

DESKTOP HERITAGE IMPACT ASSESSEMENT

**PROPOSED TO DEVELOPMENT OF
AN IRON/STEEL SMELTER PLANT
ON ERF 4 TO ERF 13 LOCATED AT
THE THABA NCHU INDUSTRIAL
AREA WITHIN THE MANGAUNG
METROPOLITAN MUNICIPALITY**

MAY 2021

**PREPARED FOR TIS ENVIRONMENTAL
CONSULTING (PTY) LTD**

Prepared by Tsimba Archaeological Footprints (Pty) Ltd


<https://tsimba-arch.co.za>

AUTHOR'S CREDENTIALS

The report was authored by Mr. Roy Muroyi (Archaeologist) Mr. Muroyi is a holder of an Honors Degree, Archaeology, Cultural Heritage and Museum Studies (Midlands State University) and a Masters Degree from the University of Witwatersrand. He is currently pursuing another Masters Degree in Heritage Management at the same institution. He attended further training as a Laboratory Specialist for Human anatomy and human skeletal analysis through the University of Cape-Town human biology department in-conjunction with Cape Archaeological Surveys. Mr Muroyi has over seven years of industry experience, after leaving the Department of National Museums and Monuments of Botswana where he worked as an Archaeological Impact assessments adjudicating officer Mr. Muroyi then moved to South Africa where has been involved in a range of Cultural Resources Management (CRM) companies before starting Tsimba Archaeological Footprints. He has so far exhumed over 500 historical burials as a professional archaeologist and carried out close to a 100 Heritage Impact Assessments.

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Author(s)	Signature(s)
Principal Heritage Specialist Mr. Roy Muroyi	
Accreditations	<ul style="list-style-type: none"> ▪ Association of Southern African Professional Archaeologists (ASAPA) 453 ▪ Association of Professional Heritage Practitioners (APHP) C0115 ▪ International Association of Impact Assessment South Africa (IAIAsa) No- 6512 ▪ KZN Amafa and Research Institute

DOCUMENT INFORMATION

DOCUMENT INFORMATION ITEM	DESCRIPTION
Proposed development and location	The proposed development of an Iron/Steel Smelter Plant at the Thaba Nchu Industrial Area
Purpose of the study	To carry out a Desktop Phase 1 Heritage Impact Assessment to determine the presence/absence of archaeological assess their archaeological significance in terms of the NHRA of 1999 and SHARA guidelines.
Size of the site	A total area of 15.70 hectares (ha)
Applicant	Hangda (Pty) Ltd.
Site Coordinates	o 29 '11 "25.043 o 26 '48 "25.084
Client Details	<p>Teboho Modise</p> <p>TIS Environmental Consulting (Pty) Ltd</p> <p>22 Lessing Street</p> <p>Estoire</p> <p>Bloemfontein</p> <p>9301</p>
Heritage Consultant	<p>Tsimba Archaeological Footprints (Pty) Ltd</p> <p>24 Lawson Mansions</p> <p>74Loveday Street, Johannesburg, CBD</p> <p>Gauteng, 2000</p> <p>E-mail:info@tsimba-arch.co.za / rmuroyi23@gmail.com</p> <p>Phone : (+27) 813 717 993 / (+27) 619 12 5118</p>
Author (s)	Mr. Roy Muroyi (Archaeology and Heritage Specialist)

EXECUTIVE SUMMARY

The Applicant Hangda (Pty) Ltd intends to construct an Iron-Steel Plant at the Botshabelo Industrial Area on Erf 4 to Erf 13. TIS Environmental Consulting (Pty) Ltd (hereafter referred to as “the EAP”) have been appointed as the independent Environmental Assessment Practitioner (EAP) to undertake the Basic Assessment for the proposed development of an Iron-Steel Plant at the Thaba Nchu Industrial Area, within the Mangaung Metropolitan Municipality in the Free State Province,

The National heritage databases, lists and registers, other documented information (including heritage impact assessment reports and a range of ethno-historic and archaeological sources at both local and regional levels) were also consulted for information regarding other heritage resources within the vicinity of the proposed development area.

From this it is clear that the broader Thaba nchu area proved be critical to the British in occupation around 1900 during the Anglo Boer War. Significant colonial heritage landscapes are therefore known to exist around this area and the broader region. Archaeologically, over thirty EIA identified settlements in the Thukela Basin are clustered on discontinuous patches of rich colluvial soils within a short distance of the edge of the Thukela River or its tributaries. EIA settlements were initially established in the coastal forest in the fifth century AD and later in the savannah woodland belt alongside rivers in the (seventh century AD).

The scope of work for this Desktop Heritage Impact Assessment was to assess written materials and manuscripts about the broader cultural landscape to be affected by the proposed development. The proposed development area exceeds 5000m² therefore it triggers section 38(1) (a) of the National Heritage Resources Act (NHRA- Act No. 25 of 1999) (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—any development or other activity which will change the character of a site—(i) exceeding 5 000 m² in extent. The objective of the report is to fulfil the requirements of SAHRA in terms of Section 38(1) of the NHRA

❖ Reasoned Opinion

It is the reasoned opinion of the author of this report that it may be possible to request systematic Phase 1 cultural heritage impact assessment field survey should be carried out in accordance to SAHRA and NHRA procedures. This is based on the fact the findings of the desktop survey which revealed a possible occurrence of historical period heritage sites within the proposed development area. The proposed development site is also more than 500m² therefore requiring a full Phase 1 HIA to be carried out. It should however be noted that most of the proposed development site is extensively disturbed therefore making it almost impossible for any archaeological resources to be still in existence.

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ABBREVIATIONS

Acronyms	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
LSA	Late Stone Age
LIA	Late Iron Age
MIA	Middle Iron Age
MSA	Middle Stone Age
SAHRA	South African Heritage Resources Agency

GLOSSARY

Achievement	<ul style="list-style-type: none"> Something accomplished, esp. by valour, boldness, or superior ability
Aesthetic	<ul style="list-style-type: none"> Relating to the sense of the beautiful or the science of aesthetics.
Community	<ul style="list-style-type: none"> All the people of a specific locality or country
Culture	<ul style="list-style-type: none"> The sum total of ways of living built up by a group of human beings, which is transmitted from one generation to another.
Cultural	<ul style="list-style-type: none"> Of or relating to culture or cultivation.
Diversity	<ul style="list-style-type: none"> The state or fact of being diverse; difference; unlikeness.
Geological (geology)	<ul style="list-style-type: none"> The science which treats of the earth, the rocks of which it is composed, and the changes which it has undergone or is undergoing.
High	<ul style="list-style-type: none"> Intensified; exceeding the common degree or measure; strong; intense, energetic
Importance	<ul style="list-style-type: none"> The quality or fact of being important.
influence	<ul style="list-style-type: none"> Power of producing effects by invisible or insensible means.
Potential	<ul style="list-style-type: none"> Possible as opposed to actual.
Integrity	<ul style="list-style-type: none"> The state of being whole, entire, or undiminished.
Religious	<ul style="list-style-type: none"> Of, relating to, or concerned with religion.
Significant	<ul style="list-style-type: none"> important; of consequence
Social	<ul style="list-style-type: none"> Living, or disposed to live, in companionship with others or in a community, rather than in isolation.
Spiritual	<ul style="list-style-type: none"> Of, relating to, or consisting of spirit or incorporeal being.
Valued	<ul style="list-style-type: none"> Highly regarded or esteemed

1.0 INTRODUCTION

1.1 Project Background

Tsimba Archaeological Footprints (Pty) Ltd was requested TIS Environmental Consulting (Pty) Ltd to conduct a Desktop Phase 1 Heritage Impact Assessment (HIA) for the proposed development of an Iron/Steel Smelter Plant on Erf 4 to Erf 13 located at the Thaba Nchu Industrial Area within the Mangaung Metropolitan Municipality .

This HIA is designed to assist statutory authorities in identifying and preventing the approval of aggressive developments, understood as the development that destroys the cultural significance of heritage properties. HIA structure an evaluation of the potential damage or benefits that may accrue to the significance of the cultural heritage assets.

Environmental impact assessments (EIA) are another analytic approach for evaluating the impacts of development, widely adopted as part of the land use planning system in many countries (Glasson and Therivel, 2013). Whenever relevant, EIA also include cultural heritage as a factor to be evaluated. Both EIA and HIA adopt a similar approach. In brief, first, the overall scope of the study is defined. Second, a baseline survey is carried out to provide a reference point against which impacts can be measured, including a desktop study and/or a field research.

1.3 Proposed Activities

The proposed Iron/Steel Smelter or foundry operation process for secondary steel making will entail the use of furnaces to melt recovered ferrous scrap, followed by the refining in ladles including the cooling of steel and the final rolling of steel billets into different steel products utilized by different industries (e.g. construction industry).

The proposed project is planned to use the steel making technology and cleaner production techniques used nationally and internationally. The development footprint (5ha) of the project will be divided as follows as per the proposed activities:

- Iron/Steel Smelter Facility Area, with an output of about 1000 tons of steel per month: 15.70 hectares (ha) in extent.
- A typical Iron/Steel Smelter Plant or foundry operation process using furnaces to melt ferrous scrap including the refining and rolling of steel billets by a rolling mill will include:
 - Insertion of recovered scrap metal into a smelter;
 - Application of heat to melt scrap metal;

- Extraction of steel from scrap metal;
- Pouring of melted steel into a caster;
- Rolling of steel billets into different steel products;
- Cooling and cutting of steel; and
- Packaging of the steel product.

Infrastructure Requirements

Steel making process:

- Raw scrap steel yard;
- Loading facility;
- Furnace (Melting);
- Slag holding, refractory yards; including a bag house.

Rolling Mill (High temperatures):

- Electricity Substation;
- Furnace; and
- Storage tanks and storage for finished steel products.

Factory/Facility support infrastructure:

- Onsite offices;
- Parking areas
- Roads for light and heavy vehicles (internal); and Weighbridge.

Transportation of Materials

- Materials will be transported to and from site by use of trucks.

Proposed Design

- The proposed preliminary project layout design.

1.2 The Terms of Reference for this HIA study are:

Desktop Heritage impact assessments (hereinafter referred to as D-HIA) are applied to cultural heritage assets. This is a recent notion grounded in the requirements to perform environmental assessments at the project or more strategic levels. The practice of performing an impact analysis is not new, however. As Clark (2001, p. 22) observes, "impact analysis is not a particularly special, unusual or complex

process; it is simply a codification of the basic analysis undertaken by any competent conservation adviser". The D-HIA exists to:

- Review existing theories and models of cultural heritage resources interpretation and how to develop effective methods of archaeological interpretation for future generations to assist and assist SAHRA in their deliberations;
- Clarify the extent and ways in which current broader archaeological findings may affect the interpretation of proposed development site for present and future generations;
- Shed light on the potential challenges and opportunities brought about by the existence of archaeological sites and other conflicting views of the values of a site;
- Set out the ethical considerations on the interpretation and preservation of archaeological findings given the varied range of approaches available;
- Explain that the issue of archaeological preservation and conservation as relevant not only National Heritage or Provincial Heritage properties, but also for any significant cultural site;
- Give direction to heritage and archaeological practices.

1.3 The aim: - The aim of this D-HIA is to identify any cultural heritage object within the broader study area and its region.

1.4 The findings: - The findings of this report have been informed by desktop data review and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project. This study was conducted before any activities too place on the proposed development area. The impact assessment study also includes detailed recommendations on how to mitigate and manage negative impacts while enhancing positive effects on the project area.

1.5 Legislative Frame works used

- The Australia ICOMOS charter for places of cultural significance (the Burra Charter).
- The Principles for the analysis, conservation and structural restoration of architectural heritage (2003)
- The National Heritage and Resources Act of South Africa No.25 of 1999
- The Athens Charter, the Restoration of Historic Monuments (1931)
- The International Council on Monuments and Sites (1965)
- The World Heritage Convention(1972)
- The Washington Charter (1987)
- The International Charter for the Conservation and Restoration of Monuments and sites (the Venice charter 2006).
- The Organisation of World Heritage Cities (1993).

1.6 Desktop HIA Scope of works

The Proposed project scope of the activities is given in the table below;

- **Desktop study**

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

- **Reporting**

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

- **Reasoned Opinion**

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

2.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

2.1 Location

Table 1: Site 1 Description

Site : Erf 4 to Erf 13	
Size	15,70 hectares in
Coordinates	29° 7'15.19"S; 31°26'6.62"E



Figure 1: Ariel view of the proposed development site (TIS)

3.0 METHODOLOGY

3.1 Literature review

The methodology used in this D-HIA is based on a comprehensive understanding of the current or baseline situation; the type, distribution and significance of heritage resources as revealed through desk-based study and additional data acquisition, such as archaeological investigations, built heritage surveys, and recording of crafts, skills and intangible heritage. This is systematically integrated by the use of matrices with information on the nature and extent of the proposed engineering and other works to identify potential. The following tasks were also undertaken in relation to the cultural heritage and are described in this report:

The background information search of the proposed development area was conducted following the site maps from the client. Sources used in this study included:

- Published academic papers and HIA and PIA studies conducted in and around the region where the proposed infrastructure development will take place;
- Available archaeological literature on the broader study area was consulted;
- The SAHRIS website and the National Data Base were consulted to obtain background information on previous heritage surveys and assessments in the area; and other planning documents.

- Map Archives - Historical maps of the proposed area of development and its surrounds were assessed to aid information gathering of the proposed area of development and its surrounds

3.3 Data Consolidation and Report Writing

Data captured on the development area (during the field survey) by means of a desktop study and physical survey is used as a basis for this HIA. This data is also used to establish assessment for any possible current and future impacts within the development footprint. This includes the following:

- ✚ Assessment of the significance of the cultural resources in terms of their archaeological, built environment and landscape, historical, scientific, social, religious, aesthetic and tourism value;
- ✚ A description of possible impacts of the proposed development, especially during the construction phase, in accordance with the standards and conventions for the management of cultural environments;
- ✚ Proposal of suitable mitigation measures to minimize possible negative impacts on the cultural environment and resources that may result during construction;
- ✚ Review of applicable legislative requirements that is the NEMA (read together with the 2014 EIA Regulations) and the NHRA of 1999
- ✚ The consolidation of the data collected using the various sources as described above;
- ✚ Acknowledgement of impacts on heritage resources (such as unearthed graves) predicted to occur during construction; and
- ✚ Geological Information Systems mapping of known archaeological sites and maps in the region
- ✚ A discussion of the results of this study with conclusions and recommendations based on the available data and study findings.

4.0 LEGISLATIVE FRAMEWORK

This D-HIA is informed and conducted to fulfil the requirements of the National Heritage Resources Act (No 25 of 1999) 38(1) (a) of the National Heritage Resources Act (NHRA- Act No. 25 of 1999) (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—any development or other activity which will change the character of a site—(i) exceeding 5 000 m2 in extent; and 4) No person may, without a permit issued by the responsible heritage resources authority— (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite.

4.1 Scope of the Phase 1 HIA (Desktop)

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

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

4.2 Cultural Heritage Resources Management Policy Objectives

- a. To preserve representative samples of the National archaeological resources for the scientific and educational benefit of present and future generations;
- b. To ensure that development proponents consider archaeological resource values and concerns in the course of project planning; and
- c. To ensure where decisions are made to develop land, the proponents adopt one of the following actions:
 - avoid archaeological sites wherever possible;
 - implement measures which will mitigate project impacts on archaeological sites; or
 - Compensate the local communities for unavoidable losses of significant archaeological value.

5.0 CULTURAL LANDSCAPE ASSESSMENT

5.1 Introduction

In interpreting the cultural heritage significance of any particular landscape, recent heritage management research has shown that it is important to have a clear framework of criteria to assist in consistent assessment of the different host cultural landscapes that occur within the broader proposed development area falls within. These will be based on established practice from other works that have been carried out within the existing cultural landscape. It is likely to be based on a wide range of criteria (archaeological background of the area, historical background of the area, the settlement pattern in the area and degree of apparent human influence, among others) and it will define the degree of significance of the existing cultural landscape.

The question of the value of cultural landscape receptors will need careful consideration. By its very nature the work is concerned with designated cultural landscapes of national value for their cultural heritage values but the cultural landscapes within designated areas do nevertheless vary in their character and quality. It may therefore be appropriate to make a fine grained assessment of the value of the cultural landscape character areas affected in the designated area. This will draw on statements about the special qualities contributing to the cultural heritage value of individual designated areas, on established criteria such as landscape quality and condition, scenic quality, historic/ heritage value, perceptual aspects and associations, and on other information such as

the extent and setting of heritage assets including registered cultural heritage sites, burial grounds and archaeological sites.

5.3 Archaeological background

Archaeological sites recorded in the project region confirms the existence of Stone Age sites that conform to the generic SA periodization split into the Early Stone Age (ESA) (2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (22 000 years ago to 300 years ago). Stone Age sites in the region are also associated with rock painting sites. Cave sites also exist in the broader landscape.

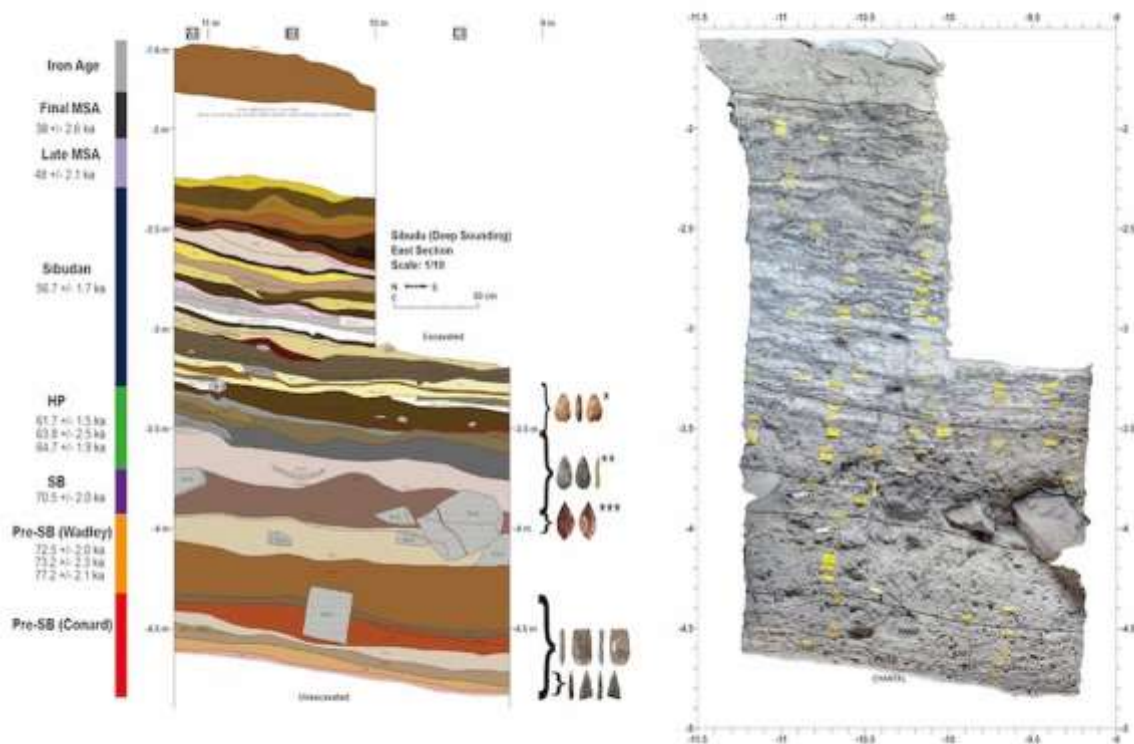


Figure 2: Archaeological layers showing different archaeological occurrences during different time periods

- Early Stone Age Early Stone Age (ESA) (2.5 million years ago to 250 000 years ago)

Middle Stone Age (MSA) (250 000 years ago to 22 000 years ago)

The Middle Stone Age (MSA), as defined by Goodwin and Van Riet Lowe (1929), was viewed as a switch in technology from core tools to flake tools, and was thought to represent an intermediate technology between the Earlier and Later Stone Age (LSA). Triangular flakes with convergent dorsal scars and faceted butts distinguished the MSA, and radial and discoidal types, along with single and double platform examples, dominated cores.

The 'type fossil' was considered to be the worked flake point. Due to both the relatively long time span encompassed by the MSA (c. 250 000-20 000BP) and the high degree of regional variation, it has proved difficult to include all MSA assemblages within Goodwin and Van Riet Lowe's criteria. More recent attempts have been made to revise the definition of the MSA (Klein 1970; Beaumont & Vogel 1972; Volman 1984) and to establish a cultural sequence but with limited success. As a result identifying and understanding the end of the MSA is still difficult. Disagreement concerning the MSA/LSA transition in southern Africa centres on four issues: 1) the definition of what constitutes final MSA technology; 2) the existence of a transitional MSA/LSA industry; 3) the dating of the MSA/LSA transition; and 4) the existence of an Early LSA (ELSA) which represents a distinct industry that is not part of the earliest recognized LSA, the Robberg (Clark, 1997).

- **Late Stone Age (LSA) (22 000 years ago to 300 years ago)**

Sites dating to the Later Stone Age (LSA) are better preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Well-protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material. By using San (Bushman) ethnographic data a better understanding of this period is possible. South African rock art is also associated with the LSA (Lombard et al 2012).

- **The Iron Age 5th Century AD**

The Iron Age of the Thaba nchu region dates back to the 5th Century AD when the Early Iron Age (EIA) proto-Bantu-speaking farming communities began arriving in this region, which was then occupied by hunter-gatherers. These EIA communities are archaeologically referred to as the Kwale branch of the Urewe EIA Tradition (Huffman, 2007: 127-9). The Iron Age communities in this area occupied the foot-hills and valley lands introducing settled life, domesticated livestock, crop production and the use of iron (also see Maggs 1984; Huffman 2007). Low-fired earthenware vessels used for cooking rarely have

burnished or polished surfaces because this decreases the ability of vessel walls to contract and expand when heated. Surface modifications also decrease the amount of thermal stress a pot can handle, which directly affects the use-life of vessels.

During the third century AD, several groups of farming peoples from eastern and south central Africa began to settle along the east coast and river valleys that drain into the Indian Ocean (Maggs 1984a, 1989; Mitchell 2002). In eastern South Africa, these early farmers display a strong preference for settling a savannah environment along major water bodies where annual precipitation from 400 to over 1000mm provided adequate moisture for grain production. Over thirty EIA identified settlements in the Thukela Basin are clustered on discontinuous patches of rich colluvial soils within a short distance of the edge of the Thukela River or its tributaries. EIA settlements were initially established in the coastal forest in the fifth century AD and later in the savannah woodland belt alongside rivers in the (seventh century AD). The opening of riverine forest and woodlands by EIA farmers is apparent from the palaeobotanical record, current vegetation distribution (Hall 1981) and settlement distribution in the Thukela Basin. All documented sites are found within 100m of the relic canopy fringe (van Schalkwyk 1992).

5.4 Ethno- Historical Context

By 1824 Moshoeshoe and his followers settled at their mountain fortress of Thaba Bosiu, due to the pressures asserted by the Korana and a general competition for resources with other tribes in the Eastern Free State. The Great trek of 1820 brought Boer settlers in to the area and was initially seen by Moshoeshoe as a buffer between them and the Korana. By 1845 a settlement treaty was signed between the settlers and Moshoeshoe, however the treaty lacked definite borders, which led to clashes. To address this situation, the colonial powers under the British demarcated a border line known as the Warden line (after Major warden). This border was unacceptable to Moshoeshoe as it removed the fertile Caledon Valley from the Basotho territory, and led to conflict between the British and Basotho. Moshoeshoe defeated the British at the battle of Viervoet in 1851. Moshoeshoe subsequently also defeated the British forces at the Berea Plateau in 1852. By 1854 the British handed over the territory to the Boers through the San River Convention, and claimed the land the north of the Caledon River and named it The Republic of the Orange Free State.

The original railway line immediately to the west of the site was built in 1890 connecting Bloemfontein to Cape Town and proved be critical to the British in occupying the city in 1900 during the Anglo Boer War. Another historical site is the Sydenham Leper Hospital that was founded in 1899, located at the foot of Slypsteenberg located on the farm under investigation (Rossouw 2007). From 1902-1910 Bloemfontein was the capital of the Orange River Colony and ever since as the provincial capital of the Free State. In 1910 it became the Judicial Capital of South Africa. Since the time that the early pioneers, or Voortrekkers, crossed the Orange River, the Free State developed steadily to the stage where it became an important contributor to South Africa's food supplies. Some of the commodities that are produced here is maize, wheat, oil-bearing seeds, dairy products and meat. The Free State has however only more recently become important for its mining potential. The goldfields in this province lie in the north western Free State, some 240 kilometres southwest of Johannesburg. These gold deposits are of the same geological age as those of the Witwatersrand and occur in the same geological system. It is believed that the reefs in which the Free State gold is found is an extension of the reefs of the Witwatersrand. (Anon 1954: 16).

5.4 The Anglo Boer War

The Anglo-Boer War, which took place between 1899 and 1902 in South Africa, was one of the most turbulent times in South Africa's history. Even before the outbreak of war in October 1899 British politicians, including Sir Alfred Milner and Mr. Chamberlain, had declared that should Britain's differences with the Z.A.R. result in violence, it would mean the end of republican independence. This decision was not immediately publicized, and as a consequence, republican leaders based their assessment of British intentions on the more moderate public utterances of British leaders. Consequently, in March 1900, they asked Lord Salisbury to agree to peace on the basis of the status quo ante bellum. Salisbury's reply was; however, a clear statement of British war aims. (Du Preez 1977).

Some skirmishes took place in the vicinity of the study area namely the battles of Belmont, Graspan, Magersfontein and Paardeberg. Bloemfontein was occupied on 13 March 1900, leaving the way open for Lord Roberts to prepare for the onslaught on Pretoria. Between 15 and 28 March 1900, nearly 40 000 British troops gathered around Bloemfontein, a situation which placed a further impact on the already overloaded infrastructure of the town. Peace talks between the Boers and the British had started around April 1902 and culminated in the Peace of Vereeniging treaty on 31 May 1902. This event signalled the end of the Anglo-Boer War, as well as the temporary end of the Boer Republics' independence. (Bergh 1999: 251).

5.6 Significance of Cultural Landscape Impacts


- ❖ This project is given a Low adverse significance to the cultural landscape. This is due to the fact that the proposed development landscape has very minimal known cultural heritage significance. Given below is a table that shows the ICOMOS assessment of significance of cultural landscapes.

Assessment of significance of the cultural landscape impacts			Landscape receptor sensitivity		
			High	Medium	Low
			Landscape with National heritage significance Status sites and cultural Landscapes with Provincial heritage Significance Status	Regional or Local Significance Heritage sites valued characteristics reasonably tolerant of changes of the type proposed.	A relatively unimportant cultural landscape with few features of value or interest, potentially tolerant of substantial change of the type proposed.
Magnitude of landscape impact	Major adverse	Significant adverse changes, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness for more than 2 years	High adverse significance	High/Medium adverse significance	Medium adverse significance
	Moderate adverse	Noticeable but not significant adverse changes for more than 2 years or significant adverse changes for more than 6 months but less than 2 years, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness.	High/Medium adverse significance	Medium adverse significance	Low adverse significance
	Slight adverse	Noticeable adverse changes for less than 2 years, significant adverse changes for less than 6 months, or barely discernible adverse changes for any length of time.	Medium adverse significance	Low adverse significance	Neutral
	Neutral	Any change would be negligible, unnoticeable or there are no predicted changes.	Neutral	Neutral	Neutral
	Slight benefit	Noticeable beneficial changes for less than 2 years, significant beneficial changes for less than 6 months, or barely discernible beneficial changes for any length of time.	Medium beneficial significance	Low beneficial significance	Neutral
	Moderate benefit	Noticeable but not significant beneficial changes for more than 2 years or significant beneficial changes for more than 6 months but less than 2 years, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness.	High/Medium beneficial significance	Medium beneficial significance	Low beneficial significance
	Major benefit	Significant beneficial changes, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness for more than 2 years	High beneficial significance	High/Medium beneficial significance	Medium beneficial significance

Figure 3: ICOMOS guideline for assessing significance of cultural landscape impacts

6.0 DISCUSSION OF THE FINDINGS

8.1 Conclusions

 This report is an independent view and makes recommendations to The Provincial Heritage Authority based on its findings. The authority will consider the recommendations and make a decision based on conservation principles.

This project is given a Low adverse significance to the cultural landscape. It is the reasoned opinion of the author of this report that it may be possible to request systematic Phase 1 cultural heritage impact assessment field survey should be carried out in accordance to SAHRA and NHRA procedures. This is based on the fact the findings of the desktop survey which revealed a possible occurrence of historical period heritage sites within the proposed development area. The proposed development site is also more than 500m² therefore requiring a full Phase 1 HIA to be carried out. It should however be noted that most of the proposed development site is extensively disturbed therefore making it almost impossible for any archaeological resources to be still in existence.

8.2 Recommendations

A full Phase 1 Cultural heritage impact assessment (including a field survey) may be necessary.

The developer should be given a go ahead on condition that a chance finds procedure is implemented (see Appendix A)

7.0 REFERENCES

1. Anderson, G. 2013. Heritage survey of the Beema Bamboo to energy project, iLembe District Municipality, KwaZulu-Natal. Unpublished report.
2. Anon. 1954. The golden Free State. 1854-1954. Hundred years of progress. Bloemfontein: D. Francis & Co. (Pty) Ltd.
3. Clark, K., 2001. Planning for the past: heritage services in local planning authorities in England. Cultural trends, 11(43-44), pp.61-94.
4. Deacon, J., 1978. Changing patterns in the Late Pleistocene/Early Holocene prehistory of southern Africa as seen from the Nelson Bay Cave stone artifact sequence. Quaternary Research, 10(1), pp.84-111.
5. Huffman, T.N. 2007. Handbook to the Iron Age. The archaeology of pre-colonial farming societies in Southern Africa. Pietermaritzburg: University of KwaZulu-Natal Press
6. Mason, R. (1986). Origins of Black People of Johannesburg and the Southern Western Central Transvaal AD350-1880. Occasional Paper No. 16 of the Archaeological Research Unit. - Mitchell, P. & Whitelaw, G. (2005). The Archaeology of Southernmost Africa from c. 2000 BP to the Ea
7. Ross, M. (1996). Planning and the heritage. Policy and procedures. Second Edition. London: E&FN Spon. –
8. SAHRA Website <http://www.sahra.org.za> –
9. Rossouw, L. (2005). Reassessment of Botanical Evidence for Paleoenvironments at Florisbad, South Africa. South African Archaeological Bulletin 60 (182): 96-102.
10. Thackeray, A.J. (1992). The MSA South of the Limpopo River. Journal of Prehistory, Vol. 6, No. 4, 1992. - UNESCO (1983). Conventions and recommendations concerning the protection of cultural heritage. Paris: UNESCO. –
11. Walton, J. (1953). An early Fokeng-Hlakoana Settlement at Metloang, Basutoland. South African Archaeological Bulletin 1953, 3 – 11. - Walton, J. (1951). Corbelled Stone Huts in Southern Africa. MAN Vol 51. April 1951.

APPENDIX A: CHANCE FINDS PROCEDURE

What is a Chance Finds Procedure?

The purpose of Archaeological Chance Find Procedure (CFP) is to address the possibility of cultural heritage resources and archaeological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological sites are documented and protected as required. A CFP is a tool for the protection of previously unidentified cultural heritage resources during construction period. The main purpose of a CFP is to raise awareness of all workers on site regarding the potential for accidental discovery of cultural heritage resources and establish a procedure for the protection of these resources.

Chance finds are defined as potential cultural heritage (or paleontological) objects, features, or sites that are identified outside of or after Heritage Impact studies, normally as a result of construction monitoring. Archaeological sites are protected by The National Heritage Resources Act of 1999. They are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public, local communities.

What are the objectives of the CFP?

The objectives of this 'Chance Find Procedure' are to promote preservation of archaeological data while minimizing disruption of construction scheduling. It is recommended that due to the archaeological potential of some areas within the project area, all on site personnel and contractors be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

Where is a CFP applicable?

Developments that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation are all examples of activities that may adversely affect archaeological deposits. Chance finds may be made by any member of the project team who may not necessarily be an archaeologist or even visitors. Appropriate application of a CFP on development projects has led to discovery of cultural heritage resources that were not identified during archaeological and heritage impact assessments. As such, it is considered to be a valuable instrument when properly implemented. For the CFP to be effective, the mine manager must ensure that all personnel on the proposed mine site understand the CFP and the importance of adhering to it if cultural heritage resources are encountered. In addition, training or induction on cultural heritage resources that might potentially be found on site should be provided. In short, the Chance Find Procedure details the necessary steps to be taken if any culturally significant artefacts are found during mining or construction.

What is the CF Procedure?

The following procedure is to be executed in the event that archaeological material is discovered:

- All construction activity in the vicinity of the accidental find/feature/site must cease immediately to avoid further damage to the site.
- Briefly note the type of archaeological materials you think you've encountered, its location, and if possible, the depth below surface of the find.
- Report your discovery to your supervisor or if they are unavailable, report to the project Environmental Control Officer (ECO) who will provide further instructions.
- If the supervisor is not available, notify the ECO immediately. The ECO will then report the find to the Manager who will promptly notify the project archaeologist and SAHRA.
- Delineate the discovered find/ feature/ site and provide a 25m buffer zone from all sides of the find.
- An archaeologist should immediately be called to attend to the site and give further recommendations

APPENDIX B: DEFINITION OF VALUES

Value	Definition
Historic Value	Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
Scientific Value	Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
Aesthetic Value	Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
Social Value	Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
Rarity	Does it possess uncommon, rare or endangered aspects of natural or cultural heritage
Representivity	Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C: RESOURCE LIKELY TO OCCUR WITHIN THESE CONTEXTS AND LIKELY SOURCES OF HERITAGE IMPACTS/ISSUES

HERITAGE CONTEXT	HERITAGE RESOURCES	SOURCES OF HERITAGE IMPACTS/ISSUES
A. PALAEOLOGICAL LANDSCAPE CONTEXT	Fossil remains. Such resources are typically found in specific geographical areas, e.g. the Karoo and are embedded in ancient rock and limestone/calcrete formations.	Road cuttings Quarry excavation
B. ARCHAEOLOGICAL LANDSCAPE CONTEXT	<p>Archaeological remains dating to the following periods:</p> <ul style="list-style-type: none"> ▪ ESA ▪ MSA ▪ LSA ▪ LSA - Herder ▪ Historical ▪ Maritime history 	<ul style="list-style-type: none"> ▪ Subsurface excavations including ground leveling, landscaping, foundation preparation. ▪ In the case of maritime resources, development including land reclamation, harbor/marina/water front developments, marine mining, engineering and salvaging.
NOTE: Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface.		
	Types of sites that could occur include: <ul style="list-style-type: none"> ▪ Shell middens 	
	<ul style="list-style-type: none"> ▪ Historical dumps ▪ Structural remains 	
C. HISTORICAL BUILT URBAN LANDSCAPE CONTEXT	<ul style="list-style-type: none"> • Historical townscapes/streetscapes. • Historical structures; i.e. older than 60 years • Formal public spaces. • Formally declared urban conservation areas. • Places associated with social identity/displacement. 	<p>A range of physical and land use changes within this context could result in the following heritage impacts/issues:</p> <ul style="list-style-type: none"> • Loss of historical fabric or layering related to demolition or alteration work. • Loss of urban morphology related to changes in patterns of subdivision and incompatibility of the scale, massing and form of new development. • Loss of social fabric related to processes of gentrification and urban renewal.