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**AN UPDATED PHASE I HERITAGE IMPACT ASSESSMENT (HIA)
STUDY FOR X STRATA ALLOYS LYDENBURG NEW PROPOSED
RESIDUE MANAGEMENT FACILITY (RMF) IN THE MPUMALANGA
PROVINCE OF SOUTH AFRICA**

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EXECUTIVE SUMMARY

A Phase I Heritage Impact Assessment (HIA) study as required in terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999) was done for X Strata Alloys Lydenburg proposed new Residue Management Facility (RMF) near Lydenburg in the Mpumalanga Province during December 2005. X Strata now intends to develop the RFM eight years after an Environmental Management Plan was compiled for the smelter. Consequently, this Phase I HIA study serves as an update of the original heritage survey which was done during December 2005.

The aims with the Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (Act 25 of 1999) (see Box 1) do occur within the footprint of the proposed RMF (Project Area).
- To determine the level of significance of these heritage resources.
- To make recommendations regarding the management (mitigation) of heritage resources that might be affected by the development of the proposed RMF.

The Phase I HIA study revealed the following types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999) in the project area, namely:

- A stone walled site (Site LIA01) that date from the Late Iron Age (AD1600-1840).

The stone walled site was geo-referenced and mapped (Figure 4; Table 1). The significance of the site was determined by means of various heritage related criteria. Mitigation measures are proposed as the site will be affected by the proposed RMF and its associated infrastructure.

The significance of Site LIA01

Site LIA01 occurs in the footprint for the proposed RMF where the site will be affected by the development of the proposed RMF and its associated infrastructure. Consequently, the significance of this site has to be established in order to determine whether Site LIA01 must be subjected to mitigation measures *prior* to it being affected by the proposed RMF.

Various heritage related criteria can be used to determine the significance of Site LIA01, namely (Table 2):

- Site LIA01 may hold archaeological deposits with possible pottery, animal bone waste material, charcoal, iron tools, etc. These remains are of high significance as they enable archaeologists to interpret the meaning of Iron Age sites. Site LIA01 therefore has research value.
- Site LIA01 has cultural, historical and ideological significance as the site was occupied by either a Koni or a Pedi group whose descendants may live in the Lydenburg area.
- Site LIA01 is in a pristine (unaffected) condition.
- Site LIA01 also has other values, e.g. the site can be used in educational or tourism programs. Any material and information that is collected from this site during a Phase II investigation can be utilized in the Lydenburg Museum who is prepared to store any material that is collected from the site.

According to heritage related criteria such as the site's research and cultural- historical significance; its state of preservation (condition); ideological significance, and other uses Site LIA01 can be considered to be of high significance (Table 2).

The significance of the impact on Site LIA01

The significance of possible impacts on Site LIA01 was determined using a ranking scale based on various criteria.

Site LIA01 will be affected by the RMF and associated infrastructure. The significance of any possible impact on Site LIA01 therefore is very high (Table 3).

Mitigating the potential impacts on Site LIA01

Archaeological sites such as LIA01 may not be affected (altered, destroyed) before the South African Heritage Resources Authority (SAHRA) has authorised the necessary permit which would allow for any interference with this site. Such a permit would only be issued after Site LIA01 has been subjected to a Phase II investigation.

Considering the fact that the site is being classified as of high significance it is recommended that the site be subjected to a Phase II investigation *prior* to it being affected by the proposed RMF and associated infrastructure. A research proposal which outline the aims with the Phase 2 investigation of Site LIA01 is available.

Assumptions and limitations (disclaimer)

It is possible that this Phase I HIA study may have missed heritage resources in the Project Area as heritage sites may occur in clumps of vegetation or tall grass 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 construction of the RMF 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 Archaeologist (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.

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1 INTRODUCTION

X Strata Alloys Lydenburg (X Strata) proposes to establish a Residue Management Facility (RMF) to the south of their existing Plant near Lydenburg in the Mpumalanga Province. JMA Consulting (Pty) Ltd who compiled an Environmental Management Program for X Strata's smelter commissioned the author to do a Phase I Heritage Impact Assessment (HIA) study for the proposed new RMF in 2005.

Eight years have elapsed since the original Phase I HIA study were done and X Strata is now planning to establish the RMF on a proposed site where a Late Iron Age stone walled site (Site LIA01) has been identified during the 2005 heritage survey. Consequently, the Phase I HIA which was done in 2005 was updated and replaced with this report.

Focused archaeological research has been conducted in the Mpumalanga Province for several decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as of the recording of rock art and historical sites in this area. The Mpumalanga Province has 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 Province of South Africa 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 [No 25 of 1999]) occur in the Mpumalanga Province (see Box 1, next page).

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

The National Heritage Resources Act (Act No 25 of 1999, Art 3) 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 palaeontological 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 Tissues Act, 1983 (Act No 65 of 1983);
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including -
 - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological 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, Art 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;
- (a) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (b) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (c) 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)
- (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 TERMS OF REFERENCE

X Strata Alloys Lydenburg plan to establish a new Residue Management Facility (RMF) to the south of their existing smelter near Lydenburg. The construction of the RMF and its associated infrastructure may have an influence on any of the types and ranges of heritage resources which are outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) which may occur within the footprint of the proposed RMF. JMA Associates (Pty) Ltd therefore commissioned the author to undertake a Phase I HIA study for the proposed footprint of the RMF (Project Area).

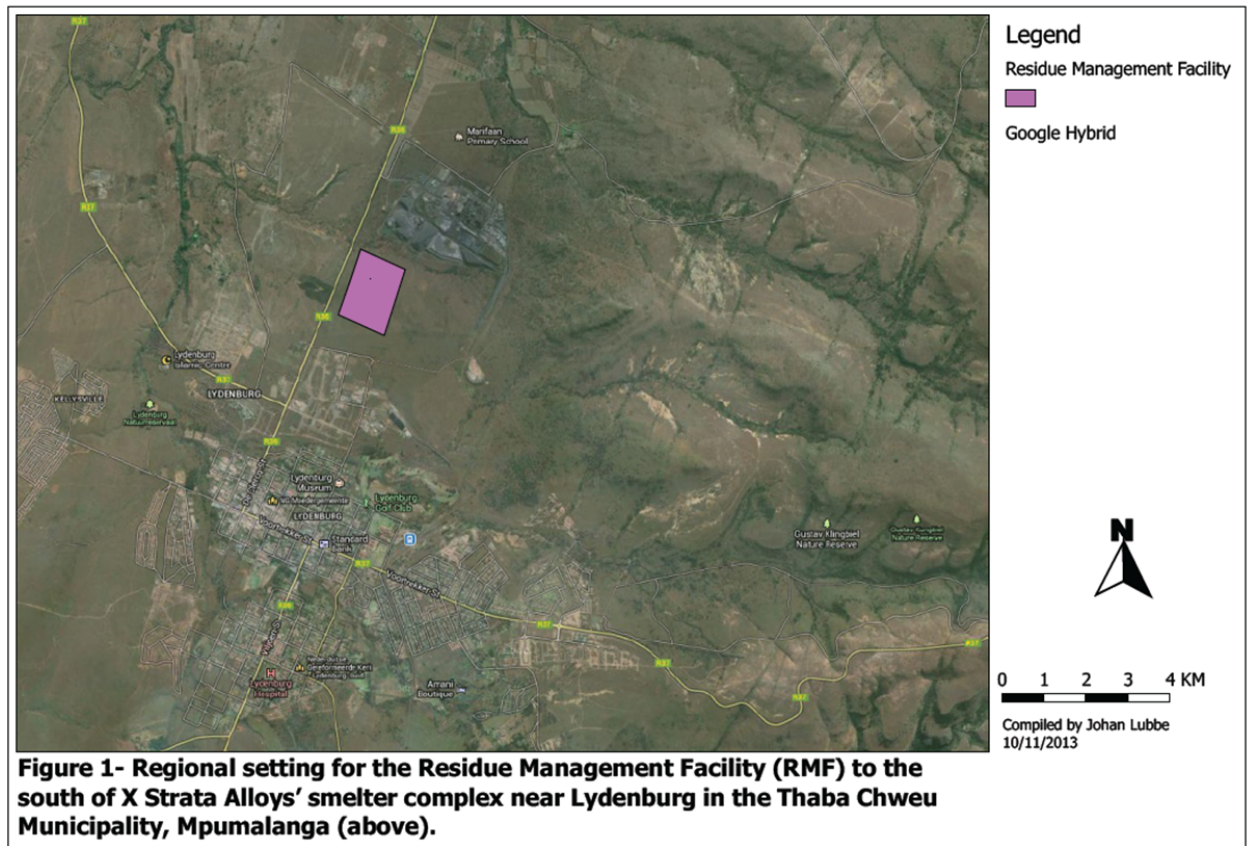
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- To determine the level of significance of these heritage resources.
- To make recommendations regarding the management (mitigation) of heritage resources that might be affected by the development of the proposed RMF.

3 THE PROJECT AREA

3.1 Location

X Strata Alloys Lydenburg (X Strata) is located in the Lydenburg Valley, between the foothills of the Drakensberg mountain range to the east and the Steenkampsberge to the west. The smelter complex is located in the town of Lydenburg in the Thaba Chweu Local Municipality in the Mpumalanga Province of South Africa. The smelter complex is situated north of the town of Lydenburg within the boundaries of the Lydenburg Conservancy and between the national road (R36) running from Lydenburg (south) to Ohrigstad (north) in the west and the Gustav Klingbeil Nature Reserve in the east (2530AB Lydenburg, 1:50 000; 2530 Nelspruit, 1:250 000) (Figures 1-3).



3.2 The nature of the project

X Strata is located in the town of Lydenburg in the Thaba Chweu Local Municipality in the Mpumalanga Province. The X Strata's smelter complex commenced with the production of ferrochrome in 1977. The plant produces ferrochrome using premus technology that pre-reduces pellets which are fed as hot sintered pellets into three electrical arc furnaces whilst cold sintered pellets are fed into one semi-conventional open furnace. The ferrochrome is either granulated or cast into ingots and crushed to lumpy ferrochrome. The final product is supplied to producers across the world who is involved with the production of stainless steel and special steel.

Lydenburg Smelter is one of the leaders in its field due to the fact that it has implemented an integrated sustainable development management system. The system is implemented through a series of plans with an overall aim of complying with all the applicable environmental management legislations and ISO 9001: 2008 quality standards.

In order to achieve compliance with environmental legislations and to improve its environmental performance the Lydenburg Smelter developed an Environmental Management Plan. The plan, amongst others, identified that the current slag footprint has reached its end of life and the need to introduce new lined facilities that comply with waste management legislation. Consequently, land was purchased to the south of the existing smelter where a new slag dump (RMF) will be established.

3.3 The nature of the Project Area

The Project Area is a level outstretched piece of grassland which is located directly to the east of the R36 and to the south of a tributary of the Dorps River. This piece of land seems to be undisturbed although it may have been ploughed in the past as

few trees occur in the area. The land to the east of the Project Area gradually rose to higher altitudes as it become part of the foothills of the Drakensberg which eventually encompasses part of the Gustav Klingbeil Nature Reserve much further east of the Project Area.

The nature of the Project Area is illuminated in photographs in the description of the 'Field survey' (Part 6.1; Figures 2 & 3).

4 METHODOLOGY

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

4.1 Fieldwork survey

The Project Area was surveyed with a vehicle where two track roads occurred and pedestrian surveys were done from these main tracks. The area is flat and featureless except for the dolerite outcrop which occurs along the western boundary of the Project Area.

The fieldwork was conducted in December 2005. This is well in advance of SAHRA's guidelines published in September 2012 which require that GPS track logs must be registered during heritage surveys. Consequently, no GPS track log was registered in December 2005 when the survey was conducted.

4.2 Databases, literature survey and maps

Literature relating to the pre-historical and the historical unfolding of Lydenburg was reviewed. This review focused primarily on the pre-history as well as the Historical Period of Lydenburg and Ohrigstad. It also provided a chronological history of the region stretching from the pre-historical to the historical period which contributes to a better understanding of the identity and meaning of heritage sites which occur in and near the Eskom Project Area.

The desktop study also involved consulting heritage data banks maintained at institutions such as the Mpumalanga Provincial Heritage Resources Agencies, the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and the national heritage resources register at the South African Heritage Resources Agency (SAHRIS) in Cape Town.

A number of Phase I HIA studies were done near the Project Area during the past decade, the results of which were published in several reports (see 'Select Bibliography', Part 8).

- Pistorius, J.C.C. 2005. A Phase I Heritage Impact Assessment (HIA) study for Xstrata Alloys Lydenburg new proposed Residue Management Facility (RMF) in the Mpumalanga Province of South Africa. Unpublished report for JMA Consulting (Pty) Ltd and Xstrata Alloys Lydenburg.
- Pistorius, J.C.C. 2005. A Heritage Impact Assessment (HIA) study for a proposed new power line between the Merensky Substation and the Burgersfort Substation in the Limpopo (Northern) Province of South Africa. Unpublished report prepared for PBA International and Eskom.
- Pistorius, J.C.C. 2009. A 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. Unpublished report prepared for Golder Associates.
- Pistorius J.C.C. 2013. A Phase I Heritage Impact Assessment (HIA) study for Eskom's proposed new 132kV power line between the Lemara Substation and the Ohrigstad Substation near Hoedspruit and Ohrigstad in the Mpumalanga Province. Unpublished report prepared for Texture Environmental Consultants.

In addition, the Project Area was also studied by means of maps on which it appears as well as by means of Google imagery (2530AB Lydenburg, 1:50 000; 2530 Nelspruit, 1:250 000).

4.3 Terminology

Terms that may be used in this report are briefly outlined below:

- Conservation: The act of maintaining all or part of a resource (whether renewable or non-renewable) in its present condition in order to provide for its continued or future use. Conservation includes sustainable use,

protection, maintenance, rehabilitation, restoration and enhancement of the natural and cultural environment.

- Conservation (*in-situ*): The conservation and maintenance of ecosystems, natural habitats and cultural resources in their natural and original surroundings.
- Cultural (heritage) resources: A broad, generic term covering any physical, natural and spiritual properties and features adapted, used and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practice, belief or social interaction. They can be, but are not necessarily identified with defined locations.
- Cultural (heritage) resource management: A process that consists of a range of interventions and provides a framework for informed and value-based decision-making. It integrates professional, technical and administrative functions and interventions that impact on cultural resources. Activities include planning, policy development, monitoring and assessment, auditing, implementation, maintenance, communication, and many others. All these activities are (or will be) based on sound research.
- Heritage resources: The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. Heritage (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.
- 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 300 years ago).

- 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.
- Historical period: Refers to the first appearance or use of 'modern' Western writing in a particular area or region of the world.
- 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.
- 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.
- Maintenance: Keeping something in good health or repair.
- Preservation: Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource.
- Protected area: A geographically defined area designated and managed to achieve specific conservation objectives. Protected areas are dedicated primarily to the protection and enjoyment of natural or cultural heritage, to the maintenance of biodiversity, and to the maintenance of life-support systems.
- Reconstruction: Re-erecting a structure on its original site using original components.
- Replication: The act or process of reproducing by new construction the exact form and detail of a vanished building, structure, object, or a part thereof, as it appeared at a specific period.
- Restoration: Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components.

- Sustainability: The ability of an activity to continue indefinitely, at current and projected levels, without depleting social, financial, physical and other resources required to produce the expected benefits.
- Translocation: Dismantling a structure and re-erecting it on a new site using original components.
- Project Area: refers to the area (footprint) 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 and ranges of heritage resources in any given Project 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 human remains and the relocation of graveyards, etc. Phase II work involve permitting processes, require the input of different specialists and the co-operation and approval of SAHRA.

4.4 Assumptions and limitations

It is possible that this Phase I HIA study may have missed heritage resources in the Project Area as heritage sites may occur in clumps of vegetation or tall grass 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 construction of the RMF 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 Archaeologist (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.

5 CONTEXTUALISING THE PROJECT AREA

Apart from its scenic landscapes the Lydenburg Valley was home to humans from the Stone Age, through the Iron Age and during the Historical Period. The following brief overview of pre-historical, historical, cultural and economic evidence will help to contextualise the larger region and the Project Area.

5.1 Stone Age sites

Stone Age sites are marked by stone artefacts that are found scattered on the surface of the earth or as parts of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age (ESA) (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (the period from 22 000 years ago to 200 years ago).

Dongas and eroded areas at Maleoskop near Groblersdal is one of only a few places in Mpumalanga where ESA Olduvan and Acheulian artefacts have been recorded. Evidence for the MSA has been excavated at the Bushman Rock Shelter near Ohrigstad. This cave was repeatedly visited over a prolonged period. The oldest layers date back to 40 000 years BP and the youngest to 27 000BP (Esterhuysen & Smith 2007).

LSA occupation of the Mpumalanga Province also has been researched at Bushman Rock Shelter where it dates back 12 000BP to 9 000BP and at Höningnestkrans near Badfontein where a LSA site dates back to 4870BP to 200BP (Esterhuysen & Smith 2007).

The LSA is also associated with rock paintings and engravings which were done by San hunter-gatherers, Khoi Khoi herders and EIA farmers (Maggs 1983, 2008). Approximately 400 rock art sites are distributed throughout Mpumalanga, notably

in the northern and eastern regions at places such as Emalahleni (Witbank) (4), Lydenburg (2), White River and the southern Kruger National Park (76), Nelspruit and the Nsikazi District (250). The Ermelo area holds eight rock paintings (Smith & Zubieta 2007).

The rock art of the Mpumalanga Province can be divided into San rock art which is the most wide spread, herder or Khoe Khoe paintings (thin scattering from the Limpopo Valley) through the Lydenburg district into the Nelspruit area) and localised late white farmer paintings. Farmer paintings can be divided into Sotho-Tswana finger paintings and Nguni engravings (Only 20 engravings occur at Boomplaats, north-west of Lydenburg). Farmer paintings are more localised than San or herder paintings and were mainly used by the painters for instructional purposes. A rock engraving site with numerous engravings ranging from geometrical motifs to different figures have been recorded near Lydenburg (Maggs 1983; Smith & Zubieta 2007).

5.2 Iron Age remains

The Iron Age is associated with the first Bantu-Negroid agro-pastoralists who lived in semi-permanent villages and who practised metal working during the last two millennia. The Iron Age is usually divided into the Early Iron Age (EIA) (covers the 1st millennium AD) and the Later Iron Age (LIA) (covers the first 880 years of the 2nd millennium AD).

Iron Age research along the Drakensberg Escarpment can be divided into two periods, namely the first phase which started with EIA research after the discovery of the Lydenburg Heads near the Sterkspruit in the 1960's. Other sites belonging to other phases of the Iron Age were found and excavated hereafter. However, archaeological research on the Escarpment has been restricted to work which has been carried out within a 30km radius from Lydenburg.

The Lydenburg Valley was occupied by 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. The EIA site near Lydenburg which has produced the 'Lydenburg masks' has aroused wide academic interest due to these unique and enigmatic objects (Whitelaw 1996).

Based on ceramic typology, stratigraphy, and radio-carbon dates two cultural sequences consisting of four successive phases have been established for the EIA Drakensberg Escarpment near Lydenburg, namely (Evers 1977, 1980, 1981 & 1982):

- 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 interfluvial situations at the confluence of two streams. Sites are large and measure between 7 to 15 hectares.
- Sites belonging to the Klingbeil Phase (Tradition) appear to have a similar location and distribution than those of the Lydenburg Phase. These sites include Langdraai and Doornkop which were re-occupied while at least two other similar sites occur in the Klingbeil Nature Reserve. A Klingbeil Tradition site also occurs near Boomplaas (2530AB19) where it is situated close to a prehistoric copper mine. The Klingbeil Phase has not been firmly dated 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. These settlements comprise complexes of stone walled sites consisting of three basic units, namely homesteads, terraces and cattle tracks. Settlement location favours lower

foot slopes of mountains and spur ends. Two stone walled settlement types can be distinguished, namely simple and more complex settlement types.

In Pedi oral tradition the LIA people (Marateng Phase of the Iron Age) who lived near Ohrigstad and Lydenburg were called Bakoni. The Bakoni originated from south-east Swaziland and moved westwards across the Drakensberg Escarpment to settle at Mašašane - 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 (Collett 1979, 1983; Delius 1984; Maggs 2008; Makhura 2007; Delius & Schoeman 2008).

The Bakoni were raided early in Pedi history under Chief Moukangoe and later became 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 Bakoni 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 (Mönnig 1978).

5.3 The Historical Period

The colonial towns closest to the Project Area include Ohrigstad and Lydenburg.

The village of Ohrigstad was founded in 1845 by the Voortrekker leader Andries Hendrik Potgieter and his followers. The establishment of the village occurred as a result of political and geographic reasons, namely being close to the port at Lourenco Marques.

Ohrigstad was laid out in the well-watered valley of the present day Ohrigstad River, a tributary of the Olifants River. In June 1845 the town was established with broad streets and a fort for protection. The name chosen was Andries-Ohrigstad in honour of Potgieter and the Dutch benefactor Ohrig.

The residents were tormented by malaria carrying mosquitos and stoically suffered their visitation for three years. However, in the summer of 1848-49 the number of deaths from malaria reached epidemic proportions. Potgieter and some of his followers moved north to the Soutpansberg whilst others moved to Lydenburg. Ohrigstad was finally abandoned in 1849.

The present day village was established in 1923. The main crops of the area are citrus fruit, tobacco and wheat currently grown under irrigation from the Ohrigstad Dam. Other sites of historical interest include:

- The ruins of the original fort and abandoned village occur along the R36. On 10 October 1942 the remains of those who died from malaria and other causes during AD1845 to AD1850 were re-interred under a concrete replica of an ox wagon tilt.
- The Andries Hendrik Potgieter Memorial Hall was inaugurated in 1950 in honour of Andries Potgieter and the other founders of Ohrigstad.

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. At the time Ohrigstad was subjected to the scourge of the Lowveld, namely the ubiquitous malaria mosquito. Some of the Voortrekkers moved to the Soutpansberg further north under Potgieter's leadership while a dissident group moved south-west to establish Lydenburg.

This 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 Dutch Reformed Church building north of the Orange River was finally completed in March 1852. It also served as a 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 re-joined the Transvaal Republic. Lydenburg featured prominently in the Voortrekkers' quest for a wagon route to Mozambique where they intended to establish 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 (Bergh 1992; Erasmus 1995).

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 north of the Vaal River.

6 THE PHASE I HERITAGE SURVEY

6.1 The field survey

The Project Area comprises a level piece of land to the south of a tributary of the Dorps River which runs from the foothills of the Drakensberg in the east. The Project Area is covered with grass veld and here and there with clumps of indigenous trees. The northern part of the Project Area slopes downwards towards the stream where an encroachment of trees and bush has occurred along both banks of the river. The Project Area is featureless except for the presence of a prominent dolerite dyke towards its western edge where a stone walled site (Site LIA01) is located next to the dyke. From here stones were collected in order to construct the walls of the site.



Figures 2- View from the south across the project area indicates an outstretched piece of land which is covered with grass veld. Bush encroachment is visible along the banks of a tributary of the Dorps River which represents the project area's northern boundary (above).



Figures 3- A dolerite dyke cuts from the north to the south across the project area. This out reef is associated with a Late Iron Age stone walled site (above). Dolerite stone was collected from this reef and utilized to construct the walls of Site LIA01.

6.2 Heritage resources in the project area

The Phase I HIA study revealed the following types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999) in the project area, namely:

- A stone walled site (Site LIA01) that date from the Late Iron Age (AD1600-1840).

The stone walled site was geo-referenced and mapped (Figure 4; Table 1). The significance of the site was determined by means of various heritage related criteria. Mitigation measures are proposed as the site will be affected by the proposed RMF and its associated infrastructure.

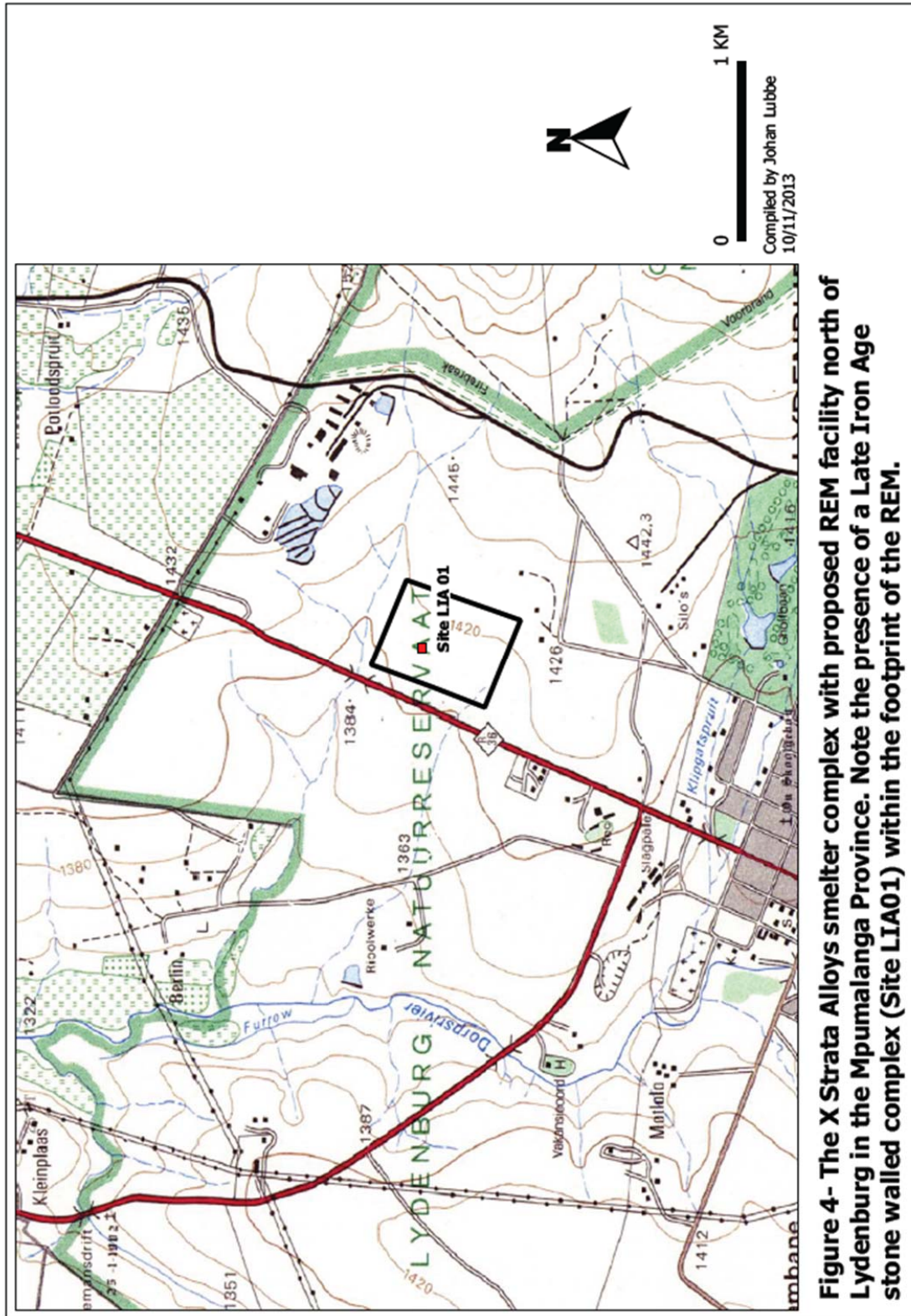


Figure 4- The X Strata Alloys smelter complex with proposed REM facility north of Lydenburg in the Mpumalanga Province. Note the presence of a Late Iron Age stone walled complex (Site LIA01) within the footprint of the REM.

6.2.1 The stone walled site (Site LIA01)

Site LIA01 is located along the eastern foot of a diabase dyke in the north-western corner of the Project Area. The site was constructed with diabase rock that was collected from the dyke. The site can be classified as a simple site (ruin) 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 while the other stone lines are located some distance to the east of Site LIA01. These stone lines probably served as rudimentary (agricultural?) terraces that were associated with Site LIA01.



Figure 5- Part of the heavily build wall of the *kgotla* in which men discussed affairs pertaining to the *kgoro* (above).

Site LIA01 was covered with tall grass and a clump of trees when investigated which prevented a detail investigation of this settlement. However, it is clear that the site is composed of at least three enclosures which are connected with each other and with a few walls. These structures are embraced by an outer 'wall' which comprises of an inconspicuous low row of stones.

It is possible that Site LIA01 represents a homestead (*kgoro* or *kgorwana*) - similar to those occupied by the historical Pedi. 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 pen for the *kgorwana*'s cattle it may also have served as a burial place of the ruler(s) (*dikgosana*) of the homestead. The *kgotla* serve as the gathering place for the men who occupied this homestead. The third small enclosure was probably used for small stock.

The terrace walls occurred at some distance from the homestead and were probably used to establish small agricultural fields or plots. The agricultural terraces also separated various homesteads from each other where clusters of homesteads existed together.

Site LIA01 is still in a pristine condition.



Figures 6 & 7- The formidable wall of the central cattle enclosure is still in a pristine condition (above). A small enclosure is part of Site LIA01. It may have been used to shelter small stock such as sheep or goat (below).





Figure 8- Close view of a stone wall in Site LIA01 reveals how small stones were used to wedge larger stones during the construction of walls (below).

6.3 Table

HERITAGE RESOURCES	COORDINATES	SIGNIFICANCE
Site LIA01	25 04 05.96s 30 27 44.96e	HIGH

Table 1- Heritage resources in the Project Area and their level of significance (above).

7 THE SIGNIFICANCE, POSSIBLE IMPACT ON AND MITIGATION OF THE HERITAGE RESOURCES

7.1 The significance of Site LIA01

Site LIA01 occurs in the footprint for the proposed RMF where the site will be affected by the development of the proposed RMF and its associated infrastructure. Consequently, the significance of this site has to be established in order to determine whether Site LIA01 must be subjected to mitigation measures *prior* to it being affected by the proposed RMF.

Various heritage related criteria can be used to determine the significance of Site LIA01, namely (Table 2):

- Site LIA01 may hold archaeological deposits with possible pottery, animal bone waste material, charcoal, iron tools, etc. These remains are of high significance as they enable archaeologists to interpret the meaning of Iron Age sites. Site LIA01 therefore has research value.
- Site LIA01 has cultural, historical and ideological significance as the site was occupied by either a Koni or a Pedi group whose descendants may live in the Lydenburg area.
- Site LIA01 is in a pristine (unaffected) condition.
- Site LIA01 also has other values, e.g. the site can be used in educational or tourism programs. Any material and information that is collected from this site during a Phase II investigation can be utilized in the Lydenburg Museum who is prepared to store any material that is collected from the site.

Heritage Resource	Research value	Cultural historical value	Condition (affected, unaffected)	Ideological value	Other uses (tourism, education, research, etc)
HIGH SIGNIFICANCE (3) MEDIUM SIGNIFICANCE (2) LOW SIGNIFICANCE (1)					
Site LIA01	3	3	3	3	3

Table 2- Site LIA01 has a high significance considering a number of heritage related criteria (above).

According to heritage related criteria such as the site’s research and cultural-historical significance; its state of preservation (condition); ideological significance, and other uses Site LIA01 can be considered to be of high significance (Table 2).

7.2 The significance of the impact on Site LIA01

The significance of possible impacts on Site LIA01 was determined using a ranking scale based on the following criteria:

- Occurrence
 - Probability of occurrence (how likely is it that the impact may/will occur?), and
 - Duration of occurrence (how long may/will it last?)
- Severity
 - Magnitude (severity) of impact (will the impact be of high, moderate or low severity?), and

- Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?).

Each of these factors has been assessed for each potential impact using the following ranking scales:

<p>Probability:</p> <p>5 – Definite/don't know</p> <p>4 – Highly probable</p> <p>3 – Medium probability</p> <p>2 – Low probability</p> <p>1 – Improbable</p> <p>0 – None</p>	<p>Duration:</p> <p>5 – Permanent</p> <p>4 - Long-term (ceases with the operational life)</p> <p>3 - Medium-term (5-15 years)</p> <p>2 - Short-term (0-5 years)</p> <p>1 – Immediate</p>
<p>Scale:</p> <p>5 – International</p> <p>4 – National</p> <p>3 – Regional</p> <p>2 – Local</p> <p>1 – Site only</p> <p>0 – None</p>	<p>Magnitude:</p> <p>10 - Very high/don't know</p> <p>8 – High</p> <p>6 – Moderate</p> <p>4 – Low</p> <p>2 – Minor</p>

The environmental significance of each potential impact was assessed using the following formula:

$$\text{Significance Points (SP)} = (\text{Magnitude} + \text{Duration} + \text{Scale}) \times \text{Probability}$$

The maximum value is 100 Significance Points (SP). Potential environmental impacts are rated as very high, high, moderate, low or very low significance on the following basis:

- More than 80 significance points indicates VERY HIGH environmental significance.

- Between 60 and 80 significance points indicates HIGH environmental significance.
- Between 40 and 60 significance points indicates MODERATE environmental significance.
- Between 20 and 40 significance points indicates LOW environmental significance.
- Less than 20 significance points indicates VERY LOW environmental significance.

Site LIA01 will be affected by the RMF and associated infrastructure. The significance of any possible impact on Site LIA01 therefore is very high (Table 3).

LIA01	Status	Magnitude	Scale	Duration	Probability	Significance points	Significance rating
	-	10	1	5	5	80	Very High

Table 3: Significance of potential impacts on Site LIA01 (above).

7.3 Mitigating the potential impacts on Site LIA01

Archaeological sites such as LIA01 may not be affected (altered, destroyed) before the South African Heritage Resources Authority (SAHRA) has authorised the necessary permit which would allow for any interference with this site. Such a permit would only be issued after Site LIA01 has been subjected to a Phase II investigation.

Considering the fact that the site is being classified as of high significance it is recommended that the site be subjected to a Phase II investigation *prior* to it being affected by the proposed RMF and associated infrastructure. A research proposal which outline the aims with the Phase 2 investigation of Site LIA01 is available.

8 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA study revealed the following types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999) in the project area, namely:

- A stone walled site (Site LIA01) that date from the Late Iron Age (AD1600-1840).

The stone walled site was geo-referenced and mapped (Figure 4; Table 1). The significance of the site was determined by means of various heritage related criteria. Mitigation measures are proposed as the site will be affected by the proposed RMF and its associated infrastructure.

The significance of Site LIA01

Site LIA01 occurs in the footprint for the proposed RMF where the site will be affected by the development of the proposed RMF and its associated infrastructure. Consequently, the significance of this site has to be established in order to determine whether Site LIA01 must be subjected to mitigation measures *prior* to it being affected by the proposed RMF.

Various heritage related criteria can be used to determine the significance of Site LIA01, namely (Table 2):

- Site LIA01 may hold archaeological deposits with possible pottery, animal bone waste material, charcoal, iron tools, etc. These remains are of high significance as they enable archaeologists to interpret the meaning of Iron Age sites. Site LIA01 therefore has research value.
- Site LIA01 has cultural, historical and ideological significance as the site was occupied by either a Koni or a Pedi group whose descendants may live in the Lydenburg area.
- Site LIA01 is in a pristine (unaffected) condition.

- Site LIA01 also has other values, e.g. the site can be used in educational or tourism programs. Any material and information that is collected from this site during a Phase II investigation can be utilized in the Lydenburg Museum who is prepared to store any material that is collected from the site.

According to heritage related criteria such as the site's research and cultural-historical significance; its state of preservation (condition); ideological significance, and other uses Site LIA01 can be considered to be of high significance (Table 2).

The significance of the impact on Site LIA01

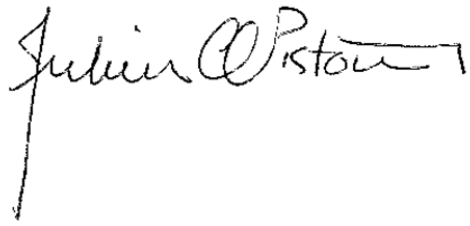
The significance of possible impacts on Site LIA01 was determined using a ranking scale based on various criteria.

Site LIA01 will be affected by the RMF and associated infrastructure. The significance of any possible impact on Site LIA01 therefore is very high (Table 3).

Mitigating the potential impacts on Site LIA01

Archaeological sites such as LIA01 may not be affected (altered, destroyed) before the South African Heritage Resources Authority (SAHRA) has authorised the necessary permit which would allow for any interference with this site. Such a permit would only be issued after Site LIA01 has been subjected to a Phase II investigation.

Considering the fact that the site is being classified as of high significance it is recommended that the site be subjected to a Phase II investigation *prior* to it being affected by the proposed RMF and associated infrastructure. A research proposal which outline the aims with the Phase 2 investigation of Site LIA01 is available.

A handwritten signature in black ink, reading "Julius C C Pistorius". The signature is written in a cursive style with a long vertical line extending downwards from the first letter 'J'.

DR JULIUS CC PISTORIUS
Archaeologist & Heritage Consultant
Member of ASAPA

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APPENDIX A: DETAILS OF THE SPECIALIST

Profession: Archaeologist, Museologist (Museum Scientists), Lecturer, Heritage Guide Trainer and Heritage Consultant

Qualifications:

BA (Archaeology, Anthropology and Psychology) (UP, 1976)

BA (Hons) Archaeology (distinction) (UP, 1979)

MA Archaeology (distinction) (UP, 1985)

D Phil Archaeology (UP, 1989)

Post Graduate Diploma in Museology (Museum Sciences) (UP, 1981)

Work experience:

Museum curator and archaeologist for the Rustenburg and Phalaborwa Town Councils (1980-1984)

Head of the Department of Archaeology, National Cultural History Museum in Pretoria (1988-1989)

Lecturer and Senior lecturer Department of Anthropology and Archaeology, University of Pretoria (1990-2003)

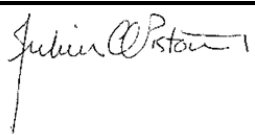
Independent Archaeologist and Heritage Consultant (2003-)

Accreditation: Member of the Association for Southern African Professional Archaeologists. (ASAPA)

Summary: Julius Pistorius is a qualified archaeologist and heritage specialist with extensive experience as a university lecturer, museum scientist, researcher and heritage consultant. His research focussed on the Late Iron Age Tswana and Lowveld-Sotho (particularly the Bamalatji of Phalaborwa). He has published a book on early Tswana settlement in the North-West Province and has completed an unpublished manuscript on the rise of Bamalatji metal workings spheres in Phalaborwa during the last 1 200 years. He has written a guide for Eskom's field personnel on heritage management. He has published twenty scientific papers in academic journals and several popular articles on archaeology and heritage matters. He collaborated with environmental companies in compiling State of the Environmental Reports for Ekurhuleni, Hartebeespoort and heritage management plans for the Magaliesberg and Waterberg. Since acting as an independent consultant he has done approximately 800 large to small heritage impact assessment reports. He has a longstanding working relationship with Eskom, Rio Tinto (PMC), Rio Tinto (EXP), Impala Platinum, Angloplats (Rustenburg), Lonmin, Sasol,

PMC, Foskor, Kudu and Kelgran Granite, Bafokeng Royal Resources etc. as well as with several environmental companies.

APPENDIX B: DECLARATION OF INDEPENDENCE

I, Julius CC Pistorius, declare that:
<ul style="list-style-type: none">•I act as the independent environmental practitioner in this application•I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant•I declare that there are no circumstances that may compromise my objectivity in performing such work;•I have expertise in conducting environmental impact assessments, including knowledge of the National Heritage Resources Act (No 25 of 1999) and any guidelines that have relevance to the proposed activity;•I will comply with the Act, regulations and all other applicable legislation;•I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;•I have no, and will not engage in, conflicting interests in the undertaking of the activity;•I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;•I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;•I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;•I will keep a register of all interested and affected parties that participated in a public participation process; and•I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not•all the particulars furnished by me in this form are true and correct;•will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and•I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.
Disclosure of Vested Interest I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010.

_____ Signature of the environmental practitioner: Private Consultant
_____ Name of company: 10 November 2013
_____ Date:

<p>_____ Signature of the Commissioner of Oaths:</p> <p>_____ Date:</p> <p>_____ Designation:</p>
