

PHASE 1

ARCHAEOLOGICAL IMPACT ASSESSMENT

RELATING TO THE PROPOSED 5, 5 KILOMETERS TWEEDRACHT 88KV POWER LINE

ESTABLISHMENT ON PORTION 17 OF FARM KLIEN ZONDERHOUT

WITHIN CITY OF TSHWANE METROPOLITAN MUNICIPALITY

GAUTENG PROVINCE



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EXECUTIVE SUMMARY

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Note: This report follows minimum standard guidelines required by the South African Heritage Resources Agency (SAHRA and South African Provincial Heritage Authorities) for compiling a Phase 1 Archaeological Impact Assessment (AIA).

Site name and location: The proposed power line establishment transverse portion 17 of farm Klein Zonderhout 519, the area is located southeast of Tshwane in close proximity to Bronkhorstspuit / further east of the main regional tarred road (R25) from Bronkhorstspuit to Kempton Park, within City of Tshwane Metropolitan Municipality, Gauteng Province.

Magisterial Authority: City of Tshwane Metropolitan Municipality

Date of field work: 19 August 2015

Date of report: 20 August 2015

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SURVEY AIMS AND ASSESSMENTS FINDINGS

The Phase 1 Archaeological scoping study (Archaeological Impact Assessments) as required in terms of section 38 of the National Heritage Resource Act (Act 25 of 1999) was done for the proposed Tweedracht, 88kV power line on portion 17 of the farm Klein Zonderhout 519, southeast of Tshwane.

The primary aims of the Phase1 Archaeological Impact Assessment (AIA) program were the following:

- To establish whether any of the type and ranges of heritage resources as outlined in section 3 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) do occur in or near the proposed site, and if so, to establish the significance of these heritage resources.
- To establish whether such heritage resources will be affected by the proposed development activities, and if so, to determine possible mitigation measures that can be applied to these heritage resources.

Results of potential direct and indirect impacts relating to the establishment of the proposed power line with specific reference to identified heritage sites and attributes that convey heritage significance.

The study area is located southeast of Tshwane. The area span across 5.5 kilometers of agricultural farm holdings, the proposed route transverse adjacent to existing power line servitude, cultivated farm land, adjacent to access gravel and tarred roads. A multi-stepped methodology was used to address the terms of reference. To begin with, a robust desktop study was carried out to understand the historical background of the study area and its surrounding. This included consulting the 1972 Convention, the operational guidelines of 2013, the ICOMOS (2011) guidelines on assessing impact on Heritage sites. The IUCN guidelines and standards of best practice were also consulted. Subsequently, a review of the archaeology of the area was carried out using contract archaeology reports, research reports and academic publications. Desktop studies were followed by fieldwork carried out by archaeologist and heritage specialist in conformity with the National Heritage Resources Act, (Act 25 of 1999). Based on an interdisciplinary methodology, that combined ICOMOS methodology with several techniques from various disciplines, the impact of the proposed power line development was considered. The following conclusions were reached:

1. The phase 1 Archaeological Impact Assessments survey for the proposed 5,5 kilometers 88kV power line establishment revealed an existing homestead north of the non-perennial stream in close proximity to the existing power line, and a burial ground site situated south of the non-perennial stream just east of the existing power line (the site has been fenced, indicated by Sisal plants, represented by well-marked

40 burial grounds) situated in close proximity to the proposed alternative power line route one (1) .

2. The Proposed project transverse agricultural farmland that encompasses cultivated land (Livestock fodder and maize) and animal husbandry. The entire area has been covered by different grass species with isolated pockets of *Wattle and Eucalyptus* plantations.

Suggested mitigations and Recommendations

This study identified a home stead with several recent past mud constructed buildings in close proximity to the non-perennial stream and existing power line. Currently there are no available written documents on the property however the homestead could be associated with “ relatively_recent past period” _refers to the 20th century. Structures from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may in the near future, qualify as heritage resources.

Furthermore the survey identified burial grounds, informal and formal grave yards (Cemeteries) can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act, 1999 (Act No. 25 of 1999) this act applies whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regards to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on exhumation (Ordinance no 12 of 1980) and the Human Tissue Act (Act no 65 of 1983 as amended).

- Grave yards can be mitigated by the following strategies, Namely:
 - ✓ Graveyards can be considered a ‘ NO GO’ area and be conserved *in situ* within the property.
 - ✓ Grave yards can also be exhumed and relocated. The exhumation process are regulated by various regulation and administrative procedures. This task is undertaken by Forensic archaeologist and reputed undertakers who are acquainted with all administrative procedures and relevant legislations that

have to be adhered to whenever human remains are exhumed and relocated. This process also includes social facilitations process with 60 days statutory notice period for grave older than sixty years. Permission of exhumations and relocation have to be obtained from the decedents of the deceased, the National Department of Health, the provincial department of Health, The Premier of the Province and the Local Police.

Should Alternative 1 be the preferred powerline route, homestead and burial ground (Graveyard) are the main source of concern. However, it must be noted that the identified burial grounds are located east of the existing power line and its recommend that the proposed powerline be shifted to the west of existing power line to avoid the identified grave yard. Further mitigation measures must be put in place including:

- It is recommended that the identified graveyard should be clearly marked with danger tape for visibility during the entire duration of the project and a 30m buffer zone must be allowed around the graves.
- All construction activities including clearing of access route should be designed not to disturb the identified burial grounds.
- Continuous monitoring during construction in proximity to the identified sites

In case where graves are to be exhumed and relocated, the exhumation process is regulated by various legislations, regulations and administrative procedures. This task is undertaken by Forensic archaeologist and reputed undertakers who are acquainted with all administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social facilitations process with 60 days statutory notice period for grave older than sixty years. Permission of exhumations and relocation has to be obtained from the decedents of the deceased, the National Department of Health, the Provincial Department of Health, The Premier of the Province and the Local Police. This process is timeous and costly

Alternatives 2 and 3 are viable and recommended for the establishment of the proposed powerline, there are no mitigations recommended as within the proposed powerline routes there are no archaeological or place of historical significance envisaged to be impacted by the proposed powerline establishment.

The recommendations provided and outlined on this report for alternative route 1 should be followed and adhered to, as graves has high significance value to family members and are protected by law. From an archaeological and cultural heritage resources perspective, should the recommendations be followed there are no objections to the proposed power line project and we recommend to South African Heritage Resources Authorities (SAHRA) to approve the project as planned. The developer in this case Eskom Holdings SOC Ltd is here by reminded of section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorization being granted by the Department.

ACKNOWLEDGEMENTS:

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PROFESSIONAL DECLARATION

I, the undersigned, Mr. Ndivhuho Eric Mathoho hereby declare that I am a Professional archaeologist accredited with the association for South African Professional Archaeologist (ASAPA) Membership No #312 and that Vhufashu Heritage Consultants is an independent consultants with no association or with no any other interest what so ever with any institution, organization, or whatever and that the remuneration earned from consulting work constitute the basis of Company livelihood and income.

Mr. Mathoho Ndivhuho Eric



.....
Archaeologist and Heritage Consultant for Vhufashu Heritage Consultants
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ACRONYMS

AIA	Archaeological Impact Assessment
EIA	Environmental Impact Assessment
EIA	Early Iron Age
EMP	Environmental Management Plan
VHHC	Vhufhashu heritage Consultants
NEMA	National Environmental Management Act, 1998 (Act No.107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No.25 of 1999)
SAHRA	South African Heritage Resources Agency
ESA	Early Stone Age
MSA	Middle Stone Age
LSA	Late Stone Age
IA	Iron Age
ICOMOS	International Council on Monuments and Sites
LIA	Late Iron Age
UNESCO	United Nations Educational, Scientific and cultural Organization
WHC	World Heritage Conventions of 1972

Archaeological Material remains resulting from human activities, which are in a state of disuse and are in, or on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures.

Chance Finds Archaeological artefacts, features, structures or historical cultural remains such as human burials that are found accidentally in context previously not identified during cultural heritage scoping, screening and assessment studies. Such finds are usually found during earth moving activities such as water pipeline trench excavations.

Cultural Heritage Resources Same as Heritage Resources as defined and used in the South African Heritage Resources Act (Act No. 25 of 1999). Refer to physical cultural properties such as archaeological and paleontological sites; historic and prehistoric places, buildings, structures and material remains; cultural sites such as places of ritual or religious importance and their associated materials; burial sites or *graves* and their associated materials; geological or natural features of cultural importance or scientific significance. Cultural Heritage Resources also include intangible resources such as religion practices, ritual ceremonies, oral histories, memories and indigenous knowledge.

Cultural Significance The complexities of what makes a place, materials or intangible resources of value to society or part of, customarily assessed in terms of aesthetic, historical, scientific/research and social values.

Grave A place of interment (variably referred to as burial), including the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery.

Historic Material remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

In Situ material *Material culture* and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Late Iron Age this period is associated with the development of complex societies and state systems in southern Africa.

Material culture Buildings, structure, features, tools and other artefacts that constitute the remains from past societies.

Site A distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

1. INTRODUCTION

Eskom Holdings SOC Ltd (Eskom) commissioned studies for the proposed establishment of the approximately 5, 5 kilometers 88kV power line on portion 17 of the Farm Klein Zonderhout 519 south east of Tshwane. To ensure that the proposed development meets the Environmental requirements in line with the National Environmental Management Act, 1998 (Act No 107 of 1998) as amended. Eskom appointed Nsovo Environmental Consulting (Nsovo) as an Independent Environmental Assessment Practitioner for the proposed project and Vhufahashu Heritage Consultants was subcontracted to conduct an Archaeological and Cultural Heritage Impact Assessment study in line with the National Heritage Resources Act, 1999 (Act No. 25 of 1999).

In order to comply with relevant legislations, the applicant (Eskom Holdings SOC Ltd) requires information on the heritage resources that occur within or near the proposed power line routes alternatives and their heritage significance. The objective of the study is to document the presence of archaeological and historical sites of significance in order to inform and guide planning and decision making. The study serves as a statutory frame of reference on archaeology and heritage sites that occur within the proposed study area. The document enable the developer to align their functions and responsibilities in order to facilitate forward planning in minimizing impact on archaeological and heritage sites. Archaeological/ Heritage Impact Assessment is conducted in line with the National Heritage Resources Act of 1999 (Act No. 25 of 1999). The Act protects heritage resources through formal and general protection. The Act provides that certain developmental activities require consents from relevant heritage resources authorities within the provincial and National government. The South African Heritage Resources Agency developed minimum standards for impact assessment. In addition to these local standards, the International Council of Monuments and Sites (ICOMOS) published guideline for assessing impacts. The Burra Charter of 1999, require a caution approach to the management of sites, it set out the need to understand the significance of heritage places, and the significance guide decisions.

The proposed study serve as framework tools which ensure that the National Heritage Resources Act (25 of 1999) and the ICOMOS standard principles are applied, in an effective and equitable manner in order to avoid loss and disturbance of heritage sites in the study area. This will enable applicant to take pro-active measures to limit the adverse effects that the development could have on such heritage resources. Information presented in this report form the basis of Archaeological resources assessment of the proposed project as the proposal constitutes an activity, which may potentially have direct or indirect impact to heritage resources that may occur in the proposed study area.

The National Heritage Resources Act (NHRA - Act No. 25 of 1999) protects all structures and features older than 60 years (Section 34), archaeological sites and material (Section 35) and graves and burial sites (Section 36). In order to comply with the legislation, the applicant requires information on the heritage resources, and their significance that occur in the demarcated area. This will enable the Applicant to take pro-active measures to limit the adverse effects that the development could have on such heritage resources.

2. RELEVANT LEGISLATION

Two sets of legislation are relevant for the study with regards to the protection of heritage resources and graves.

2.1. The National Heritage Resource Act (25 of 1999)

This Act established the South African Heritage Resource Agency (SAHRA) as the prime custodians of the heritage resources and makes provision for the undertaking of heritage resources impact assessment for various categories of development as determined by Section 38. It also provides for the grading of heritage resources (section 7) and the implementation of a three-tier level of responsibility and functions from heritage resources to be undertaken by the State, Provincial and Local authorities, depending on the grade of heritage resources (section 8)

In terms of the National Heritage Resource Act 25, (1999) the following is of relevance:

Historical remains

Section 34 (1) No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant Provincial Heritage Resources Authority.

Archaeological remains

Section 35(3) Any person who discover archaeological or Paleontological object or material or a meteorite in the course of development or agricultural activity must immediately report

the find to the responsible heritage resource authority or the nearest local authority or museum, which must immediately notify such heritage resources authority.

Section 35(4) No person may, without a permit issued by the responsible heritage resources authority-

- destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite;
- destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite;
- trade in ,sell for private gain, export or attempt to export from republic any category of archaeological or paleontological material or object or any meteorite; or
- bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment which assist with the detection or recovery of metal or archaeological material or object or such equipment for the recovery of meteorites.

Section 35(5) When the responsible heritage resource authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or paleontological site is underway, and where no application for a permit has been submitted and no heritage resource management procedures in terms of section 38 has been followed, it may:

- serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
- carry out an investigation for the purpose of obtaining information on whether or not an archaeological or paleontological site exists and whether mitigation is necessary;
- if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph (a) to apply for a permit as required in subsection (4); and
- recover the cost of such investigation from the owner or occupier of the land on which it is believed an archaeological or paleontological site is located or from the person proposing to undertake the development if no application for a permit is received within two week of the order being served.

Subsection 35(6) the responsible heritage resource authority may, after consultation with the owner of the land on which an archaeological or paleontological site or meteorite is situated; serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

Burial grounds and graves

Section 36 (3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority:

- (i) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (ii) bring onto or use at a burial ground or grave any excavation equipment, or any equipment which assists in detection or recovery of metals.

Subsection 36 (6) Subject to the provision of any person who in the course of development or any other activity discover the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resource authority which must, in co-operation with the South African Police service and in accordance with regulation of the responsible heritage resource authority-

- (l) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this act or is of significance to any community; and
if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangement as it deems fit.

Cultural Resource Management

Section 38(1) Subject to the provisions of subsection (7), (8) and (9), any person who intends to undertake a development must at the very earliest stages of initiating such development notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

development means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including:

- (i) Construction, alteration, demolition, removal or change of use of a place or a structure at a place;
- (ii) Any change to the natural or existing condition or topography of land, and
- (iii) Any removal or destruction of trees, or removal of vegetation or topsoil.

place means a site, area or region, a building or other **structure** which means any building, works, device or other facility made by people and which is fixed to the ground.

2.2. The Human Tissue Act (65 of 1983)

This act protects graves younger than 60 years, these falls under the jurisdiction of the National Department of Health and the Provincial Health Department. Approval for the exhumation and reburial must be obtained from the relevant provincial MEC as well as relevant Local Authorities.

3. TERMS OF REFERENCE

The terms of reference for the study were to undertake an Archaeological Impact Assessment on the proposed three alternative routes of the proposed 88kV, power line and submit a specialist report, which addresses the following:

- Executive summary
- Scope of work undertaken
- Methodology used to obtain supporting information
- Overview of relevant legislation
- Results of all investigations
- Interpretation of information
- Assessment of impact
- Recommendation on effective management measures
- References

4. TERMINOLOGY

The Heritage impact Assessment (HIA) referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage resources Act, 1999 (Act No 25 of 1999). Heritage resources, (Cultural resources) include all human-made phenomena and intangible products that are result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyle of the people or groups of people of South Africa.

The term ‘ pre – historical’ refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the project area, to the first appearance or use of ‘ modern’ Western writing brought South Africa by the first colonist who settled in the Cape in the early 1652 and brought to the other different part of South Africa in the early 1800.

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

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

The ‘ term sensitive remains’ is sometimes used to distinguish graves and cemeteries as well as ideologically significant features such as holy mountains, initiation sites or other sacred places. Graves in particular are not necessarily heritage resources if they date from

the recent past and do not have head stones that are older than sixty years. The distinction between ' formal' and ' informal' graves in most instances also refers to graveyards that were used by colonists and by indigenous people. This distinction may be important as different cultural groups may uphold different traditions and values with regard to their ancestors. These values have to be recognized and honored whenever graveyards are exhumed and relocated.

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

The term ' Early Iron Age' and Late Iron Age respectively refers to the periods between the first and second millenniums AD.

The ' Late Iron Age' refers to the period between the 17th and the 19th centuries and therefore includes the historical period.

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

The term ' study area' or ' project area' refers to the area where the developers wants to focus its development activities (refer to plan)

Phase I studies refers to survey using various sources of data in order to establish the presence of all possible types of heritage resources in a given area.

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

5. METHODOLOGY

5.1. Source of information

Most of the information was obtained through the initial site visit made on the 19 August 2015 by Mr. Mathoho Eric and Richard Munyai where a systematic inspection of the proposed site were covered along linear transects which resulted in the maximum coverage of the entire site. Standard archaeological observation practices were followed; Visual inspection was supplemented by relevant written source, and oral communications with local communities from the surrounding area. In addition, the site was recorded by hand held GPS and plotted on 1:50 000 topographical map. Archaeological/historical material and the general condition of the terrain were photographed with a Canon 1000D Camera.

5.2. Restrictions

It must be pointed out that heritage resources can be found in the unexpected places, it must also be borne in mind that survey may not detect all the heritage resources in a given project area. While some remains may simply be missed during surveys (observation) others may occur below the surface of the earth and may be exposed once development (such as the construction of the proposed facilities) commences. The area had over grown vegetation and tall grasses, no proper access roads.

Sections of the identified stone wall are currently covered by grass, with no clear visibility. The sites are situated within farm land, access is strictly prohibited.

6. ASSESSMENTS CRITERIA

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The significance of archaeological and heritage sites were based on the following criteria:

- The unique nature of a site.
- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc.).
- The wider historic, archaeological and geographic context of the site.
- The preservation condition and integrity of the site.
- The potential to answer present research questions.

6.1. Site Significance

The site significance classification standards as prescribed in the guideline and endorsed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used as guidelines in determining the site significance for the purpose of this report.

The classification index is represented in the Table below.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
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)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected C (GP.C)	Grade 4C	Low Significance	Destruction

Heritage resources Grading and rating system

6.2. Impact Rating

VERY HIGH

These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or cultural) environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects.

Example: The loss of a species would be viewed by informed society as being of VERY HIGH significance.

Example: The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with VERY HIGH significance.

HIGH

These impacts will usually result in long term effects on the social and /or natural environment. Impacts rated as HIGH will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.

Example: The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of HIGH over the long term, as the area could be rehabilitated.

Example: The change to soil conditions will impact the natural system, and the impact on affected parties (e.g. farmers) would be HIGH.

MODERATE

These impacts will usually result in medium- to long-term effects on the social and/or natural environment. Impacts rated as MODERATE will need to be considered by the public or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are real, but not substantial.

Example: The loss of a sparse, open vegetation type of low diversity may be regarded as MODERATELY significant.

Example: The provision of a clinic in a rural area would result in a benefit of MODERATE significance.

LOW

These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as LOW will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.

Example: The temporary changes in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels.

Example: The increased earning potential of people employed as a result of a development would only result in benefits of LOW significance to people living some distance away.

NO SIGNIFICANCE

There are no primary or secondary effects at all that are important to scientists or the public.

Example: A change to the geology of a certain formation may be regarded as severe from a geological perspective, but is of NO SIGNIFICANCE in the overall context.

6.3. Certainty

DEFINITE: More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

PROBABLE: Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

POSSIBLE: Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

UNSURE: Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

6.4. Duration

SHORT TERM : 0 – 5 years

MEDIUM: 6 – 20 years

LONG TERM: more than 20 years

DEMOLISHED: site will be demolished or is already demolished

6.5. Mitigation

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- **A** – No further action necessary
- **B** – Mapping of the site and controlled sampling required
- **C** – Preserve site, or extensive data collection and mapping required; and
- **D** – Preserve site

7. HISTORICAL AND HERITAGE BACKGROUND

Pretoria as part of Gauteng inherit its cosmopolitan vitality from an often violent and turbulent past, townships many battle fields and grave sites scattered throughout the province bear witness to the challenge faced by people. The southern Transvaal Ndebele occupied the river valley, which was to become the location of the city of Pretoria long ago by around 1600 AD.

It is still unclear when and how Ndebele parted from the main Nguni-speaking migration along the eastern part of southern Africa. Oral history suggests an early (c. late 1500) settlement in the interior, to the immediate north of present-day Pretoria, under a founder ruler called Musi. A succession struggle among Musi's sons is a probable explanation for the twofold split in clans and the resultant two main tribal categories, Ndzundza and Manala. The twofold split resulted in clans associating themselves with one of the two groups. The majority of clans followed Ndzundza, who migrated to KwaSimkhulu, approximately 200 kilometers east of present-day Pretoria. The numerically smaller Manala occupied the areas called Ezotshaneni, KoNonduna, and Embilaneni, which include what are today the eastern suburbs of Pretoria.

The Ndzundza chieftaincy is believed to have extended its boundaries along the Steelpoort (Indubazi) River catchment area between the 1600s and early 1800s. Several of these settlement sites (KwaSimkhulu, KwaMaza, and Esikhunjini) are known through oral history and are currently under archaeological investigation.

Both the Ndzundza and Manala chiefdoms were almost annihilated by the armies of Mzilikazi's Matebele (Zimbabwean Ndebele) around 1820. During the Difaqane in Natal, another band arrived in the Pretoria region, they were forced to abandoned their villages in fight from a regiment of Zulu raiders in 1832. The Manala in particular suffered serious losses, but the Ndzundza recovered significantly under the legendary Mabhoko, during the

1840s. He revolutionized the Ndzundza settlement pattern by building a number of impenetrable stone fortresses and renamed the tribal capital KoNomtjharhelo (later popularly known as Mapoch's Caves). During the middle 1800s, the Ndzundza developed into a significant regional political and military force.

They soon had to face the threat of White colonial settlers, with whom they fought in 1849, 1863, and, finally, in 1883, during the lengthy Mapoch War against the ZAR forces. The latter's tactic of besiegement forced the famine-stricken Ndzundza to capitulate. They lost their independence, their land was expropriated, the leaders were imprisoned (Chief Nyabela to life imprisonment), and all the Ndebele were scattered as indentured laborers for a five-year (1883-1888) period among White farmers. The Manala chiefdom was not involved in the war and had previously (1873) settled on land provided by the Berlin Mission, some 30 kilometers north of Pretoria, at a place the Manala named KoMjekejeke (Wallmansthal).

Chief Nyabela Mahlangu was released after the Anglo-Boer War (1899-1902) in 1903 and died soon afterward. His successor tried fruitlessly in 1916 and 1918 to regain their tribal land. Instead, the royal house and a growing number of followers privately bought land in 1922, around which the Ndzundza-Ndebele reassembled. Within the framework of the Bantustan or homeland system in South Africa, the Ndebele (both Manala and Ndzundza) were only allowed to settle in a homeland called KwaNdebele in 1979. This specific land, climate, and soil were entirely alien to them.

7.2. THE BRONKHORSTPRUIT AMBUSH

During the Anglo Boer war of 1880, commonly known as the war of independence, there was a disaster suffered by the British at Bronkhorstspuit. The British were attacked on the road from Lydenburg to Pretoria, during that period the British had had several warnings that they could expect to be attacked. Sir Owen Lanyon underestimated the Boer commando, and was quoted on one influential document maintaining that the Boer were in capable of any united action and they were moral cowards. The Boer regiments relied on standing army and its citizen of the Transvaal republic. The British were unaware of the unrest and military attitude that had suddenly developed; the Transvaal had requested permission to bring additional troops to Pretoria. Sir Owen Lanyon requested some assistance from army

company 94, before those army regiments were sent in, hostility broke up, before movements were completed, the Boer commandos resume march, Two British scouts pointed at the party of the Boer and as such the British ignores them as the Boer surrounded them at approximately 1,5KM away from a small spruit, known as Bronkhorstspruit, a British band stop playing, inquiring heads were turned and it was established that there were 150 Boer regiments on the crest of a low ridge, the British wanted to proceed with their journey to Pretoria, After messenger returned to deliver answers to commandant Frans Joubert, heavy firing commences, historical source maintains that the war lasted for only short time, the Boer regiments closed in on the British wagon and also surrounded the rearguard. The Boer was very keen by advancing and surrounding from flank as well as front and rear. Casualties on the British side were high, an indication that the Boer fire were accurate and heavy, though figure vary considerably approximately 77 were killed and a total of 157 casualties excluding prisoner taken by the Boers. Commandant Frans Joubert ordered his men to take the wagon of the British but granted permission for the removal of the tents and blankets for the establishment of the wounded camps, he also allowed twenty of the wounded to bury the dead, and the remainder of the wounded were taken prisoner and later were released. A monument have been erected in commemoration of the British troops who lost their lives on their way to Pretoria

8. SITE LOCATION AND PROJECT DESCRIPTION

The proposed power line establishment transverse portion 17 of farm Klein Zonderhout 519, the study area is located southeast of Pretoria in close proximity to Bronkhorstspruit / further east of the main regional tarred road (R25) from Bronkhorstspruit to Kempton Park, within City of Tshwane Metropolitan, Gauteng Province.

The geology and soils is characterized by quartzite ridges of the Witwatersrand Super group and the Pretoria group (Transvaal Super group). Supporting soils of various qualities (shallow Glenrosa and Mispah forms especially on rocky ridges are common soils). The area is situated on highly variable landscape with extensive sloping plains and a series of ridges slightly elevated over undulating surrounding plains to the north.

The vegetation in the area comprises sour grassland alternating with low, sour shrub land on rocky outcrop. Most common grasses on the plains belong to the general *Themeda*,

Eragrostis, *Heteropogon* and *Elionurus*, high density of herbs many of which belongs to the *Asteraceae* are found (Acocks 1975, Mucina & Rutherford, 2003).



Figure 1: View of the study area

8.1.1. PROPOSED POWER LINE ALTERNATIVE ROUTE 1

Proposed alternative route 1 start at (GPS S 25°, 53, 33,69 and E28°, 33'.24, 02.″) from existing pylon structure located adjacent to the main tarred road (R25) across the road to the northern section parallel existing 11KV power line. The proposed power line route passes adjacent an open borrow pit section possibly used during the construction of tarred road.

The predominant land use currently being undertaken on the proposed site is agricultural activities which encompass both animal husbandry and crop production; the area has been placed under agricultural potential characterized by flat farm land. The geological influence of the proposed site has given rise to grassland covering the most parts of the area dominated by *Themeda triandra*, *Elionurus muticus*, *Eragrostic racemosa*, *Heteropogon contortus* and *Tristachya leucothrix*. The most dominant tall tree species identified on site includes, wattle species. The proposed turning point is located at approximately 1,5kilometer, where the proposed route turns towards the north (Turning point GPS S 25°, 53, 57, 19 and

E28°, 32'.45, 00.).The proposed route continued to follow the existing power line through the farm land, pass through an area were graveyard is located, the area has been mapped and geo-referenced (see tweed site 001 under survey finding for more detailed description). The proposed route cut across the existing seasonal stream, on the northern section of the stream an existing farm laborer quarters have been noted, and proceed across R515 and railway tracks through to the end point at Tweedracht substation which is located at global positioning system co-ordinates (GPS S 25°, 53, 28.241 and E28°, 31'.1, 078.”)



Figure 2: View of the end point of the proposed power line routes at Tweedracht substation.

8.1.2. PROPOSED POWER LINE ALTERNATIVE ROUTE 2

Alternative route No 2 has been proposed to start from the turning point of the proposed Alternative no 1 (GPS S 25°, 53, 28.241 and E28°, 32'.45, 00.”) instead turn towards the north and transverse parallel existing power line along R25 road up until the road intersection, here the proposed power line changes its direction and transverse parallel R555 to the north (Turning point GPS coordinates S 25°, 54, 26.98 and E28°, 31'.40, 38.”) The line proceed parallel the main road, across the water collected area currently used as borrow pit up until the proposed line join with the proposed alternative route 1 GPS

coordinates S 25°, 53, 32.89 and E28°, 31'.31, 59, where the proposed power line cut across R515 and railway line to Tweedracht substation.

8.1.3. PROPOSED POWER LINE ALTERNATIVE ROUTE 3

Alternative route No3 has been proposed to start at the same point where Alternative route No 1 started and transverse on the southern side of the tarred road R25 (Proposed power line starting point Global System Co-ordinates GPS S 25°, 53, 33,69 and E28°, 33'.24, 02.") The proposed route runs parallel the R25 until the road intersection of Road R515 and R25 (turning point GPS coordinates S 25°, 54, 34.27 and E28°, 31'.38, 01) proceed until the route cross the railway lines and runs north of the railway lines up until it turns to the Tweedracht substation.

9. ASSESSMENT OF SITES AND FINDS

This section contains the results of the heritage sites assessment. The phase 1 heritage scoping assessment program as required in terms of the section 38 of the National Heritage Resource Act (Act 25 of 1999) done for the proposed project.

9.1. Tweedracht site 001-(Homestead)

Home stead (GPS S25°.53'. 37.0" E 28°31'. 41.4") occur north of the non-perennial stream in close proximity to the existing power line; the area is characterised by several rectangular mud buildings with thatched and corrugated roofs sheets. The homestead could be associated with relatively recent past period associated with the 20th century. Remains from this time period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may in the near future, qualify as heritage resources.



Figure 3: View of the home stead with several mud house structures

Site significance rating

Low significance

9.2. Tweedracht site 002-(Burial Ground- Cemetery)

Site (Twee 002) was noted, marked and geo referenced, the site is characterised by farm grave yard which is located north of the main tarred road from Bronkhorstspuit to Kempton Park, the area is situated approximately 30 meters from the existing power line (**GPS S25°53'. 692" E 28°31'.973"**). The grave yard is currently located inside a fenced area indicated by Sisal plants as well as rectangular steel fence palisade in the middle. The area is characterised by approximately 40 marked graves. Some of the identified graves have been indicated by granite tombstones whereas most of the graves have been indicated by parked stones as grave dressings. One of the granite tombstone has been in scripted Cathrine Mkhwebane (Nee) Bhuda born 1895 died 1978, rest in peace mother of ten children, some of the other graves inscription have worn out making it difficult to copy what have been encrypted.

Site significance rating

High Significance as graves are rated as cultural resource and are protected by law.



Figure 4: Sisal plants used to mark the burial ground, inside fenced area

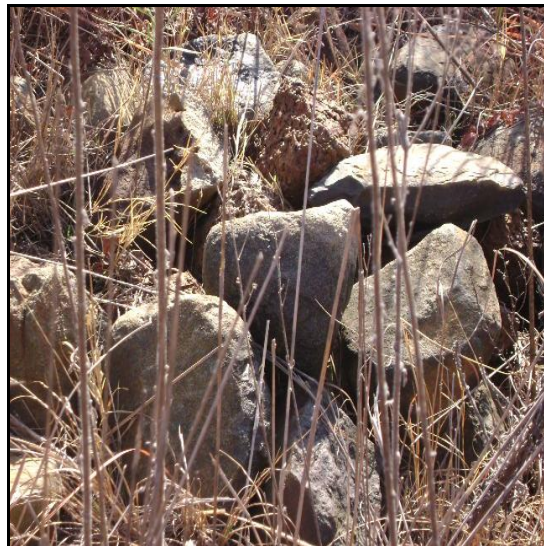
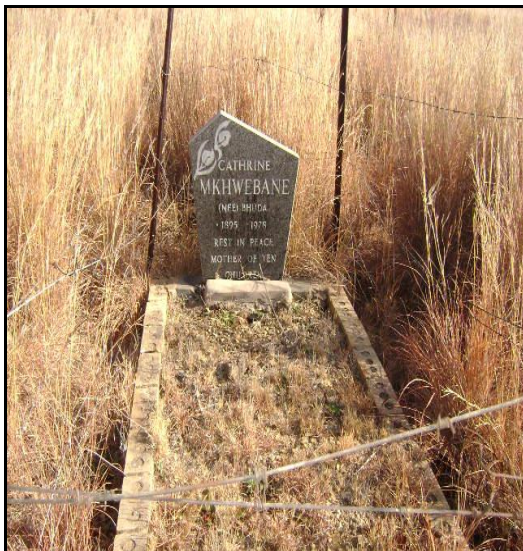


Figure 5: Grave yard



Figure 6: View of some of the marked graves indicated by Tombstone as well as parked stones as grave dressing

10. SUGGESTED MITIGATIONS AND RECOMMENDATIONS

This study identified a homestead with several buildings in close proximity to the non-perennial stream and existing power line. Currently there are no available written documents on the property however the homestead could be associated with a relatively recent past period ' which refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may in the near future, qualify as heritage resources.

The study identified a burial ground, informal and formal grave yards (Cemeteries) can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (no 25 of 1999) this act applies whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regards to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on exhumation (Ordinance no 12 of 1980) and the Human Tissue Act (Act no 65 of 1983 as amended).

- Graveyards can be mitigated by the following strategies, Namely:
 - Graveyards can be considered a ‘ NO GO’ area and be conserved *in situ* within the property.
 - Grave yards can also be exhumed and relocated. The exhumation process is regulated by various regulation and administrative procedures. This task is undertaken by Forensic archaeologist and reputed undertakers who are acquainted with all administrative procedures and relevant legislations that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social facilitations process with 60 days statutory notice period for grave older than sixty years. Permission of exhumations and relocation has to be obtained from the decedents of the deceased, the National Department of Health, the provincial department of Health, The Premier of the Province and the Local Police.

Should Alternative 1 be the preferred powerline route, homestead and burial ground (Graveyard) are the main source of concern. However, it must be noted that the identified burial grounds are located east of the existing power line and its recommend that the proposed powerline be shifted to the west of existing power line to avoid the identified grave yard. Further mitigation measures must be put in place including:

- It is recommended that the identified graveyard should be clearly marked with danger tape for visibility during the entire duration of the project and a 30m buffer zone must be allowed around the graves.
- All construction activities including clearing of access route should be designed not to disturb the identified burial grounds.
- Continuous monitoring during construction in proximity to the identified sites

In case where graves are to be exhumed and relocated, the exhumation process is regulated by various legislations, regulations and administrative procedures. This task is undertaken by Forensic archaeologist and reputed undertakers who are acquainted with all administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social facilitations process with 60 days statutory notice period for grave older than sixty years. Permission of exhumations and relocation has to be obtained from the decedents of the deceased, the

National Department of Health, the Provincial Department of Health, The Premier of the Province and the Local Police. This process is time consuming and very costly.

Alternatives 2 and 3 are viable and recommended for the establishment of the proposed powerline, there are no mitigations recommended as within the proposed powerline routes there are no archaeological or place of historical significance envisaged to be impacted by the proposed powerline establishment.

Alternative two (2) and Alternative three (3)

Both alternatives 2 and 3 are viable and recommended for the establishment of the proposed power line.

The recommendations provided and outlined on this report for alternative route 1 should be followed and adhered to, as graves has high significance value to family members and are protected by law. From an archaeological and cultural heritage resources perspective, should the recommendations be followed there are no objections to the proposed power line project and we recommend to South African Heritage Resources Authorities (SAHRA) to approve the project as planned. The developer in this case Eskom Holdings SOC Ltd is here by reminded of section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorization being granted by the Department.

11. TOPOGRAPHICAL MAP

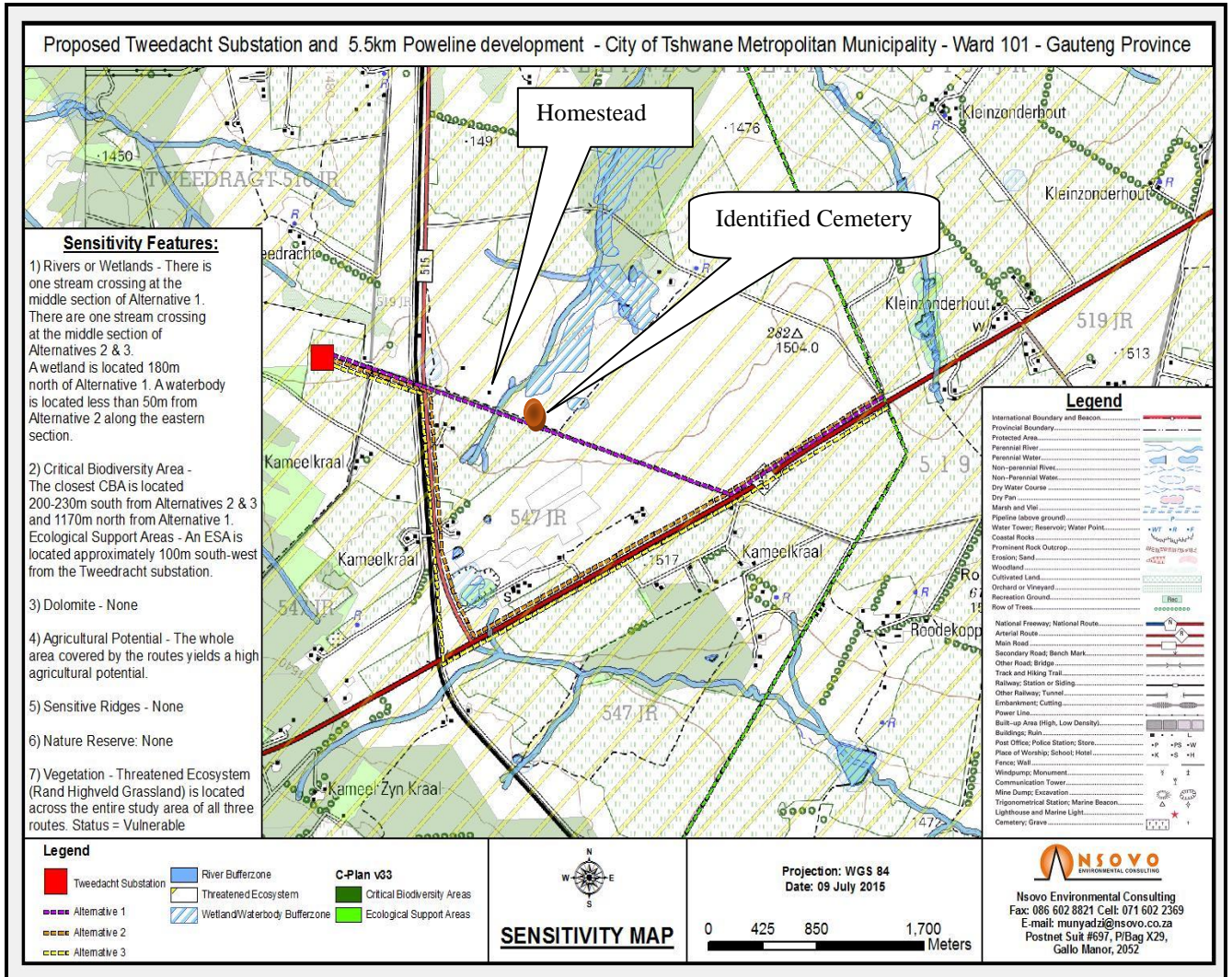


Figure 7: Sensitivity

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