DRAFT ARCHAEOLOGICAL IMPACT ASSESSMENT

FOR THE PROPOSED ETNA-TRADE ROUTE 88KV POWERLINE AND SWITCHING STATION, LENASIA, GAUTENG PROVINCE

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Nsovo Environmental Consulting

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General

The possibility of unmarked or informal graves and subsurface finds cannot be excluded. If any possible finds are made during construction, the operations must be stopped and a qualified archaeologist contacted for an assessment of the find/s.

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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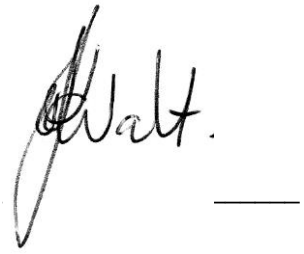
SIGNATURE: 

EXECUTIVE SUMMARY

Site name and location:
The proposed Etna -Trade Route 88kV powerline and switching station within the jurisdiction of City of Johannesburg Metropolitan Municipality entails the construction of an 88kV powerline which will connect the existing Etna, existing Lehae and the Trade Route substations which is under construction. Currently there is an 88kV powerline running from Etna substation to Lenasia. This project aims to replace the section of the existing 88kV powerline from Etna substation to Trade Route substation.

1: 50 000 Topographic Map: 2627 BD

EIA Consultant: Nsovo Environmental Consulting

Developer: TBC

Heritage Consultant: Heritage Contracts and Archaeological Consulting CC (HCAC).
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Date of Report: 7 November 2016

Findings of the Assessment:

HCAC was appointed to assess the study area in terms of the archaeological component of Section 35 of the NHRA as part of the basic assessment for the project. No archaeological sites (Iron Age or Stone Age) of significance were recorded. No further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed.

In terms of Section 34 of the Act (Built Environment) a single ruin occurs in close proximity to the power line (approximately 30 meters). The exact age of the structure is unknown but it could possibly be older than 60 years and if the structure will be impacted on, it is recommended that the age of the structure should be confirmed. If the structure is confirmed to be older than 60 years, it is recommended that a conservation architect should be appointed to assess the structures and assist with the application of a demolition permit. In the Northern Section of the line an enclosed area exists where access was not granted by the residents of the area. If any of the buildings in this section will be affected it is recommended that they should be assessed as a second phase of study. Two sets of structures occurred:
First set of structures 1 is located at 26° 19' 29.8796" S, 27° 52' 47.6363" E approximately 25 meters from the line.
Second set of structures is located at 26° 19' 38.3226" S, 27° 53' 10.2664" E directly under the line.

In terms of Section 36 of the Act no formal burial sites were recorded in the study area. There are however several stone cairns recorded of which the purpose is unknown, but these should be treated as graves unless proven otherwise. If any other graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. Due to the subsurface nature of archaeological remains and the fact that graves can occur anywhere on the landscape, it is recommended that a chance find procedure is implemented for the project as part of the EMP.

The study area is surrounded by residential developments (formal and informal) and no significant cultural landscapes or viewscapes were noted during the fieldwork. Other studies in the area recorded cemeteries and structures (e.g. Coetzee 2008). Huffman *et al* (1991) recorded both Iron Age sites and historical buildings. Pelser (2015) recorded Iron Age Remains, Historical Structures and graves.

Based on the results of the field survey of the proposed development there are no significant archaeological risks associated with the development and HCAC is of the opinion that from an archaeological point of view there is no reason why the development should not proceed if the recommendations as made in the report area adhered to and based on approval from SAHRA.

CONTENTS

FIGURES

ABBREVIATIONS

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

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

GLOSSARY

Archaeological site (remains of human activity over 100 years old)
Early Stone Age (~ 2.6 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 (**HCAC**) was appointed to conduct an Archaeological Impact Assessment for the proposed Etna Trade Route 88 kV Powerline and switching station development as part of the Basic Assessment process.

The aim of the study is 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, a desktop study that includes collection from various sources and consultations; Phase 2, the physical surveying of the study area on foot and by vehicle; Phase 3, reporting the outcome of the study.

General site conditions 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 the SAHRA for review.

1.1.Terms of Reference

Desktop study
Conduct a brief desktop study where information on the area is collected to provide a background setting of the archaeology that can be expected in the area.

Field study
Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

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 Heritage 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 section S. 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 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 AIA's 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 reinternment 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 Etna-Trade Route 88kV powerline and switching station is located within the jurisdiction of City of Johannesburg Metropolitan Municipality (Figure 1) and entails the construction of an 88kV powerline which will connect the existing Etna, existing Lehae and the Trade Route substations which is under construction. Currently there is an 88kV powerline running from Etna substation to Lenasia. This project aims to replace the section of the existing 88kV powerline from Etna substation to Trade Route substation.

1.3.2. Location Map

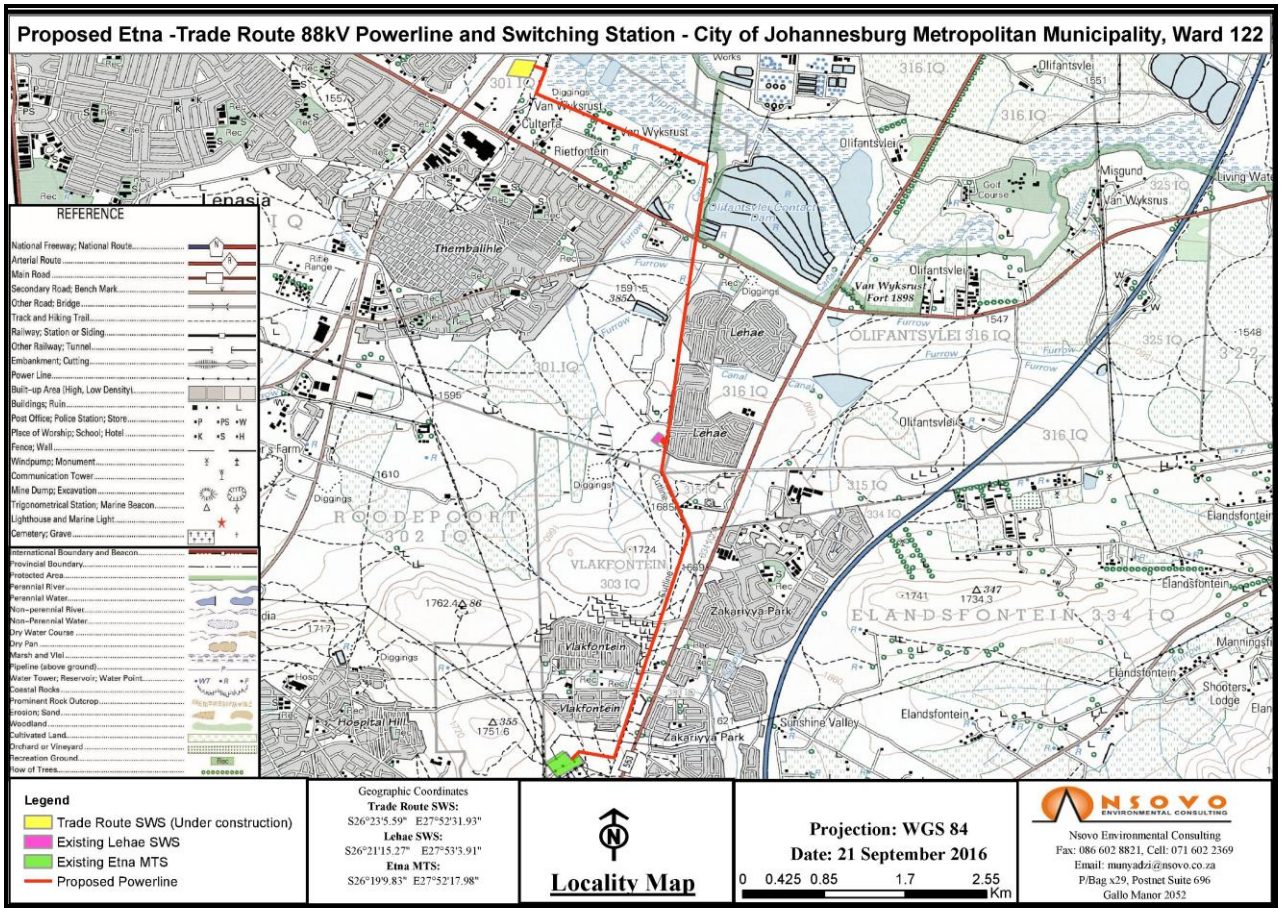

Figure 1. Location map provided by Nsovo Environmental Consulting.

2. APPROACH AND METHODOLOGY

The aim of the study is to cover archaeological databases to compile a background of the archaeology that can be expected in the study area followed by field verification; this was accomplished by means of the following phases.

2.1 Phase 1 - Desktop Study

The first phase comprised desktop, scanning existing records for archaeological sites, historical sites, graves, architecture (structures older than 60 years) of the area. The following approached was followed:

2.1.1 Literature Search

This was conducted by utilising data stored in the national archives and published reports relevant to the area. The aim of this is to extract data and information on the area in question.

2.1.2 Information Collection

SAHRIS was consulted to collect data from previously conducted CRM projects in the region to provide a comprehensive account of the history of the study area.

2.1.3 Consultation

No public consultation was done by the author as this was done independently as part of the BA.

2.1.4 Google Earth and Mapping Survey

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

2.1.5 Genealogical Society of South Africa

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

2.2 Phase 2 - Physical Surveying

Due to the nature of cultural remains, the majority of which occurs below surface, a field survey of the proposed development was conducted. The study area was surveyed by means of vehicle and extensive pedestrian surveys on the 4th November 2016.

The survey was aimed at covering the proposed development footprint, focussing on specific areas on the landscape that would be more likely to contain archaeological and/or other heritage remains like drainage lines, rocky outcrops as well as slight elevations in the natural topography. These areas were searched more intensively, but many other areas were walked in order to confirm expectations in those areas. Track logs of the areas covered were taken (Figure 2).

Figure 2. Track logs of the areas surveyed indicated in black with the development footprint indicated in red.

2.3. Restrictions

Due to the subsurface nature of archaeological artefacts, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey and the possible occurrence of unmarked graves and other cultural material cannot be excluded. This report only deals with the footprint area of the proposed development as indicated in the location map. It should be noted that access in the study area was restricted due to safety concerns, presence of illegal squatters, dumping and sewerage spill areas.

Although HCAC 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 graves, stone tool scatters, artefacts, bones or fossils, be exposed during the process of development. It should be noted that access to the study area was restricted due to vagrants in the area and subsequent safety concerns. Taking of photographs was also restricted.

3. NATURE OF THE DEVELOPMENT

The scope of work for the proposed 9KM powerline includes the following:

- The project entails construction of an 88kV powerline which will connect the existing Etna, existing Lehae and the Trade Route substations which is under construction.
- The proposed powerline will be an 88kV double circuit twin turn and will be built with 132kV specifications.
- Currently there is an 88kV powerline running from Etna substation to Lenasia. This project aims to replace the section of the existing 88kV powerline from Etna substation to Trade Route substation.
- Prior to construction of the proposed powerline, the existing line will be decommissioned. The proposed powerline will be built within the servitude where the existing powerline is located.

4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

4.1 Databases Consulted

Wits Database and SAHRA

Forty two sites are on record for the 2627 BD topographic map at the Wits database. These sites consist of Early, Middle and Late Stone Age, Late Iron Age and several historical structures including blockhouses. None of these sites are in close proximity of the study area and will not be affected by the proposed development.

Very few other studies are on record close to the study area. To the north west of the study area (further than 5km) a single study was conducted that did not record any archaeological sites (De Jong 2004). An extensive complex of Anglo Boer War fortifications was recorded on a ridge together with various Late Stone Age sites on Ptn 58, 59 and 113 of the farm Roodepoort 302 LQ (Huffman 2008 a & b). To the south a survey for a township development also recorded no archaeological sites but did record several structures possibly older than 60 years (van der Walt and Pelser 2016). The study area is surrounded by residential developments (formal and informal). Other studies in the greater area recorded cemeteries and structures (e.g. Coetzee 2008). Huffman *et al* (1991) recorded both Iron Age sites and historical buildings. Pelser (2015) recorded Iron Age Remains, Historical Structures and graves.

Genealogical Society and Google Earth Monuments

The database of the Genealogical Society was consulted to collect data on any known graves in the area. The Van Wyk's Rust Fort dating to 1898 is located approximately 1.8 km to the east of the study area.

4.2. Brief background to the study area

J. S. Bergh's historical atlas of the four northern provinces of South Africa is a very useful source for the writing of local and regional history. Interestingly closer to Johannesburg, the Melville Koppies is a Middle Stone-Age site. (Bergh 1999: 4) This area was also important to Iron Age communities, since these people had smelted and worked iron ore at the Melville Koppies site since the year 1060, by approximation. (Bergh 1999: 7, 87)

The Difaqane (Sotho), or Mfekane ("the crushing" in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820's until the late 1830's. (Bergh 1999: 10) It came about in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka's Zulus to attack other tribes. (Bergh 1999: 14; 116-119) It seems that, in 1827, Mzilikazi's Ndebele started moving through the area where Johannesburg is located today. This group went on raids to various other areas in order to expand their area of influence. (Bergh 1999: 11)

During the time of the Difaqane, a northwards migration of white settlers from the Cape was also taking place. Some travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa, some already as early as the 1720's. One Bain travelled through, or close by the area in 1831. One Harris also travelled through this area in 1836. (Bergh 1999: 13)

It was however only by the late 1820's that a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek. This migration resulted in a massive increase in the extent of that proportion of modern South Africa dominated by people of European descent. (Ross 2002: 39). By 1939 to 1940, farm boundaries were drawn up in an area that includes the present-day Johannesburg and Krugersdorp. (Bergh 1999: 15).

An Anglo Boer War battle known as the Battle of Doornkop took place in the area on 29 May 1900. The British were advancing toward Johannesburg led by General John French. De La Rey and his men held the Klipriviersberg Ridge for the first two days but on the third day the Boers were outflanked by French's cavalry to the West, where General Sarel Oosthuizen's commando was forced to withdraw. This opened the road to Johannesburg and the British took the city peacefully on 30 May 1900. Huffman (2008) recorded several sangers dating to the Boer war close to the study area on a ridge.

4.2.1. Johannesburg

The city of Johannesburg was formally established in 1886 with the discovery of gold and the Witwatersrand reef on the farm Langlaagte. This gold discovery set off an influx of people from all over the world into the settlement to find gold. The new settlement was named after two officials of the Zuid-Afrikaansche Republijk (ZAR), Christiaan Johannes Joubert and Johannes Rissik, who both worked in land surveying and mapping.

4.2.2. Ennerdale

According to www.ennerdale.co.za the first home in the Ennerdale area was built by the Smith family in 1942. A school was established and numerous churches were established, initially from homes of people residing in the area. An asbestos school was erected in 1958 (www.ennerdale.co.za).

4.2.3. Lenasia

Lenasia and settlement there was a contentious issue. After the National Party won the 1948 elections and implemented the Apartheid system various areas were considered for Indian housing. The Group Areas Act was passed in 1950. Indians had been living in various suburbs in and around Johannesburg for decades. In towns such as Turffontein small communities had taken root, while in others there were larger communities, for example in Fordsburg, Doornfontein, Vrededorp, Sophiatown, Newclare (www.sahistory.co.za).

The area where Lenasia is located today provided opportunity for a housing area 35 km from Johannesburg. The surrounding property was owned by a German national by the name of Lenz. He had acquired the property and settled there much earlier but he eventually sold the property to the government for housing developments. Mahommed Jajbhay, Rev Sigamoney, Mahommed Abed, Ebrahim Dadabhai and Advocate Minty formed the Transvaal Indian Organisation, which was tasked to persuade Indians to move to Lenz (www.sahistory.co.za).

Initially Lenasia consisted of the people living at the barracks. Later the government sold plots for around R 60 each, in the first extension to be established. The plots were purchased by families eligible for government loans to build private homes, according to strict specifications. Infrastructure in Lenasia, in 1955, was non-existent. Until the later 1950s, houses in Extension 1 had no piped water, electricity or sewage. There was only a bucket system. Later a single U-shaped street became the first residential area. It was called 12th Street, and today it makes up Nightingale, into Sunbird, into Smew (www.sahistory.co.za). The first families with permanent houses all lived along this horseshoe arrangement. Breadwinners travelled to the city centre via a road that crossed the railway line and connected with the R29 road that linked Johannesburg to Potchefstroom – mainly by a municipal bus service that offered two trips in the morning and two in the evening(www.sahistory.co.za).

By 1955 the Lenasia High School was established, it also accommodated Indian pupils living in Fordsburg and other areas of Johannesburg. These students would travel by train or bus to the school, the government having closed off access to high schools in Johannesburg. The first school principal, Mr Francis, was an enlightened educator, who served in this capacity from 1955 to 1967 (www.sahistory.co.za).

Like the other schools that followed, Lenz High School was a structure made up of asbestos, in an age when the dangers of the material had not been publicised. This structure was used for 40 years before a permanent brick construction was erected, on another site, after the coming of democracy (www.sahistory.co.za) .

In 1958 Lenasia was proclaimed an Indian township under the Group Areas Act (www.sahistory.co.za). The minutes of a meeting of the Non-European Affairs Committee of the Johannesburg City Council, dated 31 October 1961, reflect that the item under consideration was “Indian Housing: Lenz Camp”. The minutes record that on 27 June 1961, the Council resolved that:
“(a) That the lease of part of the military camp at Lenz by the Council from the Group Areas Development Board be renewed for a period of six months as from 1st July 1961, on the same terms and conditions.

(b) That the arrangement be subject to review after December 1961."
The minutes included that the Secretary for Community Development had informed the Town Clerk in September that the Group Area Development Board was planning to take over the camp "as from 1st January 1962 on expiry of the present lease". The meeting ended with the recommendation:
"That the Group Area Development Board be asked to continue housing the existing tenants at the Lenz Camp until other accommodation becomes available for them." (www.sahistory.co.za).

4.2.4 Archaeology of the area

Although there are no well-known Stone Age sites located on or around the study area there is evidence of the use of the larger area by Stone Age communities, especially along ridges (Huffman 2008). For the Later Stone Age some petroglyphs occur to the south at Redan as well as along the Vaal River (Berg 1999).

Extensive Stone walled sites are on record to the north east at Klipriviers Berg Nature reserve associated with the Late Iron Age. A large body of research is available on this area. These sites (Taylor's Type N, Mason's Class 2 & 5) are now collectively referred to as Klipriviersberg (Huffman 2007). These settlements are complex in that aggregated settlements are common, the outer wall sometimes includes scallops to mark back courtyards, there are more small stock kraals, and straight walls separate households in the residential zone. These sites dates to the 18th and 19th centuries and was built by people in the Fokeng cluster.

In this area the Klipriviersberg walling would have ended at about AD 1823, when Mzilikazi entered the area (Rasmussen 1978) during the Difaqane. This settlement type may have lasted longer in other areas because of the positive interaction between Fokeng and Mzilikazi.

The Difaqane (Sotho), or Mfekane ("the crushing" in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820's until the late 1830's (Bergh 1999: 10). It came about in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka's Zulus to attack other tribes. (Bergh 1999: 14; 116-119) It seems that, in 1827, Mzilikazi's Ndebele started moving through the area where Johannesburg is located today. This group went on raids to various other areas in order to expand their area of influence (Bergh 1999: 11).

Closer to the current area of investigation a Late Iron Age settlement complex is situated to the south west of the study area on the Gatsrand Mountain Range and can be associated with the Bakwena-ba Mare-a-Phogole. The Bakwena-ba Mare-a-Phogole's origins can be traced back to an area close to the current Zeerust (Rathateng) where Phogole I, a son of Kwena-a-Malope, lived. Between 1470-1500 a large famine drove Phogole I, away from the Kwena-a-Malope settlement. Through various movements between the Rustenburg and Free State the last known main settlement of the Bakwena-ba Mare-a-Phogole was at Kokosi (Losberg) in the Fochville area (Vorster 1933 and Breutz 1954).

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 project the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. 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 acknowledged 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 7 of this report.

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)	-	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. BASELINE STUDY-DESCRIPTION OF SITES

It is important to note that the entire farm was not surveyed but only the proposed powerline alignment as indicated in figure 1 & 2. The study area was assessed in terms of the archaeological component of Section 35 of the NHRA and no archaeological (Stone or Iron Age) sites of significance were identified in the study area. The lack of Stone Age Material can be attributed to the local geology. The majority of the southern portion of the study area consist ferruginous shale with no raw material suitable for knapping. A small section does however consist of ferruginous quartzite and here the odd isolated MSA tool (Figure 3) was recorded. These artefacts are scattered too sparsely to be of any significance apart from noting their presence, which has been done in this report. The northern section is made up of Dolomite. Large sections of the powerline were ploughed in the past and more recently impacted on by township development, the existing power line, existing sub stations and illegal dumping and several linear stone heaps occur at 26° 21' 57.4308" S, 27° 53' 09.2904" E. (Figure 4 -6).

At least two stone cairns (Figure 7 & 8) where recorded at 26° 21' 41.2885" S, 27° 53' 11.0581" E on a small ridge. The purpose of these cairns is unknown. Although unlikely these could be graves. If the cairns are confirmed to be graves they have a field rating of GP A, if not a rating of GP C. The stone cairns are located approximately 28 meters to the west of the power line and no direct impact is foreseen on the site. A single partly demolished ruin occurs at 26° 20' 21.9121" S, 27° 53' 14.0855" E. The structure is built from stone with cement mortar (Figure 9 & 10) and is located approximately 23 meters to the west of the power line and no direct impact is foreseen on the site. The site is given a provisional field rating of Generally Protected B (GP.B) until the age of the vernacular building has been determined.

No formal graves were recorded and no significant cultural landscapes or viewscapes were noted during the fieldwork due to the extensive residential developments surrounding the study area. As graves can be expected anywhere on the landscape and the fact that the area has been disturbed it is recommended that a chance find procedure is incorporated for this project.

Figure 3. Stone Age artefact made on quartzite.

Figure 4. Existing infrastructure.

Figure 5. General site conditions.

Figure 6. Illegal dumping in the study area.

Figure 7: Stone cairn at field number 639.

Figure 8: Second stone cairn at field number 639.

Figure 9: Ruin at Field Number 640 viewed from the south.

Figure 10: Ruin at Field Number 640 viewed from the north.

Figure 11. Site distribution map. Area indicated in blue indicates restricted areas where known structures exist.

7. CONCLUSIONS AND RECOMMENDATIONS

HCAC was appointed to assess the study area in terms of the archaeological component of Section 35 of the NHRA. No archaeological sites (Iron Age or Stone Age) of significance were recorded within the study area. The lack of Stone Age material can be attributed to the local geology. The majority of the southern portion of the study area consist ferruginous shale with no raw material suitable for knapping. A small section does however consist of ferruginous quartzite and here the odd isolated MSA tool (Figure 3) was recorded. These artefacts are scattered too sparsely to be of any significance apart from noting their presence, which has been done in this report. The northern section is made up of Dolomite. Large sections of the powerline was ploughed in the past and more recently impacted on by township development, the existing power line, existing sub stations and illegal dumping that would have obliterated surface indicators of archaeological sites. No further mitigation is recommended in terms of Section 35 for the proposed development to proceed.

Two stone cairns (Field no 639) were recorded on a small ridge. The purpose of these cairns is unknown. Although unlikely these could be graves. If the cairns are confirmed to be graves they have a field rating of GP A, if not a rating of GP C applies. The stone cairns are located approximately 28 meters to the west of the power line and no direct impact is foreseen on the site. It is recommended that these cairns are demarcated during the construction period with a 15 meter buffer zone and preserved *in situ*. The features should also be indicated on development plans and shown to contractors to avoid accidental damage during construction.

In terms of Section 34 of the Act a single partly demolished ruin was recorded (Field Number 640) that is constructed from stone with cement mortar. The site is located approximately 23 meters to the west of the power line and no direct impact is foreseen on the site. The age of the vernacular building is unknown. It is recommended that the ruin is demarcated during the construction period with a 15 meter buffer zone and preserved *in situ*. If preservation of the site is not possible and the structure must be demolished it is recommended that the age of the structure should be confirmed. If the structure is confirmed to be older than 60 years it is recommended that a conservation architect should be appointed to assess the structure and assist with the application of a demolition permit from the PHRA G.

In terms of Section 36 of the Act no burial sites were recorded. However if any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation.

In terms of the Northern section of the line, access was restricted in areas where enclosed residential dwellings occur (26° 19' 38.9851" S, 27° 53' 11.7101" E).

Two sets of structures occurred:

- First set of structures 1 is located at 26° 19' 29.8796" S, 27° 52' 47.6363" E approximately 25 meters from the line.
- Second set of structures is located at 26° 19' 38.3226" S, 27° 53' 10.2664" E directly under the line.

If any of these buildings are affected by the powerline these should be assessed. It is recommended that all buildings should be retained in situ. If this is not possible these will have to be assessed as a second phase of study.

The study area is largely disturbed and due to the subsurface nature of archaeological remains and the fact that graves can occur anywhere on the landscape, it is recommended that a chance find procedure is implemented for the project as part of the EMP.

Chance find procedure

This procedure applies to the developer'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 pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, 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 operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

The study area is surrounded by residential developments and no significant cultural landscapes or viewscapes were noted during the fieldwork.

7.1 Reasoned Opinion

From a heritage perspective the proposed project is acceptable from a heritage point of view. If the above recommendations are adhered to and based on approval from SAHRA, HCAC is of the opinion that the development can continue as the development will not impact negatively on the archaeological record of the area. If during the pre-construction phase or during construction, any archaeological finds are made (e.g. graves, stone tools, and skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds. Due to the subsurface nature of archaeological material and graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded, but can be easily mitigated by preserving the sites *in-situ* within the development.

8. PROJECT TEAM

Jaco van der Walt, Project Manager

9. 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 acknowledged by SAHRA and AMAFA.

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique, Tanzania and the DRC; having conducted more than 300 AIA's since 2000.

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