



**KANTEY & TEMPLER CONSULTING ENGINEERS:  
PROPOSED ESKOM MHINGA ROUTE DEVIATION  
PROJECT, VHEMBE DISTRICT MUNICIPALITY, LIMPOPO  
PROVINCE**

**Archaeological Impact Assessment**



Prepared for: **Kantey & Templer Consulting Engineers**  
Prepared by: **Exigo Sustainability**



**ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) ON MAHINGAS 258MT, MAHINGA'S EXTENSION 259MT, TSHIKUNDU 262MT, PAGELEE 274MT AND KLUSTER 293MT FOR THE PROPOSED ESKOM MHINGA ROUTE DEVIATION PROJECT, VHEMBE DISTRICT MUNICIPALITY, LIMPOPO PROVINCE**

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- I have the required expertise in conducting the specialist report and I will comply with legislation, including the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA, AMAFA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
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## EXECUTIVE SUMMARY

This report details the results of an Archaeological Impact Assessment (AIA) study subject to an Environmental Impact Assessment (EIA) process for the proposed Eskom Mhinga Route Deviation Project on Mahingas 258MT, Mahinga's Extension 259MT, Tshikundu 262MT, Pagelee 274MT and Kluster 293MT in the Vhembe District Municipality of the Limpopo Province. For the project, 3 areas are proposed as deviations from the original Eskom Mhinga authorized powerline route. These deviations total **8km** with a corridor of **1000m** (500m by 500m on both sides of the route) which forms the focus of this HIA assessment. The report includes background information on the area's archaeology, its representation in Southern Africa, and the history of the larger area under investigation, survey methodology and results as well as heritage legislation and conservation policies. A copy of the report will be supplied to the South African Heritage Resources Agency (SAHRA) and recommendations contained in this document will be reviewed.

<b>Project Title</b>	Eskom Mhinga Route Deviation Project
<b>Project Location</b>	Corridor 1: S22.92539° E30.84762° Corridor 2: S22.86284° E30.86977° Corridor 3: S22.80975° E30.88523°
<b>1:50 000 Map Sheet</b>	2230DD
<b>Farm Portion / Parcel</b>	Mahingas 258MT, Mahinga's Extension 259MT, Tshikundu 262MT, Pagelee 274MT and Kluster 293MT
<b>Magisterial District / Municipal Area</b>	Vhembe District Municipality
<b>Province</b>	Limpopo Province

The history of the eastern Limpopo Province and the Soutpansberg is reflected in an immensely rich archaeological landscape. The interaction between the climate, geology, topography, and the fauna and flora in the Soutpansberg over millions of years has established a milieu in which prehistoric and historic communities thrived. Stone Age habitation occurs in places, mostly in open air locales or in sediments alongside rivers or pans. Bantu-speaking groups moved into this area during the last millennia and these groups, who practiced herding, agriculture, metal working and trading, found a suitable living environment during the Earlier, Middle and Later Iron Age. It was here that their chiefdoms flourished. European farmers, settling in the area since the middle of the 19th century, divided up the landscape into a number of farms. Historical trade routes were well established before the period of Colonial expansion and these routes mainly existed as a direct consequence of mining. During the nineteenth century the Highveld was extensively settled by both Bantu and European groups that migrated into this area and the landscape saw intensive conflicts and war events towards the end of the 19<sup>th</sup> century. In recent years an urban element developed, expanding at a rapid rate, largely as a result of farming development in the region.

No particular reference to archaeological sites or features of heritage potential were recorded during an examination of literature thematically or geographically related to the project area and an examination of historical aerial imagery and archive maps indicate that the larger landscape had been utilized for intensive agriculture and rural settlement during the last century. As such, large portions of the project area and its surrounds have been altered and transformed in the last century. This inference was confirmed during an archaeological site assessment which was constrained by dense surface vegetation. During the survey, a number

of heritage receptors were noted and the following recommendations are made based on general observations in the proposed Eskom Mhinga Route Deviation Project in terms of heritage resources management.

- An isolated Stone Age occurrence in the Deviation 3 corridor (**Site Exigo-MHI-SA01**) is of low heritage significance and it is recommended that site should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains and potential human burials.
- A probable Iron Age occupation at (**Site Exigo-MHI-IA01**) in the Deviation 1 corridor is of medium significance in terms of its regional representation in the Iron Age farmer period landscape of the area. It is primarily recommended that proposed development components be planned as to avoid impact on the heritage resource, and a heritage conservation buffer of at least 20m around the heritage receptor be implemented. If this measure proves unachievable it is recommended that the historical fabric of the sites be conserved by means of a limited Phase 2 Specialist study (mapping, site sampling and possible conservation management and protection) and the necessary permits should be obtained from the relevant Heritage Resources Authorities.
- It is recommended that the provenience of the stone cairns and features (**Site Exigo-MHI-FT01, Site Exigo-MHI-FT2**) in the Deviation 1 corridor be tested by means of non-intrusive (Ground Penetrating Radar) or intrusive (archaeological excavations) methods, should impact on the sites prove inevitable. If the features prove to be human burials, relevant and applicable mitigation and site management measures should apply (see following point).
- Three burial sites or probable burial sites occurring within in the Deviation1 and Deviation 3 corridors (**Site Exigo-MHI-BP01 - Site Exigo-MHI-BP03**) are of high significance and the sites might be impacted on by site development. It is primarily recommended that the burial be conserved *in situ* and that a conservation buffer of at least 50m, as required by SAHRA Burial Ground and Graves (BGG) Unit, be implemented around the heritage receptor. A fence and access gate should be erected around each burial site. A distance of at least 2m should be maintained between the graves and the fence which should be at least 1,8m high. Clear signboard should be erected indicating the heritage sensitivity of the sites and contact details for visitation of the graves. The developer should carefully liaise with the heritage specialist and SAHRA with regards to the management and monitoring of any human grave or cemetery in order to detect and manage negative impact on the sites. In addition, a Site Management Plan should be implemented detailing conservation measures for the graves and responsible parties in this regard. Should impact on the resources prove inevitable, the graves should be relocated by a qualified archaeologist, and in accordance with relevant legislation, permitting, statutory permissions and subject to any local and regional provisions and laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials (see Addendum 1).
- It should be noted that the site survey for the Eskom Mhinga Route Deviation Project AIA proved to be constrained by dense and often impenetrable vegetation. Dense vegetation not only restricted free movement on the site but obstructed much of the farm in terms of surface visibility. As such, the possibility exists that individual sites could be missed and it recommended that the initial stages of the development be monitored to re-assess the presence of possible heritage resources in the project area.
- As burials have been located on the project property, it is recommended that the EIA public participation and social consultative process address the possibility of further graves occurring in the project area.

- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.
- It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period occur on farms in the area and these resources should be avoided during all phases of construction and development, including the operational phases of the development.

**Eskom Mhinga Route Deviation Project Heritage Sites Locations**

Site Code	Coordinate S E	Short Description	Mitigation Action
EXIGO-MHI-BP01	S22.83084° E30.88568°	Burial Site	<b>Avoidance:</b> 50m conservation buffers, site fencing and access control, site management plan <b>Site monitoring:</b> Site monitoring by the heritage consultant or an ECO familiar with the heritage of the area. <b>Grave Relocation:</b> Grave relocation subject to authorizations and permitting if impacted on.
EXIGO-MHI-BP02	S22.82211° E30.87290°	Burial Site	
EXIGO-MHI-BP03	S22.92474° E30.85384°	Burial Site	
EXIGO-MHI-SA01	S22.82134° E30.88045°	Stone Age Occurrence	<b>Site Monitoring:</b> Site monitoring by the heritage consultant or an ECO familiar with the heritage occurrences of the site.
EXIGO-MHI-IA01	S22.93148° E30.85236°	Probable Iron Age Settlement Area	<b>Phase 2 Assessment:</b> Limited Phase 2 Investigations (documentation, site sampling) subject to relevant permitting. <b>Permitting:</b> Apply for alteration / destruction permits if sites are impacted on. <b>Site Monitoring:</b> Site monitoring by the heritage consultant or an ECO familiar with the heritage occurrences of the site.
EXIGO-BOD-FT01	S22.91754° E30.85174°	Unknown Stone Feature	Test provenience of the sites by means of non-intrusive or intrusive methods, should impact on the sites prove inevitable. If the features prove to be human burials, relevant and applicable mitigation and site management measures should apply.
EXIGO-BOD-FT02	S22.92125° E30.85185°	Unknown Stone Feature	

This report details the methodology, limitations and recommendations relevant to these heritage areas, as well as areas of proposed development. It should be noted that recommendations and possible mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment (e.g. uncovered during the construction process).

## NOTATIONS AND TERMS/TERMINOLOGY

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**Absolute dating:** Absolute dating provides specific dates or range of dates expressed in years.

**Archaeological record:** The archaeological record minimally includes all the material remains documented by archaeologists. More comprehensive definitions also include the record of culture history and everything written about the past by archaeologists.

**Artefact:** Entities whose characteristics result or partially result from human activity. The shape and other characteristics of the artefact are not altered by removal of the surroundings in which they are discovered. In the Southern African context examples of artefacts include potsherds, iron objects, stone tools, beads and hut remains.

**Assemblage:** A group of artefacts recurring together at a particular time and place, and representing the sum of human activities.

**Context:** An artefact's context usually consists of its immediate *matrix*, its *provenience* and its *association* with other artefacts. When found in *primary context*, the original artefact or structure was undisturbed by natural or human factors until excavation and if in *secondary context*, disturbance or displacement by later ecological action or human activities occurred.

**Cultural Heritage Resource:** The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

**Cultural landscape:** A cultural landscape refers to a distinctive geographic area with cultural significance.

**Cultural Resource Management (CRM):** A system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation designed to safeguard the past.

**Feature:** Non-portable artefacts, in other words artefacts that cannot be removed from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features

**Impact:** A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

**Lithic:** Stone tools or waste from stone tool manufacturing found on archaeological sites.

**Matrix:** The material in which an artefact is situated (sediments such as sand, ashy soil, mud, water, etcetera). The matrix may be of natural origin or human-made.

**Midden:** Refuse that accumulates in a concentrated heap.

**Microlith:** A small stone tool, typically knapped of flint or chert, usually about three centimetres long or less.

**Monolith:** A geological feature such as a large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within, a monument or site.

**Phase 1 CRM Assessment:** An Impact Assessment which identifies archaeological and heritage sites, assesses their significance and comments on the impact of a given development on the sites. Recommendations for site mitigation or conservation are also made during this phase.

**Phase 2 CRM Study:** In-depth studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required. Mitigation / Rescue involves planning the protection of significant sites or sampling through excavation or collection (in terms of a permit) at sites that may be lost as a result of a given development.

**Phase 3 CRM Measure:** A Heritage Site Management Plan (for heritage conservation), is required in rare cases where the site is so important that development will not be allowed and sometimes developers are encouraged to enhance the value of the sites retained on their properties with appropriate interpretive material or displays.

**Provenience:** Provenience is the three-dimensional (horizontal and vertical) position in which artefacts are found. Fundamental to ascertaining the provenience of an artefact is *association*, the co-occurrence of an artefact with other archaeological remains; and *superposition*, the principle whereby artefacts in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.

**Random Sampling:** A probabilistic sampling strategy whereby randomly selected sample blocks in an area are surveyed. These are fixed by drawing coordinates of the sample blocks from a table of random numbers.

**Scoping Assessment:** The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.

**Site (Archaeological):** A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity. These include surface sites, caves and rock shelters, larger open-air sites, sealed sites (deposits) and river deposits. Common functions of archaeological sites include living or habitation sites, kill sites, ceremonial sites, burial sites, trading, quarry, and art sites,

**Stratigraphy:** This principle examines and describes the observable layers of sediments and the arrangement of strata in deposits

**Systematic Sampling:** A probabilistic sampling strategy whereby a grid of sample blocks is set up over the survey area and each of these blocks is equally spaced and searched.

**Trigger:** A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an *issue* and/or potentially significant *impact* associated with that proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement.

**LIST OF ABBREVIATIONS**

<b>Abbreviation</b>	<b>Description</b>
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
BGG	Burial Grounds and Graves
CRM	Culture Resources Management
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
K2/Map	K2/Mapungubwe Period
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MRA	Mining Right Area
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PFS	Pre-Feasibility Study
PHRA	Provincial Heritage Resources Authorities
SAFA	Society for Africanist Archaeologists
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)



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## **1 BACKGROUND**

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### **1.1 Scope and Motivation**

Exigo Sustainability (Pty) Ltd (Exigo) was commissioned by Kantey & Templer Consulting Engineers to conduct an Archaeological Impact Assessment (AIA) study subject to an Environmental Impact Assessment (EIA) process for the proposed Eskom Mhinga Route Deviation Project in the Limpopo Province. The rationale of this AIA is to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance in previously unstudied areas; to consider the impact of the proposed project on such heritage resources, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

### **1.2 Project Direction**

Exigo's expertise ensures that all projects be conducted to the highest international ethical and professional standards. As archaeological specialist for Exigo Sustainability, Mr Neels Kruger acted as field director for the project; responsible for the assimilation of all information, the compilation of the final consolidated AIA report and recommendations in terms of heritage resources on the demarcated project areas. Mr Kruger is an accredited archaeologist and Culture Resources Management (CRM) practitioner with the Association of South African Professional Archaeologists (ASAPA), a member of the Society for Africanist Archaeologists (SAFA) and the Pan African Archaeological Association (PAA) as well as a Master's Degree candidate in archaeology at the University of Pretoria.

### **1.3 Project Brief**

Kantey & Templer Consulting Engineers (Pty) Ltd appointed Exigo Sustainability (Pty) Ltd (Exigo) to undertake a Heritage Impact Assessment process for the proposed construction of 3 power line deviations on Mahingas 258MT, Mahinga's Extension 259MT, Tshikundu 262MT, Pagelee 274MT and Kluster 293MT, Vhembe District Municipality in the Limpopo Province (hereafter referred to as the "Eskom Mhinga Route Deviation Project").

The Eskom Mhinga Powerline has been authorized but three deviations from original authorized route, totaling 8km are proposed. For these deviations, a corridor of 1000m (500m by 500m on both sides of the route) were investigated according to National Environmental Act, 1998 (Act no 107 of 1998) and Regulations on environmental impact assessment, regulation GNR 324, & 327.

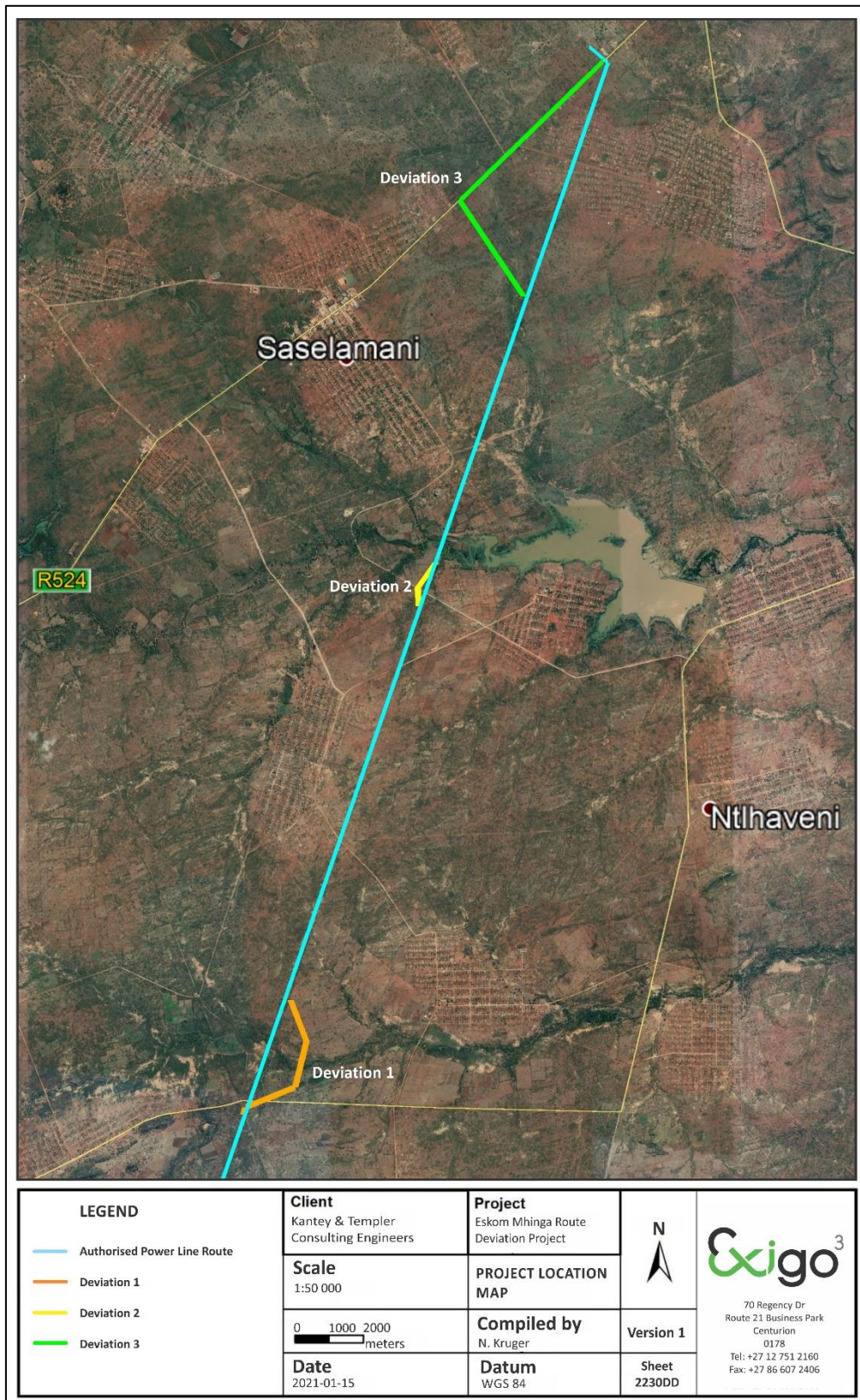


Figure 1-1: Map indicating the respective Deviations subject to the Eskom Mhinga Route Deviation Project.

#### 1.4 Terms of Reference

Heritage specialist input into the Environmental Impact Assessment (EIA) process is essential to ensure that, through the management of change, developments still conserve our heritage resources. It is also a legal requirement for certain development categories which may have an impact on heritage resources. Thus, EIAs should always include an assessment of heritage resources. The heritage component of the EIA is provided for in the **National Environmental Management Act, (Act 107 of 1998)** and endorsed by section 38 of the **National Heritage Resources Act (NHRA - Act 25 of 1999)**. In addition, the NHRA protects all structures and features older than 60 years, archaeological sites and material and graves as well as burial sites. The objective of this legislation is to ensure that developers implement measures to limit the potentially negative effects that the development could have on heritage resources. Based hereon, this project functioned according to the following **terms of reference** for heritage specialist input:

- *Provide a detailed description of all archaeological artefacts, structures (including graves) and settlements which may be affected, if any.*
- *Assess the nature and degree of significance of such resources within the area.*
- *Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;*
- *Assess and rate any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.*
- *Propose possible heritage management measures provided that such action is necessitated by the development.*
- *Liaise and consult with the South African Heritage Resources Agency (SAHRA). A Notification of Intent to Develop (NID) will be submitted to SAHRA at the soonest opportunity.*

#### 1.5 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

##### 1.5.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and its provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

##### a. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act No 25 of 1999 (section 35) the following features are protected as cultural heritage resources:

- a. Archaeological artefacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography

- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

In addition, the national estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Archaeological and paleontological sites
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

With regards to activities and work on archaeological and heritage sites this Act states that:

*“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority.” (34. [1] 1999:58)*

and

*“No person may, without a permit issued by the responsible heritage resources authority-*

- (a) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
- (c) *trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (d) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58).”*

and

*“No person may, without a permit issued by SAHRA or a provincial heritage resources agency-*

- (a) *destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*
- (b) *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;*
- (c) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

**b. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925**

Graves and burial grounds are commonly divided into the following subsets:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments.

**c. National Heritage Resources Act No 25 of 1999, section 35**

This act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made. Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation’s cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

**1.5.2 Background to HIA and AIA Studies**

South Africa’s unique and non-renewable archaeological and palaeontological heritage sites are ‘generally’ protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

**A detailed guideline of statutory terms and requirements is supplied in Addendum 1.**



## 2 REGIONAL CONTEXT

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### 2.1 Area Location

The proposed Eskom Mhinga Route Deviation Project occurs on Mahingas 258MT, Mahinga's Extension 259MT, Tshikundu 262MT, Pagelee 274MT and Kluster 293MT in the Vhembe District Municipality, Limpopo Province. The project area is situated approximately 35km east of the town of Thohoyandou and 10km west of the Punda Maria gate to the Kruger National Park. The project area is located south of the R524 road connecting to Thohoyandou.

The study areas appear on 1:50000 map sheet 2230DD (see Figure 2-1) and a key location point for the project is:

- **Corridor 1: S22.92539° E30.84762°**
- **Corridor 2: S22.86284° E30.86977°**
- **Corridor 3: S22.80975° E30.88523°**

### 2.2 Area Description: Receiving Environment

The project area occurs along the far-southern slopes and plains of the Soutpansberg. The vegetation according to Mucina and Rutherford (2006) is classified as Tzaneen Sour Bushveld. The annual average rainfall in the area varies between 550 – 850 mm, occurring mostly in the summer months. The study area is located within the quaternary drainage regions A91A and A91B. The regional topography of the study area is classified as undulating plains, with the soils mostly suitable for tree farming. An ecological assessment and wetland delineation will be conducted and included in the EIA Report.

### 2.3 Site Description

The proposed project is situated in a rural settlement zones along the southern Soutpansberg, around villages such as Maphophe, Saselamani, Xaswita and Gijamandzini. The area has been heavily impacted on by farming practices and human settlement during the last century where large portions of the landscape subject to this assessment has been transformed into cultivated lands in past decades. This has resulted in severe bush densification with alien species occurring in areas but pockets of indigenous vegetation remain in places along drainage lines. An ESKOM power line with a large cleared servitude bisects the project area to the north and a number of regional dirt roads occur throughout the project area.

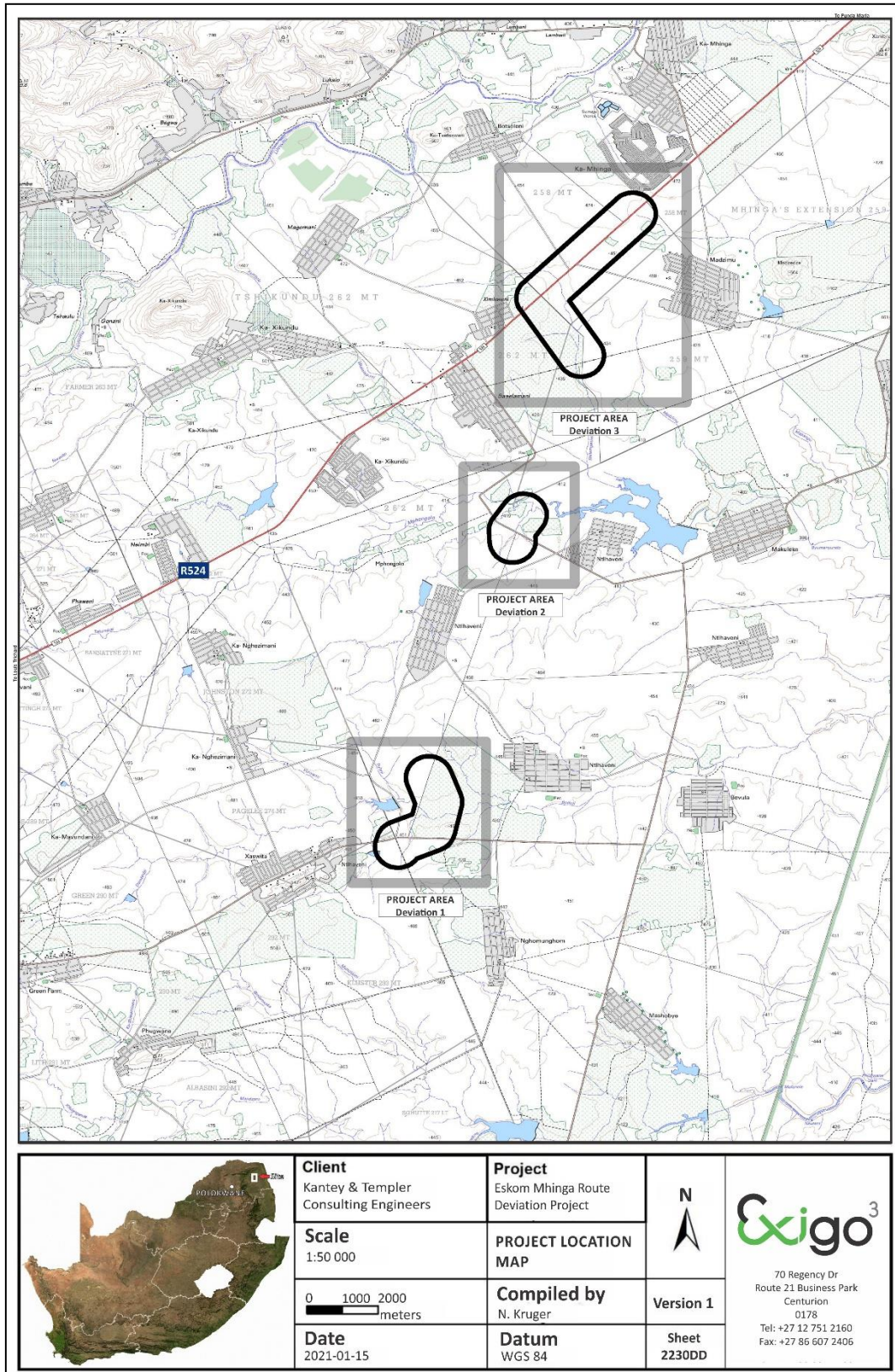


Figure 2-1: 1:50 00 Map representation of the location of the proposed Eskom Mhinga Route Deviation Project (sheet 2230DD).

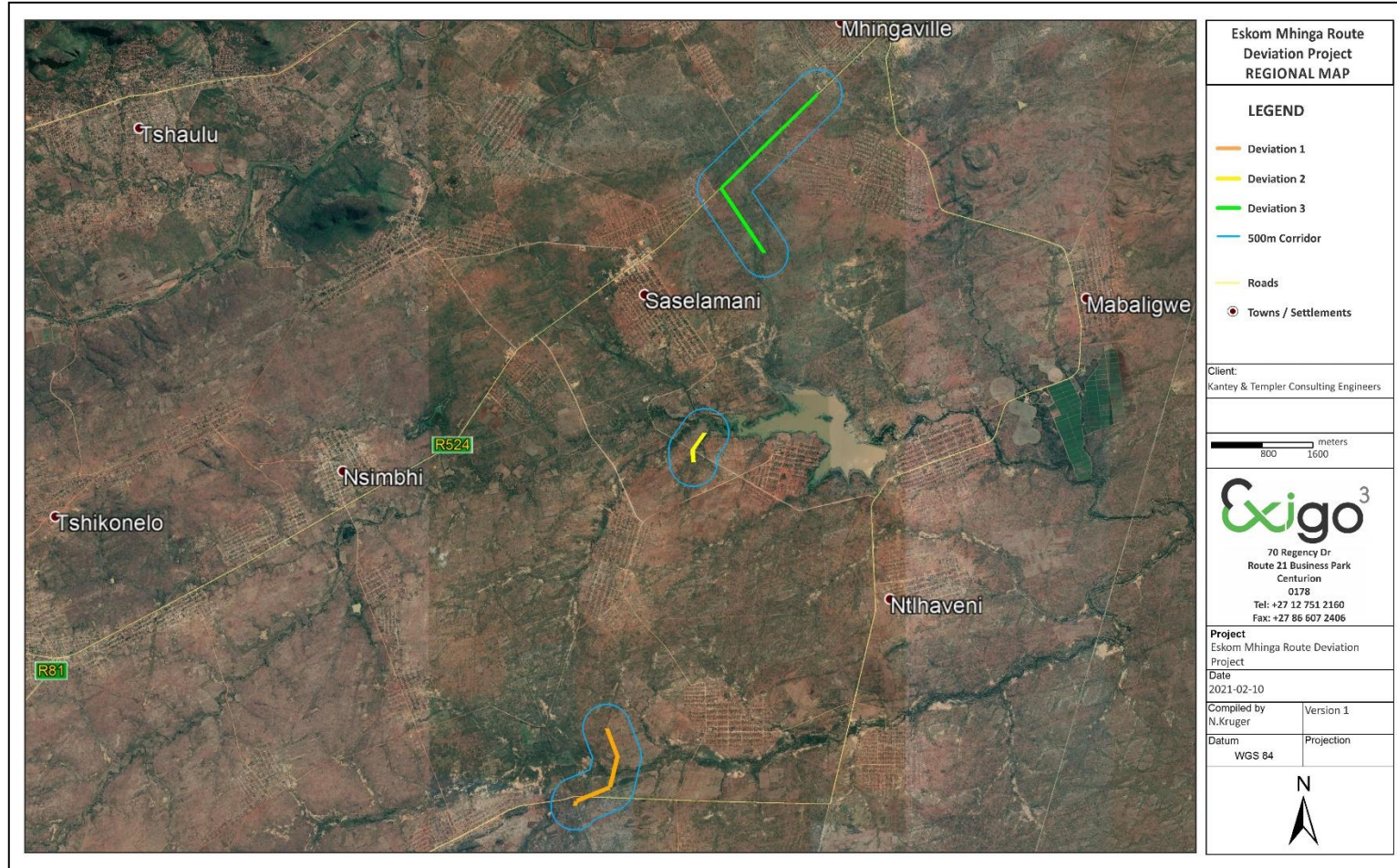


Figure 2-2: Aerial map providing a regional context for the proposed Eskom Mhinga Route Deviation Project area. Note the 1000m corridors indicated in blue.

### 3 METHOD OF ENQUIRY

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#### 3.1 Sources of Information

Data from detailed desktop, aerial and field studies were employed in order to sample surface areas systematically and to ensure a high probability of heritage site recording.

##### 3.1.1 Desktop Study

The larger landscape around Soutpansberg has been well documented in terms of its archaeology and history. Numerous academic papers and research articles supplied a historical context for the proposed project and archival sources, aerial photographs, historical maps and local histories were used to create a baseline of the landscape's heritage. In addition, the study drew on available unpublished Heritage Assessment reports to give a comprehensive representation of known sites in the study area.

##### 3.1.2 Aerial Survey

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. Site assessment for the project relied heavily on this method to assist the challenging foot and automotive site survey. Here, depressions, variation in vegetation, soil marks and landmarks were examined and specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments. In addition, historical aerial photos obtained during the archival search were scrutinized and features that were regarded as important in terms of heritage value were identified and if they were located within the boundaries of the project area they were physically visited in an effort to determine whether they still exist and in order to assess their current condition and significance. By superimposing high frequency aerial photographs with images generated with Google Earth as well as historical aerial imagery, potential sensitive areas were subsequently identified, geo-referenced and transferred to a handheld GPS device. These areas served as reference points from where further vehicular and pedestrian surveys were carried out.

##### 3.1.3 Mapping of sites

Similar to the aerial survey, the site assessment of the project area relied heavily on archive and more recent map renderings of the landscape to assist the challenging foot and automotive site survey where historical and current maps of the project area were examined. By merging data obtained from the desktop study and the aerial survey, sites and areas of possible heritage potential were plotted on these maps of the larger Soutpansberg area using GIS software. These maps were then superimposed on high-definition aerial representations in order to graphically demonstrate the geographical locations and distribution of potentially sensitive landscapes.

##### 3.1.4 Field Survey

Archaeological survey implies the systematic procedure of the identification of archaeological sites. An archaeological survey of the Eskom Mhinga Route Deviation Project area was conducted in December 2020. The process encompassed a random field survey in accordance with standard archaeological practice by which heritage resources are observed and documented. During the survey, corridors of 500m by 500m on both sides of each of the deviations were investigated. As the project area is densely vegetated, particular

focus was placed on GPS reference points identified during the aerial and mapping survey. Where possible, random spot checks were made and potentially sensitive heritage areas were investigated. Using a Garmin GPS, the survey was tracked and general surroundings were photographed with a Samsung Digital camera. Real time aerial orientation, by means of a mobile Google Earth application was also employed to investigate possible disturbed areas during the survey.

### 3.2 Limitations

#### 3.2.1 Access

The study area is accessed via a network of regional and local roads connecting to the R524 route. Access control is not applied to the respective deviations and no access restrictions onto the site were encountered during the site visit. However, dense vegetation restricted free movement on some portions of the project areas.

#### 3.2.2 Visibility

The surrounding vegetation in the project area mostly comprised out of disused and cultivated farmlands, dense pockets of pioneering species, occasional trees and mixed grasslands. The general visibility at the time of the AIA survey (December 2020) ranged from moderate to low and the archaeological observations on site was restricted by dense vegetation in certain portions of the project area. In single cases during the survey sub-surface inspection was possible. Where applied, this revealed no archaeological deposits.



Figure 3-1: View of general surroundings in the project area along the eastern section of Deviation 1.



Figure 3-2: View of general surroundings in the project area at Deviation 1.



Figure 3-3: View of vegetation in the project area at Deviation 1.



Figure 3-4 View of dense vegetation in the project area Deviation 1.



Figure 3-5: View of a small hill in a southern section of Deviation 1.



Figure 3-6: View of tall vegetation in the project area at Deviation 1.



Figure 3-7: View of dense vegetation in the project area Deviation 1.



Figure 3-8: View of disused agricultural fields and grass cover in the project area at Deviation 2.



Figure 3-9: View of cultivated crop fields at Deviation 2.



Figure 3-10: View of a small informal dwelling at cultivated crop fields at Deviation 2.





Figure 3-11: View of dense vegetation in the project area Deviation 2.



Figure 3-12: View of an informal dwelling at cultivated crop fields at Deviation 2.



Figure 3-13: View of vegetation at Deviation 3.



Figure 3-13: View of a large drainage line in Deviation 3.



Figure 3-13: View of dense pioneering species cover in at Deviation 3.



Figure 3-13: View of a decommissioned old livestock drinking trough at Deviation 3.



Figure 3-13: View of the alignment of Deviation 3 through Maphophe.



Figure 3-13: View of the alignment of Deviation 3 along the R524 road.

### 3.2.3 Summary: Limitations and Constraints

The site survey for the Eskom Mhinga Route Deviation Project AIA proved to be constrained and the investigation primarily focused around areas tentatively identified as sensitive and of high heritage probability (i.e. those noted during the mapping and aerial survey) as well as areas of potential high human settlement catchment. In summary, the following constraints were encountered during the site survey:

- The surrounding vegetation in the project area mostly comprised out of cultivated and disused farmlands vegetated by dense pockets of pioneering species, occasional trees and mixed grasslands. The general visibility at the time of the site inspection ranged from moderate to low and visibility proved to be a constraint in the project area.
- Dense vegetation restricted free movement on portions of the project landscape and this proved to be a constraint during the site assessment of the project are.

Cognisant of the constraints noted above, it should be stated that the possibility exists that individual sites could be missed due to the localised nature of some heritage remains as well as the possible presence of sub-surface archaeology. Therefore, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage resources identified during the study do not necessarily represent all the heritage resources present in the project area. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

### 3.3 Impact Assessment

For consistency among specialists, impact assessment ratings by Exigo Specialist are generally done using the Plomp<sup>1</sup> impact assessment matrix scale supplied by Exigo. According to this matrix scale, each heritage receptor in the study area is given an impact assessment.

## 4 ARCHAEO-HISTORICAL CONTEXT

### 4.1 The archaeology of Southern Africa

Archaeology in Southern Africa is typically divided into two main fields of study, the **Stone Age** and the **Iron Age** or **Farmer Period**. The following table provides a concise outline of the chronological sequence of periods, events, cultural groups and material expressions in Southern African pre-history and history.

**Table 1 Chronological Periods across Southern Africa**

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period 300 – 900 AD <b>(commonly restricted to the interior and north-east coastal areas of Southern Africa)</b>	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD <b>(commonly restricted to the interior and north-east coastal areas of Southern Africa)</b>	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron / gold / copper objects, trade goods and grinding stones.

<sup>1</sup> Plomp, H., 2004

<p>Late Iron Age / Later Farmer Period 1400 AD -1850 AD <b>(commonly restricted to the interior and north-east coastal areas of Southern Africa)</b></p>	<p>Holocene</p>	<p>Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu</p>	<p>Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.</p>
<p>Historical / Colonial Period ±1850 AD – present</p>	<p>Holocene</p>	<p>Various Bantu-speaking groups as well as European farmers, settlers and explorers</p>	<p>Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.</p>

#### 4.2 Discussion: The Soutpansberg Heritage Landscape

The history of the eastern Limpopo Province is reflected in a rich archaeological landscape. The interaction between the climate, geology, topography, and the fauna and flora in the Highveld over millions of years has established a milieu in which prehistoric and historic communities thrived. A number of archaeological and historical studies have been conducted in this section of the Limpopo Province. Many of these studies infer a rich and diverse archaeological landscape - to the extent where it has been suggested that the entire landscape should be considered a cultural landscape based on its extended history of human occupation (Murimbika 2008). Stone Age remains are scattered throughout the area (e.g. Pistorius 2007) including Early- (e.g. Roodt 2002b), Middle- (e.g. Roodt 1997; Pistorius 2008) and numerous Late Stone Age sites or surface collections of stone tools. The Limpopo Valley is known for its rock art and rock engravings with one assessment locating a set of engravings in a shelter to the north of the study area (Stegmann & Roodt 2008). Pistorius (2007) documented a Late Iron Age site north of the study area and referred to the nearby destruction of the Princess Hill site on top of which a landowner constructed a house. Roodt (1997) identified nine sites to the north of the study area with significant archaeological remains spanning 11th Century Eiland to recent Venda habitation including Zwigodini with its Moloko, Khami and Shona traditions. Other sites were also characterised by significant overlapping of traditions and included features such as stone walling, evidence of metal-working in the form of slag, artefacts such as spindle whorls and ironstone outcrops with evidence of early mining (Roodt 1997). A number of graves dating up to recent times were identified by various assessments (e.g. Pistorius 2007; Munyai & Roodt 2007; Pistorius 2008) including a historical graveyard in Makhado some distance to the west of the study area, which included the graves of at least 40 people including one dated to 1903 (Roodt 2003). Nearby this graveyard is a monument erected in 1988 to commemorate João Albasini (Roodt 2003). A number of studies addressed the later history of the region with one describing the history of Lemana School (south of the current study area at Waterval) and the relationship with the Swiss Mission in nearby Elim.

##### 4.2.1 Early History and the Stone Ages

According to archaeological research, the earliest ancestors of modern humans emerged some two to three million years ago. The remains of Australopithecine and *Homo habilis* have been found in dolomite caves and underground dwellings in the Riverton Area at places such as Sterkfontein and Swartkrans near Krugersdorp. *Homo habilis*, one of the Early Stone Age hominids, is associated with Oldowan artefacts, which include crude implements manufactured from large pebbles. The Acheulian industrial complex replaced the Oldowan industrial complex during the Early Stone Age. This phase of human existence was widely distributed across South Africa and is associated with *Homo erectus*, who manufactured hand axes and cleavers from as early as one and a half million years ago. Middle Stone Age sites dating from as early as two hundred thousand years ago have been found all over South Africa. Middle Stone Age hunter-gatherer bands also lived and hunted in the Orange and Vaal River valleys. These people, who probably looked like modern

humans, occupied campsites near water but also used caves as dwellings. They manufactured a wide range of stone tools, including blades and points that may have had long wooden sticks as hafts and were used as spears. Excavations at Makapansgat near to Mokopane provided evidence of occupation by *Australopithecus africanus* from approximately 3.3 million years ago. There is evidence of long occupation from the Cave of Hearths with stone tools and associated debris from a date of 400,000 B.P. while upper strata are characterised by Middle Stone Age assemblages of 110,000 to 50,000 B.P. and Late Stone Age assemblages dating from 10,000 to 5,000 years B.P. characterised by the Smithfield B industry. The site is one of the few to exhibit Acheulean assemblages in Southern Africa and also contains overlying Middle Stone Age Howiessonspoort industry tools and early evidence of fire use (Bergh, 1999; Mitchell, 2002). Both ESA and MSA sites are known from the Limpopo Valley as well as lithic industries that appear to be transitional between the two ages and with dates estimated at 300,000 years ago (Kuman et al. 2005). The presence of numerous rock art sites with associated stone tool assemblages in the Limpopo River basin, Blouberg, Makgabeng, Waterberg and Soutpansberg attests to the presence of Late Stone Age San/Bushman communities across the region (e.g. Pager, 1973; Eastwood et al., 2002). The Central Limpopo Basin, including the Soutpansberg, Limpopo Valley, the Blouberg-Makgabeng area and the Pafuri area, has over 700 documented rock art sites and is one of the few regions where paintings and engravings occur, sometimes at the same site (Eastwood and Hanisch 2003).

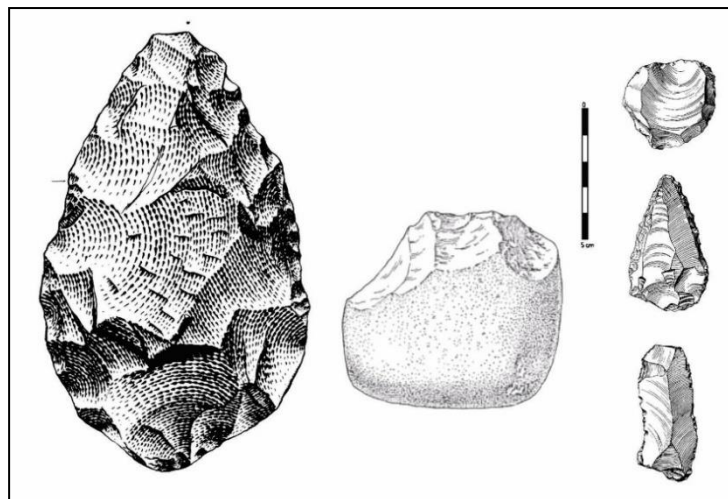


Figure 4-1: Typical ESA handaxe (left) and cleaver (center). To the right is a MSA scraper (right, top), point (right, middle) and blade (right, bottom).

#### 4.2.2 Iron Age / Farmer Period

The beginnings of the Iron Age (Farmer Period) in Southern Africa are associated with the arrival of a new Bantu speaking population group at around the third century AD. These newcomers introduced a new way of life into areas that were occupied by Later Stone Age hunter-gatherers and Khoekhoe herders. Distinctive features of the Iron Age are a settled village life, food production (agriculture and animal husbandry), metallurgy (the mining, smelting and working of iron, copper and gold) and the manufacture of pottery. Iron Age people moved into Southern Africa by c. AD 200, entering the area either by moving down the coastal plains, or by using a more central route. From the coast they followed the various rivers inland. Being cultivators, they preferred rich alluvial soils. The Iron Age can be divided into three phases. The Early Iron Age includes the majority of the first millennium A.D. and is characterised by traditions such as Happy Rest and Silver Leaves. The Middle Iron Age spans the 10th to the 13th Centuries A.D. and includes such well known cultures as those at K2 and Mapungubwe. The Late Iron Age is taken to stretch from the 14th Century up to the colonial period and includes traditions such as Icon and Letaba.

The Vhembe District (the Limpopo and Luvuvhu river valleys in particular) contains some of the earliest and most significant Iron-Age settlements in the region including Schroda, K2 and the Mapungubwe National and World Heritage Site north of the Soutpansberg and Thulamela to the east of the mountain range in the Kruger National Park. The Early Iron Age is represented by a number of sites such as Happy Rest in the Soutpansberg (Hanisch E.O.M, 2003). The Middle Iron Age in the region and the sequence of settlement development and the growing importance of trade networks has been extensively described (e.g. Leslie & Maggs 2000; Bonner & Carruthers 2003) with in depth studies on, amongst others, ethnic stratification, climate change and herding strategies, glass beads and international trade, the ethno-archaeology and archaeology of rainmaking, settlements and landscapes, faunal remains and agricultural production (Huffman 2011). The origin of the local VhaVenda people has been investigated and there is some question as to the degree to which the origins of the people was local or not. The local origins theory falls roughly into the following sequence. Between 1300 and 1450 AD Mapungubwe ceramics related to Shona speakers dominated north of the Soutpansberg while Moloko ceramics, the product of Sotho speakers, were prevalent in the south. From 1450 AD Khami ceramics and associated settlements bore witness to a revived influence from new Shona dynasties in Zimbabwe and by 1550 AD the Letaba facies had arisen from the fusion of Shona and Sotho cultures. The origin of the VhaVenda appears therefore to be local as characterised in the archaeological sequence and it seems likely that a common Venda identity had developed by the 1600s (Loubser 1989). According to Stayt (1968), the “BaVenda” broke away from the Karanga in Zimbabwe and crossed the Limpopo entering the Soutpansberg region in two main streams of migration, the Vhatavhatsinde followed by the Singo, during the latter part of the 17th century. These groups found other tribes already in occupation including the Ngona, Mbedzi, and Twamamba and most researchers are of the opinion that peaceful integration between them took place under the rule of Chief Thohoyandou (Eloff 1968). Another two chiefs and their followers were integrated with the VhaVenda during the rule of Tshikalanga (the son of Thohoyandou). These chiefs were Madzivhandila and Lwamondo who were most probably of Sotho origin and who were appointed as keepers of the chief’s cattle, becoming assimilated into the VhaVenda tribe and culture (Stayt 1968). A number of Iron Age Sites in the region have Provincial Heritage Site status including: Dzata II, Verdun and the Machemma ruins and a number of others have been indicated to be of particular importance including Mutulowe, Tshitaka tsha Makoleni, Mukumbane and the Tshiungani complex (Hanisch 2003).

#### **4.2.3 Later History: Reorganization, Colonial Contact and living heritage.**

The beginning of the Historical Period overlaps the demise of the late Stone and Iron Ages and is characterised by the first written accounts of the region from 1600 A.D. A number of early European travellers visited the area from the early 19th Century onwards including Carl Mauch (Burke 1969) and the region saw European settlement and influence from the late 1830’s with the arrival of Louis Trichardt and Hendrik Potgieter and the subsequent establishment of the town of Soutpansbergdorp (later renamed Schoemansdal) in 1848 (Tempelhoff 1999). Given the high summer temperatures, low rainfall and incidence of Malaria the Limpopo Valley was not settled early by European colonists whose earliest settlements, including Soutpansbergdop and Schoemansdal, were located in the cooler, better watered region to the south of the Soutpansberg. It is well known that these early settlements were to a large extent based on the hunting of elephant for ivory, largely herds in the Limpopo Valley to the north. Famous early traders in the region included Coenraad de Buys and João Albasini (Bonner & Carruthers 2003). João Albasini entered the Soutpansberg region in 1848 as a trader and settled on his farm Goedewensch at Piesanghoek from 1857. He later became the local Native Administrator who collected taxes and recorded incidents in the region (Tempelhoff 1999). In 1855 Joaquim de Santa Rita Montanha led a party from Inhambane to the Soutpansberg, following the Limpopo Valley. It was remarked upon that after crossing the River Tave (Save) that “every day they passed and slept in towns or villages of the cultivators, and readily procured the supplies they required” (MacQueen 1862). Further exploration of the course of the Limpopo River was undertaken by Frederick Elton in 1870, who remarked on the “many kraals” and “fertile country” at the

junction of the Limpopo and 'Nuanetzi' Rivers (Elton 1871 – 1872). The Berlin Mission Society established a mission station at Ha-Tshivhase in 1872 and another at Tshakuma in 1874. The mission stations, missionaries and gospel played an intricate and important part in the growth and development of the different groups and societies in the Soutpansberg region (Giesekke 2004; Kirkaldy 2005). Two Swiss missionaries, Dr. Henri Berthoud and Reverend Creux, opened a Mission Station at Lwalani, which they called Valdezia, in 1875 to undertake missionary work among the Tsonga-Shangana communities of the area. Elim Mission Station was established in 1879 and the Elim Hospital was established in 1899 (Giesekke 2004; Kirkaldy 2005). During the Anglo-Boer War a brief battle was fought between Rhodesian and Boer forces in the vicinity of Rhodes Drift on the Limpopo some distance to the north west of the study area. The area between then Pietersburg and the Soutpansberg saw guerrilla activity during the war but it is the infamous actions of the Bushveld Carbineers, particularly the murder of civilians by Harry "Breaker" Morant, that the wider area is best known for (Davey 1987). According to Bonner and Carruthers (2003) one overall effect of the war on the area to the north was the total effacing of a 'previously negligible' white presence and the re-occupation of their land by formerly displaced black communities. The first white farmer settled in the Levubu Valley in 1871 and the farm "Grootgeluk" (later known as "Nooitgedacht") was proclaimed in 1879. After 1900 European farmers were further encouraged by the government to occupy farms in the valley in an effort mainly to compromise for land losses in other parts of the province (Bonner & Carruthers 2003). Many of the farms in the Mhinga area were surveyed towards the end of the 19<sup>th</sup> century.

## 5 RESULTS: ARCHAEOLOGICAL SURVEY

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### 5.1 The Off-Site Desktop Survey

In terms of heritage resources, the general landscape around the project area is primarily well known for its Iron Age Farmer and Colonial / Historical Period archaeology related to farming, rural expansion and warfare of the past century. In an HIA Assessment conducted by Murimbika (2012) in the project area<sup>2</sup>, a recent historic homestead and three burial sites were recorded in the larger landscape but outside of the project area subject to the Eskom Mhinga Route Deviation Project. No further reference to archaeological sites or features of heritage potential were recorded during an examination of published literature thematically or geographically related to the project area.

An analysis of historical aerial imagery and archive maps reveal the following (see Figure 5-1 to Figure 5-3):

- The Mhinga area is indicated on an early map of the Soutpansberg (Berthoud 1903).
- A number of so-called "huts" and a "voerkraal" (feeding lot) are indicated on a 1967 topographic map of the area and vast cultivated fields across the region appear on a 1980 topographic map of the landscape.
- It is interesting to note that a recent study of on vegetation changes in the Soutpansberg during the past centuries note that southern slopes of the mountain were almost devoid of any tree or shrub growth at the end of the 19<sup>th</sup> century (Hahn 2018). The study, utilizing an extensive collection of archival photos, show the rapid transformation from high-rainfall grassland to secondary bush encroachment, alien infestation, silviculture and sub-tropical fruit orchards over the last 120 years. The study concluded that a major contributing factor for this radical vegetation change is anthropogenic activities, of which the project landscape seems a clear example.

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<sup>2</sup> Murimbika, M. 2012. Archaeological and Heritage Impact Assessment (AIA/HIA) Study for the proposed Mbahe- Mhinga powerline development, Thulamela Local Municipality, Limpopo Province. Nzumbululo Heritage Solutions



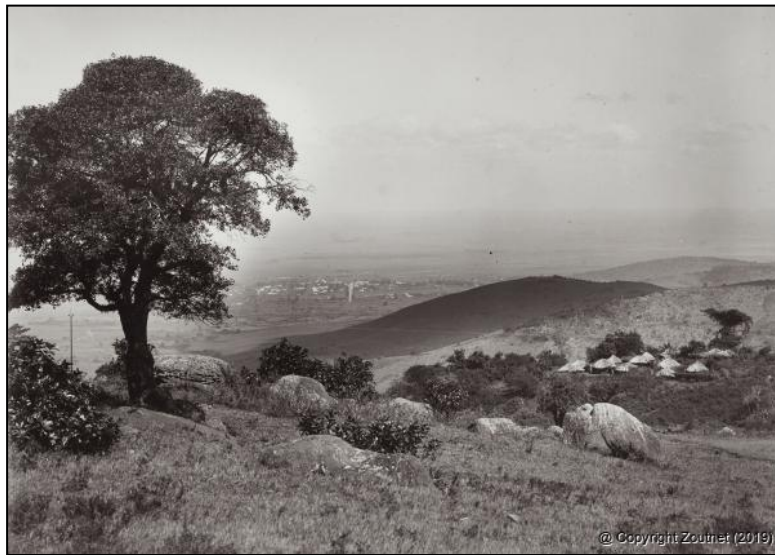


Figure 5-1: An archive photo of “Pisang Kop”, which shows its southern slopes as almost devoid of any tree or shrub growth (Hahn 2018) <https://www.zoutnet.co.za/>

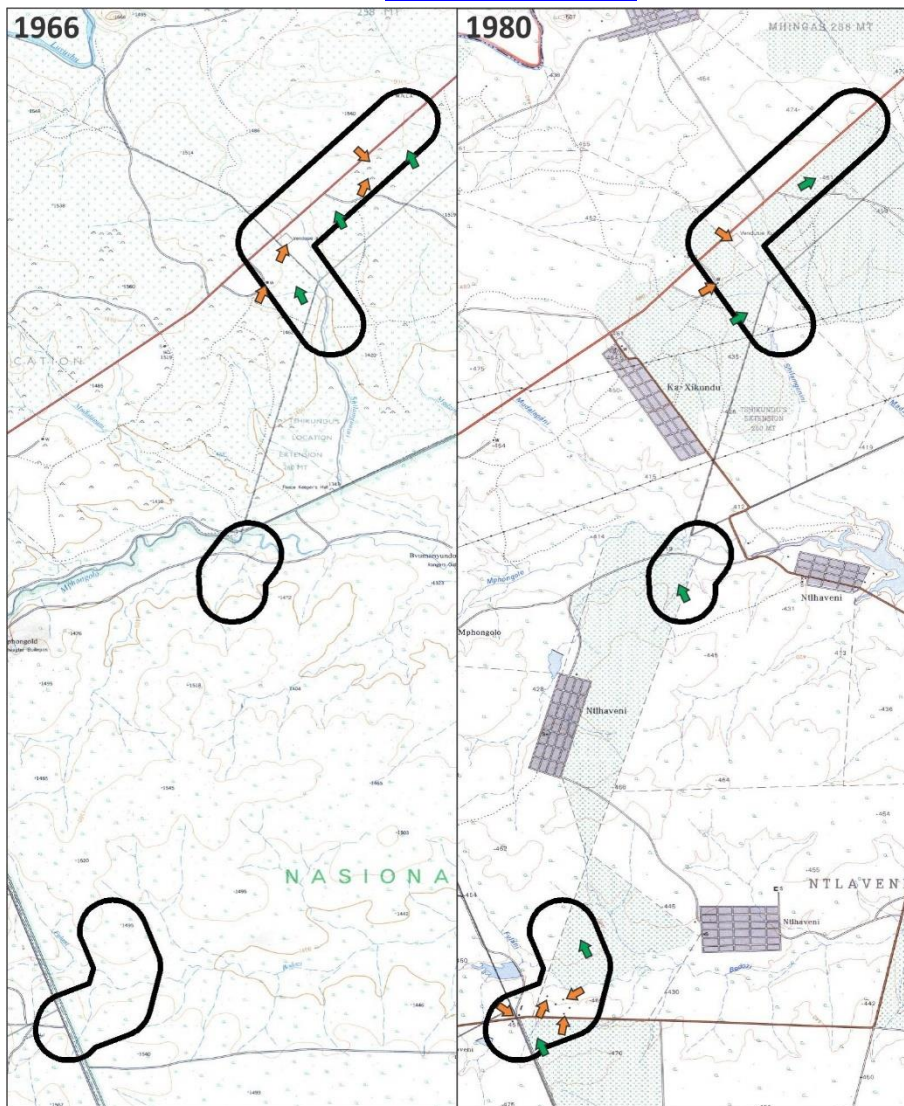


Figure 5-2: Historical topographic maps dating to 1967 (left) and 1980 (right) indicating the location of the project area in the past decades. Man-made features are indicated by orange arrows and green arrows point to cultivated lands.

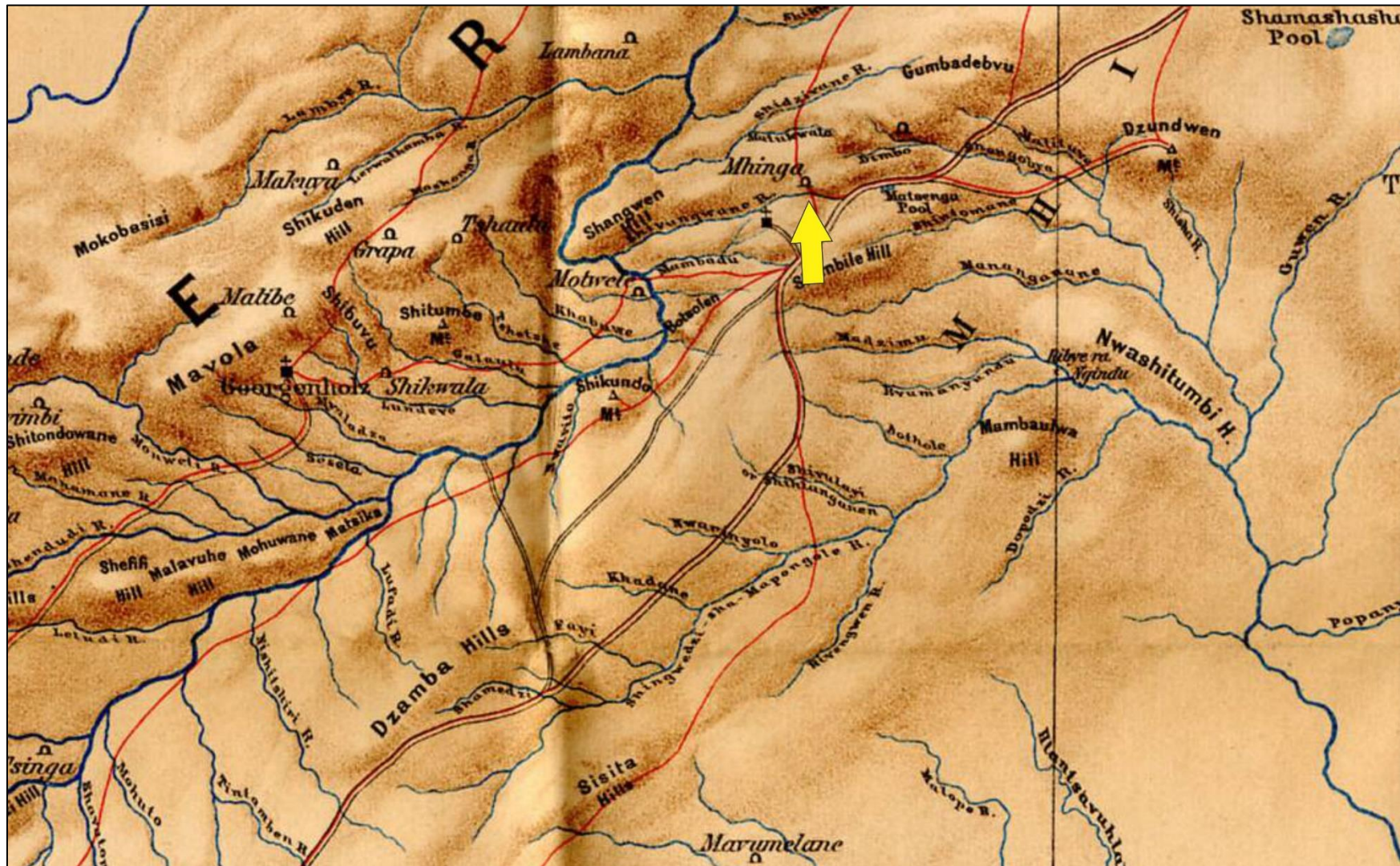


Figure 5-3: Historical map of the southern Soutpansberg dating to 1903 (Berthoud). The general location of Mhinga area is indicated by the yellow arrow.

## 5.2 The Archaeological Site Survey

An analysis of historical aerial imagery and archive maps of areas subject to this assessment suggests a landscape which has been subjected to historical agricultural activities possibly sterilising the area of heritage remains. This inference was confirmed during an archaeological site assessment but *in situ* heritage remains were nonetheless encountered. The following observations were made during the site survey:

### 5.2.1 Stone Age Localities

Isolated Stone Age localities were noted in eroded areas of the project footprint. The density of the material scatter was arbitrarily estimated by placing a one-meter drawing frame, sub-divided into quadrants, on a randomly-selected area displaying higher amounts of surface lithics. By plotting the counts of all lithic elements present in the 1x1 metre square relative density per m<sup>2</sup> was established and rated on a scale of low (<10), medium (10-20) and high (>20). This method has been adapted as expedient and non-invasive sampling technique that is particularly useful in value assessment of lithic occurrences during Phase 1 AIA's (see Van Der Ryst 2012).

- **Exigo-MHI-SA01 Stone Age Occurrence (Deviation 3)**  
**S22.82134° E30.88045°**

Stone Age remains occur abundantly in the larger Soutpansberg landscape where locally available raw material for the manufacture of stone tools is available in the geological landscape. Similarly, a single Middle Stone Age (MSA) tools (a core, a broken point and an adze) were noted near a drainage line within the corridor for Deviation 3. It is not possible to assign an age estimate without an in-depth analysis of a more representative sample and the context of the lithics has been lost. No evidence of any factory or workshop site, or the result of any human settlement was identified. The tools are abraded or weathered suggesting that they have lain on the surface for many years. The small numbers and disturbed context in which they were found means that these archaeological remains have been rated as having low archaeological significance.



Figure 5-4: MSA material from Site Exigo-MHI-SA01.

### 5.2.2 Iron Age Farmer Period Sites (Deviation 1)

- **Exigo-MHI-IA01 Possible Iron Age Farmer Settlement Area**  
**S22.93148° E30.85236°**

A possible later Iron Age settlement area were noted along a small, densely overgrown hill and adjoining fields within the corridor for Deviation 1. At the site, a number of small stone terraces and stone features, a possible grain bin stand and undecorated potshards were documented. The poorly preserved stone terraces and structures occur along the small hill and they probably indicate a Later Iron Age Farmer Period

occupation / activity area. Preservation of the site is generally poor and associated Iron Age farmer Period material culture and other features are absent from this site. The site might be significant in terms of its regional and local representation in the Iron Age Farmer Period landscape of the area but it is rated as of low significance. The site is located within the Deviation 1 corridor and mitigation of the site is required during early stages of the project.



Figure 5-5: View of poorly preserved stone terracing at Site Exigo-MHI-IA01.



Figure 5-6: View of stone terracing at Site Exigo-MHI-IA01.



Figure 5-7: Single fragments of undecorated pottery from Site Exigo-MHI-IA01.



Figure 5-8: View of a possible grain bin stand at Site Exigo-MHI-IA01.

### 5.2.3 Burial Sites

- **Exigo-MHI-BP01 Burial Site (Deviation 3)**  
**S22.83084° E30.88568°**

A small burial site holding at least four graves was noted along the southern portion of the Deviation 3 corridor near an existing power line. The graves are dressed with marked marble headstones and tomb stones positioned in a relative east-west orientation, the site is fenced off and its condition of preservation is good. Material culture such as enamel and glass containers were noted on the surface in association with the graves. The burial site, which is of high heritage significance, is located within the Deviation 3 corridor and impact might occur (see Section 6).



Figure 5-9: View of the burial site at Site Exigo-MHI-BP01.

- **Exigo-MHI-BP02 Burial Site (Deviation 3)**  
**S22.82211° E30.87290°**

Another burial site holding a large number of graves was noted along the north-western portion of the Deviation 3 corridor. A number of graves are dressed with marked marble headstones and other burials are indicated by elongated stone circle features filled in with earth. Most of the burials area positioned in a relative east-west orientation, the site is not fenced off and its condition of preservation is fair. Material culture such as enamel and glass containers were noted on the surface in association with the graves. The burial site, which is of high heritage significance, is located within the Deviation 3 corridor and impact might occur (see Section 6).



Figure 5-10: View of the burial site at Site Exigo-MHI-BP02.

- **Exigo-MHI-BP03 Burial Site (Deviation 1)**  
**S22.92474° E30.85384°**

A possible single grave occurs in a disused agricultural field in a central portion of the Deviation 1 corridor. The feature is indicated by elongated stone cairn measuring approximately 1.6m x 1m and a crude stone was placed on one side, assumedly as headstone. The site is not fenced off and its condition of preservation is

poor. The apparent burial site, which is of high heritage significance, is located within the Deviation 1 corridor and impact might occur (see Section 6).



Figure 5-11: View of the possible burial site at Site Exigo-MHI-BP03.

#### 5.2.4 Other Sites / Features

- **Exigo-MHI-FT01 Stone Features**  
**S22.91754° E30.85174°**
- **Exigo-MHI-FT02 Stone Features**  
**S22.92125° E30.85185°**

A number of circular and irregular stone cairns and stone heaps were located a in a central and northern portion of the Deviation 1 corridor around disused agricultural fields. These features could have originated from agriculture activities where stones are commonly cleared from adjacent crop fields but the stone heaps might also indicate informal human graves. but it is also possible that the. The heritage significance of the sites, located within the Deviation 1 corridor, remains to be established - in particular of the sites are to be impacted on by the development.



Figure 5-12: View of an unidentified stone feature at Site Exigo-MHI-FT01.



Figure 5-13: View of another unidentified stone feature at Site Exigo-MHI-FT01.



Figure 5-14: View of an unidentified stone feature at Site Exigo-MHI-FT02.



Figure 5-15: View of another unidentified stone feature at Site Exigo-MHI-FT02.



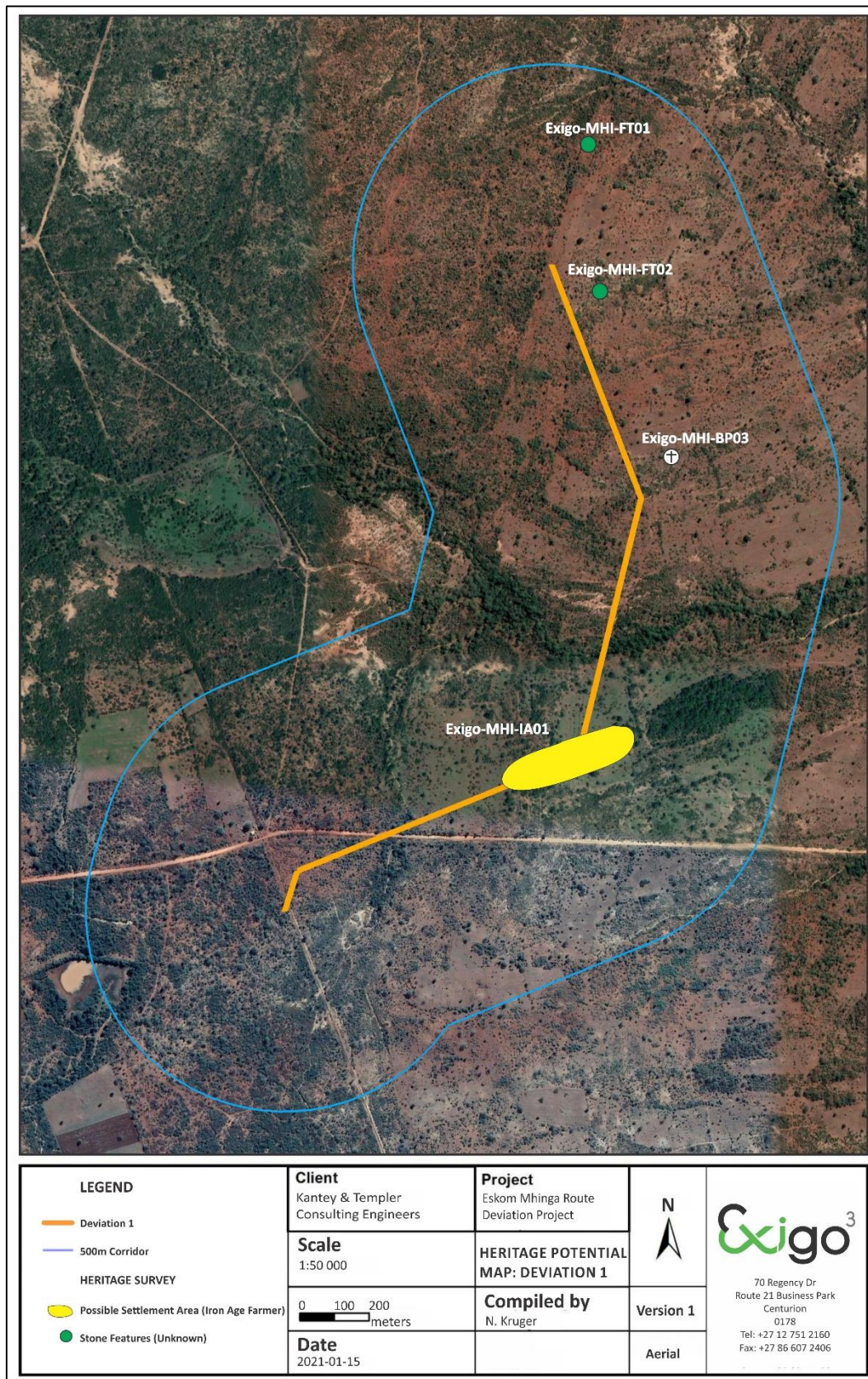


Figure 5-16: Aerial image indicating the location of heritage occurrences along Deviation 1, discussed in the text.

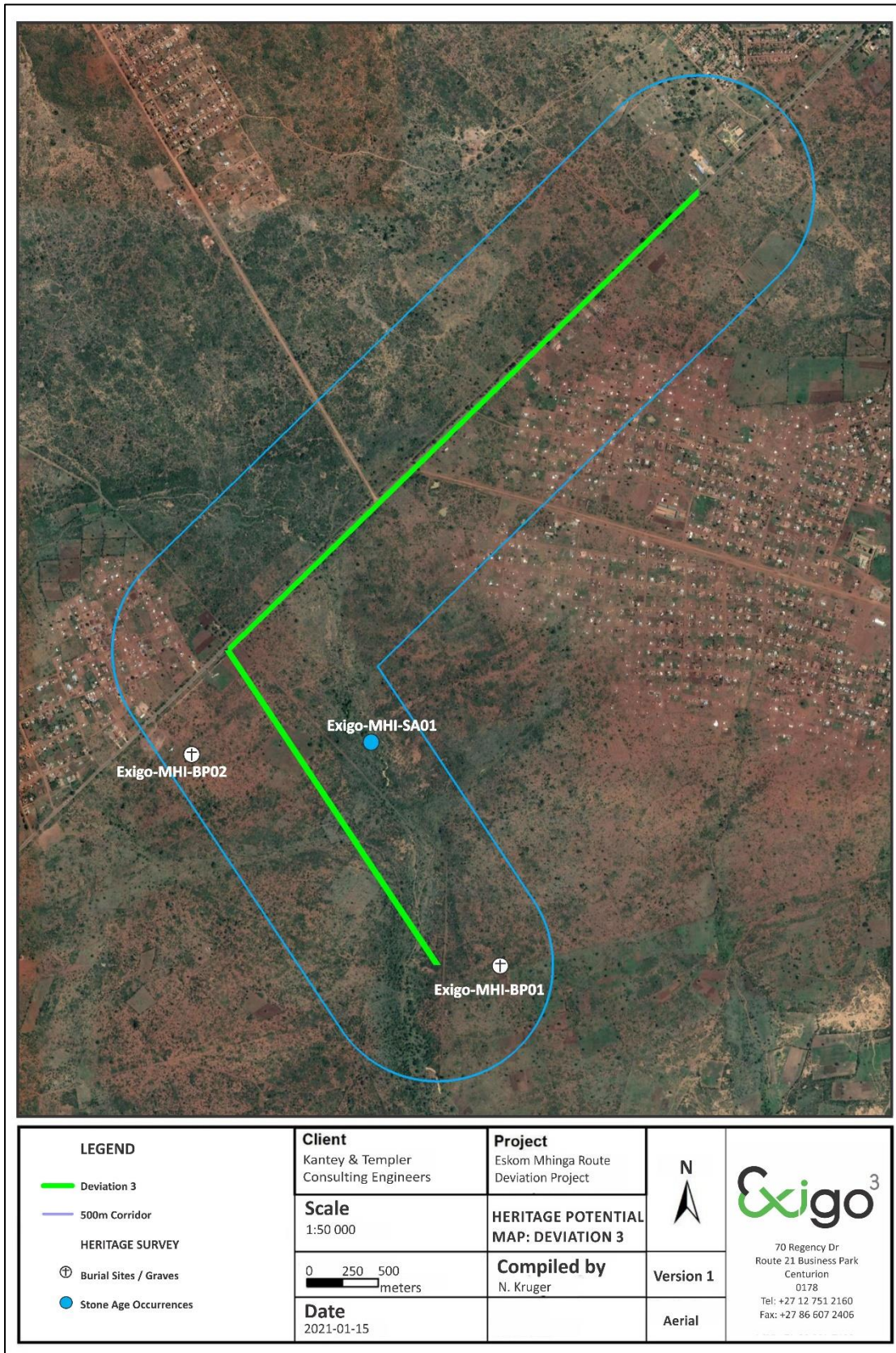


Figure 5-17: Aerial image indicating the location of heritage occurrences along Deviation 3, discussed in the text.

## 6 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING

### 6.1 Potential Impacts and Significance Ratings<sup>3</sup>

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. A guideline for the rating of impacts and recommendation of management actions for areas of heritage potential within the study area is supplied in Section 10.2 of Addendum 3.

#### 6.1.1 General assessment of impacts on resources

Generally, the value and significance of archaeological and other heritage sites might be impacted on by any activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, of any archaeological material or object (as indicated in the National Heritage Resources Act (No 25 of 1999)). Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts. The EIA process therefore specifies impact assessment criteria which can be utilised from the perspective of a heritage specialist study which elucidates the overall extent of impacts.

#### 6.1.2 Direct impact rating

**Direct or primary effects** on heritage resources occur at the same time and in the same space as the activity, e.g. loss of historical fabric through demolition work. **Indirect effects or secondary effects** on heritage resources occur later in time or at a different place from the causal activity, or as a result of a complex pathway, e.g. restriction of access to a heritage resource resulting in the gradual erosion of its significance, which is dependent on ritual patterns of access (refer to Section 10.3 in the Addendum for an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected).

The following table summarizes impacts to the **low** significance Stone Age localities in the proposed Eskom Mhinga Route Deviation Project area (**Site Exigo-MHI-SA01**):

<b>NATURE OF IMPACT:</b> Impact could involve displacement or destruction of heritage material in the study area.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>EXTENT</b>	Local	Local
<b>DURATION</b>	Permanent	Permanent
<b>MAGINITUDE</b>	Minor	Minor
<b>PROBABILITY</b>	Definite	Very improbable
<b>SIGNIFICANCE</b>	Low	Low
<b>STATUS</b>	Negative	Neutral
<b>REVERSIBILITY</b>	Non-reversible	Non-reversible
<b>IRREPLACEABLE LOSS OF RESOURCES?</b>	Yes	No
<b>CAN IMPACTS BE MITIGATED?</b>	Yes	
<b>MITIGATION:</b> Site monitoring.		

<sup>3</sup> Based on: Winter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

**CUMULATIVE IMPACTS:** Site monitoring by ECO.

**RESIDUAL IMPACTS:** n/a

The following table summarizes impacts to the **medium** significance Iron Age farmer settlement located in the proposed Eskom Mhinga Route Deviation Project area (**Site Exigo-MHI-IA01**):

<b>NATURE OF IMPACT:</b> Impact could involve displacement or destruction of heritage material in the study area.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>EXTENT</b>	Local	Local
<b>DURATION</b>	Permanent	Permanent
<b>MAGNITUDE</b>	Minor	Minor
<b>PROBABILITY</b>	Definite	Very improbable
<b>SIGNIFICANCE</b>	Medium	Low
<b>STATUS</b>	Negative	Neutral
<b>REVERSIBILITY</b>	Non-reversible	Non-reversible
<b>IRREPLACEABLE LOSS OF RESOURCES?</b>	Yes	No
<b>CAN IMPACTS BE MITIGATED?</b>	Yes	
<b>MITIGATION:</b> Site monitoring.		
<b>CUMULATIVE IMPACTS:</b> Site monitoring by ECO, limited Phase 2 Assessment, destruction permitting if and when required.		
<b>RESIDUAL IMPACTS:</b> n/a		

The following table summarizes impacts to the **high** significance burial sites located in the proposed Eskom Mhinga Route Deviation Project area (**Site Exigo-MHI-BP01 - Site Exigo-MHI-BP03**):

<b>NATURE OF IMPACT:</b> Impact could involve displacement or destruction of heritage material in the study area.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>EXTENT</b>	Local	Local
<b>DURATION</b>	Permanent	Permanent
<b>MAGNITUDE</b>	Major	Minor
<b>PROBABILITY</b>	Probable	Very improbable
<b>SIGNIFICANCE</b>	High	Low
<b>STATUS</b>	Negative	Neutral
<b>REVERSIBILITY</b>	Non-reversible	Non-reversible
<b>IRREPLACEABLE LOSS OF RESOURCES?</b>	Yes	No
<b>CAN IMPACTS BE MITIGATED?</b>	Yes	
<b>MITIGATION:</b> Avoidance, infrastructure redesign, site management (fencing, access control), strict site monitoring by ECO. Grave Relocation. Public Participation		
<b>CUMULATIVE IMPACTS:</b> No cumulative impact is anticipated.		
<b>RESIDUAL IMPACTS:</b> n/a		

## 6.2 Evaluation Impacts

A number of archaeological and historical studies have been conducted in the Soutpansberg area which points to a rich and diverse archaeological landscape. The heritage legacy of this area is mostly dominated by Iron Age Farmer and Colonial / Historical Period archaeology primarily related to farming, rural expansion and warfare of the past century.

### 6.2.1 Archaeology

The study noted the presence of low significance Stone Age localities as well as a probable later Iron Age occupation area. The latter site is of medium significance in terms of its regional representation in the Iron Age farmer period landscape of the area. The site is located in the project zone and might be impacted on by the proposed development activities where in essence, the impact will result the damage / loss of the occurrences. The site will be also sterilized of any future heritage research opportunities. The potential impact on the resource is considered to be HIGH but this impact rating can be limited to a NEGLIBLE impact by the implementation of mitigation measures (avoidance, limited Phase 2 Study and Sampling monitoring, relevant permitting) for the sites, if / when required.

### 6.2.2 Built Environment

The project area is situated within rural areas of the Soutpansberg where of Historical Period buildings and features, monuments and heritage sites are to be found. In the immediate surroundings of the project area is a number of Colonial Period farmsteads and Contemporary Period buildings, cattle pens and a concrete dam of no heritage value occur within the project area. As such, no impact on the built environment is anticipated.

### 6.2.3 Cultural Landscape

Generally, the proposed project area and its surrounds are characterised by rural farmlands and dense mountain slope vegetation. Further away from the project area, the landscape displays undulating foothills of the Soutpansberg with flatter plains in-between. This landscape stretches over many kilometres and the proposed project is unlikely to result in a significant impact on the or the landscape sense of place.

### 6.2.4 Graves / Human Burials Sites

At least 3 human burial sites were located within the project area. The receptors are of high significance in terms of heritage, social and cultural value. The potential impact on the resources is regarded as HIGH but this impact rating can be limited to a NEGLIBLE impact by the implementation of mitigation measures (avoidance, site management, site monitoring / grave relocation) for the sites, if / when required. In the rural areas of the Limpopo Province, graves and cemeteries often occur around farmsteads in family burial grounds but they are also randomly scattered around archaeological and historical settlements. The probability of informal human burials encountered during development should thus not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from either SAHRA (for pre-colonial burials as well as burials later than about AD 1500). Should any unmarked human burials/remains be found during the course of construction, work in the

immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met

### 6.3 Management actions

Recommendations for relevant heritage resource management actions are vital to the conservation of heritage resources. A general guideline for recommended management actions is included in Section 10.4 of Addendum 3.

**OBJECTIVE:** ensure conservation of heritage resources of significance, prevent unnecessary disturbance and/or destruction of previously undetected heritage receptors.

*It is recommended that the provenience of the stone cairns and features (Site Exigo-MHI-FT01, Site Exigo-MHI-FT2) in the project area be tested by means of non-intrusive (Ground Penetrating Radar) or intrusive (archaeological excavations) methods, should impact on the sites prove inevitable. If the features prove to be human burials, relevant and applicable mitigation and site management measures should apply.*

*For the Stone Age features of low significance (Site Exigo-MHI-SA01) within the project area the following are required in terms of heritage management and mitigation:*

<b>PROJECT COMPONENT/S</b>	All phases of construction and operation.		
<b>POTENTIAL IMPACT</b>	Damage/destruction of sites.		
<b>ACTIVITY RISK/SOURCE</b>	Digging foundations and trenches into sensitive deposits that are not visible at the surface.		
<b>MITIGATION: TARGET/OBJECTIVE</b>	To locate previously undetected heritage remains / graves as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
<b>MITIGATION: ACTION/CONTROL</b>	<b>RESPONSIBILITY</b>	<b>TIMEFRAME</b>	
Fixed Mitigation Procedure (required)			
<b>Site Monitoring:</b> Regular examination of trenches and excavations in order to detect and preserve previously undocumented heritage receptors.	ECO, HERITAGE ASSESSMENT PRACTITIONER	Monitor as frequently as practically possible. Prior to the commencement of construction and earth-moving.	
<b>PERFORMANCE INDICATOR</b>	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
<b>MONITORING</b>	Successful location of sites by person/s monitoring.		

*For the Iron Age Site (Site Exigo-MHI-IA01) occurring in the project area the following are required in terms of heritage management and mitigation:*

<b>PROJECT COMPONENT/S</b>	All phases of construction and operation.		
<b>POTENTIAL IMPACT</b>	Damage/disturbance to sites and subsurface features and deposits.		
<b>ACTIVITY RISK/SOURCE</b>	Digging foundations and trenches into sensitive deposits that are not visible at the surface.		
<b>MITIGATION: TARGET/OBJECTIVE</b>	To conserve the historical fabric of the sites and to locate undetected heritage remains as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
<b>MITIGATION: ACTION/CONTROL</b>	<b>RESPONSIBILITY</b>	<b>TIMEFRAME</b>	
Preferred Mitigation Procedure			
<b>Avoidance:</b> Implement a heritage conservation buffer of at least 20m around the heritage receptor, where possible redesign infrastructure to avoid the heritage resource and the proposed conservation buffer. Fence all burial places and apply access control.	DEVELOPER QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.	
Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)			

<b>Phase 2 Study and Sampling:</b> Limited Phase 2 Specialist Assessment of sites including mapping, site sampling and possible conservation management and protection measures. Subject to authorizations and relevant permitting from heritage authorities and affected parties.		QUALIFIED SPECIALIST	HERITAGE	Prior to the commencement of construction and earth-moving.
<b>Fixed Mitigation Procedure (required)</b>				
<b>Site Monitoring:</b> Regular examination of trenches and excavations.		ECO		Monitor as frequently as practically possible.
<b>PERFORMANCE INDICATOR</b>	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.			
<b>MONITORING</b>	Successful location of sites by person/s monitoring.			

For the highly significant single burial sites (**Site Exigo-MHI-BP01 - Site Exigo-MHI-BP03**) occurring within the proposed Eskom Mhinga Route Deviation Project the following are required in terms of heritage management and mitigation:

<b>PROJECT COMPONENT/S</b>	All phases of construction and operation.			
<b>POTENTIAL IMPACT</b>	Damage/disturbance to subsurface burials and surface burial features.			
<b>ACTIVITY RISK/SOURCE</b>	Digging foundations and trenches into sensitive deposits that are not visible at the surface.			
<b>MITIGATION: TARGET/OBJECTIVE</b>	To locate human burials as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.			
<b>MITIGATION: ACTION/CONTROL</b>		<b>RESPONSIBILITY</b>		<b>TIMEFRAME</b>
Preferred Mitigation Procedure				
<b>Avoidance:</b> Implement a heritage conservation buffer of at least 50m around the burial sites, redesign project infrastructure to avoid the heritage resource and the proposed conservation buffer. Erect fences around the burial sites and apply access control with signage to indicate visitation contacts. Strict and continuous monitoring of the burial sites during development, implementation of a site management plan detailing site management conservation measures.		DEVELOPER QUALIFIED SPECIALIST	HERITAGE	Prior to the commencement of construction and earth-moving.
<b>Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)</b>				
<b>Grave relocation:</b> relocation of the burial to the nearby cemetery, documentation of site, full social consultation with affected parties, possible conservation management and protection measures. subject to authorisations and relevant permitting from heritage authorities and affected parties		QUALIFIED SPECIALIST	HERITAGE	Prior to the commencement of construction and earth-moving.
<b>Fixed Mitigation Procedure (required)</b>				
<b>Site Monitoring:</b> Regular examination of trenches and excavations in this area in order to avoid the destruction of previously undetected burials or heritage remains.		ECO		Monitor as frequently as practically possible.
<b>PERFORMANCE INDICATOR</b>	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.			
<b>MONITORING</b>	Successful location of sites by person/s monitoring.			

## 7 RECOMMENDATIONS

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The larger landscape around the project area indicate a rich heritage horizon encompassing Iron Age Farmer and Colonial / Historical Period archaeology primarily related to farming, rural expansion and warfare of the past century. Locally, the project area has seen vast transformation by agriculture activities potentially sterilising surface and subsurface of heritage remains, especially those dating to pre-colonial and prehistorical times. Cognisance should nonetheless be taken of archaeological material that might be present in surface and sub-surface deposits along drainage lines and in pristine areas. The following recommendations are made based on general observations in the proposed Eskom Mhinga Route Deviation Project area:

- An isolated Stone Age occurrence in the Deviation 3 corridor (**Site Exigo-MHI-SA01**) is of low heritage significance and it is recommended that site should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains and potential human burials.
- A probable Iron Age occupation at (**Site Exigo-MHI-IA01**) in the Deviation 1 corridor is of medium significance in terms of its regional representation in the Iron Age farmer period landscape of the area. It is primarily recommended that proposed development components be planned as to avoid impact on the heritage resource, and a heritage conservation buffer of at least 20m around the heritage receptor be implemented. If this measure proves unachievable it is recommended that the historical fabric of the sites be conserved by means of a limited Phase 2 Specialist study (mapping, site sampling and possible conservation management and protection) and the necessary permits should be obtained from the relevant Heritage Resources Authorities.
- It is recommended that the provenience of the stone cairns and features (**Site Exigo-MHI-FT01, Site Exigo-MHI-FT2**) in the Deviation 1 corridor be tested by means of non-intrusive (Ground Penetrating Radar) or intrusive (archaeological excavations) methods, should impact on the sites prove inevitable. If the features prove to be human burials, relevant and applicable mitigation and site management measures should apply (see following point).
- Three burial sites or probable burial sites occurring within in the Deviation1 and Deviation 3 corridors (**Site Exigo-MHI-BP01 - Site Exigo-MHI-BP03**) are of high significance and the sites might be impacted on by site development. It is primarily recommended that the burial be conserved *in situ* and that a conservation buffer of at least 50m, as required by SAHRA Burial Ground and Graves (BGG) Unit, be implemented around the heritage receptor. A fence and access gate should be erected around each burial site. A distance of at least 2m should be maintained between the graves and the fence which should be at least 1,8m high. Clear signboard should be erected indicating the heritage sensitivity of the sites and contact details for visitation of the graves. The developer should carefully liaise with the heritage specialist and SAHRA with regards to the management and monitoring of any human grave or cemetery in order to detect and manage negative impact on the sites. In addition, a Site Management Plan should be implemented detailing conservation measures for the graves and responsible parties in this regard. Should impact on the resources prove inevitable, the graves should be relocated by a qualified archaeologist, and in accordance with relevant legislation, permitting, statutory permissions and subject to any local and regional provisions and laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials (see Addendum 1).
- It should be noted that the site survey for the Eskom Mhinga Route Deviation Project AIA proved to be constrained by dense and often impenetrable vegetation. Dense vegetation not only restricted free movement on the site but obstructed much of the farm in terms of surface



visibility. As such, the possibility exists that individual sites could be missed and it is recommended that the initial stages of the development be monitored to re-assess the presence of possible heritage resources in the project area.

- As burials have been located on the project property, it is recommended that the EIA public participation and social consultative process address the possibility of further graves occurring in the project area.
- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.
- It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period occur on farms in the area and these resources should be avoided during all phases of construction and development, including the operational phases of the development.

In addition to these site-specific recommendations, careful cognizance should be taken of the following:

- As Palaeontological remains occur where bedrock has been exposed, all geological features should be regarded as sensitive.
- Water sources such as drainage lines, fountains and pans would often have attracted human activity in the past. As Stone Age material occur in the larger landscape, such resources should be regarded as potentially sensitive in terms of possible subsurface deposits.

## 8 GENERAL COMMENTS AND CONDITIONS

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This AIA report serves to confirm the extent and significance of the heritage landscape of the proposed Eskom Mhinga Route Deviation Project area. The larger heritage horizon encompasses rich and diverse archaeological landscapes and cognisance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, during construction, any possible archaeological material culture discoveries are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. Such material culture might include:

- Formal Earlier Stone Age stone tools.
- Formal MSA stone tools.
- Formal LSA stone tools.
- Potsherds
- Iron objects.
- Beads made from ostrich eggshell and glass.
- Ash middens and cattle dung deposits and accumulations.
- Faunal remains.
- Human remains/graves.
- Stone walling or any sub-surface structures.
- Historical glass, tin or ceramics.
- Fossils.

If such sites were to be encountered or impacted by any proposed developments, recommendations contained in this report, as well as endorsement of mitigation measures as set out by AMAFA, SAHRA, the National Resources Act and the CRM section of ASAPA will be required. It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, represent the area's complete archaeological legacy. Many sites/features may be covered by soil and vegetation and might only be located during sub-surface investigations. If subsurface archaeological deposits, artefacts or skeletal material were to be recovered in the area during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately (**cf. NHRA (Act No. 25 of 1999), Section 36 (6)**). It must also be clear that Archaeological Specialist Reports will be assessed by the relevant heritage resources authority (SAHRA).

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## 10 ADDENDUM 1: HERITAGE LEGISLATION BACKGROUND

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### 10.1 CRM: Legislation, Conservation and Heritage Management

The broad generic term Cultural Heritage Resources refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

#### 10.1.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

##### d. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act of 1999 a historical site is any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years. This clause is commonly known as the "60-years clause". Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. "Tell" refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts).

The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens
- visual art objects
- military objects
- numismatic objects
- objects of cultural and historical significance
- objects to which oral traditions are attached and which are associated with living heritage
- objects of scientific or technological interest
- any other prescribed category

With regards to activities and work on archaeological and heritage sites this Act states that:

*"No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority."* (34. [1] 1999:58)

and

*"No person may, without a permit issued by the responsible heritage resources authority-*

- (d) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (e) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*

- (f) *trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (g) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."*

and

*"No person may, without a permit issued by SAHRA or a provincial heritage resources agency-*

- (h) *destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*
- (i) *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;*
- (j) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

#### **e. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925**

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities.

##### **10.1.2 Background to HIA and AIA Studies**

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:

*"38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a*

development categorised as:

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- (c) any development or other activity which will change the character of a site:
  - (i) exceeding 5 000 m<sup>2</sup> in extent; or
  - (ii) involving three or more existing erven or subdivisions thereof; or
  - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.”

And:

“The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

- (k) The identification and mapping of all heritage resources in the area affected;
- (l) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;
- (m) an assessment of the impact of the development on such heritage resources;
- (n) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- (o) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- (p) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- (q) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64).”

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60



years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects. Heritage resources management and conservation.

## 10.2 Assessing the Significance of Heritage Resources

Archaeological sites, as previously defined in the National Heritage Resources Act (Act 25 of 1999) are places in the landscape where people have lived in the past – generally more than 60 years ago – and have left traces of their presence behind. In South Africa, archaeological sites include hominid fossil sites, places where people of the Earlier, Middle and Later Stone Age lived in open sites, river gravels, rock shelters and caves, Iron Age sites, graves, and a variety of historical sites and structures in rural areas, towns and cities. Palaeontological sites are those with fossil remains of plants and animals where people were not involved in the accumulation of the deposits. The basic principle of cultural heritage conservation is that archaeological and other heritage sites are valuable, scarce and *non-renewable*. Many such sites are unfortunately lost on a daily basis through development for housing, roads and infrastructure and once archaeological sites are damaged, they cannot be re-created as site integrity and authenticity is permanently lost. Archaeological sites have the potential to contribute to our understanding of the history of the region and of our country and continent. By preserving links with our past, we may not be able to revive lost cultural traditions, but it enables us to appreciate the role they have played in the history of our country.

### - Categories of significance

Rating the significance of archaeological sites, and consequently grading the potential impact on the resources is linked to the significance of the site itself. The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences. The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3 are used when determining the cultural significance or other special value of archaeological or historical sites. In addition, ICOMOS (the Australian Committee of the International Council on Monuments and Sites) highlights four cultural attributes, which are valuable to any given culture:

#### - *Aesthetic value:*

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria include consideration of the form, scale, colour, texture and material of the fabric, the general atmosphere associated with the place and its uses and also the aesthetic values commonly assessed in the analysis of landscapes and townscape.

#### - *Historic value:*

Historic value encompasses the history of aesthetics, science and society and therefore to a large extent underlies all of the attributes discussed here. Usually a place has historical value because of some kind of influence by an event, person, phase or activity.

#### - *Scientific value:*

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality and on the degree to which the place may contribute further substantial information.

#### - *Social value:*

Social value includes the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a certain group.

It is important for heritage specialist input in the EIA process to take into account the heritage management structure set up by the NHR Act. It makes provision for a 3-tier system of management including the South Africa Heritage Resources Agency (SAHRA) at a national level, Provincial Heritage Resources Authorities (PHRAs) at a provincial and the local authority. The Act makes provision for two types or forms of protection of heritage resources; i.e. formally protected and generally protected sites:

**Formally protected sites:**

- Grade 1 or national heritage sites, which are managed by SAHRA
- Grade 2 or provincial heritage sites, which are managed by the provincial HRA (MP-PHRA).
- Grade 3 or local heritage sites.

**Generally protected sites:**

- Human burials older than 60 years.
- Archaeological and palaeontological sites.
- Shipwrecks and associated remains older than 60 years.
- Structures older than 60 years.

With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise and if the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low. The significance of archaeological sites is generally ranked into the following categories.

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, auguring), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinterment [including 2a, 2b & 3]

Furthermore, the significance of archaeological sites was based on six main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter),
- Social value,
- Uniqueness, and
- Potential to answer current and future research questions.

**11 ADDENDUM 2: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE**

**11.1 Site Significance Matrix**

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these. The following matrix is used for assessing the significance of each identified site/feature.

2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa’s history or pre-colonial history.			
It possesses unique, uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage.			
It has potential to yield information that will contribute to an understanding of South Africa’s natural and cultural heritage.			
It is of importance in demonstrating the principle characteristics of a particular class of South Africa’s natural or cultural places or objects.			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			
It has significance relating to the history of slavery in South Africa.			
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.			
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local			
Specific community			

## 11.2 Impact Assessment Criteria

The following table provides a guideline for the rating of impacts and recommendation of management actions for sites of heritage potential.

### Significance of the heritage resource

This is a statement of the nature and degree of significance of the heritage resource being affected by the activity. From a heritage management perspective, it is useful to distinguish between whether the significance is embedded in the physical fabric or in associations with events or persons or in the experience of a place; i.e. its visual and non-visual qualities. This statement is a primary informant to the nature and degree of significance of an impact and thus needs to be thoroughly considered. Consideration needs to be given to the significance of a heritage resource at different scales (i.e. site-specific, local, regional, national or international) and the relationship between the heritage resource, its setting and its associations.

### Nature of the impact

This is an assessment of the nature of the impact of the activity on a heritage resource, with some indication of its positive and/or negative effect/s. It is strongly informed by the statement of resource significance. In other words, the nature of the impact may be historical, aesthetic, social, scientific, linguistic or architectural, intrinsic, associational or contextual (visual or non-visual). In many cases, the nature of the impact will include more than one value.

### Extent

Here it should be indicated whether the impact will be experienced:

- On a site scale, i.e. extend only as far as the activity;
- Within the immediate context of a heritage resource;
- On a local scale, e.g. town or suburb
- On a metropolitan or regional scale; or
- On a national/international scale.

### Duration

Here it should be indicated whether the lifespan of the impact will be:

- Short term, (needs to be defined in context)
- Medium term, (needs to be defined in context)
- Long term where the impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention; or
- Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Of relevance to the duration of an impact are the following considerations:

- Reversibility of the impact; and
- Renewability of the heritage resource.

### Intensity

Here it should be established whether the impact should be indicated as:

- Low, where the impact affects the resource in such a way that its heritage value is not affected;
- Medium, where the affected resource is altered but its heritage value continues to exist albeit in a modified way; and
- High, where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed.

### Probability

This should describe the likelihood of the impact actually occurring indicated as:

- Improbable, where the possibility of the impact to materialize is very low either because of design or historic experience;
- Probable, where there is a distinct possibility that the impact will occur;
- Highly probable, where it is most likely that the impact will occur; or
- Definite, where the impact will definitely occur regardless of any mitigation measures

### Confidence

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.
- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

**Impact Significance**

The significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature and degree of heritage significance and the nature, duration, intensity, extent, probability and confidence of impacts and can be described as:

- Low; where it would have a negligible effect on heritage and on the decision
- Medium, where it would have a moderate effect on heritage and should influence the decision.
- High, where it would have, or there would be a high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision;
- Very high, where it would have, or there would be high risk of, an irreversible and possibly irreplaceable negative impact on heritage. Impacts of very high significance should be a central factor in decision-making.

**11.3 Direct Impact Assessment Criteria**

The following table provides an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected

HERITAGE CONTEXT	TYPE OF DEVELOPMENT			
	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
<b>CONTEXT 1</b> High heritage Value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
<b>CONTEXT 2</b> Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected
<b>CONTEXT 3</b> Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
<b>CONTEXT 4</b> Low to no heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage value expected	Moderate heritage impact expected
<b>NOTE: A DEFAULT "LITTLE OR NO HERITAGE IMPACT EXPECTED" VALUE APPLIES WHERE A HERITAGE RESOURCE OCCURS OUTSIDE THE IMPACT ZONE OF THE DEVELOPMENT.</b>				
HERITAGE CONTEXTS	CATEGORIES OF DEVELOPMENT			
<p><b>Context 1:</b> Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources</p> <p><b>Context 2:</b> Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.</p> <p><b>Context 3:</b></p>	<p><b>Category A: Minimal intensity development</b></p> <ul style="list-style-type: none"> <li>- No rezoning involved; within existing use rights.</li> <li>- No subdivision involved.</li> <li>- Upgrading of existing infrastructure within existing envelopes</li> <li>- Minor internal changes to existing structures</li> <li>- New building footprints limited to less than 1000m<sup>2</sup>.</li> </ul> <p><b>Category B: Low-key intensity development</b></p> <ul style="list-style-type: none"> <li>- Spot rezoning with no change to overall zoning of a site.</li> <li>- Linear development less than 100m</li> </ul>			

<p>Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources</p> <p><b>Context 4:</b> Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.</p>	<ul style="list-style-type: none"> <li>- Building footprints between 1000m2-2000m2</li> <li>- Minor changes to external envelop of existing structures (less than 25%)</li> <li>- Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%).</li> </ul> <p><b>Category C: Moderate intensity development</b></p> <ul style="list-style-type: none"> <li>- Rezoning of a site between 5000m2-10 000m2.</li> <li>- Linear development between 100m and 300m.</li> <li>- Building footprints between 2000m2 and 5000m2</li> <li>- Substantial changes to external envelop of existing structures (more than 50%)</li> <li>- Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%)</li> </ul> <p><b>Category D: High intensity development</b></p> <ul style="list-style-type: none"> <li>- Rezoning of a site in excess of 10 000m2</li> <li>- Linear development in excess of 300m.</li> <li>- Any development changing the character of a site exceeding 5000m2 or involving the subdivision of a site into three or more erven.</li> <li>- Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%)</li> </ul>
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#### 11.4 Management and Mitigation Actions

The following table provides a guideline of relevant heritage resources management actions is vital to the conservation of heritage resources.

<p><b>No further action / Monitoring</b></p> <p>Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.</p> <p><b>Avoidance</b></p> <p>This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.</p> <p><b>Mitigation</b></p> <p>This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.</p> <p><b>Compensation</b></p> <p>Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.</p> <p><b>Rehabilitation</b></p> <p>Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:</p> <ul style="list-style-type: none"> <li>- The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.</li> <li>- Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.</li> <li>- Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource.</li> </ul> <p><b>Enhancement</b></p>
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