**

Site Location	Description & Comments	Heritage Feature
<b>OPTION 2 (GREEN)</b>		
P (pink) P (GREEN) & R	This section is largely situated on cultivated land bordering with commercial wattle plantation. Powerlines already exist from points P – P.	No archaeological or heritage features were identified in this section. Fig. 25 & 26.

### **MIDDELBURG SUBSTATION TO A NEW STEVE TSHWETE SUBSTATION**

- 1 km 88 kV from Middleburg substation to a new Steve Tshwete substation.

Site Location	Description & Comments	Heritage Feature
Middelburg substation to Steve Tswete substation	This entire area is highly disturbed with various kV lines (400kV, 132kV, 88kV), at least 6 lines go parallel to each other here.	No archaeological or heritage features were identified in this section Fig. 27, 28, 29.

**Please note that from Middelburg substation to a new Steve Tswete substation, (Appendix 1: *Doornpoort – Rockdale Mts & Steve Tshwete substation: Proposed ESKOM lines*), there are at least 6 parallel existing power lines of various kV, which may be upgraded. This is highly recommended as the lines are already in place.**

**F. DISCUSSION ON THE FOOTPRINT OF THE PROPOSED DEVELOPMENT**

<i>ACT</i>	<i>COMPONENT</i>	<i>IMPLICATION</i>	<i>RELEVANCE</i>	<i>COMPLIANCE</i>
NHRA	S 34	Impact on buildings and structures older than 60 years	Modern & historic structures as well as foundations and ruins were encountered in the survey	Heritage feature <b>H1 (option 1)</b> will be affected by the proposed development, if the Client does not stay 40m away from the site.
NHRA	S35	Impacts on archaeological and palaeontological heritage resources	None present	None
NHRA	S36	Impact on graves	Graves, burial sites present in study area	One burial site <b>(G1) (options 1 &amp; 2)</b> is situated close to the proposed line route. The Client will have to stay 100m away as proposed from this site.  G2 will not be affected by the proposed development
NHRA	S37	Impact on public monuments	None present	None
NHRA	S38	Developments requiring an HIA	Development is a listed activity	HIA done (April 2011 & June 2012)
NEMA	EIA regulations	Activities requiring an EIA	Development is subject to an EIA	HIA is part of EIA

- **Summarised identification and cultural significance assessment of affected heritage resources:** (See significance assessment criteria in Appendix 10):  
(Standardized set of conventions used to assess the impact of projects on individual heritage features)

**General issues of site and context:**

<b>Context</b>		
Urban environmental context	No	-
Rural environmental context	Yes	Farming settlements & workers homes, mining and industry, in rural context
Natural environmental context	Yes	Very small fragments are still in natural context, and now utilized for cattle or game farming
<b>Formal protection (NHRA)</b>		
(S. 28) Is the property part of a protected area?	No	Only Options 2 & 3 (which is not the preferred options) in the first section is partly situated in the Witbank municipal area (Nature Reserve).
(S. 31) Is the property part of a heritage area?	No	-
<b>Other</b>		
Is the property near to or visible from any protected heritage sites	No	-
Is the property part of a conservation area or special area in terms of the Zoning scheme?	Yes	Portion 136 of the farm Doornpoort 312JS was recently rezoned from agriculture to residential for the development of a Golf estate – but this will not be affected by the proposed routes
Does the site form part of a historical settlement or townscape?	No	-
Does the site form part of a rural cultural landscape?	Yes	Site is situated in a rural area.
Does the site form part of a natural landscape of cultural significance?	No	-
Is the site adjacent to a scenic route?	No	-



<b>Context</b>		
Is the property within or adjacent to any other area which has special environmental or heritage protection?	Yes	The western section is close to a Nature Reserve which belongs to the Emalahleni Municipality
Does the general context or any adjoining properties have cultural significance?	No	-

<b>Property features and characteristics</b>		
Have there been any previous development impacts on the property?	Yes	The various farms each have farming infrastructure such as farm houses (historic or modern) kraals, some ruins and foundations and workers homes. Mining & industry and commercial plantations.
Are there any significant landscape features on the property?	No	-
Are there any sites or features of geological significance on the property?	No	-
Does the property have any rocky outcrops on it?	Yes	The terrain is mostly flat with only the section from DOORNPOORT, RHENOSTERFONTEIN & RIETFONTEIN, with a low hill or ridges.
Does the property have any fresh water sources (springs, streams, rivers) on or alongside it?	Yes	The proposed power lines will cross the Klein Olifants river and drainage lines. Some sections are situated in wetland.

<b>Heritage resources on the property</b>		
<b>Formal protection (NHRA)</b>		
National heritage sites (S. 27)	Yes	All graves, burial sites and cemeteries are formally protected by NHRA.
Provincial heritage sites (S. 27)	No	-
Provincial protection (S. 29)	No	-

<b>Heritage resources on the property</b>		
Place listed in heritage register (S. 30)	No	-
<b>General protection (NHRA)</b>		
Structures older than 60 years (S. 34)	Yes	Foundations, ruins and cattle kraals were observed in the study area, but only one is closely situated to the proposed power line development.
Archaeological site or material (S. 35)	No	-
Palaeontological site or material (S. 35)	No	-
Graves or burial grounds (S. 36)	Yes	A grave and burial sites have been encountered. One site, G1, is approximately 100m from the proposed development.
Public monuments or memorials (S. 37)	No	-
<b>Other</b>		
Any heritage resource identified in a heritage survey (author / date / grading)	No	<i>Phase 1 Archaeological / HIA for the proposed 132kV power lines from Doornpoort (Emalaheni) to Rockdale (Middelburg) in April 2011, Christine Van Wyk Rowe.</i>
Any other heritage resources (describe)	No	-

NHRA S (3)2 Heritage resource category	ELE- MENTS	INDICATORS OF HERITAGE SIGNIFICANCE										RISK	
		Histo rical	Rare	Sci enti fic	Typi cal	Tech- nolog ical	Aes thetic	Pers on / com munit y	Land mark	Mate rial con dition	Sust aina bility		
Buildings / structure s of cultural significan ce	None	Yes	0	0	0	0	0	0	Yes	0	0	0	<b>Yes:</b>  H1 might be affected if the existing lines are not upgraded or too close to the site
Areas attached to oral traditions / intangible heritage	No	0	0	0	0	0	0	0	0	0	0	0	
Historical settleme nt/ townscap es	No	0	0	0	0	0	0	0	0	0	0	0	-
Landsca pe of cultural significan ce	No	-	-	-	-	-	-	-	-	-	-	-	-
Geologic al site of scientific/ cultural importan ce	No	-	-	-	-	-	-	-	-	-	-	-	-
Archaeol ogical / palaeont ological sites	No	-	-	-	-	-	-	-	-	-	-	-	-

<b>NHRA</b>	<b>ELE-</b>	<b>INDICATORS OF HERITAGE SIGNIFICANCE</b>										<b>RISK</b>
Grave / burial grounds	Yes	Yes	-	-	Yes	-	-	Yes	-	-	-	<b>Yes:</b> Risk in proposed route Options 1 & 2 (first section). Burial site with 20< graves which is close to the proposed route.
Areas of significance related to labour history	No	-	-	-	-	-	-	-	-	-	-	-
Movable objects	No	-	-	-	-	-	-	-	-	-	-	-

- **Summarised recommended impact management interventions**

<b>NHRA S (3)2 Heritage resource category</b>	<b>SITE</b>	<b>IMPACT SIGNIFICANCE</b>		<b>Impact management</b>	<b>Motivation</b>
		<b>Cultural significance rating</b>			
		<b>Cultural significant</b>	<b>Impact significant</b>		
Buildings / structures of cultural significance	Yes	Yes	Option 1, between point D – E		Risk involved as heritage feature H1 is closely situated to the proposed line development.
Areas attached to oral traditions / intangible heritage	No	None	None	-	-
Historical settlement/ townscape	No	None	None	-	-
Landscape of cultural significance	No	None	None	-	-

<b>NHRA S (3)2 Heritage</b>	<b>SITE</b>	<b>IMPACT SIGNIFICANCE Cultural significance rating</b>		<b>Impact management</b>	<b>Motivation</b>
Geological site of scientific/cultural importance	No	None	None	-	-
Archaeological / palaeontological sites	No	None	None	-	-
Grave / burial grounds	Yes	Yes	Route option 1 & 2 north of burial site.	Stay 100m from the burial site as proposed	Burial site G1 is 100 from the proposed line. This must be strictly adhered to.
Areas of significance related to labour history	No	None	None	-	-
Movable objects	No	None	None	-	-

<b>ACT</b>	<b>COMPO- NENT</b>	<b>IMPLICATION</b>	<b>RELEVANCE</b>	<b>COMPLIANCE</b>
NHRA	S 34	Impact on buildings and structures older than 60 years	Foundation, ruins, a cattle kraal and modern structures were identified but only H1 is close to the proposed development	Upgrading of power line in this section will ensure the safety of heritage feature H1.
NHRA	S35	Impacts on archaeological and palaeontological heritage resources	None present	None
NHRA	S36	Impact on graves	Graves present	Recommended route 100m from the burial site, as proposed.

<b>ACT</b>	<b>COMPO-NENT</b>	<b>IMPLICATION</b>	<b>RELEVANCE</b>	<b>COMPLIANCE</b>
NHRA	S37	Impact on public monuments	None present	None
NHRA	S38	Developments requiring an HIA	Development is a listed activity	Full HIA
NEMA	EIA regulations	Activities requiring an EIA	Development is subject to an EIA	HIA is part of EIA

## **G. STATEMENT OF SIGNIFICANCE & EVALUATION OF HERITAGE RESOURCES IN THE STUDY AREA**

Section 38 of the NHRA, rates all heritage resources into National, Provincial or Local significance, and proposals in terms of the above is made for all identified heritage features.

### **• Evaluation methods**

Site significance is important to establish the measure of mitigation and / or management of the resources. Sites are evaluated as *HIGH (National importance)*, *MEDIUM (Provincial importance or LOW, (local importance)*, as specified in the NHRA. It is explained as follows:

### **• National Heritage Resources Act**

The National Heritage Resources Act no. 25, 1999 (NHRA) aims to promote good management of the national estate, and to enable and encourage communities to conserve their legacy so that it may be bequeathed to future generations. Heritage is unique and it cannot be renewed, and contributes to redressing past inequities.<sup>9</sup> It promotes previously neglected research areas.

All archaeological and other cultural heritage resources are evaluated according to the NHRA, section 3(3). A place or object is considered to be part of the national estate if it has cultural significance or other special value in terms of:

- (a) its importance in the community, or pattern of South Africa's history;
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;

<sup>9</sup>National Heritage Resources Act, no. 25 of 1999. p. 2.

(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;<sup>10</sup>

- **Graves**

**SAHRA Policy on burial grounds**

The policy is that graves and cemeteries should be left undisturbed, no matter how inaccessible and difficult they are to maintain. It is our obligation to empower civil society to nurture and conserve our heritage. It is only when essential developments threaten a place of burial, that human remains should be disinterred to another cemetery or burial ground.

From a historical point of view and for research purposes, it is vital that burial sites are not disturbed. The location and marking of an individual's grave tells a life story, where he / she died defending (or attacking) a particular place or situation and makes it easier to understand the circumstances of his / her death.<sup>11</sup>

- **The significance and evaluation of the archaeological and cultural heritage features in the study area, can be summarised as follows:**

<b>Site no:</b>	<b>Cultural Heritage feature</b>	<b>Significance</b>	<b>Measures of mitigation</b>
G 1	Burial site with approximately 20 graves	High	Mitigation needed as G1 (burial site) is close to the proposed line route. Client to stay 100m north of the burial site (Option 1 & 2).
H1	Square stone enclosure	Low	<b>H1 in Option 1</b> , is situated close (40m) from the existing power lines and an additional line might affect this feature. It is therefore proposed that ESKOM upgrade this section in order to not impact on this heritage feature.

<sup>10</sup>National Heritage Resources Act, no. 25 of 1999. pp. 12-14

<sup>11</sup>SAHRA, Burial sites, [Http://www.sahra.org.za/burial.htm](http://www.sahra.org.za/burial.htm), Access, 2008-10-16.

- **Field rating:**

The **burial site on Route Option 1 & 2**, is rated as **High** and of outstanding significance as specified by the NHRA. Mitigation measures are therefore necessary to avoid an impact on this site. It is proposed that the proposed lines in **Route Option 1 or 2** be 100m north of the burial site, as proposed on the ESKOM map. If the proposed route is too close to this site, then the relevant communities will have to be contacted, and an agreement regarding the relocation of graves will have to be made.

Heritage features **H1** is rated as low, but of local importance and protected by section 34 of the NHRA. Mitigation measures for this feature include the proposal of upgrading the existing route alignment in Option 1. **H1** is north (approximately 40m from the existing lines) and might be affected if a new line is developed within this section. The existing line is north of the N4.

- **H. RECOMMENDATIONS**

The areas between Doornpoort and Rockdale (Middelburg), where the proposed power line routes are, are mostly situated in previously disturbed farming, plantation and mining land. Due to these land uses, only fragments of the natural habitats remain in the study area.

- **Section 16 km of 132kV power line from Doornpoort substation to Rockdale B MTS;**

One burial site, and a single grave have been encountered as well as some ruins, foundations, houses and a stone enclosure.

A burial site (**G1**) is closely situated near the proposed line development in Option 1 & 2 (between points F & G). The proposed line is approximately 100m from the site and it is recommended that the Client strictly adhere to the distance from the burial site. Should the Client develop close to the burial site, then the community should be consulted, and the graves will have to be relocated at the Client's expense.

One heritage feature, **H1** is situated close to the proposed lines (and existing lines) in route Option 1 (between point D - E). It is highly recommended that the existing line in this section be upgraded so as not to impact on the heritage feature. If a new line is considered then it must be at least 40m from the heritage site.



The rest of route Option 1 towards the proposed B MTS substation will have no impact on any heritage feature.

The proposed substation B MTS is entirely situated in highly disturbed cultivated area (See **Appendix 6: Google Earth image: Proposed Rockdale B MTS substation**, and there are no archaeological or heritage features which will be impacted upon.

- **Section 7 km 132 kV power line from Rockdale B MTS to connect a line from Rockdale A;**

This entire area is extensively previously and currently disturbed by cultivated lands, grazing fields, plantation, mining and industry. Current mining activities belong to BHP Billiton, Ingwe Surface Holdings and Tavistock Colliers. No heritage features were observed in this section, and Options 1, 2 or 3 might be used from the proposed B MTS substation, although Option 3 is the preferred route (purple).

- **Section 1 km 88 kV from Middleburg substation to a new Steve Tshwete substation.**

This 1 km area is entirely disturbed and there are no archaeological or heritage features in this area. At least 6 power lines run parallel to each other in this section, and it is highly recommended that one of the lines be upgraded. If this is not feasible, a new line may be established.

- **I. CONCLUSION**

It is recommended, based on the findings of this report, that the Client use the proposed route **Option 1** (purple, section 1), with the condition that the first part of Option 1, the existing power lines be upgraded as there is a heritage feature, **H1**, between point D - E which might be affected by a new line (see explanations above). The burial site, **G1** must be avoided by establishing the proposed line approximately 100m from the site. The rest of this proposed line, to the point where it joins an existing line to the Rockdale A substation in Middelburg, poses no problem whatsoever, for the proposed development.

The area of the proposed **Rockdale B MTS substation** has no archaeological or heritage features, and may be established in the area as identified.

From the proposed Rockdale B MTS substation, **Option 3** is the preferred option (purple), but the other options does not pose any threat to archaeological or heritage resources.

The site that was identified for the upgrading or establishing of the new lines for the **Steve Tshwete substation in Middelburg**, is entirely disturbed, and the development in this section may continue.

Archaeological material or graves are not always visible during a field survey and therefore some significant material may only be revealed during construction activities of the power line development. It is therefore recommended that the developers be made aware of this possibility and when human remains, clay or ceramic pottery etc. are observed, a qualified archaeologist must be notified and an assessment be done. Further research might be necessary in this regard for which the developer is responsible.

Adansonia Heritage Consultants can not be held responsible for any archaeological material or graves which were not located during the survey.

## J. SOURCES

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- **PERSONAL INFORMATION**

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