

Heritage Walkthrough

**FOR THE THIRD 40 KM OF THE MASA NGWEDI TRANSMISSION POWERLINE PROJECT (120 KM)
FROM LEPHALALE PAST THABAZIMBI IN LIMPOPO PROVINCE**

Prepared For
Senkosi Consulting
By



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EXECUTIVE SUMMARY

Site name and location: The Masa Ngwedi power line project consists of two power lines running from Lephalale past Thabazimbi in Limpopo Province. This report focuses on Section 3 of the proposed alignment that starts from the farm Mecklenburg to Vlakpoort (approx. 35km). The power line corridor consists of a 400 kV line and a 765 kV line. The end tower for section 3 for the 765kV power line is tower No. 258; the end tower of the 400kV power line is tower 252.

Purpose of the study: Heritage Walk through of the proposed alignment focusing on tower positions to determine the presence of cultural heritage sites and the impact of the proposed tower positions on these non-renewable resources.

1:50 000 Topographic Map: 2427 CB, CA and CC.

EIA Consultant: Senkosi Consulting

Developer: Eskom Holdings Ltd

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

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Date of Report: 10 March 2014.

Findings of the Assessment:

The impacts to heritage resources by the proposed development are considered to be low. Three sites were recorded during the walk through for this section of the project. The sites consist of undecorated ceramics, slag and tuyere fragments (**Site 1**), a wide scatter of ex situ MSA material (**Site 2**) on deep turf, and two stone cairns (**Site 3**) of unknown purpose. None of the sites will be directly impacted on by tower positions but a secondary impact is possible during bush clearing on the sites and in the case of Site 1 excavations for tower positions might expose buried archaeological deposits. Therefore some recommendations are made to protect the sites from accidental damage during the construction phase of the project and are discussed in Section 8 of this report.

No cultural landscape elements were noted. An independent visual assessment was conducted as part of the EMPr for the project and therefor visual impacts are not addressed as part of the walk through.

If the recommendations made in this report are adhered to and based on the approval from SAHRA no red flags are identified and no deviation or micro adjustments of the line or tower positions are necessary.

Disclaimer: *Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Heritage Contracts and Archaeological Consulting CC and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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

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ABBREVIATIONS

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

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

GLOSSARY

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

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 BACKGROUND INFORMATION

Heritage Contracts and Archaeological Consulting CC has been contracted by Senkosi Consulting to conduct a heritage walkthrough for the proposed Masa Ngwedi Power Line project, from Lephalale past Thabazimbi, Limpopo Province. The report forms part of the Environmental Management Programme Report (EMPR) for the proposed Masa Ngwedi project. The project consists of two power lines running from Lephalale to Thabazimbi in Limpopo Province. This report focuses on Section 3 of the proposed alignment that starts from the farm Mecklenburg to Vlakpoort (approx. 35km). The power line corridor consists of a 400 kV line and a 765 kV line. The end tower for section 3 for the 765kV power line is tower No. 258; the end tower of the 400kV power line is tower 252.

The aim of the study is to survey the proposed tower positions to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, review of the HIA for the proposed project; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey three sites of heritage significance were identified within the power line corridor. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to SAHRA for review.

1.1 Terms of Reference

Field study

Conduct a field study to: a) visit the proposed tower positions to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of identified as significant areas; c) determine the levels of significance of the various types of heritage resources affected by the proposed towers.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

1.2. Archaeological Legislation and Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of a heritage specialist input is to:

- » Identify any heritage resources, which may be affected;
- » Assess the nature and degree of significance of such resources;
- » Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- » Assess the negative and positive impact of the development on these resources;
- » Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2)(b) of the NEMA and Sections 39(3)(b)(iii) of the MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999 is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

1.3 Description of Study Area

1.3.1 Location Data

The proposed 120 km transmission lines is located approximately 36 km south west of Lephalale (S23 47 59.2 E27 24 46.0) following an existing power line south, ending approximately 6 km west of Amandelbult (S24 49 55.8 E27 14 13.7), Limpopo Province. The third 40 km of the project that this report deals with traverses 11 farms. The farms that form part of this study are mostly privately owned game and cattle farms and consist of the following farms Mecklenburg 210 KQ, Stratford 309 KQ, Hampton 320 KQ (access to this farm was denied and it was subsequently not surveyed), Sweet Home 322 KQ, Nooitgedacht 339 KQ, Waterval 337 KQ, De Blauwe Banken 340 KQ, Buffelsfontein 353 KQ, Tygerkloof 354 KQ, Hartbeestkopje 367 KQ and Vlakpoort 388 KQ. Very few drainage lines occur in the area and all are all non-perennial. The Crocodile River is the main drainage course for the area (in the north of this section of the power line) running in a north-west to south east direction linking up with the Limpopo river.

The study area falls within a Savannah Biome as described by Mucina *et al* (2006) with the vegetation described as Western Sandy Bushveld in the north, Waterberg Mountain Bushveld in the central portion and Dwaalboom Thornveld in the south. The study area is characterised by sandy soil as well as turf. The northern portion of the study area is marked by dolomite hills and mountains known as the “vliee poort berge” and several smaller hills. South of this is the area relatively flat and featureless (no hills or pans) gently sloping towards major tributaries.

1.3.2. Location Map

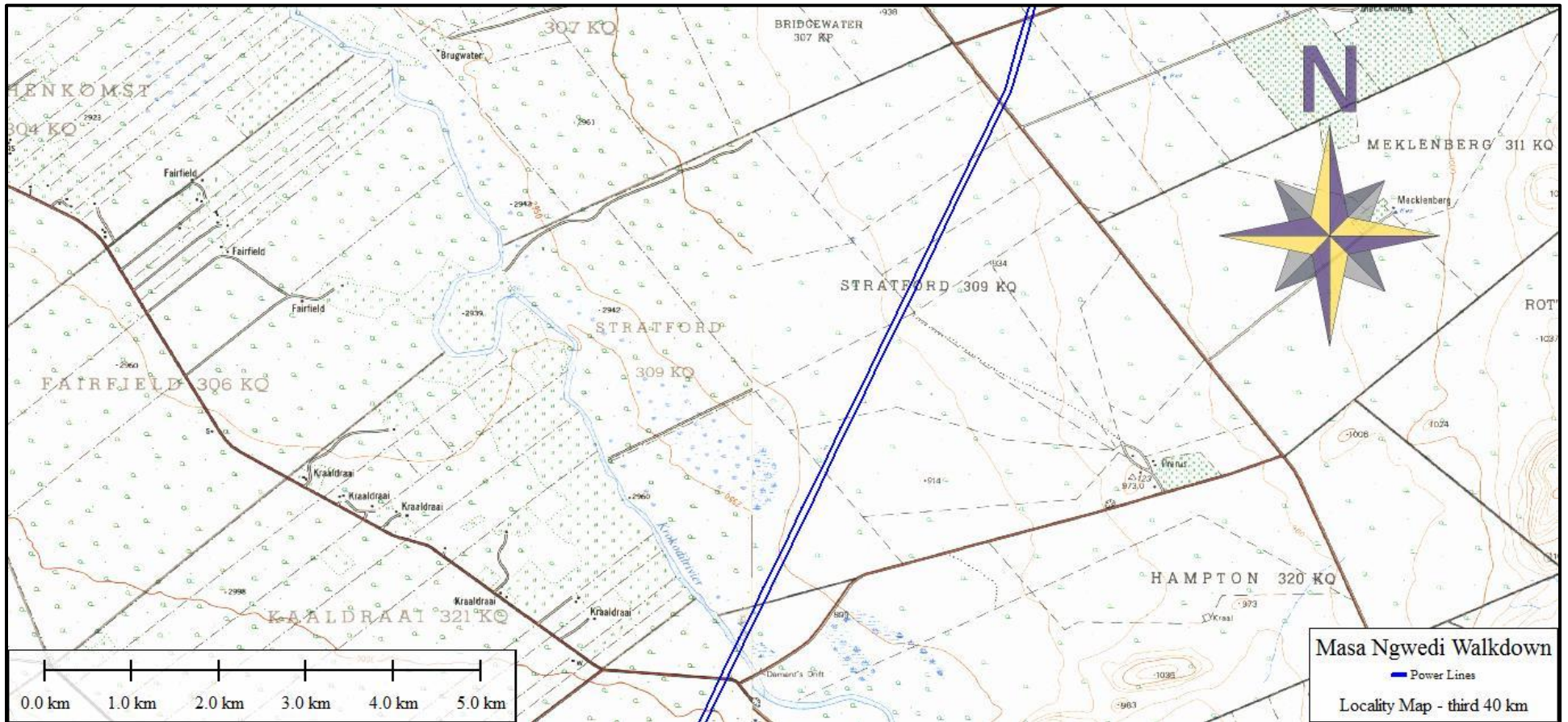


Figure 1: Position of power line on the farms Mecklenburg, Stratford and Hampton.

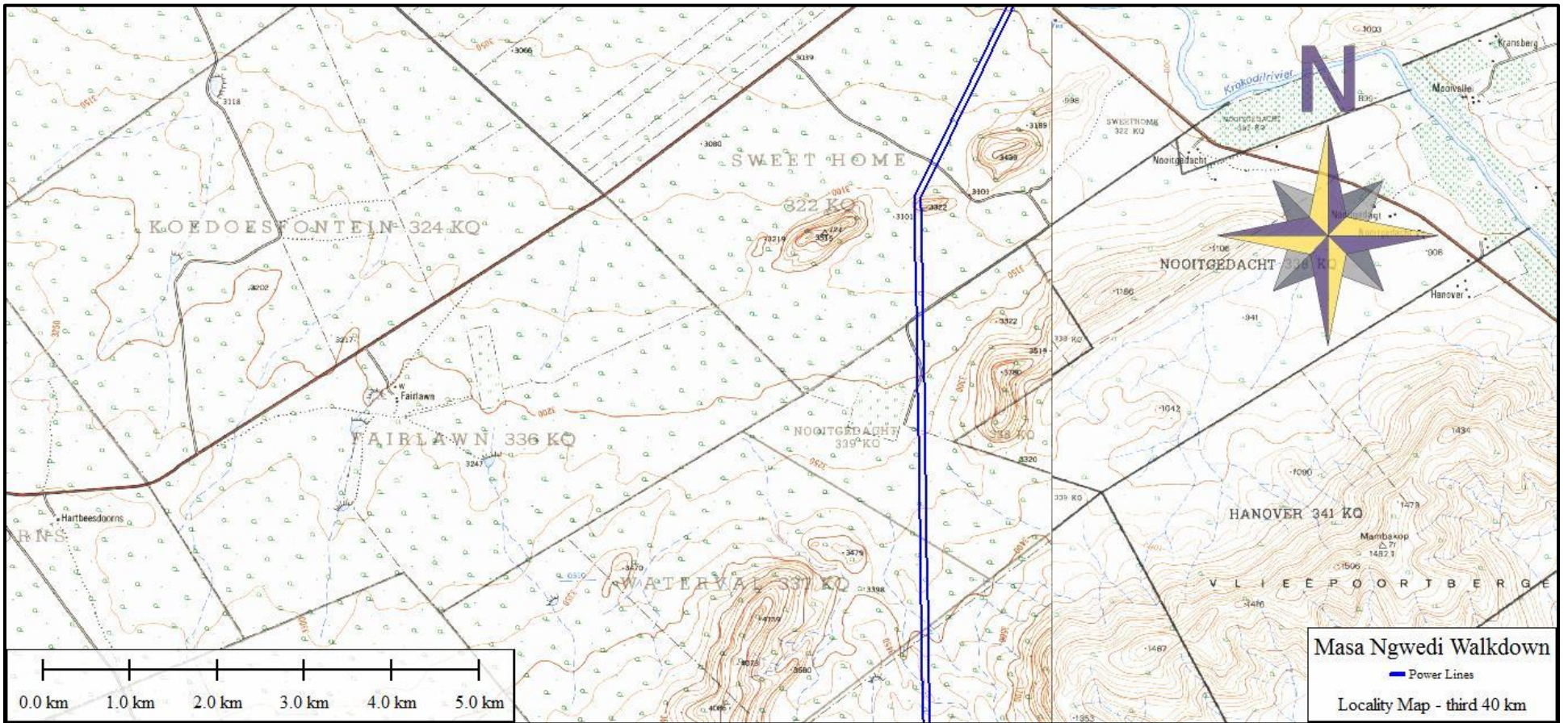


Figure 2: Position of the power line on the Sweethome, Nooitgedacht and Waterval.

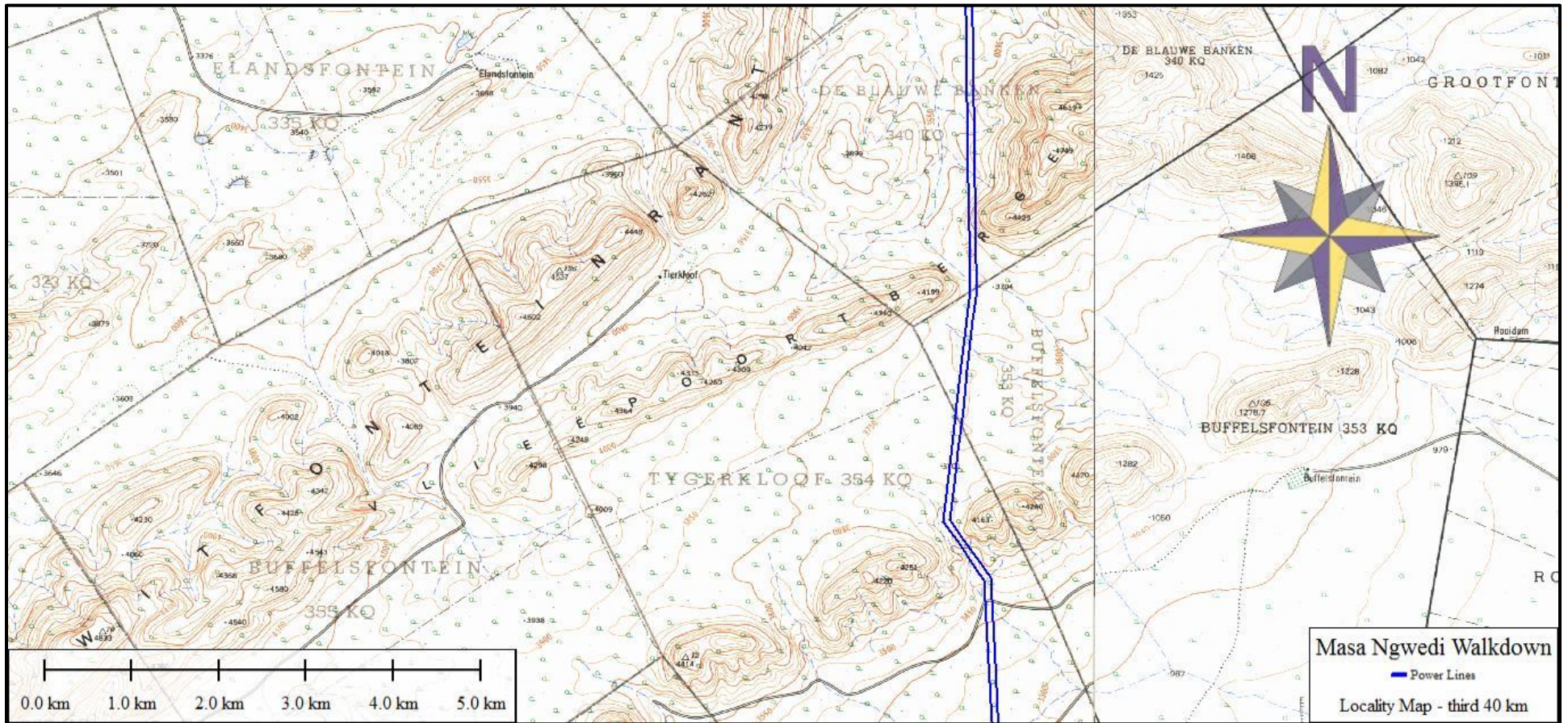


Figure 3: Position of the power line on the farms de Blauwe Banken, Buffelsfontein and Tygerkloof.

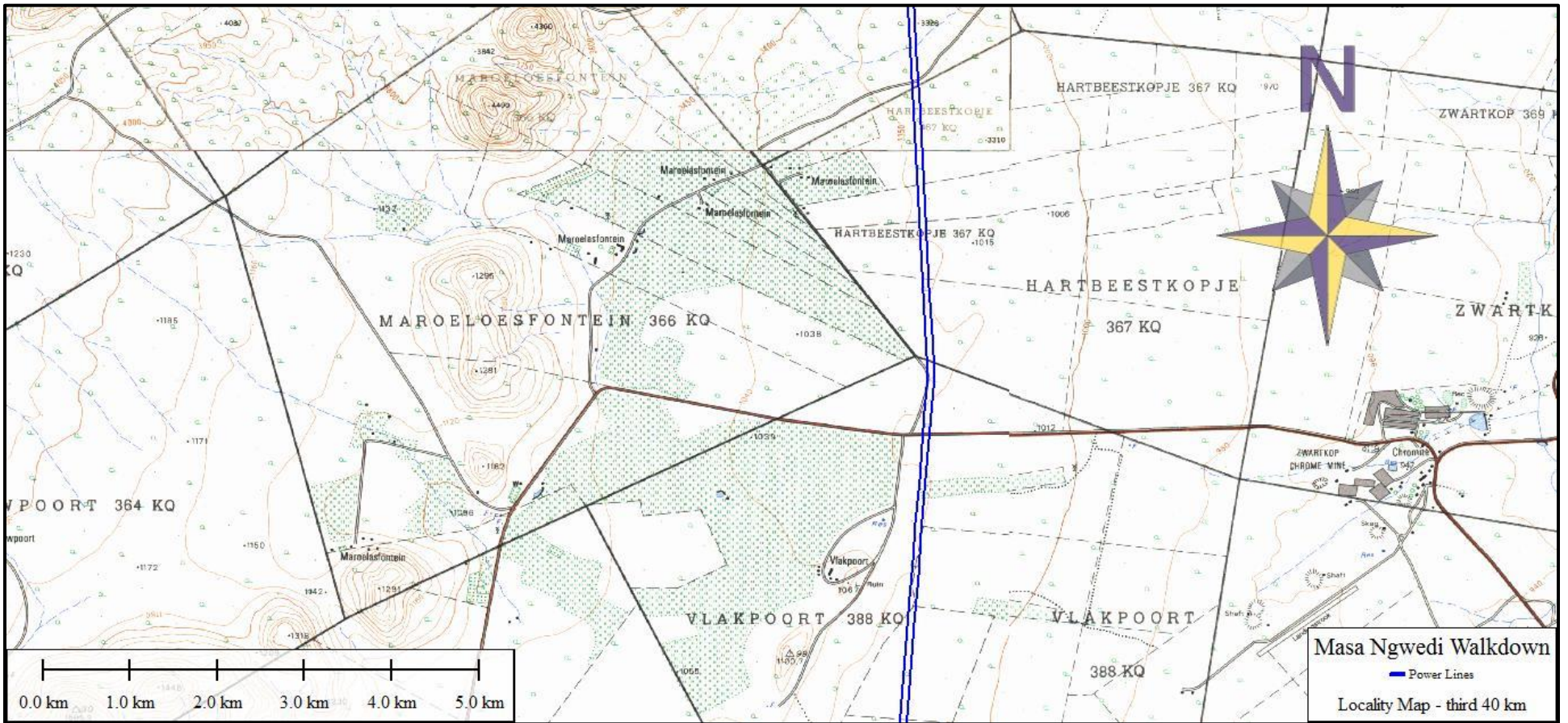


Figure 4: Position of the power line on the farms Hartbeestkopje and Vlakpoort

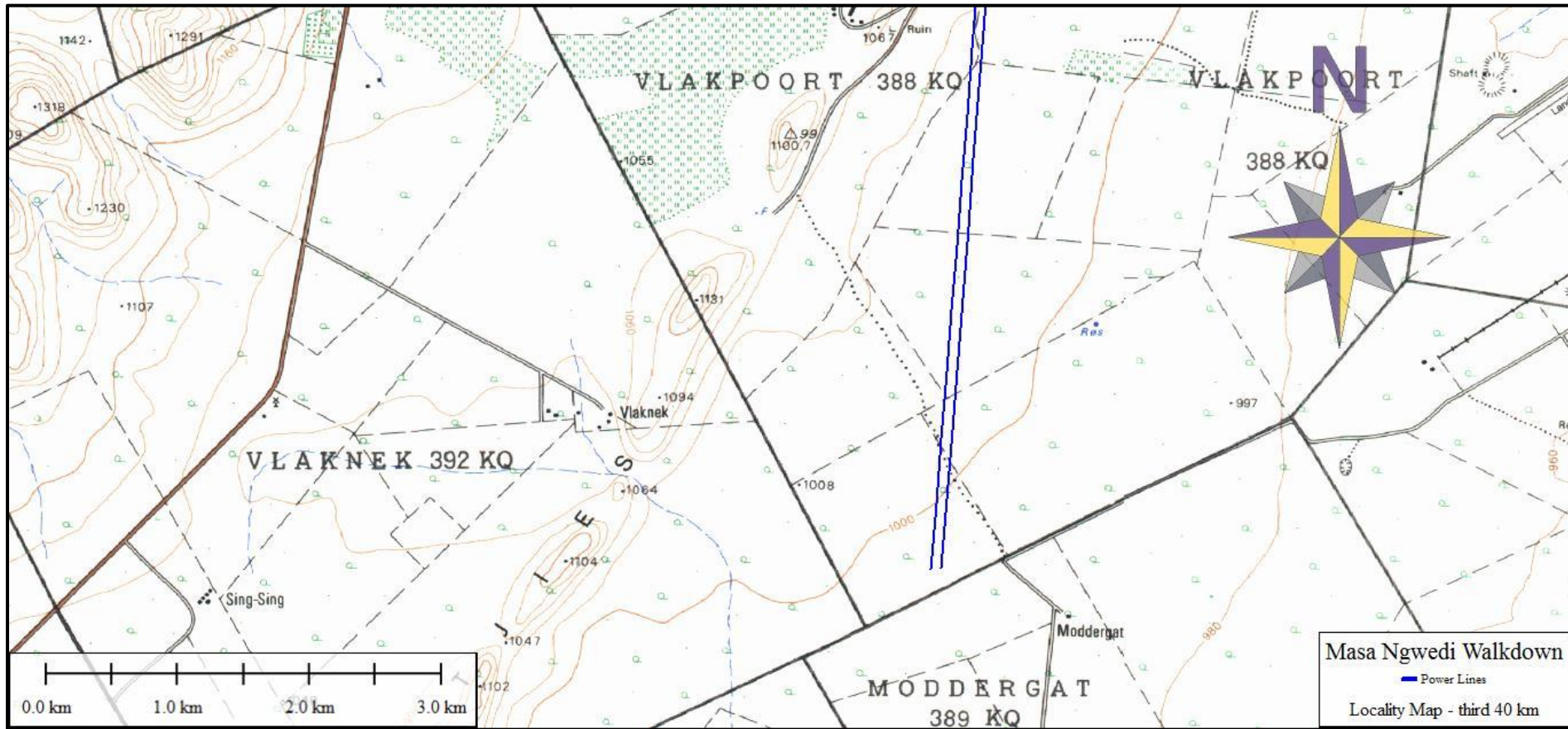


Figure 5: Position of the power line on the farm Vlakpoort.

2. APPROACH AND METHODOLOGY

The methodology used for walk through of transmission lines is different to the methodology for projects where AIA's or HIA's are needed. A Phase 1 HIA (Pistorius 2009) was conducted as part of the EIA and subsequently as part of the construction EMP the walk through is conducted. Since the initial HIA for the project dealt with obtaining desktop information to contextualise the study area, this is not repeated during the walk through phase. However to understand the heritage context of the study area the following phased approach was utilised for this project.

2.1 Phase 1

Phase 1 included a study of the extensive 2009 HIA for the project. This was complimented by consulting the archaeological database at Wits and previous CRM reports (SAHRIS) conducted in the area after the HIA report was done by Pistorius. The aim of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves of the area.

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located; these locations were marked and visited during the field work phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

2.2 Phase 2 - Physical Surveying

A field survey of the linear development of approximately 35 km including a buffer zone of approximately 110 m was conducted by a group of specialists who assisted in locating grave sites and sites of archaeological significance. The heritage component focussed on the proposed tower positions while giving special attention to drainage lines, hills and outcrops, high lying areas and disturbances in the topography. The proposed tower positions were surveyed on foot by a professional archaeologist on 4 to 7 November and the 14th of November 2013 and again on the 3rd and 4th of March 2014.

Sites recorded was plotted on 1:50 000 maps and their GPS co-ordinates noted. Digital photographs were taken at all the sites.

2.3. Restrictions

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. Thick vegetation in certain portions restricted accessibility to the tower positions as well as archaeological visibility. Only the proposed power line corridor was surveyed as indicated in the location maps, and not the entire farm that the power line traverses. The survey was impeded by the presence of dangerous animals (buffalo, rhinoceros and lions etc) on certain farms. At the time of the walk through the location of construction camps and access routes were not available and were not assessed. The 8 meter construction road within the corridor was however assessed.

The description of the proposed project, provided by the client, is assumed to be accurate as well as the results of the 2009 HIA. Very little academic research has been done in the greater study area of the proposed power line.

Although Heritage Contracts and Archaeological Consulting CC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

Any changes or deviations of the line or tower positions will have to be assessed separately.

3 NATURE OF THE DEVELOPMENT

Eskom is expanding transmission and generation infrastructure to ensure that there is sufficient generation capacity to sustain the country's economic growth. Transmission integration studies indicated that the optimal solution to minimise the number of planned transmission power lines from Mmamabula and Medupi Power Stations was to couple the two power stations to the new Masa substation near Lephalale.

In order to transmit the power to load centres in the Rustenburg/Brits area, Gauteng and further south, Eskom Transmission plans to build six new extra high voltage transmission lines from Masa (previously called Delta substation) to a new substation Selomo (previously Epsilon) near Potchefstroom.

This heritage report concentrates on the proposed transmission power lines to be constructed between Masa and Ngwedi substations. This transmission project consists of two lines – 1x 765kV power line and 1x 400kV power line – the total servitude is 110m wide. This project forms part of the Mmamabula/Medupi Transmission Integration Project

Servitude Width:

The servitude width for both power lines is 135m to which the construction activities are limited. An 8m strip shall be cleared flush with the ground to facilitate access and construction, except where tower erection and stringing requires more space. Any extra space outside the servitude shall be negotiated with the relevant Landowner and approved by Eskom and was not assessed as part of this walk through.

All areas marked as no go areas inside the servitude shall be avoided and demarcated.

Tower Spacing:

Tower spacing: 300-500m. (Average)

Tower height: 55m. (Average)

Minimum ground clearance: 10.4m.

Tower Design:

The following types of towers may be used on this project:

- Compact cross rope suspension tower.
- Guyed-V suspension tower.

- Self-supporting double circuit tower.
- Self-supporting strain tower.

4. ARCHAEOLOGICAL AND CULTURAL HISTORIC BACKGROUND

The HIA for the project (Pistorius 2009) utilised various sources to obtain a comprehensive background study for the area. He used the following sources for information gathering:

- Databases: SAHRA database and the Archaeological Data Recording Centre housed at the National Flagship Institute (Museum Africa) in Pretoria;
- Literature survey: included academic text books; research articles; post-graduate studies; ethnographic literature; encyclopaedia and historical atlases;
- Maps: 1:50 000 topographical maps and 1: 250 000 series;
- Consultations: Various spokespersons were consulted (farm owners, herd boys, etc.) as well as a public participation process where known heritage sites were indicated as part of the 2009 HIA.

The study resulted in a detailed chronology and background study supported by selective fieldwork to generalise the historical and archaeological character of the area. For a detailed desktop review please refer to the HIA by Pistorius (2009). In addition to the sources consulted by Pistorius this study also consulted the archaeological databases at Wits (that have no record of any sites for this section of the power line) and obtained CRM reports from SAHRIS for the wider study area (Kusel 2007 and Hutten 2012), who did not record any sites, and Huffman 2006 who assessed two farms that the power line traverses (Tygerkloof and Buffelsfontein) where he recorded rock art, mining heritage and Early and Late Iron Age sites as well as van der Walt (2010) who recorded several Iron Age sites on the farm Moddergat next to the power line end point, as well as relevant literature on the area.

4.1 Palaeontology

According to the palaeontological sensitivity map on SAHRIS portions of this section of the line will require a paleontological desktop study.

4.2 Earlier Stone Age

Hominids began to make stone tools about 2.6 million years ago. Known as the Oldowan industry, most of the earliest tools were rough cobble cores and simple flakes. The flakes were used for such activities as skinning and cutting meat from scavenged animals. These early artefacts are difficult to recognize and have so far only been found in rock shelters such as the Sterkfontein Caves (Kuman, 1998); they are unlikely to occur in the study area.

At about 1.4 million years ago hominids started producing more recognizable stone artefacts such as hand axes, cleavers and core tools (Deacon & Deacon, 1999). Among other things these Acheulian tools were probably used to butcher large animals such as elephants, rhinoceros and hippopotamus that had died from natural causes. Acheulian artefacts are usually found near the raw material from where they were quarried, at butchering sites, or as isolated finds.

No Acheulian sites are on record near the project area, but isolated finds are possible. However, isolated finds have little value. Therefore, the project is unlikely to disturb a significant site.

4.3 Middle Stone Age

By the beginning of the Middle Stone Age (MSA), tool kits included prepared cores, parallel-sided blades and triangular points hafted to make spears (Volman, 1984). MSA people had become accomplished hunters by this time, especially of large grazing animals such as wildebeest, hartebeest and eland.

These hunters are classified as early humans, but by 100,000 years ago, they were anatomically fully modern. The oldest evidence for this change has been found in South Africa, and it is an important point in debates about the origins of modern humanity. In particular, the degree to which behaviour was fully modern is still a matter of debate. The repeated use of caves indicates that MSA people had developed the concept of a home base and that they could make fire. These were two important steps in cultural evolution (Deacon & Deacon, 1999).

MSA artefacts have been found in the Oliboompoot Cave to the south of Lephalale (Mason, 1962; M. van der Ryst, 2006) and in the wider region at Marakele, as well as on the following farms New Belgium 608 LR, Schurfpoort 112 KR and Goergap 113 KR (Birkholtz & Steyn 2002).

4.4 Later Stone Age

By the beginning of the Later Stone Age (LSA), human behaviour was undoubtedly modern. Uniquely human traits, such as rock art and purposeful burials with ornaments, became a regular practice. These people were the ancestors of the San (or Bushmen).

San rock art has a well-earned reputation for aesthetic appeal and symbolic complexity (Lewis-Williams, 1981). A Single rock art site is located on the farm Tygerkloof (Huffman 2004). In addition to art, LSA sites contain diagnostic artefacts, including microlithic scrapers and segments made from very fine-grained rock (Wadley, 1987). Spear hunting probably continued, but LSA people also hunted small game with bows and poisoned arrows. Important LSA deposits have been excavated in Oliboompoot Cave (Mason, 1962) and other sites in the Waterberg to the north east (Van der Ryst, 1998).

4.5 The Iron Age (AD 400 to 1840)

Bantu-speaking people moved into Eastern and Southern Africa about 2,000 years ago (Mitchell, 2002). These people cultivated sorghum and millets, herded cattle and small stock and manufactured iron tools and copper ornaments. Because metalworking represents a new technology, archaeologists call this period the Iron Age. Characteristic ceramic styles help archaeologists to separate the sites into different groups and time periods. The first 1,000 years is called the Early Iron Age.

As mixed farmers, Iron Age people usually lived in semi-permanent settlements consisting of pole-and-daga (mud mixed with dung) houses and grain bins arranged around a central area for cattle (Huffman, 1982). Usually, these settlements with the 'Central Cattle Pattern' (CCP) were sited near water and good soils that could be cultivated with an iron hoe. For the project area, archaeological sites such as these are unlikely to occur except along river terraces.

Archaeologists have not yet resolved the role of a special pottery, known as Bambata, in the spread of pastoralism and mixed farming (Huffman, 2007). Some believe that Bambata pottery represents the vanguard of the Early Iron Age, or alternatively, Khoe pastoralists, while others believe it was acquired by LSA people through trade. This pottery has been found at Oliboompoot in LSA deposits (Mason, 1962; Van der Ryst, 2006) and is thus believed to exist in the general region.

For the area in question the history and archaeology of the Sotho Tswana are of interest. The ceramic sequence for the Sotho Tswana is referred to as Moloko and consists of different facies with origins in either the Icon facies or a different branch associated with Nguni speakers. Several sites belonging to the Madikwe and Olifantspoortfacies (from Icon) have been recorded close to the project area. These sites date to between AD 1500 and 1700 and predate stone walling ascribed to Sotho-Tswana speakers. Sotho Tswana stonewalled sites with Uitkomst pottery have been found close to the study area and dates to the seventeenth to nineteenth centuries. Stone walled sites belonging to the LIA have also been identified next to the study area but so far have not been linked to a cultural group.

Late Iron Age peoples were attracted to the area because of the relatively fertile soils around the hills and valleys, and because of the iron ore and red ochre. Mining techniques associated with the ancient mine workings are the same as those found in the Rooiberg area some 30km from Thabazimbi (Huffman 2006). Three groups are found in the Rooiberg area, specifically Madikwe, Melora and Rooiberg groups. Stratigraphically, the relationship between Madikwe and Rooiberg is evident where the Madikwe site 20/85 lies underneath the Rooiberg site 11/85, suggesting that Rooiberg is the more recent (Mason 1986). Ceramic evidence suggests then that at one time Sotho-Tswana people were mining at Rooiberg. The ceramic evidence from the Rhino Andalusite Mine shows that the Sotho-Tswana people living there were directly related to the miners at Rooiberg: both belonged to the Western Sotho-Tswana cluster. Therefore the relationship between the ochre mine and Madikwe settlements is great. Associated with the Madikwe settlements, in addition to the ochre mine is the several maize grindstones found.

Trade connections for ochre and tin have a bearing on the presence of maize. Trade networks spanned a wide area, up to the Zimbabwe culture area in the north, and as far as Maputo in the east before the arrival of the Dutch (Friede & Steel 1976). Maize came to Maputo sometime after the early 16th century through Portuguese trade with the New World. The grindstones found at the site CB14 in the Rhino Andalusite Mine indicate that maize was grown in the Thabazimbi area during the 17th century (Huffman 2006). If one accepts the grindstone as diagnostic, then maize was cultivated some 150 years earlier than in Kwazulu-Natal.

Some Iron Age settlements are on record for the farms forming part of the study (Pistorius 2009 and Huffman 2006). And to the south of the study area on Moddergat (van der Walt 2010). None of these sites will be impacted on by the proposed power line

4.6 Cultural and Historic

Voortrekkers crossed the Vaal River in 1836, and within a few years, began to spread north. Much of the Limpopo Province contained tsetse fly, and so early Boer farmers didn't settle immediately in the area. European settlement of the region began at the beginning of the last century. Historic mining also are on record for Sweet Home (Pistorius 2009) and for Buffelsfontein.

5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES

The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed power line the local extent of its impact necessitates a representative sample and special attention was given to the proposed tower positions. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites.

The following criteria were used to establish site significance:

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

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

- » Its importance in/to the community, or pattern of South Africa's history;
- » Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- » Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- » Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- » Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- » Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- » Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- » Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- » Sites of significance relating to the history of slavery in South Africa.

5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and approved by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 8 of this report.

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

6. WALK THROUGH FINDINGS-DESCRIPTION OF SITES

This report deals with the heritage walk through of the third section of the proposed Masa Ngwedi power line. A track log of the areas covered is included in Annexure C. This report focuses on Section 3 of the proposed alignment that starts from the farm Mecklenburg to Vlakpoort (approx. 35km). The end tower for section 3 for the 765kV power line is tower No. 258; the end tower of the 400kV power line is tower 252. Although the vegetation is very thick on some portions of this section, other portions have better visibility (Figure 6 – 11) it was possible to visit all the towers physically or to get close enough to assess the towers visually. The northern portion of this section is characterised by sandy soil, mountains and hills while the southern section is flat and marked by deep turf. The main drainage system in this area is the Crocodile River in the northern portion of the study area.

Three sites were recorded for this section of the power line consisting of the widely scattered ceramic and *tuyere* fragments (**Site 1**), a low concentration of scattered MSA artefacts (**Site 2**) (Figure 12) and two stone cairns (**Site 3**) of unknown purpose (Figure 13). Please refer to section 6.3 for a short description of the sites.



Figure 6. Northern portion of Mecklenburg.



Figure 7. Northern portion of Stratford.



Figure 8. Central portion of Sweethome.



Figure 9: Tygerkloof viewing south.



Figure 10. Central portion of Nooitgedacht.



Figure 11. Central portion of Vlakpoort

6.1. Site Distribution Map

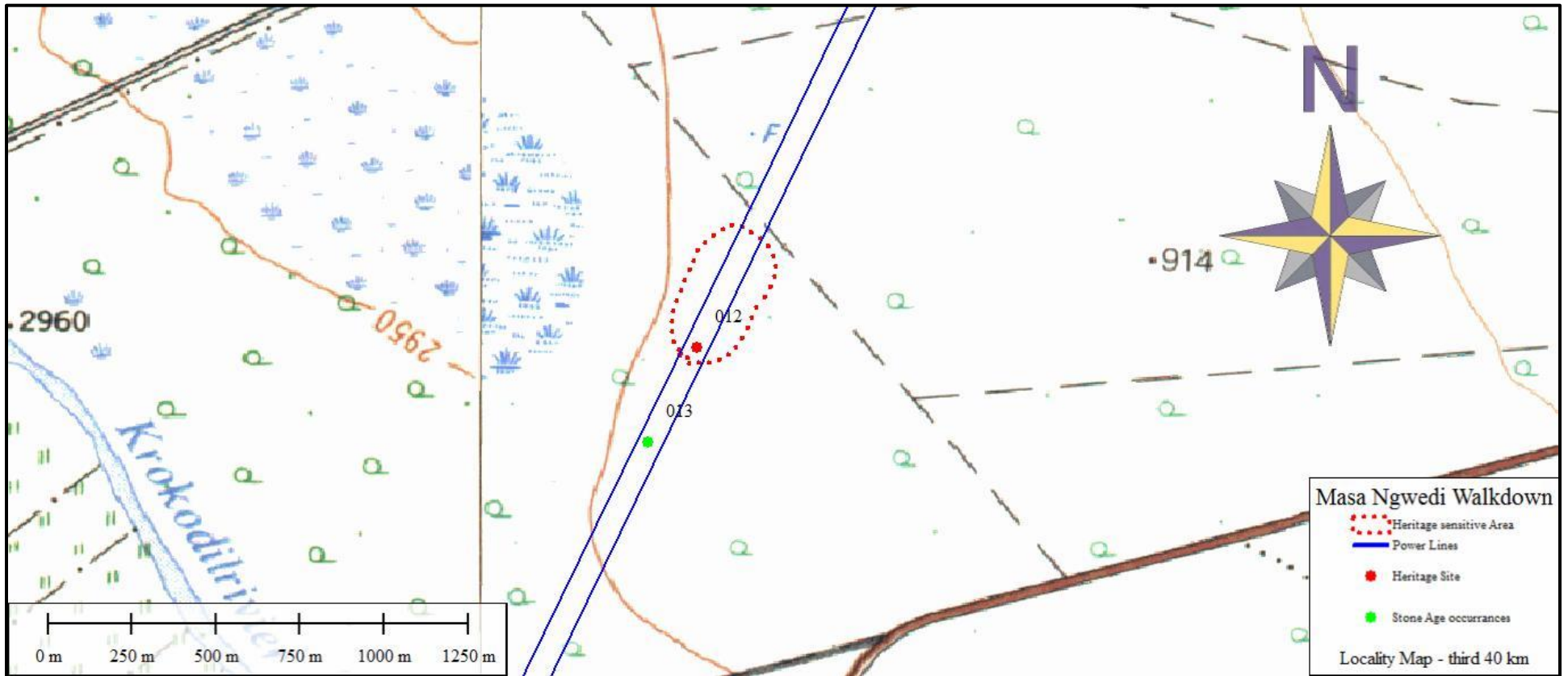


Figure 12: Site 1 (field nr 012) and Site 2 (field nr 013) on the farm Stratford.

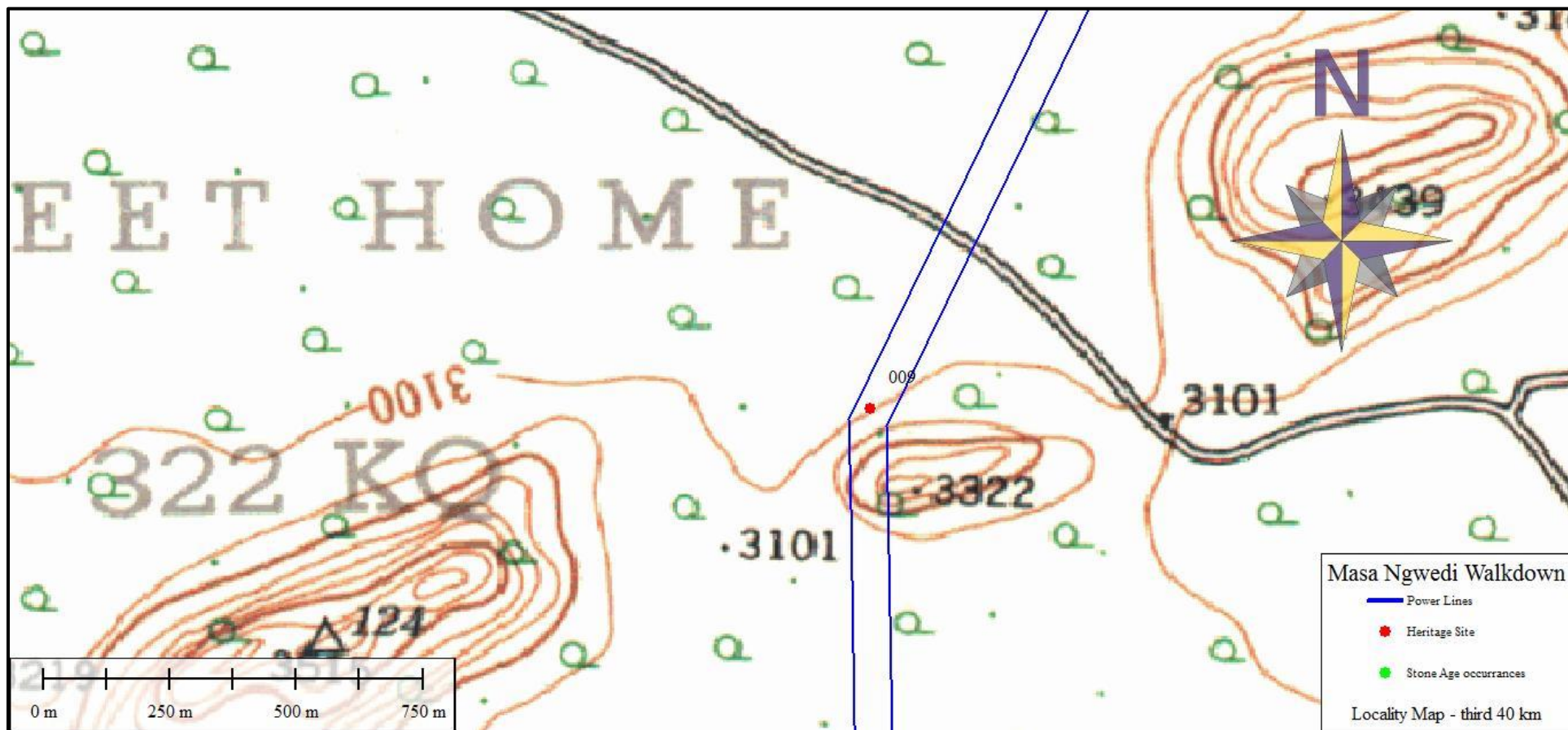



Figure 13: Site 3 (field nr 009) on the farm Sweet Home.

6.2. Sites with Coordinates

Site Number	Field Nr	Landscape	Type Site	Cultural Markers	Coordinate (accuracy 4 meters)
Site 1	012	Archaeological	Iron Age	Ceramics and tuyere fragments	S24 34 01.5 E27 15 22.6 S24 34 11.3 E27 15 19.8
Site 2	013	Archaeological	Stone Age	Scattered MSA flakes	S24 34 20.4 E27 15 15.0
Site 3	009	Possibly Historical	Maybe mining related?	Stone cairns	S24 36 35.8 E27 14 09.3

6.3. Site Descriptions

6.3.1. Site 1

Way-point Number	012
Type of site	Open scatter
Geographical Setting	Plain
Geographical Setting - Closest Water source	Crocodile river to the south
Site components	Single component
Current condition of the site	Below surface - Surface evidence has been obliterated, however, there is likely to be subsurface material present. Note that this is different from a destroyed site
Describe any disturbance to the site	Sheet erosion
Description of artefacts, approximate age and significant features of the site	Slag, undecorated ceramics, tuyere fragments
Estimation or measurement of site extent	360 x 230 meters
Depth and stratification of the site	Non visible
	
Figure 14: Undecorated ceramics, slag and tuyere fragments	
Statement of Significance	Low - Medium Significance
Field Rating (Recommended grading or field significance) of the site:	Generally Protected B (GP.B), Medium significance- Recording before destruction
Impact Evaluation of development on site	Direct through construction of towers on area
Recommendations including	Monitoring

6.3.2. Site 2

Way Point Number	013
Type of Site	Find Spot/ Occurrence
Geographical Setting	Plain
Closest Water Source	Crocodile River
Site Components	Unknown
Current Condition of site	Ex situ material (e.g transported, deflated or exposed by natural agents with no stratigraphy)
Describe any disturbance to the site	The site is located on the floodplain of the Crocodile river and has repeatedly been flooded over the years.
Threats or sources of risk on the site	Sheet erosion
Description and type of artefacts, approximate age and significant features of the site (Raw material, source of raw material, density).	Raw material from hornfels and quartzite, artefacts consisting of triangular flakes, end scrapers and miscellaneous flakes. Found all over turf plain. Ex situ and rolled. High degree of weathering. 1 artifact every 5 square meters
Estimation or measurement of site extent	Scattered over an area of almost 300 meters.
Depth and stratification of the site	None visible



Figure 15: Range of raw material



Figure 16: General site conditions

Statement of Significance	Low Significance
Field Rating (Recommended grading or field significance) of the site:	Generally Protected C (GP.C), Low significance-Destruction
Impact Evaluation of development on site	Secondary
Recommendations	No further action necessary

6.3.3. Site 3

Way-point Number	009
Type of site	Open Air Site
Geographical Setting	Hill Top
Geographical Setting - Closest Water source	Crocodile river to the north
Site components	Single component
Current condition of the site	Fair = significant disturbance, some remains in-situ
Describe any disturbance to the site	Walls are collapsing as part of erosion activities
Threats or sources of risk on the site	Erosion
Description of artefacts, approximate age and significant features of the site	The site consists of two stone cairns. Of unknown purpose. That might have been part of a wall. The cairn are overgrown and covered with moss. The cairns are located on the northern face of a small hill. The cairns are located two meter apart and measures approximately 2x1. They are not aligned east to west like one would expect from graves and could be associated with the historic mining activities on the farm (Pistorius 2009).
Estimation or measurement of site extent	4x4 meter
Depth and stratification of the site	Non visible



Figure 17: Stone cairn



Figure 18: Stone cairn



Figure 19: General site conditions

<p>Statement of Significance</p>	<p>If graves – high social significance If mining heritage – low to medium</p>
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>Based on worst case scenario of graves: Generally Protected a (GP.A)</p>
<p>Impact Evaluation of development on site</p>	<p>Secondary as construction activities might expose stratified deposits.</p>
<p>Recommendations including</p>	<p>Demarcate area during construction phase</p>

7. Potential Impact

7.1. Pre-Construction phase:

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of road infrastructure needed for the construction phase. These activities can have a negative and irreversible impact on all of the recorded heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

7.2. Construction Phase

During this phase the impacts and effects are similar in nature but more extensive than the pre-construction phase. These activities can have a negative and irreversible impact on all of the recorded heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

7.3. Operation Phase:

No impact is envisaged for the recorded heritage resources during this phase.

8. CONCLUSIONS AND RECOMMENDATIONS

Three sites were recorded during the walk through for this section of the project. The sites consist of undecorated ceramics, slag and tuyere fragments (**Site 1**), a wide scatter of ex situ MSA material (**Site 2**) on deep turf, and two stone cairns (**Site 3**) of unknown purpose. None of the sites will be directly impacted on by tower positions but a secondary impact is possible during bush clearing on the sites and in the case of **Site 1** excavations for tower positions might expose buried archaeological deposits. Therefore some recommendations are made to protect the sites from accidental damage during the construction phase of the project and are discussed below. Please refer to Annexure A and B for a heritage summary.

Site 1

The lack of decorated ceramics from the site hampers the positive identification of the site. The sites are buried underneath the red Kalahari windblown sand that hampers archaeological visibility and the site are marked by scatters of undecorated pottery, the possibility exist of founding archaeological deposits covered by soil. It is therefore recommended that the wider area around the recorded site is monitored by an archaeologist during construction to document and mitigate accidental finds.

Site 2

Site 2 consists of individual occurrences of highly weathered MSA flakes that are found widely scattered on the northern floodplain of the Crocodile River, no one concentration of artefacts were identified and these isolated finds does not constitute a site per se. The artefacts have faceted striking platforms characteristic of MSA but are highly weathered and have a rolled appearance possibly the result of water related post-depositional processes .Artefacts are scattered over a large area (300 meters). Due to the low artefact density and the large area the site covers with the very small physical footprint (relative to the extent of the site) – and therefore adverse effects –the 765 and 400 kV power lines would have on the occurrence as a whole, the site is given a low heritage significance rating and no mitigation is necessary prior to construction.

Site 3

Consists of two stone cairns on the northern face of a small hill. The purpose of these cairns is unknown and a worst case scenario could be that they are graves. However more likely is that they are associated with the historical mining activities on the farm Sweet Home. They will not be impacted on by any tower position but bush clearing and construction roads may impact on the site and the site must be therefore demarcated during the construction phase to protect the site.

No cultural landscape elements were noted in the proposed corridor. Visual impacts to scenic routes and sense of place are also considered to be low as the line follows an existing power line. A visual impact assessment was also commissioned for the project facilitated by the client and no further mitigation is recommended for this aspect from a heritage point of view.

Due to the subsurface nature of archaeological material and unmarked graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find and therefor chance find procedures should be put in place as part of the EMP. A short summary of chance find producers is discussed below.

Chance finds procedure

This procedure applies to Eskom's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the construction, operations or closure phases of this project, any person employed by Eskom , one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on mine operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

If the recommendations as made in section 8 of this report are adhered to (subject to approval from SAHRA) there is from an archaeological point of view no reason why the proposed project should not proceed.

9. PROJECT TEAM

Jaco van der Walt, Project Manager and Archaeologist

10. STATEMENT OF COMPETENCY

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also valid for/acknowledged by SAHRA and AMAFA.

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique, DRC and Tanzania; having conducted more than 400 AIAs since 2000.

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Wits Archaeological Database (reference)

ANNEXURE C

Track log of areas covered – power lines in blue and track logs in black



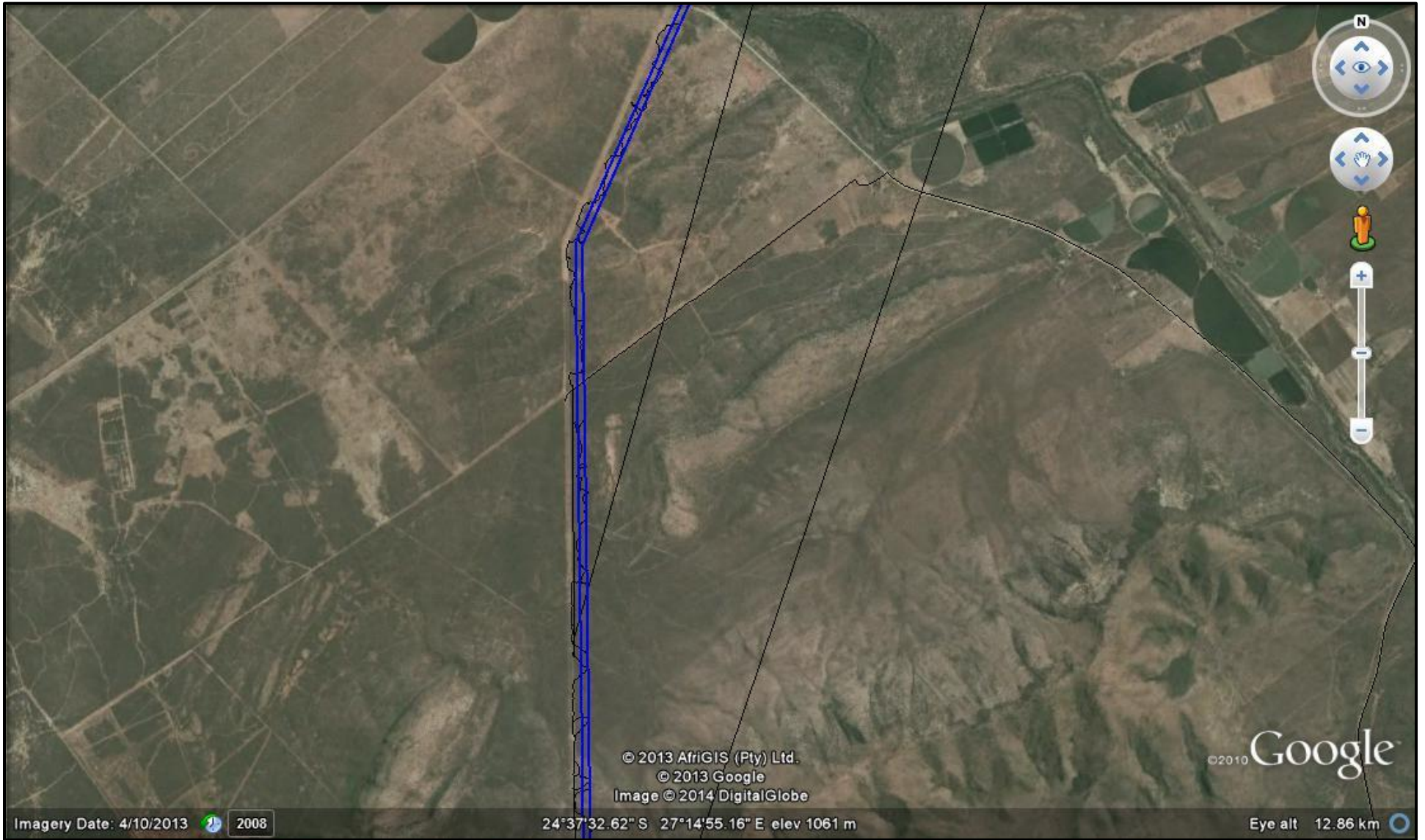
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Imagery Date: 4/10/2013 2008

24°33'24.53" S 27°16'08.02" E elev 927 m

Eye alt 12.86 km



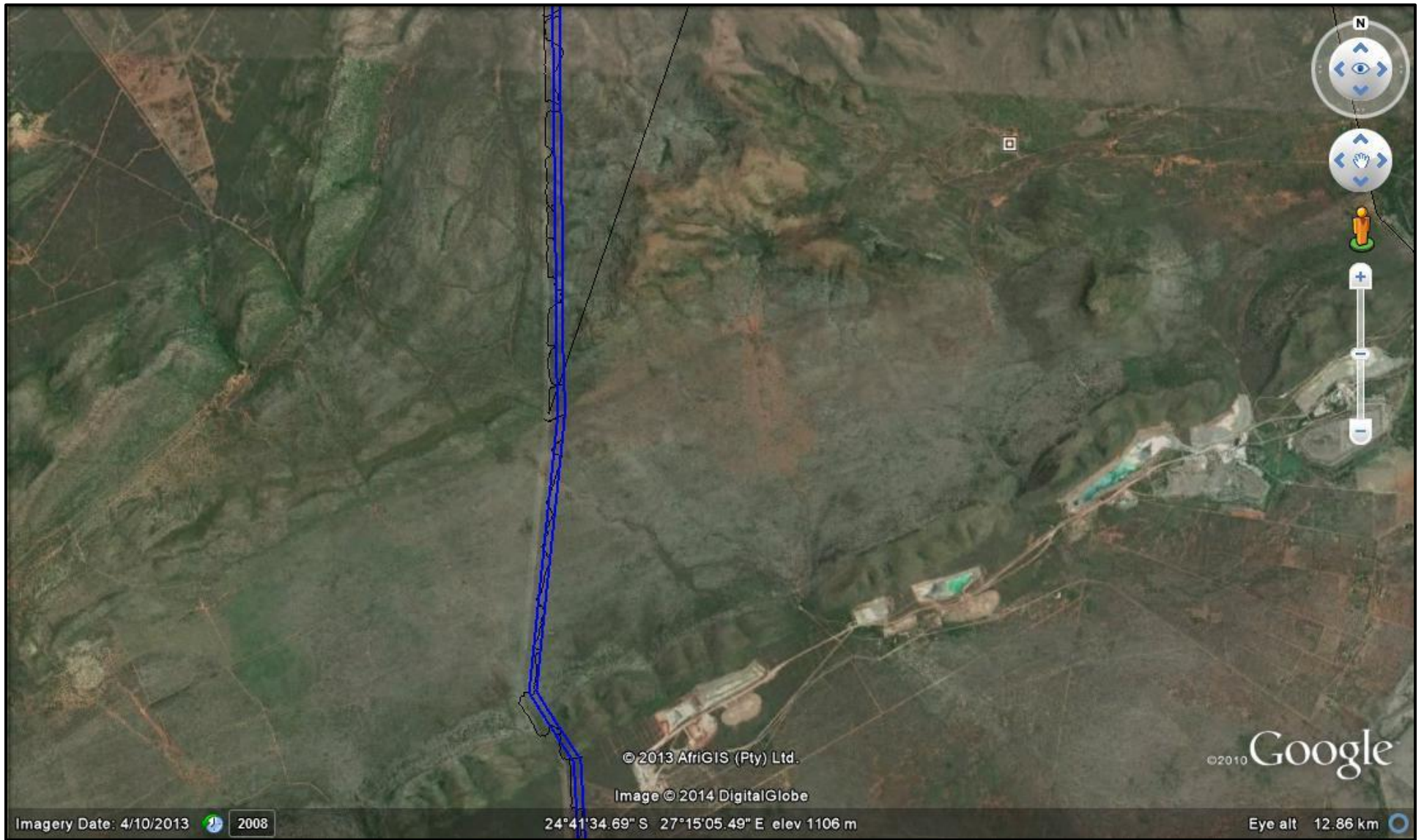
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Imagery Date: 4/10/2013 2008

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Eye alt 12.86 km



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Imagery Date: 4/10/2013 2008

24°41'34.69" S 27°15'05.49" E elev 1106 m

Eye alt 12.86 km

