PREPARED FOR:

GOLDER ASSOCIATES

XSTRATA

PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR XSTRATA'S PROPOSED KUKA AERIAL ROPEWAY PROJECT BETWEEN STEELPOORT AND LYDENBURG IN THE LIMPOPO AND MPUMALANGA PROVINCES OF SOUTH AFRICA

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EXECUTIVE SUMMARY

This study contains the report on the Phase I Heritage Impact Assessment study which was done according to Section 38 of the National Heritage Resources Act (No 25 of 1999) for Xstrata's proposed Kuka Aerial Ropeway Project to be established between the Limpopo and Mpumalanga Provinces of South Africa. The aims with the Phase I HIA study were the following;

- To establish whether any significant types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur in or near the Kuka Project Area and, if so, to determine the level of significance of these heritage resources.
- To make recommendations regarding the mitigation or the conservation of any significant heritage resources that may be affected by the proposed Kuka Project.

The Phase I HIA study for the proposed Kuka Project Area identified the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in or near the Kuka Project Area namely, (Figure 1, Tables 1-3):

- Scatterings of stone tools mostly ranging from the MSA which occur in low numbers in eroded areas or along stream beads near the Kuka Project Area.
- Formal and informal graveyards dating from the historical past as well as from the more recent past occur from Steelpoort to Lydenburg.
- A stone walled site which is associated with the Choma people and dates from the Historical Period. The site is spread out along the lower eastern foot slope of a hill on Vygenhoek 10JT and is composed of numerous homesteads, cattle enclosures, stone walls, stone piles and several graveyards. This cultural landscape incorporates outlier settlements and graveyards on land adjacent to the Kuka Project Area.
- A stone walled site which dates from the Late Iron Age on the southern banks of a tributary of the Dorps River which probably belonged to a Koni sphere of influence.

All these heritage resources in and near the Kuka Project Area have been geo-referenced and mapped (Figure 1; Tables 1-3).

It is highly likely that more of the following types and ranges of heritage resources may occur in the Kuka Project Area as they may have been missed by this study due to various reasons. The following heritage resources therefore may be under-represented in this study and their presence may be revealed when a walk-through study for the aerial ropeway is done before its construction commences, namely:

- Stone Age sites consisting of scatterings of stone tools may be discovered along any of the rivers, streams or tributaries in the Kuka Project Area, particularly where these rivers and streams are crossed by the aerial ropeway. Stone tools may also occur in eroded areas and dongas or near outcrops that are suitable for the manufacturing of stone tools.
- Undetected graves may occur in the aerial ropeway's corridor. The Choma's sphere of influence has proven to be an area which is marked with exceptionally high numbers of unmarked graves.

Heritage resources and the aerial ropeway

Before the significance, any possible impact on or the mitigation of heritage resources that may be affected by the Kuka Project is discussed, the following comments are raised as they bear an influence on the impact, mitigation and management of heritage resources in the Kuka Project Area.

It is generally assumed that impacts caused by linear developments such as aerial ropeways (or power lines) on heritage sites may be less severe than impacts which occur as a result of more drastic kinds of development such as mining, town development or dam building operations where major effects on the environment, including heritage resources, are brought about.

This assumption can be explained by the fact that the long, narrow ropeway corridor offers opportunities with regard to the protection of heritage sites by means of the following:

- The aerial ropeway will be suspended on top of towers which will constitute the only footprints on the landscape after the ropeway has been constructed. Towers therefore may impact physically on heritage sites which occur at ground level when excavations for these structures are done. (This assumption does not consider the effects of construction or maintenance activities).

- The aerial ropeway hangs above the surface of the land in which heritage sites were deposited many years ago and may cause a visual impact at certain sites which are retained beneath the aerial ropeway.
- The towers on which the aerial ropeway is suspended can be planned and constructed in such a way that they can avoid heritage sites.
- Heritage sites can be conserved under the aerial ropeway if towers are spaced in such a way that they do not affect (remove, damage, alter) heritage sites which then are left *in situ*, (unaffected) underneath the aerial ropeway. This is possible due the fact that the aerial ropeway is strung onto towers which are erected considerable distances from one another.
- Although mitigation measures do exist for all types and ranges of heritage resources, mitigation measures do not always have to be applied when heritage sites can be left unaffected in the aerial ropeway corridor.

The protection and conservation of heritage resources in the aerial ropeway corridor can be advanced by means of walk-through studies which are conducted before the final alignment for the aerial ropeway is fixed and before the construction of the aerial ropeway commences. During the walk-through study, the real (factual) impact of the towers and the aerial ropeway on recorded heritage resources as well as on earlier undetected heritage resources can be determined. By rerouting the aerial ropeway or changing the placement of towers possible impacts on heritage sites can be either minimised or avoided.

The significance of the heritage resources

The significance of heritage resources is usually determined according to criteria such as the following: the scientific, research, aesthetical, educational, ideological, tourism, etc value of heritage resources. Other criteria which may apply are the repeatability (scarcity); condition (dilapidated, restored, altered, disturbed) and inherent cultural, historical, industrial, economic and contextual value that each and every heritage resource possesses.

The level of significance of each heritage resource will determine what mitigation measures have to be applied before this heritage resource may be affected by the Kuka Project. The nature and extent of the mitigation measures will again determine the

permitting process that has to be followed with the South African Heritage Resources Authority (SAHRA).

The protection status of the various types and ranges of heritage resources that may be affected by the Kuka Project is indicated in various sections of the National Heritage Resources Act (No 25 of 1999).

Stone Age sites

A limited number of scattered stone tools have been identified near the Kuka Project Area. Stone Age sites are probably under-represented in this study and some sites may be found during a walk-through study or even at a later stage, e.g. when the aerial ropeway is constructed and stone tools are excavated when towers are erected.

Stone Age sites qualify as archaeological remains and are protected by Section 38 of the National Heritage Resources Act (No 25 of 1999).

Graveyards

A significant number of graveyards and graves were recorded, some of which are associated with the Choma cultural landscape or which occur as isolated entities near the aerial ropeway between Steelpoort and Lydenburg. Undetected graves or graveyards may occur anywhere as informal and abandoned graveyards are difficult to detect. It is therefore likely that graves may be discovered during a walk-through study.

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

The Choma village complex

The remains of the Choma village complex which are scattered across a wide area are interrelated as they constitute a single cultural landscape. These remains are interrelated to

such an extent that an impact on any of the remains actually implies an impact on the cultural landscape as a whole.

The Choma cultural landscape holds historical significance when considering the following criteria outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999): (The term 'it' in the act has been replaced with 'Choma village complex').

(a) [The Choma village complex's] importance in the community, or pattern of South Africa's history;

(b) [The Choma village complex's] potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;

(c) [The Choma village complex's] importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;

(e) [The Choma village complex's] importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;

(f) [The Choma village complex's] strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;

(g) [The Choma village complex's] strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;

The significance of the Choma village complex is further emphasised by criteria such as the fact that this complex holds graves. Descendants of the Choma people regularly pay homage at the graves of their ancestors. The site therefore also has ideological (emotional) significance. The site's indefinite existence is also threatened by rapid development which has been taking place along the edge of the Groot Dwars River Valley during the last decade.

The Late Iron Age site

Site LIA01 represents an archaeological site which is protected by Section 34 and Section 38 of the National Heritage Resources Act (No 25 of 1999). Other criteria which further emphasise the significance of Site LIA01 are the following, namely:

- Site LIA01 can be associated with archaeological deposits which contain pottery, animal bone waste material, charcoal, possible iron tools, etc. These remains are

significant as they enable archaeologists to interpret the meaning of Iron Age sites from the past. Site LIA01 therefore has research value.

- Site LIA01 has cultural, historical and ideological significance as the site was probably occupied by a Koni group whose descendants may still be living in the Lydenburg area.
- Site LIA01 is in a pristine (unaffected) condition and therefore aesthetically pleasing and worthy of conservation.
- Site LIA01 also has other values, e.g. the site can be used in educational or tourism programs.

Possible impacts on the heritage resources

Some of the heritage resources in the Kuka Project Area including those that have not been detected may be impacted (affected, altered, damaged) by the Kuka Project. The number of heritage resources which may be affected by the Kuka Project can be determined more accurately if a walk-through study of the ropeway's corridor is undertaken before construction commences.

The significance of possible impacts on the various types and ranges of heritage resources is indicated in Tables 4 to 7. The tables consider the affects of the impacts during the pre-mitigation phase as well as during the post-mitigation phase.

Stone Age sites

Stone Age sites may be impacted when towers are constructed on top of concentrations of stone tools. Stone tools will not be destroyed by this action but may be scattered from an undisturbed or disturbed archaeological context.

Graveyards

Any of the recorded graveyards or graves or those detected during the walk-through study of the Kuka Project Area may be impacted when towers are erected on top of these structures.

The Choma village complex

The Choma cultural landscape will be affected if the aerial ropeway crosses any of the structures, graves and other features which are associated with this complex.

The Late Iron Age site

The Late Iron Age site may be impacted a tower for the aerial ropeway is erected within the perimeters of this site or when the aerial ropeway runs across this site, which constitutes a small cultural landscape.

Mitigating the heritage resources

Different mitigation measures have to be followed for the various types of heritage resources that may be affected by the Kuka Project. Mitigation measures for various types and ranges of heritage resources are usually developed by specialists qualified in various disciplines and accredited with the Association for Southern African Professional Archaeologists (ASAPA).

An important aspect relating to the mitigation (conservation) of heritage resources in the aerial ropeway corridor is the undertaking of a walk-through study which should be done before the aerial ropeway is constructed and which would have the following benefits:

- The aerial ropeway could be rerouted or realigned in order to avoid (conserve) heritage sites.
- Some of the heritage resources can be conserved unaffected (*in situ*) underneath the aerial ropeway and can subsequently be managed as long as the aerial ropeway is operational.

Stone Age sites

Stone Age sites can in most instances be avoided by means of placing towers on opposite ends (outer perimeters) of these sites. Stone Age sites therefore can be kept *in situ* in the aerial ropeway corridor.

It is also possible that stone tools which may be affected by the Kuka Project can be collected from the surface before the aerial ropeway is constructed. These stone tools can be donated to museums (preferably closest to the Kuka Project Area or to an accredited institution such as a national museum or a university). Here, they can be kept safely and used in displays or in educational programmes.

Phase II investigations for Stone Age sites can only be conducted by archaeologists accredited with the Association for Southern African Professional Archaeologists (ASAPA). The archaeologist has to obtain a permit from the South African Heritage Resources Authority (SAHRA), which will authorise the collection of the stone artefacts *prior* to the construction of the aerial ropeway.

Graveyards

Graves and graveyards in the Kuka Project Area can be mitigated by following one of the following strategies, namely:

- Graveyards and graves can be conserved *in situ* underneath the aerial ropeway. Towers should be erected on opposite ends of graves or graveyards. Consequently, the aerial ropeway can be strung across and above graves and graveyards. Conserving graves and graveyards in the aerial ropeway corridor creates a risk that they may be damaged accidentally, and that the developer may be held responsible for such damages. Controlled access must exist for any relatives or friends who wish to visit the graves or graveyards, as in power line corridors. This strategy should be followed together with a process of consultation involving family members of the deceased.
- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputable undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

The Choma village complex

The Choma cultural landscape must be avoided by the Kuka Project. The aerial ropeway must be constructed to the north of this cultural landscape as it is currently planned and indicated in Figure 1.

Any impact on the Choma village complex would require that this cultural landscape be subjected to a Phase II archaeological impact assessment study. This investigation requires that the cultural landscape be documented by means of mapping the complex while further investigations may require that test excavations in the cultural landscape have to be undertaken.

Phase II investigations are done by archaeologists accredited with the Association for Southern African Professional Archaeologists (ASAPA). The archaeologist has to obtain a permit from the South African Heritage Resources Authority (SAHRA) which will authorise the Phase II investigation and the subsequent destruction of the stone walled sites before the construction of the aerial ropeway commences.

The Late Iron Age site

The Late Iron Age site can be avoided by means of placing towers on opposite ends (outer perimeters) of the site. Although the incorporating of the site (and small cultural landscape) underneath the aerial ropeway will not necessarily cause a physical impact on the site, a visual impact may result which may requires that the site be subjected to a Phase II investigation.

This investigation will require that the site be documented by means of mapping the site and possibly by means of small test excavations of the site. Phase II investigations are done by archaeologists accredited with ASAPA. The archaeologist has to obtain a permit from SAHRA, who will authorise the Phase II investigation before the aerial ropeway is constructed.

General

It is possible that this Phase I HIA study may have missed heritage resources in the Kuka Project Area as heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance are exposed during the Kuka Project, the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

CONTENTS

1 INTRODUCTION

This document contains the report on the results of a Phase I Heritage Impact Assessment (HIA) study which was done for Xstrata's proposed Kuka Aerial Ropeway Project to be established between Steelpoort and Lydenburg in the Mpumalanga and Limpopo Provinces of South Africa.

Focused archaeological research has been conducted in the Mpumalanga and Steelpoort Provinces for more than four decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as the recording of rock art and historical sites. The Mpumalanga and Limpopo Provinces have a rich heritage comprised of remains dating from the pre-historical and from the historical (or colonial) periods of South Africa. Pre-historical and historical remains in the Mpumalanga and Limpopo Provinces of South Africa therefore form a record of the heritage of most groups living in South Africa today.

Various types and ranges of heritage resources that qualify as part of South Africa's 'national estate' (as outlined in the National Heritage Resources Act [Act 25 of 1999]) occur in the Mpumalanga Province (see Box 1, next page).

Box 1: Types and ranges of heritage resources (comprising the 'national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999).

The National Heritage Resources Act (No 25 of 1999) outlines the following types and ranges of heritage resources that qualify as part of the national estate, namely:

(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 natural features of cultural significance;
(e) geological sites of scientific or cultural importance;
(f) archaeological and paleontological sites;
(g) graves and burial grounds including-
  (i) ancestral graves;
  (ii) royal graves and graves of traditional leaders
  (iii) graves of victims of conflict
  (iv) graves of individuals designated by the Minister by notice in the Gazette;
  (v) historical graves and cemeteries; and
  (vi) other human remains which are not covered by in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
(h) sites of significance relating to the history of slavery in South Africa;
(i) moveable objects, including -
  (i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
  (ii) objects to which oral traditions are attached or which are associated with living heritage;
  (iii) ethnographic art and objects;
  (iv) military objects;
  (v) objects of decorative or fine art;
  (vi) objects of scientific or technological interest; and
  (vii) books, records, documents, photographs, positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

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

(a) its importance in the community, or pattern of South Africa's history;
(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
(c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
(d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects
(e) ;its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
(h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
(i) sites of significance relating to the history of slavery in South Africa

2 AIMS WITH THIS REPORT

Xstrata intends to establish the proposed Kuka Aerial Ropeway Project between Steelpoort and Lydenburg in the Mpumalanga and Limpopo Provinces of South Africa. Activities relating to the construction and operation of the Kuka Aerial Ropeway Project (hereafter referred to as the Kuka Project) may impact on any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No. 25 of 1999).

Consequently, Golder Associates, who is responsible for compiling the Environmental Impact Assessment report for the Kuka Project, commissioned the author to undertake a Phase I HIA study for the Kuka Project Area with the following aims:

- To establish whether any significant types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur in or near the Kuka Project Area and, if so, to determine the level of significance of these heritage resources.
- To make recommendations regarding the mitigation or the conservation of any significant heritage resources that may be affected by the proposed Kuka Project.

3 THE KUKA PROJECTAREA

3.1 Location

The proposed Kuka Aerial Ropeway Project will be constructed to link the Thorncliffe Chrome Mine, on the farm Thorncliff 374KT in the Steelpoort valley, to the Xstrata smelter in Lydenburg in the Mpumalanga Province and the Xstrata Lion smelter, which is located in the Steelpoort valley. These two smelters are located on the farms Kennedy's Vale 2430CC, Draaikraal 2530AA & Lydenburg 2530AB; (1: 50 000 topographical maps).

3.2 Brief description of the Kuka Project

The proposed Kuka Project is intended to transport chrome ore in buckets between the chrome mines in the Steelpoort region and the two smelters located in the Steelpoort and Lydenburg regions. The transportation will take place until Thorncliffe Chrome Mine implements its closure plan or throughout the project's life, which will be a minimum of a 25 years. Current plans are to construct a double rope system; the buckets will be suspended on a thicker top rope, with a thinner lower rope pulling the buckets. A central control room will monitor and co-ordinate material flow and attend to contingencies within the system.

The construction methodology will be similar to that used for the erection of power line pylons and cables. The proposed ropeway tower height will be between 12m to 22 m and pylons will be spaced at distances between 200m and 350m, although subject to topography, this distance can be increased up to 700m.

The power cable for the ropeway will run above the ropeway cables. No additional power lines or pylons will therefore need to be constructed.

Minor alternatives are proposed for the ropeway corridors. These are an Alternative B which comprises a short corridor and Corridors C and D along the last stretch of the aerial ropeway. Alternative A (including the stretch between the Lion Smelter and the Thorncliff Mine) represents the preferred corridor (Corridor A) for the Kuka Project.

3.3 Cutting across cultural landscapes

The Kuka Project Area runs across three cultural landscapes which are stretched out from the Steelpoort region in the west to Lydenburg in the east. These three cultural landscapes include the Steelpoort region which incorporates part of Pediland (Sekhukuneland) in the west, the Steenkampsberge in the centre and the Lydenburg Valley in the east.

Each of these regions is characterised by certain heritage features which are the result of unique pre-historical and historical circumstances that are reflected by heritage resources particular to each of these regions. Some of the most outstanding historical circumstances and heritage characteristics and features in each of these cultural landscapes are briefly outlined in a next chapter of the report (see below, Part 5).

4 METHODOLOGY

This Phase I HIA study was conducted by means of the following:

- Surveying with a vehicle the proposed Kuka Project Area as well as sensitive spots on foot as well as surveying, where appropriate, areas adjoining the project area.
- Studying literature relating to the pre-historical and historical context of the Kuka Project Area.
- Interviewing spokespersons to establish the presence or existence of certain heritage resources such as graveyards or abandoned settlements.
- Consulting maps of the proposed Kuka Project Area.
- Consulting archaeological (heritage) data bases such as those kept at the Limpopo and Mpumalanga Provincial Heritage Resources Agencies.
- Synthesising all information obtained from the literature survey, maps and spokespersons with the evidence derived from the fieldwork.

4.1 Fieldwork

The proposed Kuka Project Area stretches between Steelpoort in the west and Lydenburg in the east and runs across parts of the Limpopo and Mpumalanga Provinces of South Africa.

The project area was surveyed with a vehicle where accessible roads existed whilst sensitive stretches along the proposed aerial ropeway corridor were surveyed on foot.

Although heritage resources in peripheral areas (adjoining the Kuka Project Area) will not be affected by the proposed development, this report does outline the presence of stone walled sites and graveyards that were observed in this non-critical area and these should particularly be taken note of during the construction phase.

4.2 Databases, literature survey and maps

Databases kept and maintained at institutions such as the South African Heritage Resources Agencies in the Limpopo and Mpumalanga Provinces as well as at the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria were consulted to determine whether any heritage resources had been identified during earlier heritage impact assessment studies in the larger Kuka Project Area.

Literature relating to the pre-historical and the historical unfolding of the Kuka Project Area was reviewed. This review focused particularly on the historical Pediland associated with the Steelpoort, the Steenkampsberge and Groot Dwars River Valley which is associated with the Ndzundza-Ndebele and the Petla and Choma clans, as well as to the presence of groups such as the Koni and Pedi who lived in the Lydenburg region. The historical or colonial period is also referred to, as the towns of Roossenekal and Lydenburg in the former Transvaal Province represent two of the oldest towns that were established by the colonists (Voortrekkers) north of the Vaal River.

It is important to contextualise the pre-historical and historical background of the Kuka Project Area in order to comprehend the identity and meaning of heritage sites in and near to the project area and to determine the significance of any heritage resources that may be affected by the development project (see Parts 5 & 9).

In addition, the Kuka Project Area was also studied by means of the 1:50 000 topographical maps across which the aerial ropeway stretches (Kennedy's Vale 2430CC, Draaikraal 2530AA & Lydenburg 2530AB; 1: 50 000 topographical maps).

4.3 Spokespersons

Spokespersons living in hamlets along the Kuka Project Area are usually intimately acquainted with the area, particularly if they were born there. Some spokespersons were therefore consulted with regard to the possible presence of graveyards and abandoned villages (see Part 9).

4.4 Mapping heritage resources

All the heritage resources found in the Kuka Project Area and some in the peripheral areas were geo-referenced using a GPS instrument and they were thereafter mapped in Arch View (Tables 1-3).

4.5 Assumptions and limitations

It is possible that this Phase I HIA study may have missed heritage resources in the Kuka Project Area as some heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance are exposed during the Kuka Project, the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) should be notified in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

4.6 Some remarks on terminology

Terms that may be used in this report are briefly outlined in Box 2.

Box 2. Terminologies that may be used in this report

The Heritage Impact Assessment (HIA) referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage Resources Act, 1999 (Act No 25 of 1999) (See Box 1).

Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

The term 'pre-historical' refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the Kuka Project Area, to the first appearance or use of 'modern' Western writing brought to the Steelpoort and Lydenburg areas by the first Colonists who settled in these regions during the 1830's.

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

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

The term 'sensitive remains' is sometimes used to distinguish graves and cemeteries as well as ideologically significant features such as holy mountains, initiation sites or other sacred places. Graves in particular are not necessarily heritage resources if they date from the recent past and do not have head stones that are older than sixty years. The distinction between 'formal' and 'informal' graves in most instances also refers to graveyards that were used by colonists and by indigenous people. This distinction may be important as different cultural groups may uphold different traditions and values with regard to their ancestors. These values have to be recognised and honoured whenever graveyards are exhumed and relocated.

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

The term 'Iron Age' refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16th century and the 19th century and can therefore include the historical period.

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

The term 'study area', or 'Kuka Project Area' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types of heritage resources in any given area.

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

5 CONTEXTUALISING THE KUKA PROJECT AREA

Three regions, each with unique heritage features, characterise the Kuka Project Area, namely Sekhukuneland in the west, which used to be the domain of the Pedi chiefdom during the Late Iron Age and the Historical Period; the Steenkampsberge in the centre incorporates a Ndzundza-Ndebele sphere of influence as well as the former domains of minor clans such as the Choma and Phetla whilst a Late Iron Age Koni sphere of influence existed in the Lydenburg Valley during the Late Iron Age into the Historical Period.

Two of these regions also have unique Colonial Histories associated with early Voortrekker settlements in Lydenburg and Roossenekal whilst the Steelpoort and Lydenburg regions are also renowned for their Pre-Historical records.

The following brief overview of pre-historical, historical and cultural evidence will help to contextualise the Kuka Project Area.

5.1 The western Steelpoort region

The western part of the Kuka Project involves the Xstrata Lion Smelter which extends into the Steelpoort Valley and Sekhukuneland (Kennedy's Vale 2430CC, 1:50 000 topographical map) (Figure 1).

The Steelpoort Valley's name is derived from the Steelpoort (Tubatse) River, one of the main geographical features in this valley. The Steelpoort River is a southern tributary of the Olifants River. It flows from an altitude higher than 1 800m on the Highveld near Wonderfontein in the Belfast district northwards and then north-eastwards to join the Olifants River before the latter cuts through the Drakensberg to enter the Lowveld.

The name Steelpoort is derived from a hunting expedition that took place either in the late 19th century or the early 20th century. When a group of Voortrekkers from Natal under Frans Joubert had settled there, a man called Scholtz shot an elephant at dusk and on returning next morning found that the tusks had been removed. When the wagons were searched, the tusks were found in the possession of a man called Botha, after which the farm Bothashoek was named. Because an elephant had been killed there, the poort was named Olifantspoort. The river flowing through the poort was called Steelpoort River ('steel' meaning steal).

Prominent geographical and historical beacons in this part of the Kuka Project Area include the imposing Leolo Mountain range towards the west and the Tsjate Valley further to the north, outside the Kuka Project Area. The majestic Leolo Mountain range is an important beacon in the origin history of ancient Sotho clans and the Historical Pedi.

5.1.1 Pre-historical context

Stone Age sites are scattered in the extensive network of dongas which occur across the Steelpoort's wide valley floors, between the Leolo Mountains and foothills of this mountain range. Stone Age sites have been observed on farms such as Hendriksplaats 281, Derde Gelid 278, Onverwacht 292, Winterveld 293, Annex Grootboom 335, Grootboom 336 and Apiesboomen 295 to name but a few. These stone tools date from the Early Stone Age (ESA) (500 000 to 200 000 years ago), the Middle Stone Age (MSA) (200 000 to 40 000 years ago) and from the Late Stone Age (LSA) (40 000 to 200 years ago).

5.1.2 Pre-Historical and early Historical Period

The origins of the first Bantu-Negroid farming communities who practised agriculture, live-stock herding and metal working can be traced to the Steelpoort

Valley. These Early Iron Age (EIA) farming communities whose settlements have been recorded on amongst others Hendriksplaats 281 and Derde Gelid 278 were related to EIA communities who, contemporaneously, settled further towards the east in the Lydenburg Valley during AD500 to AD900.

The Historical Period in the Steelpoort Valley is associated with the second half of the second millennium AD when a predominantly Northern Sotho-speaking population occupied the Steelpoort. These people are part of a larger Northern Sotho-speaking community who occupy a vast area between the Limpopo River in the north, the Drakensberg in the east and the Leolo Mountains in the west. Numerous divisions and groups or clans occupied this vast region. The history of the people of this area can be divided into several periods:

- The earliest period of settlement is characterized by small groups of Bantu people who started to drive the San and Khoi Khoi from the area and who are difficult to identify.
- From approximately AD1700 ancestral groupings of the present inhabitants of the land began to arrive in the area. Groups that can be distinguished include a large group of Sotho who came from the north-eastern parts of the Lowveld and who settled on the plateau to the north and to the south of the Strydpoortberge; small groups of Kgatla and Huruthshe-Kwena origin (from Madibeng and Rustenburg) which included the present Pedi (Rota) who subjugated the Sotho already living there and Sotho as well as the Northern Ndebele who arrived from the south-east.

It is assumed that during the period from AD1700 to AD1826 the Pedi took political control of the Steelpoort region. The Pedi chiefdom reached its zenith during the reign of Thulare who died in 1824. His main village was Monganeng on the banks of the Tubatse River. During the disruption of the *difaqane* (AD1822 to 1828) Mzilikazi attacked the Pedi from the south-east. Thulare's son, Sekwati, fled to the Soutpansberg and returned in 1828 after which he occupied

the mountain fortress Phiring, his capital from where he united the Pedi. After the wars with Mzilikazi there were wars with the Swazi. The Voortrekkers arrived in the Steelpoort area in the late 1840's. Several armed struggles between the Voortrekkers and the Pedi ensued (see below).

5.1.3 The Historical Period

In AD1842 Andries Hendrik Potgieter wished to move from the British sphere of influence and to establish trade relations with Delagoa Bay. He moved with his followers from Potchefstroom to the Eastern Transvaal and founded Ohrigstad. The town was abandoned during AD1848/1849 when many people died of malaria and the town of Lydenburg was founded further to the south near the confluence of the Sterkspruit and the Spekboom River. This area was located on higher ground and was therefore healthier than Ohrigstad.

The Pedi initially maintained good relations with the Voortrekkers who arrived in Ohrigstad from 1845 onwards. However, after a clash with Andries Hendrik Potgieter in 1852 Sekwati moved his capital to Thaba ya Mosego. Border disputes with the Zuid-Afrikaansche Republiek (ZAR) were settled in 1857 with an accord that stated that the Steelpoort River served as the border between Pedi land and the Lydenburg Republic.

Sekwati gave the Berlin Missionary Society permission to establish the Maandagshoek missionary station in Pedi territory. After Sekwati's death in 1861, his son Sekhukhune succeeded his father and also established his village at Thaba ya Mosego. He ordered the Berlin Missionary Society to discontinue their work and the mission station was burnt down. Alexander Merensky, one of the missionaries, thereafter established the well-known Botšabelo missionary station at Middelburg.

The good relationship between the ZAR and the Pedi was gradually weakened. The period from 1876 to 1879 was one of conflict and war, first with the ZAR and then with the British who annexed the Transvaal in 1877. During the First Sekhukhune War in August 1876, the Voortrekkers attacked Thaba ya Mosego and partly destroyed the settlement.

The Second Sekhukhune War followed in November 1879, during which Sekhukhune was captured in the Mamatamageng cave and sent to prison in Pretoria. Two divisions attacked the Pedi. The main division, comprised of 3 000 whites and 2 500 black allies, attacked from the north-east. The Lydenburg division consist of 5 000 to 8 000 Swazi impis, 400 other black allies and 400 white soldiers who attacked from Burgersfort in the south. The Second Sekhukhune War is associated with the settlements of Thaba ya Mosego and Tsjate, a new village established by Sekhukhune close to Thaba ya Mosego.

5.2 The Steenkampsberg in the central part of the Kuka Project Area

The central part of the Kuka Project Area is dominated by mountains belonging to the Steenkampsberge and incorporates part of the Groot Dwars River Valley. This part of the Kuka Project Area is mountainous and rugged with little evidence of human occupation in the past, except where spheres of influence were established during the Late Iron Age and Historical Period by clans such as the Nzundza-Ndebele, Chomas and Phetlas. The capital of the Ndzundza-Ndebele was located at the Mapochs Caves (Erholweni), outside the Kuka Project Area. Outlier sites belonging to this cultural tradition (AD1843-1867), however, also occur near the Kuka Project Area (2530AA Draaikraal, 1: 50 000 topographical map) (Figure 1).

5.2.1 Pre-Historical context

The central part of the Kuka Project Area partly involves the Groot Dwars River Valley and may have been occupied from the earliest times. The earliest human

occupation of the area was probably by Early Stone Age (ESA) people such as *Homo erectus* who lived 500 000 years ago. Late Acheulian sites with hand axes and cleavers may occur on forested valley floors near rivers and streams such as the Groot Dwars River although none such discoveries have been reported as yet.

Middle Stone Age (MSA) sites are numerous and date from 250 000 years ago and are associated, initially, with an archaic form of *Homo sapiens* and later with modern humans (*Homo sapiens sapiens*). MSA people roamed the Kuka Project Area as MSA sites were recorded on Der Brochen 7JT in the Groot Dwars River Valley.

Later Stone Age (LSA) hunter-gatherers established base camps in caves but also on level plains dating back from 20 000 years ago. The LSA is also associated with rock engravings and with rock paintings. Rock engravings dating from the more recent past were recorded against the eastern slope of the Groot Dwars River Valley. It is possible that more engravings may exist in this valley.

During the Middle Iron Age (MIA) (AD900 to 1200) Eiland type sites occur at various places in South Africa. Little is known about the Eiland people except that they manufactured a characteristic style of pottery, practised metal working, herded cattle and probably kept small stock as well. They built dwellings with clay and grass roofs. Grinding stones indicate that they either planted crops or traded metal for crops. At least one MIA site was found during a HIA study on the Groot Dwars River valley's floor.

5.2.3 The Historical Period

During the Late Iron Age (LIA) and early Historical Period the Ndzundza-Ndebele occupied the southern and western parts of the larger Kuka Project Area. The Ndzundza-Ndebele established their capital Erholweni (Mapochs Caves) near Roossenekal. Numerous sites that are associated with the Ndzundza-Ndebele and

possibly with Swazi (Mokwana) clans are scattered around Erholweni in a sphere of influence that is generally referred to as KoNomtjarhelo. The Ndzundza-Ndebele ruled this domain for approximately forty-four years (AD1839 to 1883) under the consecutive reigns of four chiefs. Erholweni was declared a national monument in 1968.

During the 18th and the 19th centuries lesser well known clans such as the Phetlas and Chomas settled in an area to the east of Roossenekal where they built an extensive and diversified range of stone walled sites. The Choma sphere of influence on Vygenhoek 10JT is situated in close proximity to the Kuka Project Area whilst the Phetla lived on De Kafferskraal 53JT, to the south of the Kuka Project Area.

Roossenekal was established by colonists (Voortrekkers) who settled on the Mapochsgronden during the late 1830's. The colonists established farm homesteads with outbuildings, agricultural fields, cattle kraals and cemeteries close to their homes. Some of these heritage resources still exist in the larger Kuka Project Area.

Conflict between the Colonists and the Ndzundza-Ndebele eventually led to at least two wars. During the Mapochs Wars as many as thirty to forty blockhouses were built around Erholweni in order to serve as bulwarks for ZAR forces fighting the Ndundza-Ndebele. These forts eventually contributed to the siege of the Mapochs Caves and the final subjugation of the Ndzundza-Ndebele in 1867.

5.3 The eastern part of the Kuka Project Area: the Lydenburg valley

The eastern extent of the Kuka Project Area stretches across the Lydenburg Valley, between the foothills of the Drakensberg mountain range to the east and the Steenkampsberge to the west (2530AB Lydenburg; 1:50 000 topographical map) (Figure 1).

5.3.1 Pre-Historical context

Heritage surveys up to now have revealed few Stone Age sites in the Lydenburg area primarily as a result of the fact that these surveys did not focus on the recording of Stone Age sites. It can be expected that all the phases of the Stone Age will be well represented in the Lydenburg area. Research which was conducted in the Bushman Rock Shelter near Ohrighstad indicated that this mountainous area holds many MSA and LSA sites.

The LSA is also associated with rock paintings and engravings which were done by the San, Khoi Khoi and in more recent times by Negroid (Iron Age) farmers. Rock paintings do occur in the Drakensberg and in foothills of the Drakensberg which are close to the Lydenburg area. A rock engraving site with engravings ranging from geometrical motifs to various animal figures have been recorded near the town of Lydenburg.

Iron Age research on the Drakensberg Escarpment can be divided into two periods, namely the first phase, which started with Early Iron Age research after the discovery of the Lydenburg Heads and their publication in the early 1960's. Other sites belonging to other phases of the Iron Age were found and excavated hereafter. However, archaeological (heritage) research on the escarpment in general has been very restricted in areas as the work has been carried out within a 30km radius of Lydenburg.

The Lydenburg Valley has been occupied by Early Iron Age (EIA) communities who also lived elsewhere in the Mpumalanga, Limpopo, KwaZulu-Natal and the North-West Provinces of South Africa during the 6th to the 9th centuries AD. One of the Early Iron Age sites which has been recorded near Lydenburg and which has produced the 'Lydenburg masks' in particular has won international academic acclaim for South Africa with regard to these unique and enigmatic objects.

On the basis of ceramic typology, stratigraphy, and radio-carbon dating two cultural sequences consisting of four successive phases have been established by means of archaeological research for the escarpment near Lydenburg, namely:

- The Lydenburg Phase (Tradition) has been recognised as the first phase of the Iron Age. This phase dates between AD500 to 800. Five sites are associated with Lydenburg pottery namely the 'Head Site' (2530AB4), Doornkop (2530AB5), Plaston (2531AC1), Langdraai (2530AB24) and Klipspruit (2530AD17). These sites are all located on lower valley slopes in interfluve situations at the confluence of two streams. Sites are large and measure between 7 and 15 hectares.
- Sites belonging to the Klingbeil Phase (Tradition) appear to have a similar location and distribution to those of the Lydenburg Phase. Sites belonging to this phase include Langdraai and Doornkop which were re-occupied while at least two others occur in the Klingbeil Nature Reserve. A Klingbeil Tradition site located near Boomplaas (2530AB19) lies close to a prehistoric copper mine. The Klingbeil Phase has not been firmly dated as yet but represents a continuum of the Lydenburg Tradition sites.
- In the Lydenburg area the Eiland Phase is poorly known. It represents the third phase of the local Iron Age but is still undated. It should fall in the range AD900-1400.
- The fourth or Marateng Phase of the Iron Age is associated with the stone walled sites of the Lydenburg area. Settlements are complexes of stone walling comprising of three basic units, namely homesteads, terraces and cattle tracks. Settlement location favours lower foot slopes of mountains and spur ends. Two types of stone walled settlements can be distinguished, namely simple and more complex settlement types. The first type comprises two concentric circles and is generally small. The second type is more elaborate and usually covers a large surface area. A complex settlement comprises a central ring with two opposed openings and a

number of contiguous circles located around it. Huts were built between the central complex and the outer perimeter wall. The perimeter wall is sometimes poorly defined and could be mistaken for a terrace as it may consist of merely a low row of stones that surrounds the central complex.

Terraces on gentle slopes merely comprise stone lines that demarcate agricultural fields. On steeper slopes terrace walls can be found that retain as much as one metre of earth. These types of terraces tend to be close set. Terracing usually covers the areas between homesteads and a little way beyond. Cattle tracks lead from outside the terraced area to the homesteads and on each occasion is directly linked to the central cattle kraal. Several major tracks are found with each settlement that link several homesteads.

In Pedi oral tradition the Late Iron Age people (Marateng Phase of the Iron Age) who lived near Ohrigstad and Lydenburg were called Koni. The Koni originated from south-east Swaziland and moved westwards across the Drakensberg Escarpment to settle at Maŝaŝane, north-west of Polokwane during AD1730, a date which is not accepted by all researchers. However, some of these Koni moved south close to the Apies River around AD1790-1800 whilst numerous other fragments - which hived off from the main body – also moved onto the Highveld and into Sekhukhuneland.

The Koni were raided early in Pedi history under Chief Moukangoe and later came under Pedi rule during the reign of Thulare at the turn of the 18th century. One of Thulare's sons was placed in charge of the Koni near Ohrigstad.

The Pedi west of the Steelpoort River and the Koni were devastated by Mzilikazi in about 1826. The Pedi retreated into caves and other refuges in the Leolo mountain. Famine and cannibalism prevailed during these times. In the Steelpoort Valley the Pedi recovered under Sekwati but in the Lydenburg and

Ohrigstad areas recovery seems to have been delayed. The end of the Iron Age in the Lydenburg area coincided with the arrival of the Ohrig-Potgieter trek in 1845.

5.3.2 The Historical Period

Lydenburg, the 'town of suffering' is situated between the Drakensberg Escarpment and the Steenkampsberge and occupies a special place of interest in the former Transvaal Republic.

Lydenburg was founded in 1850 by a faction of Hendrik Potgieter's Voortrekker party who abandoned their first settlement at Ohrigstad, 45 km further to the north. Ohrigstad was subjected to the scourge of the Lowveld in those days, namely the ubiquitous malaria mosquito. Some of the Voortrekkers moved north to the Soutpansberg with Potgieter, while a dissident group moved south-west to establish Lydenburg.

The dissident group of men and women laid out a village on the farms Boschhoek, Waterval and Enkeldoorn in 1849. Due to a lack of water, their settlement was also abandoned and in the following year they finally settled on the farm Rietspruit at the confluence of the Sterkspruit and Spekboom River. They called this village Lydenburg for the misfortunes that had befallen them at Ohrigstad.

The Dutch Reformed parish, the third oldest in the Transvaal Republic, was founded in the same year (1850) and the first church building, the oldest Dutch Reformed Church north of the Orange River, was finally completed in March 1852. It also served as the school, which made it the oldest school building in the former Transvaal.

Lydenburg was one of several pocket republics that were established in the Transvaal by various dissident Voortrekker leaders who differed about the political

destiny of their followers. In 1856 Lydenburg seceded from the Transvaal Republic (whose capital was at Potchefstroom) and joined the Republic of Utrecht in the south-east. However, in 1860 both these little states rejoined the Transvaal Republic. Lydenburg featured prominently in the Voortrekkers' quest for a wagon route to Mozambique where they hoped to build a port free from British control.

On 6 February 1873 alluvial gold was discovered in the area by several prospectors and the Lydenburg gold fields were proclaimed three months later.

Today the principal agricultural products of the district are beef, dairy, soya beans, fruit (yellow clingstone peaches), wheat barley, maize, lucerne, tobacco and wool.

Deposits of platinum, chrome, vanadium and magnesite have been found. The gravels of the Spekboom River are still being washed for alluvial gold today.

Other heritage resources of significance in Lydenburg include:

- The present Dutch Reformed Church was consecrated in 1894. The pulpit of the church is made of Cape teak and is a model replica of that of the mother church in Stellenbosch.
- During the Anglo Transvaal War (1880-1881) a British garrison under Lieutenant W.H. Long was stationed at Lydenburg and a small fort was built. The fort was named 'Mary' in honour of the commanding officer's wife. After the war the fort fell in dilapidation. In 1899 some of its stones were used to build a powder magazine which still stands today.
- There are two nature reserves, namely the Sterkspruit and the Gustav Klingbeil on the road east to Long Tom Pass. Apart from a treasure house of flora and fauna the latter also contains settlements with agricultural terraces built by Iron Age people.
- Amongst exhibits in the local museum are replicas of seven terracotta heads, the so-called 'Lydenburg heads,' that were found in the Sterkspruit

Valley. These objects date from the Early Iron Age (AD500-800). Six of the heads are those of humans while the seventh is some kind of animal.

- The Steenkampsberg mountain range south-west of the town is dominated by 'Die Berg'. At 2 331m above sea level it is the highest peak in South Africa north of the Vaal River.

The railway line between Steelpoort and Lydenburg was constructed in 1924 due to an increase in the mining of platinum and magnetite.

6 THE PHASE I HERITAGE IMPACT ASSESSMENT

6.1 Types and ranges of heritage resources

The Phase I HIA study for the Kuka Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in and near the Kuka Project Area, namely:

- Scatterings of stone tools, mostly ranging from the Middle Stone Age (MSA), which occur in low numbers in eroded areas or along stream beads near the Kuka Project Area.
- Formal and informal graveyards dating from the historical past as well as from the more recent past, which occur from Steelpoort to Lydenburg.
- A stone walled village which is associated with the Choma people, which dates from the Historical Period. The site is spread out along the lower eastern foot slope of a hill on Vygenhoek 10JT and is composed of numerous homesteads, cattle enclosures, stone walls, stone piles and several graveyards. This cultural landscape incorporates outlier settlements and graveyards on land adjacent to the Kuka Project Area.
- A stone walled site which dates from the Late Iron Age on the southern banks of a tributary of the Dorps River and which probably belonged to a Koni sphere of influence.

All these heritage resources in and near the Kuka Project Area have been geo-referenced and mapped (Figure 1; Tables 1-3).

The Phase I HIA study is now briefly discussed while some of the heritage resources are illuminated with photographs.

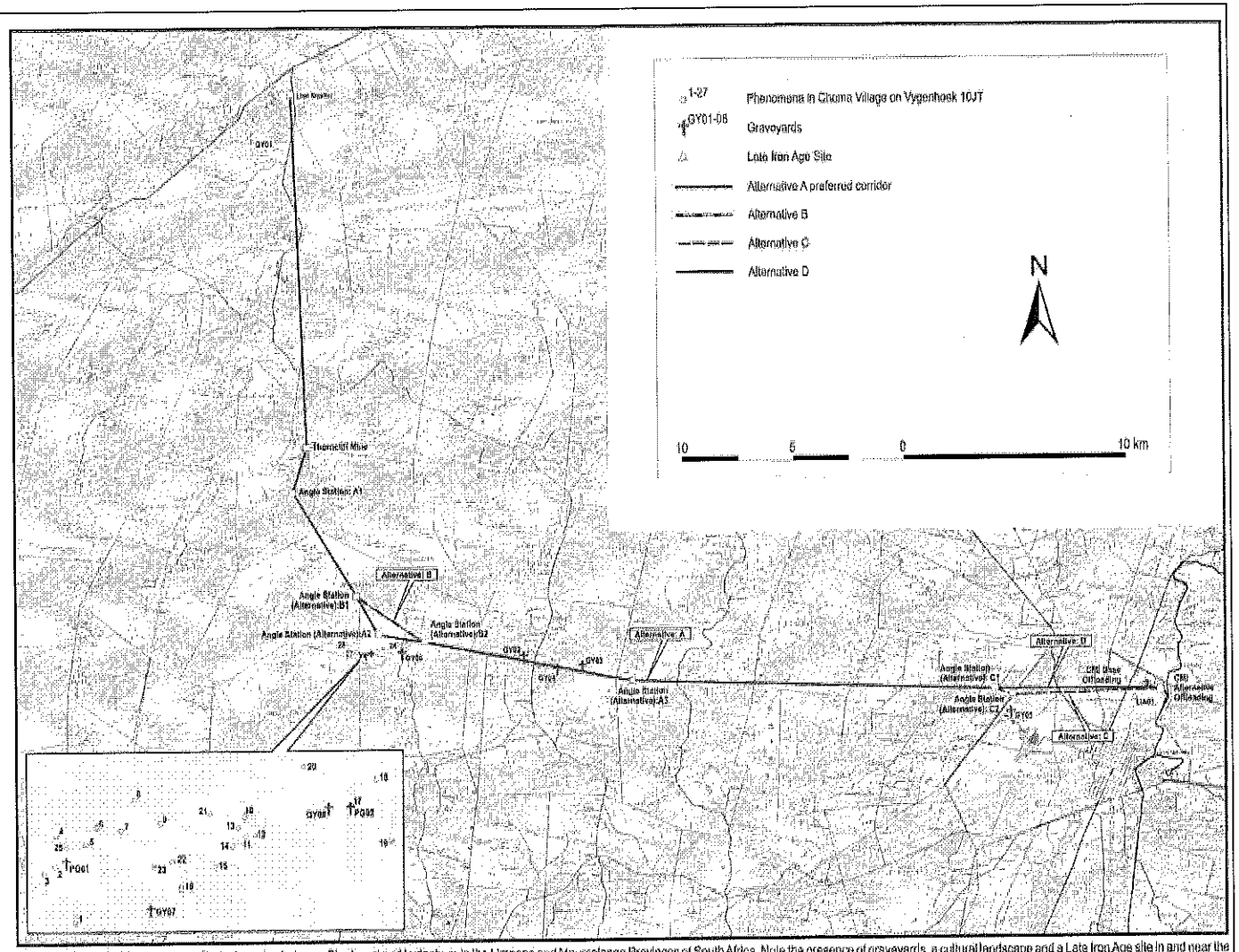


Figure 1- The Kuka Aerial Ropeway Project running between Steelpoort and Lydenburg in the Limpopo and Mpumalanga Provinces of South Africa. Note the presence of graveyards, a cultural landscape and a Late Iron Age site in and near the Kuka Project Area (above).

6.2 Scattered stone tools

A few stone tools were observed where the aerial ropeway route crosses streams or eroded areas between Steelpoort and Lydenburg. Most of these stone tools date from the MSA (200 000 years to 22 000 years ago) and include scrapers, points and cores.

The stone tools that were observed were not geo-referenced as they occur in low numbers, are scattered across the surface and mostly occur near but not necessarily in the Kuka Project Area.

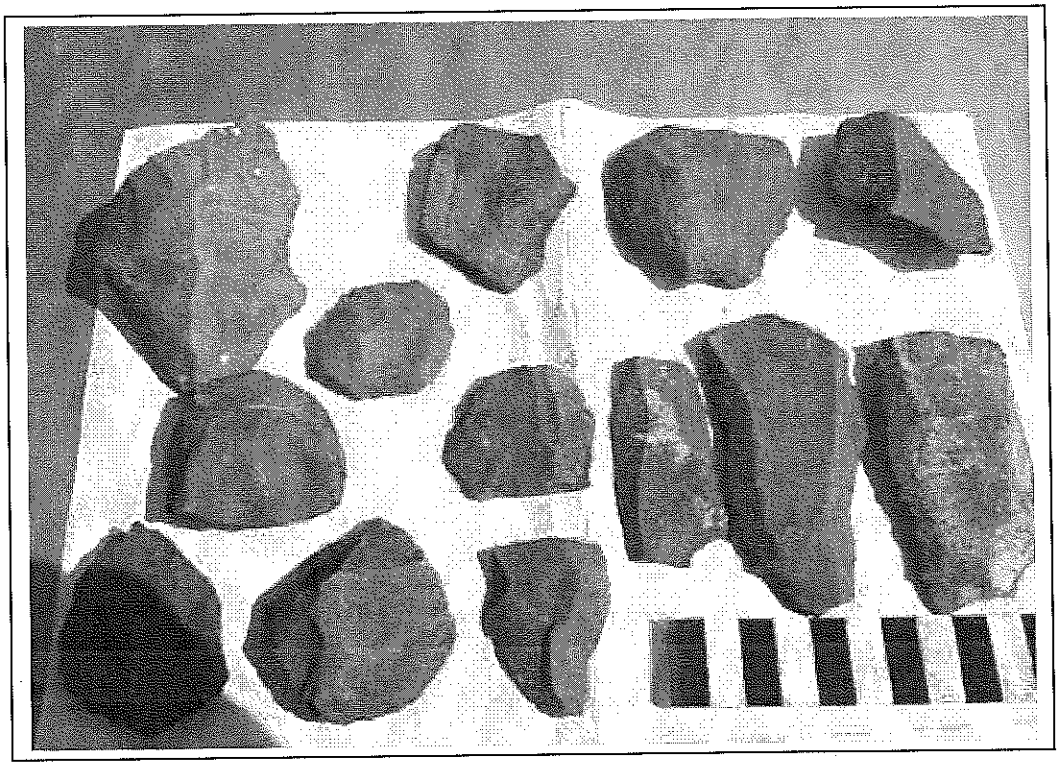


Figure 2- Examples of stone tools dating from the MSA (approximately 200 000 to 22 000 years ago) which occur in small numbers and scattered near the Kuka Project Area (above).

6.3 Formal and informal graveyards

At least six graveyards were recorded in and near the Kuka Project Area while a number of graveyards and graves which are located in the Choma cultural landscape are also described, namely:

6.3.1 Graveyard 01

GY01 on Kennedy's Vale 332 is located some distance to the west of the Kuka Project Area. It holds three graves of members of the Makolane family. The white painted cement head stones contain the following inscriptions:

- 'Motupi Washu 1974'
- 'Tabeed Sekomawe Makolane 1964' and 'Matukani Makolane'

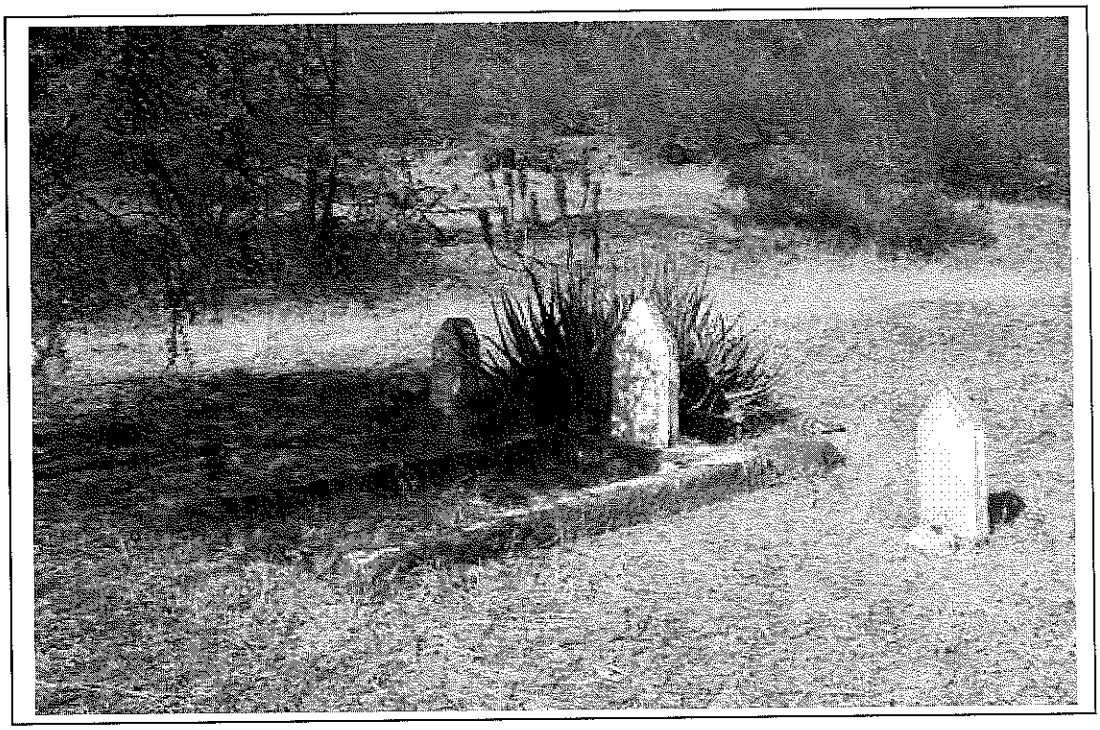


Figure 3- GY01 on Kennedy's Vale 361 contains three graves with white painted headstones of the Makolane family (above).

6.3.2 Graveyard 02

A graveyard belonging to the Choma family occurs on Modderspruit 13JT. However, GY02 is inaccessible and could not be visited in order to be described and geo-referenced.

Nevertheless, the position of GY02 is indicated in Figure 1.

6.3.3 Graveyard 03

This graveyard on Modderspruit 13JT holds the remains of the Malatji family and is also associated with the remains of dwellings from the more recent past.

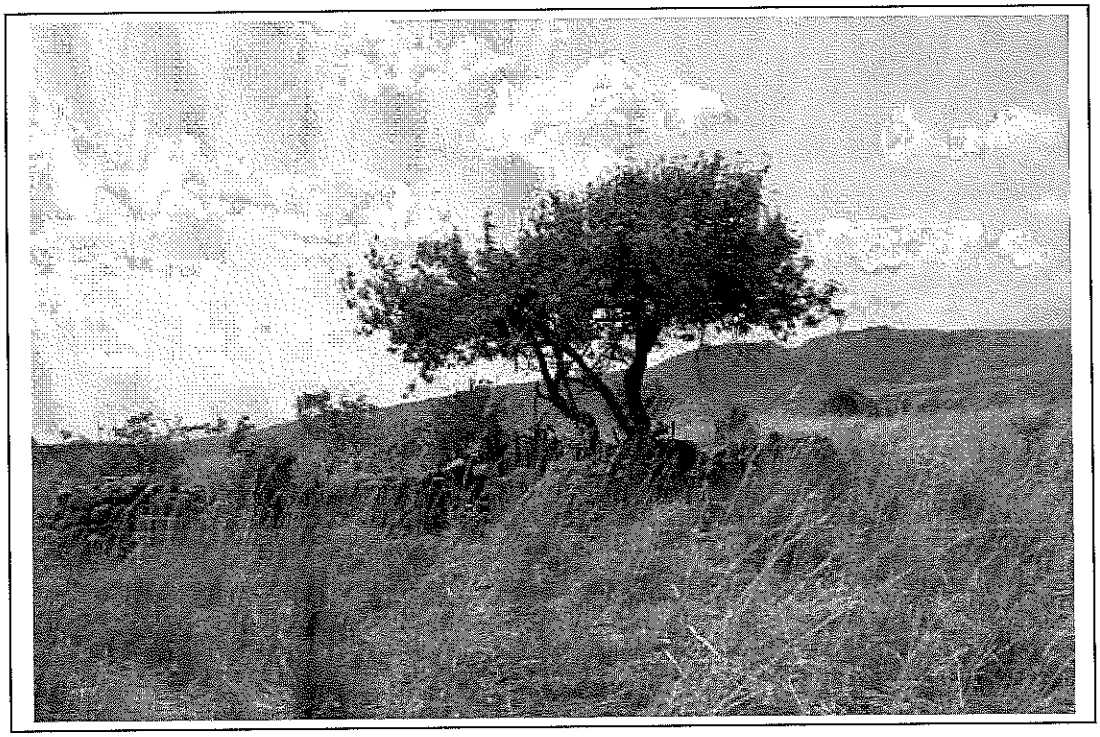


Figure 4- GY03 on Modderspruit 13JT hold the graves of the Malatji family which is contained in an enclosure with a stone wall (above).

GY03 holds approximately eight graves. Two graves are fitted with granite tomb stones while a number are covered with cement slabs and headstones. The majority comprise of heaps of stone. Two small headstones on two of the graves have been destroyed (vandalised).

The graves which are fitted with granite headstones bear the following inscriptions:

- 'Makosa Ennah P Malatsi O tlogile ka di 27 April 1952 Robala ka khutso'
- 'Petrus M Malatji 4-9-38 13-12-43'

6.3.4 Graveyard 04

GY04 on Modderspruit 13JT holds the remains of the Tebele, Masilela, Moya and Ngobeni families. At least sixteen graves can be distinguished.

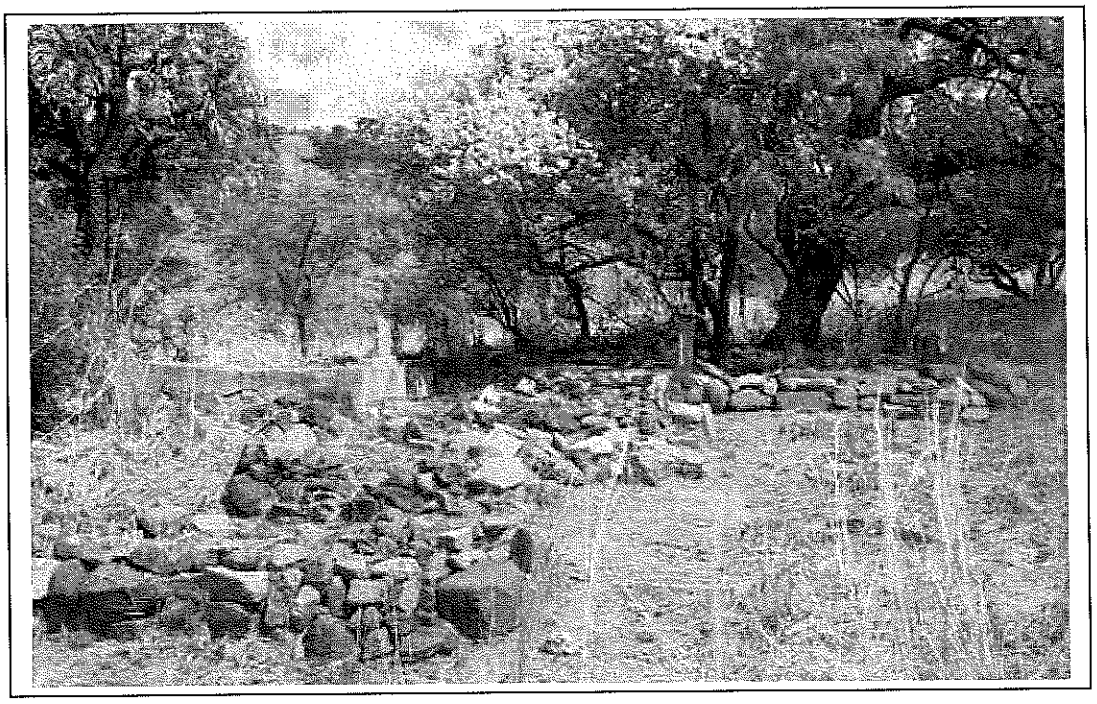
Inscriptions on two of the graves read as follow. The second inscription is part of a grave with two individuals:

- 'Masilela Elijah Bhuzane 1874-03-18 1968-03-06 Vungatshe Malambe Tsatshkati'
- 'Ngongo Maria Ngobeni Died on June 1956 Opa Wint tool Doed on Augast (sic) 1949'

6.3.5 Graveyard 05

This is a large formal graveyard in the Lydenburg Nature Reserve and holds the remains of hundreds of individuals. Most of the graves are unmarked and are undecorated.

Inscriptions on some of the headstones indicate that the graveyard is historical in nature and that many of the graves date from the 1960's.



Figures 5 & 6- GY04 and GY06 respectively located on Modderspruit 13JT and in the Lydenburg Nature Reserve (above and below).

6.3.6 Graveyards and graves in the Choma village complex

The following graveyards and graves occur in the Choma village complex. These structures are close to the Kuka Project Area. Several other graveyards and graves, some distance removed from the Choma cultural landscape and outside the Kuka Project Area, have not been geo-referenced and incorporated in this report.

6.3.6.1 Graveyard 06

This graveyard incorporates three graves which are located higher up the lower slope of the mountain. The three graves are located between large boulders and are edged with stones. Single upright stones serve as head stones for the graves.

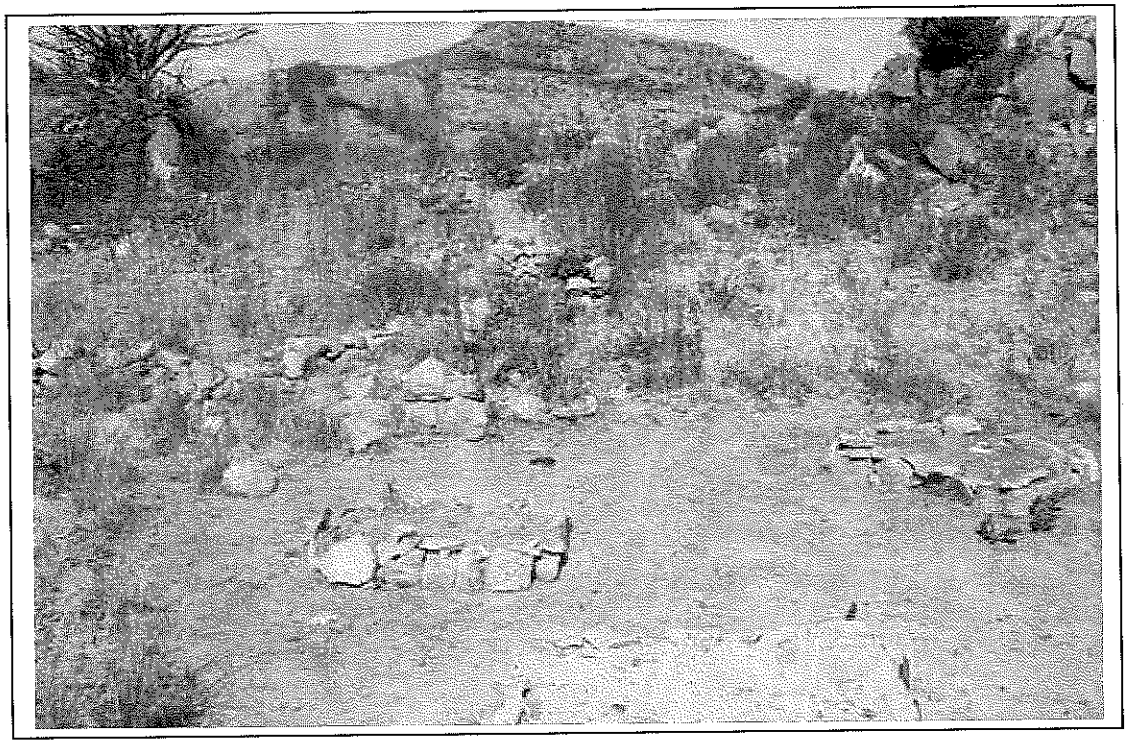


Figure 7- Three graves (in the foreground) next to a homestead on the lower foot of a hill in the Choma village complex (below).

6.3.6.2 Graveyard 07

This graveyard consists of seven graves within the confines of an enclosure. A lower grinding stone (*lwala*) and square stone platform where sacrifices are conducted are located next to the enclosure's wall.

The graves are those of children, four perhaps younger than six years and three perhaps teenagers. The graves are edged with cement and fitted with cement headstones.

The following inscriptions occur on six of the head stones:

- Malebogo Tšie
- Moršwabi Sam Tšai, Orobetša kadi 10-5-1935
- Malethunya Bebo TiLetšia
- Elia Tšsia, Orobetše kadi 26-91958
- Kgagudi Sarah Tšia, Orobetša kadi 20-2-1942
- Lukas Tšie, Otlogikeka 7-9-1978

6.3.6.3 Graveyard 08

This graveyard contains at least thirteen graves next to a small outcrop in the Choma village. The majority of graves are edged with stones.

Two of the graves are fitted with cement head stones with the following inscriptions:

- 'Mrs Makgaleh, CHO Mapelego, 2L-9-1874, Died 18-9-1947'
- 'Silas Choma, Orele Gwe Kadi, 26-7-32, Otigile kadi, 3-?-61'

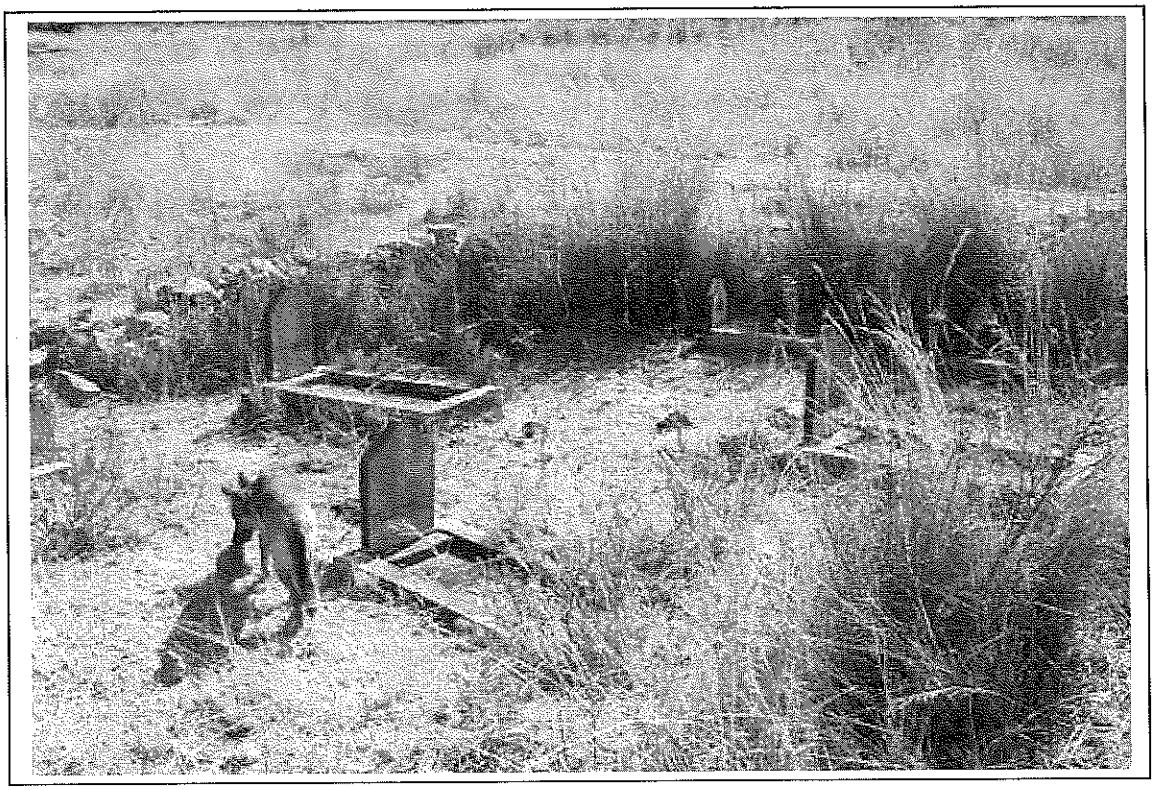


Figure 8- Seven graves with cement headstones and edged with cement strips in an enclosure in the Choma village complex (above).

6.3.6.4 Possible Grave 01

Two square stone platforms approximately 1,0m high inside the confines of two homesteads may be the graves of women, namely:

PG01 is located on a terrace on the lower foot slope of the mountain which borders the Choma village in the west. The possible grave is marked by a square platform which measures roughly 1, 0m x1, 0m and is approximately 1,1m high.

6.3.6.5 Possible Grave 02

PG02 also comprises of a square stone platform with more or less the same dimensions as PG01. This platform may also cover the remains of a woman buried within the confines of her homestead.

Figure 9- One of two possible graves of women buried within the confines of their homesteads. Both comprise square stone platforms erected within the confines of homesteads (above).

6.4 The Choma village complex

A village complex belonging to the Choma clan occurs on Vygenhoek 10JT. This village is composed of a main residential area located in close proximity of the Kuka

Project Area and smaller outlier sites spread away from the Kuka Project Area. This cultural historical landscape is mainly concentrated to the east of a large hill on Vygenhoek 10JT.

The remains associated with the village complex are scattered across a vast area and primarily consist of homesteads, enclosures for domestic stock, graveyards and features such as stone walls and stone piles which extend to the south of the Kuka Project. Area. One of the graveyards associated with the village complex was established in an enclosure and at least two other possible graves of women occur within the confines of two homesteads (*malapa*). Graveyards also occur further away from the Choma cultural landscape and therefore outside the Kuka Project Area. At least two of the (four) graveyards outside the Kuka Project Area have affinities with the royal lineage of the Choma people.

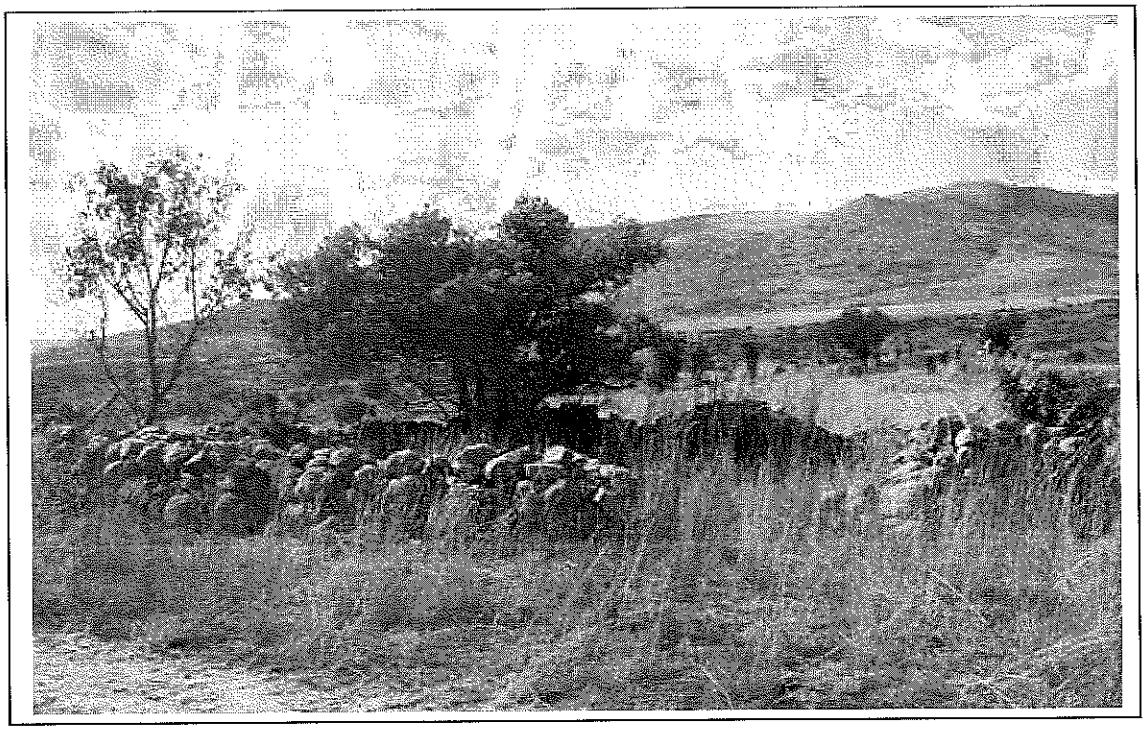


Figure 10- A circular stone walled enclosure which was probably used to keep domestic stock (above)

The village was composed of a number of homesteads which consisted of rectangular stone walled structures (*malapa*) in which square houses and circular mud dwellings (huts) were built. Most of these dwellings have disintegrated and their remains are limited to low rising heaps of clay.

The homesteads are associated with long free standing walls and stone piles. Enclosures, some with circular ground plans and others with irregular or square circumferences, also occur. This architectural change occurred after contact with the first colonials took place from the middle of the 19th century onwards.

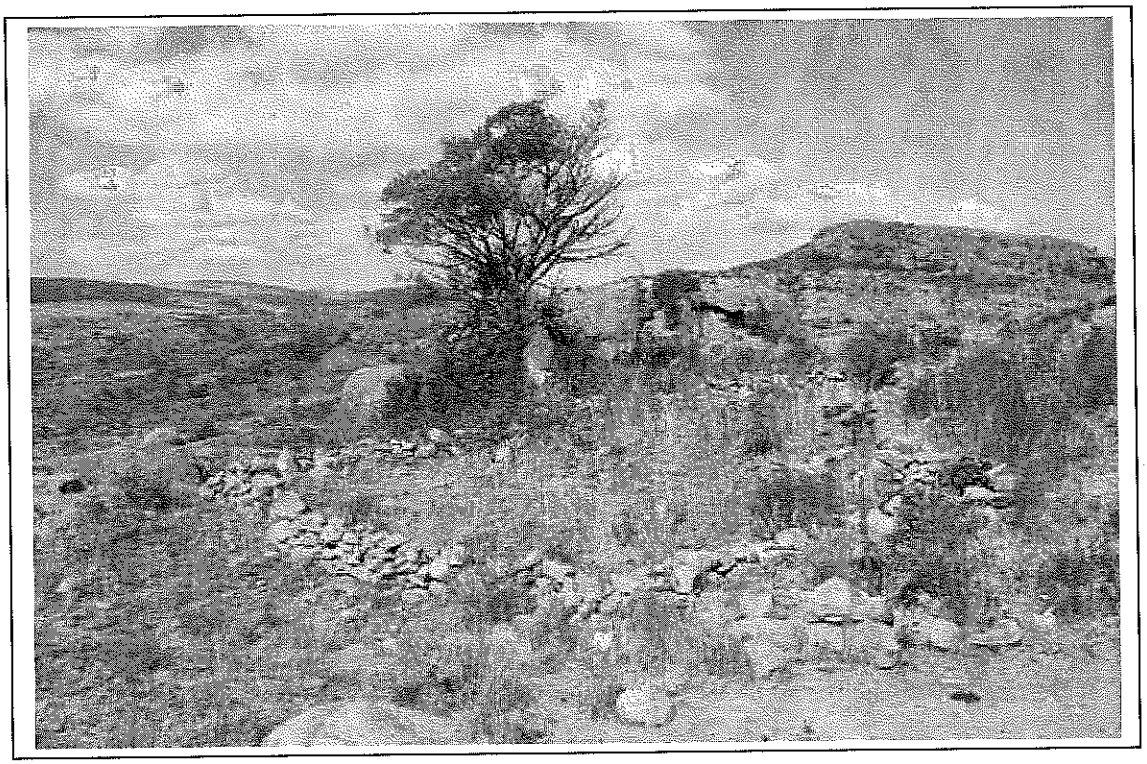


Figure 11 – An outer circular wall which encloses a homestead which was occupied by a family inside the Choma village complex (above).

6.5 Late Iron Age site

Site LIA01 is located along the eastern foot of a diabase dyke close to the southern banks of a tributary of the Dorps River. The site was constructed with rock that was collected from the dyke. The site can be classified as a simple stone walled site as it covers a small surface area while it is composed of a limited number of enclosures and walls. The site is also associated with a number of inconspicuous stone lines. One of these stone lines is the outer wall which circumscribes the site whilst the other stone lines are located some distance to the east of Site LIA01. These stone lines probably served as rudimentary (agricultural?) terraces associated with Site LIA01.

Site LIA01 probably represents a homestead (*kgoro* or *kgorwana*) - similar to those occupied by the Historical Pedi or Koni. The *kgoro* used to be occupied by several family groups under the leadership of an elder male (*kgosana*). These families lived in dwellings (huts) in the open space between the centrally located enclosures and the outer wall of the village. The large circular enclosure was probably used as a cattle kraal while the smaller enclosure with its heavily built walls and square ground plan may have served as the *kgotla* of the homestead.

Whilst the large cattle kraal served as a place for safe keeping of the *kgorwana's* cattle, it was also used as the burial place of the rulers (*dikgosana*) of this homestead. The *kgotla* serve as the gathering place for men who occupied this homestead. The third small enclosure was probably used for small stock.

The terrace walls, located some distance from the homesteads, probably demarcated small agricultural fields adjacent to the homestead.

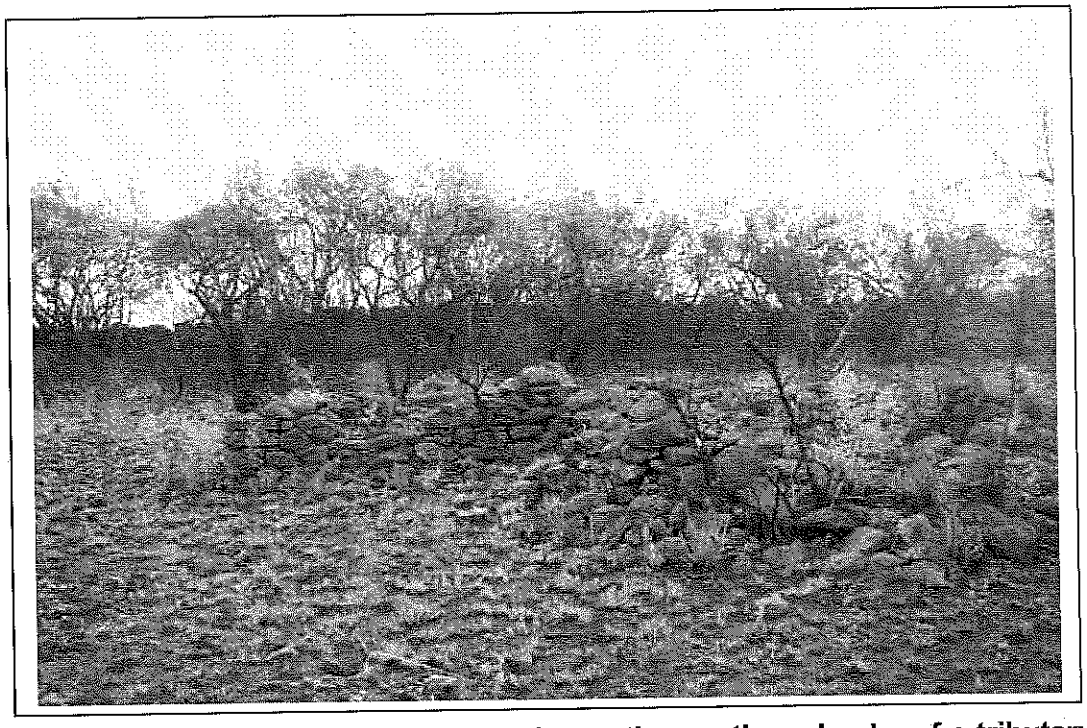


Figure 12- A stone walled site located near the southern banks of a tributary of the Dorps River north of Lydenburg (above).

Graveyards	Coordinates	Significance
GY01 Makolane graves	24° 50.322'; 30° 06.415'	**HIGH**
GY02 The Choma family	Not accessible	**HIGH**
GY03 The Malatji family	25° 03'.239; 30° 14'.359	**HIGH**
GY04 The Tebele, Masilela, Moya and Ngobeni families	25° 03'.324; 30° 13'.747	**HIGH**
GY05 Large formal graveyard	25° 04'.469; 30° 24'.758	**HIGH**
GY06 Three graves up a low mountain slope.	25° 02.904'; 30° 09.970'	**HIGH**
GY07 Seven graves in an enclosure	25° 02.976'; 30° 09.057'	**HIGH**
GY08 Thirteen graves in the Choma village.	25° 02.887'; 30° 09.218'	**HIGH**
PG01 Stone platform (grave) in homestead	25° 02.934'; 30° 08.981'	**HIGH**
PG02 Stone platform (grave) in homestead	25° 02.885'; 30° 09.237'	**HIGH**

Table 1- Coordinates for graveyards, graves and possible graves in the Kuka Project Area (above).

NO	PHENOMENA IN CHOMA VILLAGE ON VYGENHOEK	COORDINATES	REMARKS
01	Enclosure with opening, diameter 11m	25° 02.988'S 30° 08.988'E	Possible cattle kraal?
02	Terraces against the southern foot of mountain with square enclosure (diameter 4x4m) linked with circular enclosure (diameter 3m)	25° 02.938'S 30° 08.970'E	Residential site against the southern slope of the kopje
03	Circular incomplete enclosure, 5m diameter with smaller enclosure, 1m diameter inside	25° 02.944'S 30° 08.960'E	
04	Square enclosure with entrance located on terrace above GY01	25° 02.910'S 30° 08.971'E	Homestead on terrace with deceased?
05	Prominent square enclosure with high (1,1m) walls. Relative pristine. Linked with two small circular enclosures with openings, diameters respectively, 3,5m and 3,0m	25° 02.918'S 30° 08.998'E	Possible cattle kraal?
06	Centre of large square enclosure. Not all the sides are linked	25° 02.904'S 30° 09.008'E	
07	Corner post of large square enclosure (06). Heap of stones. Note upright dolerite boulder	25° 02.906'S 30° 09.030'E	
08	Circular to irregular enclosure, 20mx15m	25° 02.878'S 30° 09.042'E	Possible cattle kraal?
09	Large upright dolerite boulder with heap of stones	25° 02.901'S 30° 09.065'E	
10	Long stone walls with bends but no clear ground plan. Run up a ridge and along ridge. Associated with 11, 12 and 13	25° 02.895'S 30° 09.141'E	
11	Heap of stones	25° 02.912'S 30° 09.142'E	Close to long walls
12	Enclosure with irregular ground plan	25° 02.910'S 30° 09.150'E	Close to long walls
13	Circular enclosure linked to long wall	25° 02.905'S 30° 09.135'E	
14	Piece of wall along ridge	25° 02.920'S 30° 09.130'E	
15	Heap of stones in wall (14)	25° 02.940'S 30° 09.115'E	
16	Heap of stones (near GY02)	25° 02.957'S 30° 09.084'E	
17	Terrace with prominent wall. Possible G02 located on terrace	25° 02.885'S 30° 09.237'E	Homestead on terrace, grave and prominent wall close to GY03
18	Pristine square enclosure with large lower grinding stone	25° 02.862'S 30° 09.260'E	Associated with 17
19	L shaped wall and vaguely recognizable terrace	25° 02.916'S 30° 09.274'E	Homestead
20	Large homestead with extensive soil walled	25° 02.850'S 30° 09.195'E	Homesteads of

(21)	dwellings that have disintegrated		several families, cattle kraal and long wall
21	Long wall associated with No 20	25° 02.892'S 30° 09.110'E	
22	Circular enclosure, diameter 5m	25° 02.934'S 30° 09.076'E	
23	Square enclosure, 2x4m	25° 02.938'S 30° 09.059'E	
24	Vaguely recognizable terrace walls and possible hut circles against the slope of a kopje	25° 02.669'S 30° 09.920'E	Small site against kopje
25	Vaguely recognizable terrace walls and possible hut circles against the slope of a kopje	25° 02.920'S 30° 08.980'E	Small site against kopje
26	Rudimentary (one line) enclosures (2.5m diam) against steep slope of dome shaped kopje	25° 02.678S 30° 08.762E	Small site against slope of dome
27	Rudimentary elliptical shaped enclosure with small (terrace) platform	25° 02.864S 30° 08.8645E	

Table 2- Coordinates for homesteads, enclosures, stone walls and other features that are associated with the Choma village complex on Vygenhoek 10JT (above).

Stone walled site	Coordinates	Significance
LIA01 Stone walled site	25° 04.102'S; 30° 27.757'E	**HIGH**

Table 3- Coordinates for a late Iron Age stone walled site near the southern banks of a tributary of the Dorps River (above)

7 THE SIGNIFICANCE, POTENTIAL IMPACTS ON AND MITIGATION OF THE HERITAGE RESOURCES

7.1 Types and ranges of heritage resources

The Phase I HIA study for the proposed Kuka Project Area identified the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in or near the Kuka Project Area namely, (Figure 1, Tables 1-3):

- Scatterings of stone tools mostly ranging from the MSA which occur in low numbers in eroded areas or along stream beads near the Kuka Project Area.
- Formal and informal graveyards dating from the historical past as well as from the more recent past occur from Steelpoort to Lydenburg.
- A stone walled site which is associated with the Choma people which dates from the Historical Period. The site is spread out along the lower eastern foot slope of a hill on Vygenhoek 10JT and is composed of numerous homesteads, cattle enclosures, stone walls, stone piles and several graveyards. This cultural landscape incorporates outlier settlements and graveyards on land adjacent to the Kuka Project Area.
- A stone walled site which dates from the Late Iron Age on the southern banks of a tributary of the Dorps River which probably belonged to a Koni sphere of influence.

It is highly likely that more of the following types and ranges of heritage resources may occur in the Kuka Project Area as they may have been missed by this study due to various reasons. The following heritage resources therefore may be under-represented in this study and their presence may be revealed when a walk-through study for the aerial ropeway is done before its construction commences, namely:

- Stone Age sites consisting of scatterings of stone tools may occur along any of the rivers, streams or tributaries in the Kuka Project Area, particularly where these rivers and streams are crossed by the aerial ropeway. Stone tools may also occur in eroded areas and dongas or near outcrops that are suitable for the manufacturing of stone tools.
- Undetected graves may occur in the aerial ropeway's corridor. The Choma's sphere of influence has proven to be an area which is marked with exceptionally high numbers of unmarked graves.

7.2 Heritage resources and the aerial ropeway

Before the significance, any possible impact on or the mitigation of heritage resources that may be affected by the Kuka Project is discussed, the following comments are raised as they bear an influence on the impact, mitigation and management of heritage resources in the Kuka Project Area.

It is generally assumed that impacts caused by linear developments such as aerial ropeways (or power lines) on heritage sites may be less severe than impacts which occur as a result of more drastic kinds of development such as mining, town development or dam building operations where major effects on the environment, including heritage resources, are brought about.

This assumption can be explained by the fact that the long, narrow ropeway corridor offer opportunities with regard to the protection of heritage sites by means of the following:

- The aerial ropeway will be suspended on top of towers which cause the only footprints on the landscape after the ropeway has been constructed. Towers therefore may impact physically on heritage sites which occur on ground level when excavations for these structures are done. (This assumption does not consider the effects of construction or maintenance activities).

- The aerial ropeway hangs above the surface of the land in which heritage sites were deposited many years ago and may cause a visual impact at certain sites which are retained beneath the aerial ropeway.
- The towers on which the aerial ropeway is suspended can be planned and constructed in such a way that they can avoid heritage sites.
- Heritage sites can be conserved under the aerial ropeway if towers are spaced in such a way that they do not affect (remove, damage, alter) heritage sites which then are left *in situ*, (unaffected) underneath the aerial ropeway. This is possible due the fact that the aerial ropeway is strung onto towers which are erected considerable distances from one another.
- Although mitigation measures do exist for all types and ranges of heritage resources, mitigation measures do not always have to be applied when heritage sites can be left unaffected in the aerial ropeway corridor.

The protection and conservation of heritage resources in the aerial ropeway corridor can be advanced by means of walk-through studies which are conducted before the final alignment for the aerial ropeway is fixed and before the construction of the aerial ropeway commences. During the walk-through study, the real (factual) impact of the towers and the aerial ropeway on recorded heritage resources as well as on earlier undetected heritage resources can be determined. By rerouting the aerial ropeway or changing the placement of towers possible impacts on heritage sites can be either minimised or avoided.

7.3 The significance of the heritage resources

The significance of heritage resources is usually determined according to criteria such as the following: the scientific, research, aesthetical, educational, ideological, tourism, etc value of heritage resources. Other criteria which may apply are the repeatability (scarcity); condition (dilapidated, restored, altered, disturbed) and inherent cultural, historical, industrial, economic and contextual value that each and every heritage resource possesses.

The level of significance of each heritage resource will determine what mitigation measures have to be applied before this heritage resource may be affected by the Kuka Project. The nature and extent of the mitigation measures will again determine the permitting process that has to be followed with the South African Heritage Resources Authority (SAHRA).

The protective status of the various types and ranges of heritage resources that may be affected by the Kuka Project is indicated by means of various sections of the National Heritage Resources Act (No 25 of 1999).

7.3.1 Stone Age sites

A limited number of scattered stone tools have been identified near the Kuka Project Area. Stone Age sites are probably under-represented in this study and some sites may be found during a walk-through study or even at a later stage, e.g. when the aerial ropeway is constructed and stone tools are excavated when towers are erected.

Stone Age sites qualify as archaeological remains and are protected by Section 38 of the National Heritage Resources Act (No 25 of 1999).

7.3.2 Graveyards

A significant number of graveyards and graves were recorded, some of which are associated with the Choma cultural landscape or which occur as isolated entities near the aerial ropeway between Steelpoort and Lydenburg. Undetected graves or graveyards may occur anywhere as informal and abandoned graveyards are difficult to detect. It is therefore likely that graves may be discovered during a walk-through study.

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

7.3.2 The Choma village complex

The remains of the Choma village complex which are scattered across a wide area are interrelated as they constitute a single cultural landscape. These remains are interrelated to such an extent that an impact on any of the remains actually implies an impact on the cultural landscape as a whole.

The Choma cultural landscape holds historical significance when considering the following criteria outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999): (The term 'it' in the act has been replaced with 'Choma village complex').

(a) [The Choma village complex's] importance in the community, or pattern of South Africa's history;

(d) [The Choma village complex's] potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;

(e) [The Choma village complex's] importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;

(h) [The Choma village complex's] importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;

(i) [The Choma village complex's] strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;

(j) [The Choma village complex's] strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;

The significance of the Choma village complex is further emphasised by criteria such as the fact that this complex holds graves. Descendants of the Choma people regularly pay homage at the graves of their ancestors. The site therefore also has ideological (emotional) significance. The site's indefinite existence is also threatened by rapid development which has been taking place along the edge of the Groot Dwars River Valley during the last decade.

7.3.4 The Late Iron Age site

Site LIA01 represents an archaeological site which is protected by Section 34 and Section 38 of the National Heritage Resources Act (No 25 of 1999). Other criteria which further emphasise the significance of Site LIA01 are the following, namely:

- Site LIA01 can be associated with archaeological deposits which contain pottery, animal bone waste material, charcoal, possible iron tools, etc. These remains are significant as they enable archaeologists to interpret the meaning of Iron Age sites from the past. Site LIA01 therefore has research value.
- Site LIA01 has cultural, historical and ideological significance as the site was probably occupied by a Koni group whose descendants may still be living in the Lydenburg area.
- Site LIA01 is in a pristine (unaffected) condition and therefore aesthetically pleasing and worthy of conservation.
- Site LIA01 also has other values, e.g. the site can be used in educational or tourism programs.

7.4 Possible impacts on the heritage resources

Some of the heritage resources in the Kuka Project Area including those that have not been detected may be impacted (affected, altered, damaged) by the Kuka Project. The number of heritage resources which may be affected by the Kuka Project can be decreased if a walk-through study of the ropeway's corridor is undertaken before construction commences.

The significance of possible impacts on the various types and ranges of heritage resources is indicated in Tables 4 to 7. The tables consider the affects of the impacts during the pre-mitigation phase as well as during the post-mitigation phase.

7.4.1 Stone Age sites

Stone Age sites may be impacted when towers are constructed on top of concentrations of stone tools. Stone tools will not be destroyed by this action but may be scattered from an undisturbed or disturbed archaeological context.

7.4.2 Graveyards

Any of the recorded graveyards or graves or those detected during the walk-through study of the Kuka Project Area may be impacted when towers are erected on top of these structures.

7.4.3 The Choma village complex

The Choma cultural landscape will be affected if the aerial ropeway crosses any of the structures, graves and other features which are associated with this complex.

7.4.4 The Late Iron Age site

The Late Iron Age site may be impacted if towers for the aerial ropeway are erected within the perimeters of this site or when the aerial ropeway runs across this site which constitutes a small cultural landscape.

7.5 Mitigating the heritage resources

Different mitigation measures have to be followed for the various types of heritage resources that may be affected by the Kuka Project. Mitigation measures for various types and ranges of heritage resources are usually developed by specialists qualified in various disciplines and accredited with the Association for Southern African Professional Archaeologists (ASAPA).

An important aspect relating to the mitigation (conservation) of heritage resources in the aerial ropeway corridor is the undertaking of a walk-through study which should be done before the aerial ropeway is constructed and which would have the following benefits, namely:

- The aerial ropeway can be rerouted or realigned in order to avoid (conserve) heritage sites.
- Some of the heritage resources can be conserved unaffected (*in situ*) underneath the aerial ropeway and can subsequently be managed as long as the aerial ropeway is operational.

7.5.1 Stone Age sites

Stone Age sites can in most instances be avoided by means of placing towers on opposite ends (outer perimeters) of these sites. Stone Age sites therefore can be kept *in situ* in the aerial ropeway corridor.

It is also possible that stone tools which may be affected by the Kuka Project can be collected from the surface before the aerial ropeway is constructed. These stone tools can be donated to museums (preferably closest to the Kuka Project Area or to an accredited institution such as a national museum or a university). Here, they can be kept safely and used in displays or in educational programmes.

Phase II investigations for Stone Age sites can only be conducted by archaeologists accredited with the Association for Southern African Professional Archaeologists (ASAPA). The archaeologist has to obtain a permit from the South African Heritage Resources Authority (SAHRA) which will authorise the collection of the stone artefacts *prior* to the construction of the aerial ropeway.

7.5.2 Graveyards

Graves and graveyards in the Kuka Project Area can be mitigated by following one of the following strategies, namely:

- Graveyards and graves can be conserved *in situ* underneath the aerial ropeway. Towers should be erected on opposite ends of graves or graveyards. Consequently, the aerial ropeway can be strung across and above graves and graveyards. Conserving graves and graveyards in the aerial ropeway corridor creates a risk that they may be damaged accidentally and that the developer may be held responsible for such damages. Controlled access must exist for any relatives or friends who wish to visit graves or graveyards in power line corridors. This strategy

should be followed together with a process of consultation involving members of the deceased.

- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputable undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains has to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

7.5.3 The Choma village complex

The Choma cultural landscape must be avoided by the Kuka Project. The aerial ropeway must be constructed to the north of this cultural landscape as it is currently planned and indicated in Figure 1.

Any impact on the Choma village complex would require that this cultural landscape be subjected to a Phase II archaeological impact assessment study. This investigation requires that the cultural landscape be documented by means of mapping the complex while further investigations may require that test excavations in the cultural landscape have to be undertaken.

Phase II investigations are done by archaeologists accredited with the Association for Southern African Professional Archaeologists (ASAPA). The archaeologist has to obtain a permit from the South African Heritage Resources Authority (SAHRA) which will authorise the Phase II investigation and the

subsequent destruction of the stone walled sites before the construction of the aerial ropeway commences.

7.5.4 The Late Iron Age site

The Late Iron Age site can be avoided by means of placing towers on opposite ends (outer perimeters) of the site. Although the incorporation of the site (and small cultural landscape) underneath the aerial ropeway will not necessarily causes a physical impact on the site, a visual impact may result which may require that the site be subjected to a Phase II investigation.

This investigation will require that the site be documented by means of mapping and possibly by means of small test excavations at the site. Phase II investigations are done by archaeologists accredited with ASAPA. The archaeologist has to obtain a permit from SAHRA which will authorise the Phase II investigation before the aerial ropeway is constructed.

Potential environmental impact	Project Activity or issue	Environmental significance before mitigation							Environmental significance after mitigation as per EMP						
		P	S	D		M	TOTAL	SI	P	S	D		M	TOTAL	SI
Alter, damage, destroy Stone Age sites in the aerial ropeway corridor	as a result of pre-construction, construction, or operational activities	5	1	5		2	22	L	1	1	5		1	7	L

Table 4: Impact significance assessment for Stone Age sites in the aerial ropeway corridor.

Potential environmental impact	Project Activity or issue	Environmental significance before mitigation							Environmental significance after mitigation as per EMP						
		P	S	D		M	TOTAL	SP	P	S	D		M	TOTAL	SP
Alter, damage, destroy graves and graveyards in the aerial ropeway corridor.	as a result of pre-construction, construction, or operational activities	5	1	5		8	88	H	5	1	5		4	44	M

Table 5: Impact significance assessment for graves and graveyards in the aerial ropeway corridor.

Potential environmental impact	Project Activity or issue	Environmental significance before mitigation							Environmental significance after mitigation as per EMP						
		P	S	D		M	TOTAL	SI	P	S	D		M	TOTAL	SI
Alter, damage,	as a result of pre-	0	0	0		0	0	L	0	0	0		0	0	L

Potential environmental impact	Project Activity or issue	Environmental significance before mitigation							Environmental significance after mitigation as per EMP						
		P	S	D		M	TOTAL	SI	P	S	D		M	TOTAL	SI
destroy Late Iron Age site in the aerial ropeway corridor	construction, construction, or operational activities														

Table 6: Impact significance assessment for the Choma cultural landscape near the aerial ropeway corridor.

Potential environmental impact	Project Activity or issue	Environmental significance before mitigation							Environmental significance after mitigation as per EMP						
		P	S	D		M	TOTAL	SI	P	S	D		M	TOTAL	SI
Alter, damage, destroy Late Iron Age site in the aerial ropeway corridor	as a result of pre-construction, construction, or operational activities	5	1	5		6	66	M	5	1	5		2	22	L

Table 7: Impact significance assessment for a Late Iron Age site in the aerial ropeway corridor.

8 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA study for the proposed Kuka Project Area identified the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in or near the Kuka Project Area namely, (Figure 1, Tables 1-3):

- Scatterings of stone tools mostly ranging from the MSA which occur in low numbers in eroded areas or along stream beads near the Kuka Project Area.
- Formal and informal graveyards dating from the historical past as well as from the more recent past occur from Steelpoort to Lydenburg.
- A stone walled site which is associated with the Choma people which dates from the Historical Period. The site is spread out along the lower eastern foot slope of a hill on Vygenhoek 10JT and is composed of numerous homesteads, cattle enclosures, stone walls, stone piles and several graveyards. This cultural landscape incorporates outlier settlements and graveyards on land adjacent to the Kuka Project Area.
- A stone walled site which dates from the Late Iron Age on the southern banks of a tributary of the Dorps River which probably belonged to a Koni sphere of influence.

It is highly likely that more of the following types and ranges of heritage resources may occur in the Kuka Project Area as they may have been missed by this study due to various reasons. The following heritage resources therefore may be under-represented in this study and their presence may be revealed when a walk-through study for the aerial ropeway is done before its construction commences, namely:

- Stone Age sites consisting of scatterings of stone tools may occur along any of the rivers, streams or tributaries in the Kuka Project Area, particularly where these rivers and streams are crossed by the aerial ropeway. Stone tools may also occur in eroded areas and dongas or near outcrops that are suitable for the manufacturing of stone tools.

- Undetected graves may occur in the aerial ropeway's corridor. The Choma's sphere of influence has proven to be an area which is marked with exceptionally high numbers of unmarked graves.

Heritage resources and the aerial ropeway

Before the significance of any possible impact on or the mitigation of heritage resources that may be affected by the Kuka Project is discussed, the following comments are raised as they bear an influence on the impact, mitigation and management of heritage resources in the Kuka Project Area.

It is generally assumed that impacts caused by linear developments such as aerial ropeways (or power lines) on heritage sites may be less severe than impacts which occur as a result of more drastic kinds of development such as mining, town development or dam building operations where major affects on the environment, including heritage resources, are brought about.

This assumption can be explained by the fact that the long, narrow ropeway corridor offers opportunities with regard to the protection of heritage sites by means of the following:

- The aerial ropeway will be suspended on top of towers which cause the only footprints on the landscape after the ropeway has been constructed. Towers therefore may impact physically on heritage sites which occur at ground level when excavations for these structures are done. (This assumption does not consider the effects of construction or maintenance activities).
- The aerial ropeway hangs above the surface of the land in which heritage sites were deposited many years ago and may cause a visual impact at certain sites which are retained beneath the aerial ropeway.
- The towers on which the aerial ropeway is suspended can be planned and constructed in such a way that they can avoid heritage sites.

- Heritage sites can be conserved under the aerial ropeway if towers are spaced in such a way that they do not affect (remove, damage, alter) heritage sites which then are left *in situ*, (unaffected) underneath the aerial ropeway. This is possible due the fact that the aerial ropeway is strung onto towers which are erected considerable distances from one another.
- Although mitigation measures do exist for all types and ranges of heritage resources, mitigation measures do not always have to be applied when heritage sites can be left unaffected in the aerial ropeway corridor.

The protection and conservation of heritage resources in the aerial ropeway corridor can be advanced by means of walk-through studies which are conducted before the final alignment for the aerial ropeway is fixed and before the construction of the aerial ropeway commences. During the walk-through study, the real (factual) impact of the towers and the aerial ropeway on recorded heritage resources as well as on earlier undetected heritage resources can be determined. By rerouting the aerial ropeway or changing the placement of towers possible impacts on heritage sites can be either minimised or avoided.

The significance of the heritage resources

The significance of heritage resources is usually determined according to criteria such as the following: the scientific, research, esthetical, educational, ideological, tourism, etc value of heritage resources. Other criteria which may apply are the repeatability (scarcity); condition (dilapidated, restored, altered, disturbed) and inherent cultural, historical, industrial, economic and contextual value that each and every heritage resource possesses.

The level of significance of each heritage resource will determine what mitigation measures have to be applied before this heritage resource may be affected by the Kuka Project. The nature and extent of the mitigation measures will again determine the permitting process that has to be followed with the South African Heritage Resources Authority (SAHRA).

The protective status of the various types and ranges of heritage resources that may be affected by the Kuka Project is indicated by means of various sections of the National Heritage Resources Act (No 25 of 1999).

Stone Age sites

A limited number of scattered stone tools have been identified near the Kuka Project Area. Stone Age sites are probably under-represented in this study and some sites may be found during a walk-through study or even at a later stage, e.g. when the aerial ropeway is constructed and stone tools are excavated when towers are erected.

Stone Age sites qualify as archaeological remains and are protected by Section 38 of the National Heritage Resources Act (No 25 of 1999).

Graveyards

A significant number of graveyards and graves were recorded, some of which are associated with the Choma cultural landscape or which occur as isolated entities near the aerial ropeway between Steelpoort and Lydenburg. Undetected graves or graveyards may occur anywhere as informal and abandoned graveyards are difficult to detect. It is therefore likely that graves may be discovered during a walk-through study.

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The Act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

The Choma village complex

The remains of the Choma village complex which are scattered across a wide area are interrelated as they constitute a single cultural landscape. These remains are interrelated to such an extent that an impact on any of the remains actually implies an impact on the cultural landscape as a whole.

The Choma cultural landscape holds historical significance when considering the following criteria outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999): (The term 'it' in the act has been replaced with 'Choma village complex').

(a) [The Choma village complex's] importance in the community, or pattern of South Africa's history;

(f) [The Choma village complex's] potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;

(g) [The Choma village complex's] importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;

(k) [The Choma village complex's] importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;

(l) [The Choma village complex's] strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;

(m) [The Choma village complex's] strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;

The significance of the Choma village complex is further emphasised by criteria such as the fact that this complex holds graves. Descendants of the Choma people regularly pay homage at the graves of their ancestors. The site therefore also has ideological (emotional) significance. The site's indefinite existence is also threatened by rapid development which has been taking place along the edge of the Groot Dwars River Valley during the last decade.

The Late Iron Age site

Site LIA01 represents an archaeological site which is protected by Section 34 and Section 38 of the National Heritage Resources Act (No 25 of 1999). Other criteria which further emphasise the significance of Site LIA01 are the following, namely:

- Site LIA01 can be associated with archaeological deposits which contain pottery, animal bone waste material, charcoal, possible iron tools, etc. These remains are significant as they enable archaeologists to interpret the meaning of Iron Age sites from the past. Site LIA01 therefore has research value.
- Site LIA01 has cultural, historical and ideological significance as the site was probably occupied by a Koni group whose descendants may still be living in the Lydenburg area.
- Site LIA01 is in a pristine (unaffected) condition and therefore aesthetically pleasing and worthy of conservation.
- Site LIA01 also has other values, e.g. the site can be used in educational or tourism programs.

Possible impacts on the heritage resources

Some of the heritage resources in the Kuka Project Area including those that have not been detected may be impacted (affected, altered, damaged) by the Kuka Project. The number of heritage resources which may be affected by the Kuka Project can be decreased if a walk-through study of the ropeway's corridor is undertaken before construction commences.

The significance of possible impacts on the various types and ranges of heritage resources is indicated in Tables 4-6. The tables consider the effects of the impacts during the pre-mitigation phase as well as during the post-mitigation phase.

Stone Age sites

Stone Age sites may be impacted when towers are constructed on top of concentrations of stone tools. Stone tools will not be destroyed by this action but may be scattered from an undisturbed or disturbed archaeological context.

Graveyards

Any of the recorded graveyards or graves or those detected during the walk-through study of the Kuka Project Area may be impacted when towers are erected on top of these structures.

The Choma village complex

The Choma cultural landscape will be affected if the aerial ropeway crosses any of the structures, graves and other features which are associated with this complex.

The Late Iron Age site

The Late Iron Age site may be impacted if towers for the aerial ropeway are erected within the perimeters of this site or when the aerial ropeway runs across this site which constitutes a small cultural landscape.

Mitigating the heritage resources

Different mitigation measures have to be followed for the various types of heritage resources that may be affected by the Kuka Project. Mitigation measures for various types and ranges of heritage resources are usually conducted by specialists qualified in various disciplines and accredited with the Association for Southern African Professional Archaeologists (ASAPA).

An important aspect relating to the mitigation (conservation) of heritage resources in the aerial ropeway corridor is the undertaking of a walk-through study which should be done before the aerial ropeway is constructed and which would have the following benefits, namely:

- The aerial ropeway can be rerouted or realigned in order to avoid (conserve) heritage sites. Although this is not ideal, minor alterations may be necessary.
- Some of the heritage resources can be conserved unaffected (*in situ*) underneath the aerial ropeway and can subsequently be managed as long as the aerial ropeway is operational.

Stone Age sites

Stone Age sites can in most instances be avoided by means of placing towers on opposite ends (outer perimeters) of these sites. Stone Age sites therefore can be kept *in situ* in the aerial ropeway corridor.

It is also possible that stone tools which may be affected by the Kuka Project can be collected from the surface before the aerial ropeway is constructed. These stone tools can be donated to museums (preferably closest to the Kuka Project Area or to an accredited institution such as a national museum or a university). Here, they can be kept safely and used in displays or in educational programmes.

Phase II investigations for Stone Age sites can only be conducted by archaeologists accredited with the Association for Southern African Professional Archaeologists (ASAPA). The archaeologist has to obtain a permit from the South African Heritage Resources Authority (SAHRA) which will authorise the collection of the stone artefacts *prior* to the construction of the aerial ropeway.

Graveyards

Graves and graveyards in the Kuka Project Area can be mitigated by following one of the following strategies, namely:

- Graveyards and graves can be conserved *in situ* underneath the aerial ropeway. Towers should be erected on opposite ends of graves or graveyards. Consequently, the aerial ropeway can be strung across and above graves and graveyards. Conserving graves and graveyards in the aerial ropeway corridor create a risk that they may be damaged accidentally and that the developer may be held responsible for such damages. Controlled access must exist for any relatives or friends who wish to visit graves or graveyards in power line corridors. This strategy should be followed together with a process of consultation involving members of the deceased.
- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputable undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

The Choma village complex

The Choma cultural landscape must be avoided by the Kuka Project. The aerial ropeway must be constructed to the north of this cultural landscape as it is currently planned and indicated in Figure 1.

Any impact on the Choma village complex would require that this cultural landscape be subjected to a Phase II archaeological impact assessment study. This investigation requires that the cultural landscape be documented by means

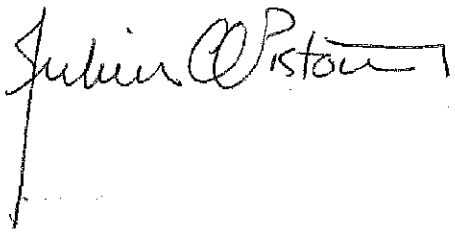
of mapping the complex while further investigations may require that test excavations in the cultural landscape have to be undertaken.

Phase II investigations are done by archaeologists accredited with the Association for Southern African Professional Archaeologists (ASAPA). The archaeologist has to obtain a permit from the South African Heritage Resources Authority (SAHRA) which will authorise the Phase II investigation and the subsequent destruction of the stone walled sites before the construction of the aerial ropeway commences.

The Late Iron Age site

The Late Iron Age site can be avoided by means of placing towers on opposite ends (outer perimeters) of the site. Although the incorporation of the site (and small cultural landscape) underneath the aerial ropeway will not necessarily cause a physical impact on the site, a visual impact may result which may require that the site be subjected to a Phase II investigation.

This investigation will require that the site be documented by means of mapping and possibly by means of small test excavations at the site. Phase II investigations are done by archaeologists accredited with ASAPA. The archaeologist has to obtain a permit from SAHRA which will authorise the Phase II investigation before the aerial ropeway is constructed.



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