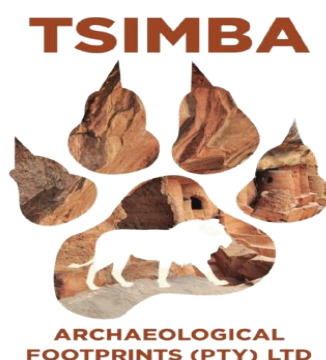




**PHASE 1  
CULTURAL HERITAGE IMPACT ASSESSMENT REPORT  
APPLICATION FOR ENVIRONMENTAL AUTHORISATION**

**THE PROPOSED UPGRADING OF OLIFANTSPOORT AND EBENEZER WATER SUPPLY SCHEMES, PHASE 1 WITHIN THE JURISDICTION OF CAPRICORN AND MOPANI DISTRICT MUNICIPALITIES, LIMPOPO PROVINCE.**



<p><b>DEVELOPED FOR:</b></p>  <p>Emvelo Quality and Environmental Consultant (PTY) Ltd</p>	<p><b>ON BEHALF OF :</b></p>  <p>Lepelle Northern Water (SOC)</p>
---	---

**JULY : 2022**

Prepared by: Roy Muroyi | ASAPA | APHP | IAIAsa | SBA.  
Tsimba Archaeological Footprints (Pty) Ltd  
24 Lawson Mansions  
74 Loveday Street, Johannesburg, CBD  
Gauteng, 2000

E-mail: info@tsimba-arch.co.za Cell: (+27) 813 717 993



**AUTHOR'S CREDENTIALS AND DECLARATION OF INDEPENDENCE****Archaeology and Heritage Specialist**

**Personal Details:** Roy Muroyi

**Years of experience:** Eight (8) Years

**Educational Background:** Masters Degree Heritage Studies – University of Witwatersrand

Masters Critical Diversity Studies – University of Witwatersrand

Hon. BA. Archaeology, Cultural Heritage and Museum Studies

**Accreditations and Memberships:** Association of Southern African Professional Archaeologists

Association of Professional Heritage Professionals

International Association Impact Assessment South Africa

KwaZulu-Natal Amafa and Research Institute

Society of Black Archaeologist

**Cultural Resources Management Projects Completed:**

: Over 100 Heritage Impact Assessments

: Close to 500 historical human burials excavated

*This report including all its related data, project results and recommendations forming part of the submission and any other subsequent reports or project documents such as the inclusion in the Environmental Impact Assessment (EIA) document for which it is intended for totally vest with the author(s) Mr. Roy Muroyi and the company he represent Tsimba Archaeological Footprints (Pty) Ltd and the client. No part of this publication may be reproduced distributed or transmitted in any form or by any means including photocopying recording, or other mechanical methods without the prior written permission of the author, except in the case of brief quotations embodied in critical reviews and certain other non-commercial uses permitted by copyright*

I,          **Roy Muroyi**                                 , declare that –

- I act as the independent specialist 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 the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- 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;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

**Signature of the Specialist**



## TECHNICAL SUMMARY

DOCUMENT INFORMATION ITEM	DESCRIPTION	
<b>Proposed development and location</b>	The proposed the proposed upgrading of Olifantspoort and Ebenezer Water Supply Schemes, Phase 1 within the Jurisdiction of Capricorn and Mopani District Municipalities, Limpopo Province.	
<b>Purpose of the study</b>	To carry out a Phase 1 Heritage Impact Assessment to determine the presence/absence of archaeological assess their archaeological significance in terms of the NHRA of 1999,	
<b>Geographical Regions</b>	Capricorn, Mopani, and Sekhukhune Region	
<b>Applicant</b>	Lepelle Northern Water (SOC)	
<b>Client Details</b>	Emvelo Quality and Environmental Consultant (Pty) Ltd Email: <a href="mailto:admin@emveloconsultants.co.za">admin@emveloconsultants.co.za</a>	
<b>Heritage Consultant</b>	Tsimba Archaeological Footprints (Pty) Ltd 24 Lawson Mansions 74 Loveday Street, Johannesburg, 200 Phone : (+27) 813 717 993 E-mail: <a href="mailto:info@tsimba-arch.co.za">info@tsimba-arch.co.za</a>	
<b>Development criteria in terms of Section 38(1) of the NHR Act</b>	<b>Yes</b>	<b>No</b>
Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	✓	
Construction of bridge or similar structure exceeding 50m in length		
Development exceeding 5000 sq m		

Development involving three or more existing erven or subdivisions		
Development involving three or more erven or divisions that have been consolidated within past five years		
Rezoning of site exceeding 10 000 sq m		
Any other development category, public open space, squares, parks, recreation grounds		

## EXECUTIVE SUMMARY

Tsimba Archaeological Footprints (Pty) Ltd was appointed by Emvelo Quality and Environmental Consultant (Pty) Ltd on behalf of Lepelle Northern Water (SOC) to conduct a Phase 1 heritage impact assessment (HIA) for the proposed Upgrading of Princess informal Settlement. The Greater Polokwane is home to various museums, art galleries and other formal cultural institutions. These cultural attractions include the Polokwane Art Museum; Bakone Malapa Open Air Museum; The Industrial Art Park; Hugh Exton Photographic Museum and Eloff Gallery; The Irish House; Arend Dieperink Museum; Makapans Valley; Barnyard Theatre; Touch of Genius Art Gallery; and Gemco Arts, Crafts and Curios. It also includes the Makapans Valley, a significant cultural tourism attraction situated on the outskirts of Polokwane.

South of the proposed development site is the Tšate Provincial Heritage Site which is located within the Tubatse Local Municipality of the Greater Sekhukhune District in the Limpopo Province. The Tšate Provincial Heritage Site is one of the most important heritage sites in the northern part of South Africa. Küsel (2008) remarked that this provincial heritage site forms an integral part of the rise and fall of the Pedi Empire, one of the largest empires of black people before colonisation. The Tšate Provincial Heritage Site portrays the struggle and resistance of the Pedi people against colonisation.

Several Cultural Resources Management studies have been carried out in the vicinity of the proposed development. With a number of archaeological sites recorded in the greater study area. Mlilo (2018), Tomose (2018), Muroyi, (2021), Steyn (2017), Van Schalkwyk (2013), Murombika, (2006) and Pelsler (2013) are among the most recent HIA reports. Some of these authors are familiar with the area and have published on the region's Iron Age archaeology and the spatial organization of Iron Age sites in terms of settlements and burials. The discovery of the Makapansgat Cave Deposits put this area on the forefront of paleontology worldwide.

Emvelo Quality and Environmental Consultant (Pty) Ltd was appointed as the Environmental Assessment Practitioner (EAP) for the proposed development (hereafter referred to as "the EAP") have been appointed by Lepelle Northern Water (SOC) to undertake the Environmental Impact Assessment process for the proposed development. In-turn Emvelo Quality and Environmental Consultant (Pty) Ltd requested Tsimba Archaeological Footprints (Pty) Ltd to conduct a Phase 1 Heritage Impact Assessment (HIA) for the proposed development. This HIA study was commissioned through the provisions of the National Heritage Resources Act of 1999 and supporting regulations such as the South African Heritage

Resources Agency Minimum Standards for Specialist Heritage Studies (Archaeology, Palaeontology, Built Environment and Living Heritage). The Tourism Act of 1993 which makes provisions for the development and promotion of sustainable tourism for the social, economic and environmental benefit of South African citizens was also robed in for the protection of cultural heritage sites identified around the general study area.

In order to produce an up best practice product, the assessment was also informed by the international standards such as the ICOMOS Guidelines on Impact Assessment near World Heritage places, and ICOMOS Australia's Burra Charter. Combined, these standards of best practice motivate for robust impact assessment processes and a cautious approach to the management of sites. They set out firmly that the cultural significance of heritage places must guide all decisions, developmental and otherwise.

Two grave sites were identified within the general study area as well an Iron Age site recorded within the Witkos Solar Park. The impact assessment study also includes detailed recommendations on how to mitigate and manage negative impacts while enhancing positive effects on the entire project area.

**TABLE OF CONTENTS**

---

AUTHOR'S CREDENTIALS AND DECLARATION OF INDEPENDENCE .....	2
TECHNICAL SUMMARY .....	4
EXECUTIVE SUMMARY .....	6
TABLE OF CONTENTS .....	8
FIGURES AND TABLES .....	9
ABBREVIATIONS .....	11
GLOSSARY .....	12
1.0 INTRODUCTION .....	13
2.0 THE HERITAGE IMPACT ASSESSMENT PROCES .....	19
3.0 PROJECT RISK ASSESSMENT .....	21
4.0 METHODOLOGY .....	24
5.0 LEGISLATIVE FRAMEWORK.....	26
6.0 CULTURAL HERITAGE LANDSCAPE ASSESSMENT .....	28
7.0 DISCUSSION OF THE FINDINGS .....	41
8.0 CONCLUSIONS AND RECOMMENDATIONS.....	58
9.0 REFERENCES .....	59
APPENDIX A: ARCHAEOLOGICAL and Paleontological CHANGE FINDS PROCEDURE ...	60
APPENDIX B: TERMINOLOGY USED IN THE TEXT .....	62
APPENDIX C: DEFINITION OF VALUES .....	64
APPENDIX D: RESOURCE LIKELY TO OCCUR WITHIN THESE CONTEXTS AND LIKELY SOURCES OF HERITAGE IMPACTS/ISSUES .....	65



## FIGURES AND TABLES

Figure 1: Olifantspoort Off-Channel Storage Dam and Olifantspoort Weir .....	15
Figure 2: Map Showing Locality of Olifantspoort Supply Scheme Pumping Mains .....	15
Figure 3: Map Showing Locality of Ebenezer Supply Scheme Pumping Main .....	16
Figure 4: Geographic locational context (Olifantspoort & Ebenezer Project Coverage) .....	16
Figure 5: Iron artefacts including an awl (1), spear/arrow tips and shafts (2-4) and a needle (5) ...	31
Figure 6: Iron beads (1, 2) and bangles (3, 4) .....	31
Figure 7: Early Middle Stone Age archaeological artefacts .....	31
Figure 8: Stone and bone technology in the Middle Stone Age .....	31
Figure 9: An example of born tools used for hunting .....	31
Figure 10: Abraded potsherds .....	31
Figure 11: Some of the known Iron Age Sites in South Africa (Limpopo sites in circled in Red) .....	34
Figure 12: View of an iron age abandoned structure .....	43
Figure 13: View of another Iron Age Structure within the same settlement/site .....	43
Figure 14: Ashes scattered just outside the settlement . This was done for purposes of chasing away witches .....	43
Figure 15: A rectangular structure recorded on the settlement .....	44
Figure 16: Another rectangular structure .....	44
Figure 17: View of a possible grave recorded another settlement .....	44
Figure 19: View of an access road to the New Polokwane cemetery .....	46
Figure 20: View of the New Polokwane cemetery .....	46
Figure 21: Eastern view of the cemetery .....	46
Figure 23: View of the Bakone Malapa Open Air museum from the high way .....	48
Figure 24: View of the cultural village at Bakone .....	48
Figure 25: View of one of the huts at the museum .....	48
Figure 27: View of Haenertsburg cemetery graves with long crosses .....	50
Figure 28: View of some of the graves marked by stones .....	50
Figure 29: View of the graves with short head stones /tombstones .....	50
Figure 31: View of the Krugersburg Reservoir area from a distance showing the power lines traversing across the project area .....	51
Figure 32: View of the Krugersburg Reservoir .....	51
Figure 33: View of the Witkos Reservoir .....	51
Figure 34: View of the main roads junction in Krugersburg. Note the proposed pipeline will pass through this area .....	51
Figure 35: View of a Tourism facility in the Krugersburg area .....	51
Figure 36: View of a hill along the Palmietfontein area .....	51
Figure 37: Route between Witkos and Palmietfontein .....	52
Figure 38: View of the R 37 Route .....	52
Figure 39: View of the R37 route to where the pipeline will pass through .....	52
Figure 40: Another view of the R 37 Route .....	52
Figure 41: View of the Palmietfontein reservoir .....	52
Figure 42: Surveyed portion of the R 37 Route from the Palmietfontein reservoir .....	52
Figure 43: View of an access road in the Lebowakgomo area .....	53
Figure 44: View of another access road in the same area .....	53
Figure 45: A closer view of the Olifants River .....	53

Figure 46: View an access road and some of the houses where the pipeline will pass through in Lebowakgomo .....	53
Figure 47: An electricity substation in Lebowakgomo where the pipeline will pass through .....	53
Figure 48: View of a dust road accessed for possible archaeological artefacts, the dust road is marred by a stones or different sizes and shapes.....	53
Figure 49: View of a primary school in Lebowakgomo .....	54
Figure 50: View of the Rock quarry in Oliganstpoort just outside the development footprint.....	54
Figure 51: A view of the Olifants water treatment.....	54
Figure 52: View of the Olifants off channel dam.....	55
Figure 53: A view of the Olifants Abstraction.....	55
Figure 54: Outside view of the Olifants Abstraction.....	55
Table 1: Rating of Land-use Changes.....	22
Table 2:Cultural Heritage Tourism Sites Observed in the Broader Study area .....	38
Table 3: Cultural Landscape Assessment of Significance.....	39
Table 4: ICOMOS guideline for assessing significance of cultural landscape impacts.....	40
Table 5: Results of the Cultural Landscape Significance Assessment.....	40
Table 6:View of the Site 1 .....	44
Table 7:View of site 2.....	46
Table 8:View of Site 3. ....	48
Table 9:View of site 4.....	50
Table 10:Site Assessment of values .....	56

## 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	☞ Something accomplished, esp. by valour, boldness, or superior ability
Aesthetic	☞ Relating to the sense of the beautiful or the science of aesthetics.
Community	☞ All the people of a specific locality or country
Culture	☞ The sum total of ways of living built up by a group of human beings, which is transmitted from one generation to another.
Cultural	☞ Of or relating to culture or cultivation.
Diversity	☞ The state or fact of being diverse; difference; unlikeness.
Geological (geology)	☞ 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	☞ Intensified; exceeding the common degree or measure; strong; intense, energetic
Importance	☞ The quality or fact of being important.
influence	☞ Power of producing effects by invisible or insensible means.
Potential	☞ Possible as opposed to actual.
Integrity	☞ The state of being whole, entire, or undiminished.
Religious	☞ Of, relating to, or concerned with religion.
Significant	☞ important; of consequence
Social	☞ Living, or disposed to live, in companionship with others or in a community, rather than in isolation.
Spiritual	☞ Of, relating to, or consisting of spirit or incorporeal being.
Valued	☞ Highly regarded or esteemed

## 1.0 INTRODUCTION

### 1.1 Project Background

Lepelle Northern Water (SOC) intend to undertake the upgrades and refurbishment between Olifantspoort and Ebenezer Schemes' water conveyance and storage infrastructure. The scheme supplies potable water to the Polokwane Municipal area, and surrounding communities. Consequently, the Environmental Impact Assessment (Scoping and EIR) process has commenced, as a result of the proposed upgrades. As a results, Emvelo Quality and Environmental Consultant has been appointed to undertake a Scoping and EIR Process.

Emvelo Quality and Environmental Consultant (Pty) Ltd has been appointed as the Environmental Assessment Practitioner (EAP) for the proposed development (hereafter referred to as "the EAP") have been appointed by Lepelle Northern Water (SOC) to undertake the Environmental Impact Assessment process for the proposed development. South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. According to Section 27(18) of the National Heritage Resources Act (NHRA), Act 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where the development is planned. This HIA report forms part of the Environmental Impact Assessment (EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and is intended for submission to the South African Heritage Resources Agency (SAHRA).

### 1.2 Project Location and Site Context

The study area covers the region where the upgrades for water conveyance and storage infrastructure will take place, namely: Haenertsburg within Greater Tzaneen Local Municipality; Sekhukhune and Lebowakgomo within Lepelle-Nkumpi Local Municipality; Polokwane, Krugersburg and Mankweng within Polokwane Local Municipality, in Limpopo Province. Given below are geographical map provided by Emvelo providing the project location in relation to geographical context and project coverage. The project footprint covers the Polokwane Local Municipality, Lepelle-Nkumpi Local Municipality, and Greater Tzaneen Local Municipality, within Limpopo Province.

The upgrades and refurbishment of Olifantspoort and Ebenezer Schemes' water conveyance and storage infrastructure will take place along Haenertsburg within Greater Tzaneen Municipality; Sekhukhune, Lebowakgomo and Mankweng within Lepelle-Nkumpi Municipality; Polokwane and surrounding communities along the water conveyance corridor within Polokwane Local Municipality, and will take place and be traversing the following localities: Dal Josaphat Farm, Mphahlele, Lebowakgomo Q, Lebowakgomo S, Syferkuil farm, Driefontein Farm, Bezuidenhout Lust farm, Patent farm, Majebas Kraal, Rustfontein Farm, Bochum Farm, Driekuil farm, Eindelik Farm, Hove Farm, Troutwaters AH, Haenertsburg Town and Townlands, Mankweng, Polokwane Game Reserve, and Krugersburg. The locality maps in respect to the proposed upgrades of Olifantspoort and Ebenezer WSS water conveyance and storage infrastructure are presented below.

#### **Locality of Olifantspoort WSS**

The Olifantspoort Off-Channel Storage and Olifants weir are situated within Koppieskraal, Portion 0. Farm No. 475, and Dal Josaphat Farm No. 461. Approximately 86km of upgrades for Olifantspoort WSS' water conveyance and storage infrastructure from Olifants River (abstraction) to Krugersburg reservoirs (figure 3), traverse the following localities: Koppieskraal, Voorspoed, Locatie Van M'Phatlele, Lebowakgomo-S, Lebowakgomo-Q, Uitloop, Schoonheid, Tsjuenispoort Oost, Staanplaats, Langkrans, Morgenzon, Block A, Tsjuenispoort West, Polokwane Metallurgical Complex, Beestekraal, Rietkolk, Palmietfontein, Du Preez Rust, Beestekraal, Weltevreden, Wildebeestkuil, Polokwane Town, Polokwane Game Reserve, Sterkloop, and Krugersburg.

#### **Locality of Ebenezer WSS**

Approximately 13.5km of upgrades for Ebenezer WSS' water conveyance from Ebenezer high lift pumpstation to Rustfontein reservoir complex, and extension from chamber GB73 to the Mankweng reservoir off-take (figure 4), traverse the following localities: Misty Crown, Driekuil, Hove, Bali-Will-Will, Rustfontein, Bochum, Eindelik, Rooiwal, Weighton, Stylbult, Haenertsburg Town and Townlands, Westwood, Allandale, Danallan, Nooitgedacht, Troutwaters AH, Driefontein, Syferkuil, and Bezuidenhout Lust.



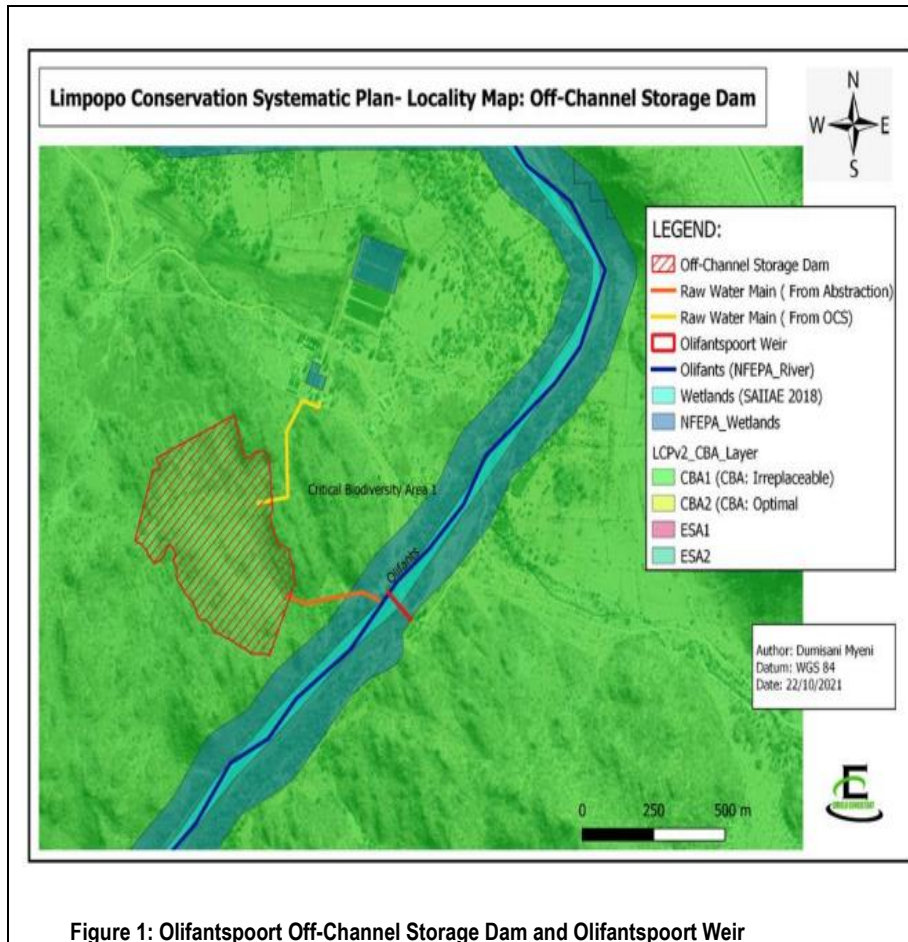


Figure 1: Olifantspoort Off-Channel Storage Dam and Olifantspoort Weir

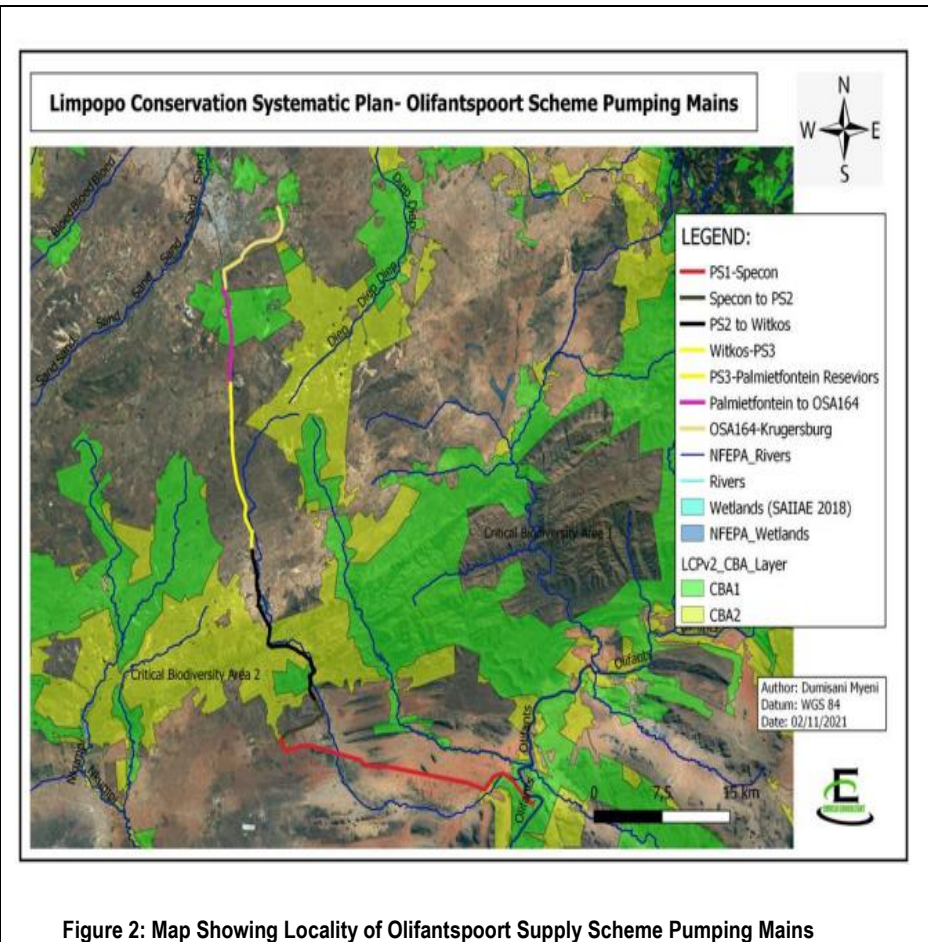


Figure 2: Map Showing Locality of Olifantspoort Supply Scheme Pumping Mains

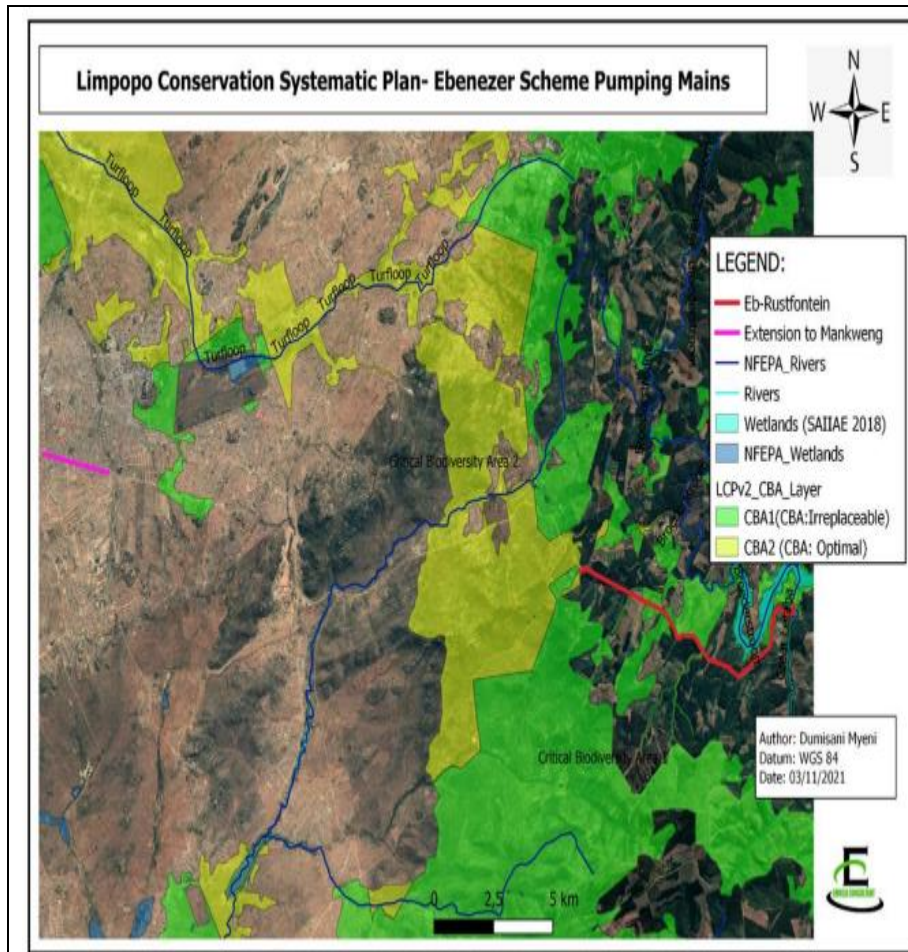


Figure 3: Map Showing Locality of Ebenezer Supply Scheme Pumping Main

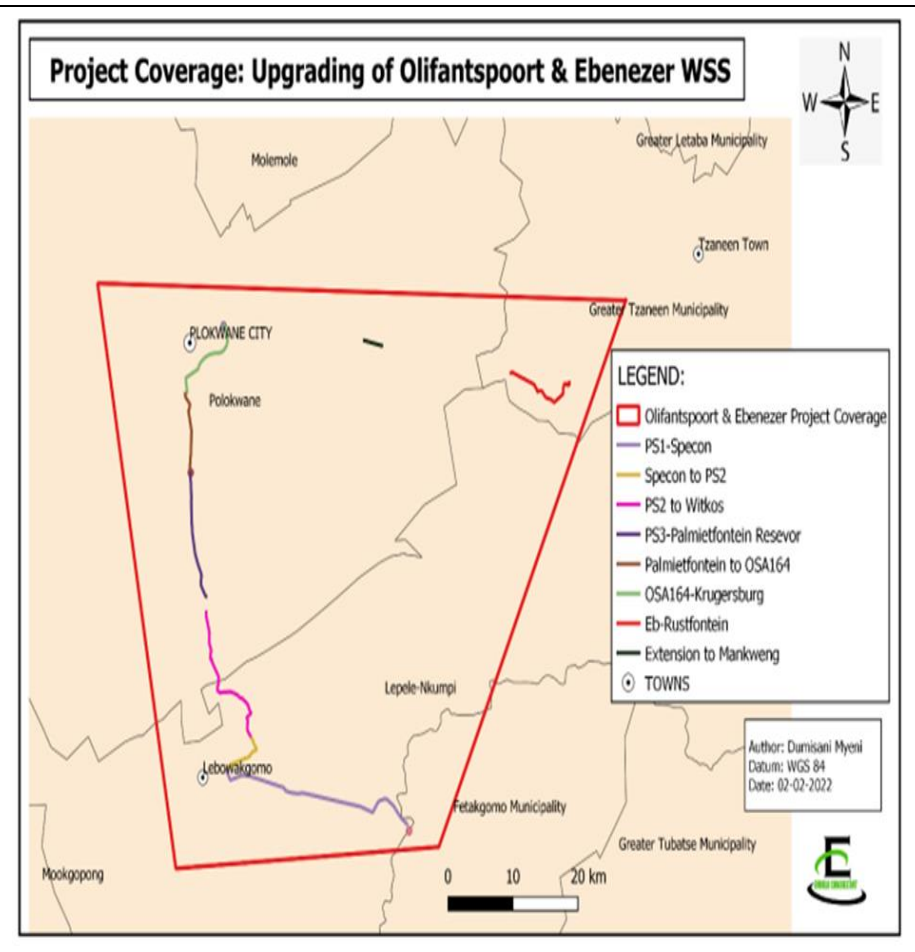


Figure 4: Geographic locational context (Olifantspoort & Ebenezer Project Coverage)



### **1.3 Proposed project scope of works (supplied by Client)**

#### **🏗️ Olifantspoort Water Supply Scheme:**

The proposed upgrading of Olifantspoort Water Supply Scheme, Phase 1 from Olifantspoort WTW to Krugersburg Reservoirs, and Upgrading of Ebenezer Water Supply Scheme, Phase 1 from Ebenezer Pumpstation to Rustfontein, and Mankweng reservoir off-take, will include the following components of the water conveyance and storage infrastructure:

Olifantspoort Water Supply Scheme: The proposed upgrades Olifantspoort WSS water conveyance from Olifantspoort abstraction work to Krugersburg reservoirs is approximately 86km. The components of water conveyance and storage infrastructure are outlined below:

- ➔ The upgrading of Olifantspoort weir and raw water abstraction works;
- ➔ Construction of 200 000m<sup>2</sup> Olifantspoort off-channel storage dam with 5m embankment height;
- ➔ Construction of 1600mm $\varnothing$  raw water mains (350m from Olifantspoort abstraction to offstream storage dam, and 450m from off-stream storage dam to Olifantspoort WTW);
- ➔ Refurbishment of the Olifantspoort WTW; Upgrading of the existing Olifantspoort WTW by constructing new 60 M $\ell$ /d module;
- ➔ Refurbishment of Pump Station (PS): PS1, PS2 and PS3; Upgrading of Specon Storage Reservoirs;
- ➔ Constructing a new pumpstations at PS1 (Olifantspoort WTW) and PS2 and PS3;
- ➔ Duplicate/dualisation of approximately 28.3km (800mm $\varnothing$ ) existing main by adding another (1500mm $\varnothing$ ) rising main from Olifantspoort WTW (PS1) to Specon;
- ➔ Duplicate/dualisation of approximately 23.6km (790mm $\varnothing$ ) existing main by adding another (1500mm $\varnothing$ ) main from Specon to PS2, and from PS2 Witkos Reservoir;
- ➔ Duplicate/dualisation of approximately 14.6km (740mm $\varnothing$ ) existing main by adding another(1200mm $\varnothing$ ) main from Witkos Reservoir to PS3 and Palmietfontein Reservoir;
- ➔ Construction of new reservoirs at Witkos (30M $\ell$ ) and Palmietfontein (50M $\ell$ );
- ➔ Construction of approximately 8.5km (1200mm $\varnothing$ ) pumping main with pumping rate of (1900  $\ell$ /s) from Palmietfontein Reservoirs to OSA164;
- ➔ Construction of approximately 11km (1200mm $\varnothing$ ) pumping main with pumping rate of (1900  $\ell$ /s) from OSA 164 to Krugersburg reservoirs.

#### **🏗️ Ebenezer Water Supply Scheme:**

The proposed upgrades Olifantspoort WSS water conveyance for Ebenezer WSS is approximately 13.5km. The components of water conveyance comprise the following:

- ➔ The refurbishment of the Ebenezer WTW;
- ➔ Refurbishment and modifications to Ebenezer high-lift pump station;

- ➔ Construction of approximately 11km (900mm $\varnothing$ ) new pumping main with a pumping rate of (1250 $\ell$ /s), corresponding to 89 M $\ell$  /day from Ebenezer high-lift pump station to Rustfontein reservoirs complex;
- ➔ Extension of approximately 2.5km (600mm $\varnothing$ ) pumping main (Pipeline B) from Chamber GB73 to the Mankweng reservoir off-take.
- ➔ Both of the proposed pipeline upgrades and refurbishment between Olifantspoort and Ebenezer Schemes' water conveyance and storage infrastructure merge to supply the Polokwane Municipal Area. The total length of pipeline upgrade for these two schemes is approximately 99.5km.

## 2.0 THE HERITAGE IMPACT ASSESSMENT PROCES

### 2.1 The Terms of Reference for this HIA study are:

Heritage impact assessments (hereinafter referred to as 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 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 site context archaeological findings may affect the interpretation of cultural sites 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;
- ➔ Focus on best practice of interpretation and preservation of archaeological findings.

**2.2 The aim:** - There are two interlinked aims for this HIA. The first is to identify and document cultural heritage sites, cultural resources, sites associated with oral histories (intangible heritage), graves, cultural landscapes, and any structures of historical significance (tangible heritage) that may be affected within the development footprint. The second aim of this HIA is to assess the archaeological significance of the findings and make recommendations based on the best archaeological practice of interpretation and preservation of archaeological findings

**2.3 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.

### 2.4 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).

### ***2.5 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.

#### ➔ **Field Survey**

A surface physical of the proposed development footprint where the proposed development will take place. The aim of the survey will be to identify any cultural heritage resources that may be available within the boundaries of the study site.

#### ➔ **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).

## 3.0 PROJECT RISK ASSESSMENT

### 3.1 Possible Construction Phase:

**Cultural Heritage Tourism:** - The pipeline routes and the servitude cuts across cultural tourism sites for example the Bakone Malapa Open Air Museum and other natural reserves where the scenic beauty plays tremendous role in attracting leisure tourists. The mere fact that these areas are undisturbed to a large extent, introducing pipeline would be viewed as a change in land use or a change in natural character. This would therefore spoil the scenic value of these areas and potentially affect tourism activities.

Cultural Heritage Resources: The project will most likely impact on cultural heritage resources during earthmoving activities. The project may impact on tangible heritage resources. Since the construction phase of the project will involve extensive excavations, this impact could also occur on subterranean deposits. Often heritage sites are buried beneath years of alluvial deposits and there is no practical way of determining their location. This only becoming known once the covering matrix is excavated. The Chance Finds Protocol in this report will mitigate and manage such finds. The construction of any associated infrastructure for can also impact on heritage sites. Here we include secondary activities such as construction camps, access roads and temporary services, among others.

### 3.2 Operational Phase:

Assuming that the development will be given the green light to proceed by the relevant authorities, the corporate demand for tourism facilities is likely to increase in the area as a result of the proposed development. Various professional persons such as technical surveyors, engineers, environmental specialists, access negotiators, rehabilitation teams as well as the management/ maintenance teams are likely to spend nights at various accommodation facilities in the study area. This is expected during the pre-construction, construction, operation and decommissioning phases of the project.

Furthermore, the above teams are expected to visit various Cultural Heritage Museums in Polokwane such as Polokwane Art Museum; Bakone Malapa Open Air Museum; The Industrial Art Park; Hugh Exton Photographic Museum and Eloff Gallery; The Irish House; Arend Dieperink Museum; Makapans Valley; Barnyard Theatre; Touch of Genius Art Gallery; and Gemco Arts, Crafts and Curios in the area. In general, the impact of the proposed pipeline on corporate demand for tourism facilities is anticipated to be huge as the pipeline will ensure many other development projects in future that will increase the need for cultural tourism. It is however very debatable whether this positive impact on cultural tourism demand in the area would offset possible losses to the existing cultural tourism or possible development opportunities in this regard.

**Cultural Heritage Resources:** - Although the majority of anticipated impacts are expected during the construction phase of the project there could be possible impacts on heritage resources during the operational phase as well. Potential impacts relate to the project activities. Unforeseen erosion due to focussed run-off because of the altered environment is also a possible impact. These impacts should be managed through the long-term environmental management.

Table 1: Rating of Land-use Changes

<b>IMPACT LAND USE CHANGES</b>	
<b>OBJECTIVE: The overall goal is to identify and mitigate Impacts within the proposed development area.</b>	
<b>Project component/s</b>	<b>Construction Phase</b>
<b>Potential Impact</b>	Alteration of the natural character and possible changes of use to some parts of the land where the pipeline will traverse.
<b>Project component/s</b>	<b>The Operational Phase</b>
<b>Potential Impact</b>	Permanent changes to land use.
<b>Activity/risk source</b>	Exclusion of the mitigation measures aimed at mitigating impacts to cultural heritage and cultural tourism sites.
<b>Extent</b>	The impact will only be expected along the pipeline routes and associated infrastructure route.
<b>Duration</b>	The impact and its effects will be permanent.
<b>Magnitude</b>	The impact will alter the land-use, however it can still be used/ function in a moderately modified way and maintains general integrity
<b>Probability</b>	There is a high chance of the Impact occurrence given the fact that the pipelines will traverse via a number of areas that are currently in use for other purposes.

<b>Reversibility</b>	The impact cannot be reversed but can be mitigated by avoiding placing the pipeline route directly on the portions of land that are being used for other special purposes.
<b>Irreplaceable loss of resources</b>	The impact of land use changes on cultural tourism sites will result in marginal - minimal loss of resources considering the fact that the towers will not take much space.
<b>Cumulative effect</b>	The impact would result cumulative effects should additionally water transmission infrastructure be introduced.

## 4.0 METHODOLOGY

### 4.1 Literature review

The methodology used in this 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

### 4.2 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.

## 5.0 LEGISLATIVE FRAMEWORK

South Africa possesses some of the world's most comprehensive and progressive legislation for the protection and conservation of environmental, archaeological and palaeontological resources such as the National Environmental Management Act (Act no. 107 of 1998), the Environmental Conservation Act (Act no.73 of 1989), the National Heritage Resources Act (Act no. 25 of 1999) and the Mineral and Petroleum Resources Development Act (Act no. 28 of 2002). In terms of the World Heritage Convention Act (Act no.49 of 1999), the unnatural disturbance, pollution and degradation of the environment must be avoided, or where they cannot be avoided, mitigated. For this study the National Heritage Resources Act (Act no. 25 of 1999) comes into effect for the protection of cultural heritage resources.

The appointment of Tsimba Archaeological Footprints (Pty) Ltd is in terms of the National Heritage Resources Act (NHRA), No. 25 of 1999 read together with the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The HIA is completed in accordance to requirements of Section 38 (1) (c) of the NHRA, No. 25 of 1999. This is due to the nature of the proposed development, linear development which involves:

---

*Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length*

---

The development may also impact on Cultural Heritage Resources such as graves, structures, archaeological and paleontological resources that are protected in terms of sections 34, 35, and 36 of the NHRA.

### **5.1 Scope of the Phase 1 HIA**

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;
- ➔ Identify any heritage resources within the proposed development site;
- ➔ 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.

### ***5.2 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.

## **6.0 CULTURAL HERITAGE LANDSCAPE ASSESSMENT**

### **6.1 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.

### **6.2 Cultural Landscape Methodology**

The methodology employed in carrying out the cultural landscape assessment of the proposals for the proposed development has been drawn from best practice guidelines and the Landscape Institute and the Institute of Environmental Management & Assessments "Guidelines for Landscape and Visual Impact Assessment" Second Edition (Spon Press 2002). The aim of these guidelines is to set high standards for the scope and contents of landscape and visual assessments and to establish certain principles that will help to achieve consistency, credibility and effectiveness in cultural landscape impact assessment. Guidance is contained in this publication on some approaches and techniques, which have been found to be effective and useful in practice by landscape professionals. However, the guidelines are not intended as a prescriptive set of rules, and have been adapted to the specific project.

Stage 1: Through a desktop and archival research process the heritage specialist is required to identify those landscape character types/areas of National, Provincial and Regional heritage significance which may be affected by the proposed development. The specialist should also locate information relevant to assessing landscape value for example written historical statements of special qualities.

Stage 2: Initial identification of potential effects the proposed development will bring to the broader regional area and design options to mitigate potential effects;

Stage 3: Design the development taking account of identified potential mitigation measures to avoid negative effects.

Stage 4: Assessment of effects the proposed developments have on the broader cultural landscape and considers its residual effects;

Stage 5: Fitting the cultural landscape assessment into the whole HIA.

### ***6.3 Archaeological background of the study area***

#### **➔ Stone Age Period**

Several Cultural Resources Management studies have been carried out in the vicinity of the proposed development. Mlilo 2018, Tomose 2018, Muroyi, 2021, Steyn 2017, Van Schalkwyk 2013, Murombika , 2006 and Pelsler 2013 are among the most recent HIA reports. Some of these authors are familiar with the area and have published on the region's Iron Age archaeology and the spatial organization of Iron Age sites in terms of settlements and burials.

Because of the numerous Iron Age civilizations and practices present in this area, the province of Limpopo is one of the most widely investigated regions in terms of Iron Age archaeology. The EIA (Early Iron Age), MIA (Middle Iron Age), and LIA [Late Iron Age] of Limpopo Province can be classified into three chronological divisions (e.g. Huffman, 2007). Many Iron Age sites are found near flood plains and along and near major rivers; however, some have been discovered on defensive slopes along Limpopo hill slopes and/or hilly locations (e.g. Huffman 2007).

The Limpopo Confluence and the East Coast of Africa had a lot of trade throughout the Middle Iron Age (AD 900–1300). Other researchers argue that the time should be limited to the Shashe-Limpopo Confluence, however this has been contested. Bantu-speaking peoples such as the Sotho-Tswana lived

in the area before Europeans arrived. Farming was important in the region throughout the Late Iron Age (Murimbika 2006).

During the Late Iron Age, farming was of significance in the region. These farming communities built numerous stone walled settlements throughout the Free State from the 17th century onwards around the Capricorn District. These sites are associated with the predecessors of the Sotho-Tswana, and are linked with the so-called N-, V-, R- and Z-Type of settlements which are respectively associated with Fokeng, Kwena, Kgatla and Rolong clans. LSA in this district is represented by the presence of rock art paintings and engravings are found in abundance in the Mohlapiitse River valley in the Wolkberg, Steelpoort valley and Olifants River (Changuion, 2012). Studies in the Kruger National Park to the east have documented numerous Middle and Late Stone Age sites and it can be expected that all phases of the Stone Age are represented in the area (Pistorius, 2014).

Historical records combined with 'Type Z' walling and archaeological evidence from areas around the Capricorn District to show that Bantu-speaking farmers occupied the area from around AD 1650 to AD 1700. The typical archaeology that is associated with these Iron Age farmers are the well-known stone-walled settlements (or 'Kraals') and their thick-walled, decorated ceramics. However there is not much evidence of farmers or herders in the Capricorn District, with the evidence showing that most of this land was left unoccupied possibly because of its characteristically arid conditions.

Many of the Limpopo Province Iron Age sites are located near flood plains, along and near some of the major rivers, hill slopes and/or mountain areas (Huffman, 2007). The Iron Age of Limpopo Province region dates back to the 5th century AD when the Early Iron Age proto-Bantu-speaking farming communities began arriving in the area, which was then occupied by Stone Age people. The region is well known for the famous golden rhino that was recovered from Iron Age settlement site of Mapungubwe in the Limpopo Shashi Valley, now a UNESCO World Heritage Site. The first people in Mapungubwe were early Iron Age settlers. They lived there from about 1000 AD to 1300 AD, and around 1500 Iron Age subsistence farmers also settled there. Their existence is confirmed by the discovery by archaeologists of a few potsherds identified as Early Iron Age pottery. This means that they manufactured their own pottery and metal tools.



Figure 5: Iron artefacts including an awl (1), spear/arrow tips and shafts (2-4) and a needle (5).



Figure 6: Iron beads (1, 2) and bangles (3, 4)



Figure 7: Early Middle Stone Age archaeological artefacts

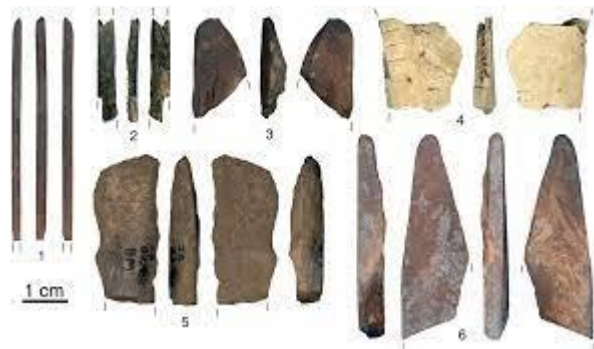


Figure 8: Stone and bone technology in the Middle Stone Age

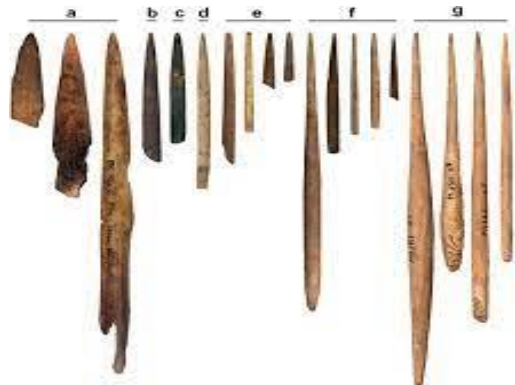


Figure 9: An example of born tools used for hunting



Figure 10: Abraded potsherds

## → *Iron Age Period*

Researchers have combined oral histories, archaeological evidence and ethnography to study the history of the Ndebele in the old Pietersburg area which is now called Polokwane (Loubser, 1994). This Ndebele community is also known the Northern Transvaal Ndebele, following the colonial terminology used in ethnology (Loubser, 1994). Following oral history accounts, it is argued that the Pietersburg area was occupied by at least six groups in the period extending from AD1600 to AD1900. Following this, archaeological prospection of the Pietersburg area has revealed three distinctive typologies of Stone Walled Structures (Loubser, 1994). It follows that these distinctive stone walled structures also had three distinctive ceramic typologies suggesting three distinctive groups to have occupied these sites (Loubser, 1994). Following the classificatory scheme highlighted above, Loubser (1994) associated Group 1 type sites with the Eiland communities because the sites contained Eiland pottery. It is highlighted that these sites are geographically located on hilltops, and in the true tradition of colonial interpretation, this suggests that these sites were built in response to political upheaval (e.g. Boeyens, 2003). Although no scientific dating was conducted on these sites, they have been tentatively dated to around AD 1000 (Loubser, 1994).

It is argued that the Group II type sites mentioned above were authored by the Ndebele speaking communities, while some of them were built by the Koni communities. One of the sites falling under this group was radio-carbon dated to the 17th century (AD1600s). These settlements are located at the base of hills or on the slopes of valleys, and they all curiously face north. Lastly, researchers associate Group III sites with the Ndebele, Koni and Shangaan communities. Two of the sites falling under this group were radio-carbon dated between AD1850 – 1900 (Loubser, 1994) suggesting contact with Europeans at some point. These settlements share some characteristics with Group II sites in terms of location and physical attributes. However, these settlements contained scalloped walling common among the Sotho Tswana (Pistorius, 1992; Fredriksen, 2007; Jordan, 2016). Additionally, two of the sites in the class are located on hilltops which could suggest royalty (see Boeyens, 2003; Mangoro, 2018). Loubser (1994) highlights that Group II and Group III sites contain similar pottery assemblages belonging to two distinctive styles namely; Sotho Tswana (Moloko) and Venda and North Eastern Sotho archaeologically known as Letaba (Loubser, 1994). Through analysis, the settlements in the three groups follows a chronological sequence of old to recent in the above order revealing successive occupation of the region for about a millennium.

Oral histories of the so-called Northern Ndebele suggest multiple origins of these communities, and the archaeological record of the old Pietersburg area appears to corroborate this. Loubser (1994) argues that the above ceramic styles reflect the distinctive origins of the Ndebele in the oral histories. Oral histories are replete with weaknesses which may render them unreliable. However, when they are corroborated with archaeological evidence such as in this scenario, they can be a formidable source of historical evidence.

There is a curious absence of Nguni pottery in this region, yet it is widely believed that the Ndebele are connected



to other Nguni speakers in the KwaZulu Natal area and its surrounding areas. Researchers argue that Nguni speaking people moved out of the Hlubi region of the modern KwaZulu Natal province and settled in the Old Transvaal to become archaeologically known as 'Northern Ndebele'. These Ndebele speakers allegedly split so that one group settled in the Mokopane area of Polokwane (Pietersburg) and another. The curious absence of Nguni like pottery assemblages in the region however persuaded researchers to speculate that the Northern Ndebele had a long history with the Venda and Northern Sotho rather than the Nguni speakers in the KwaZulu Natal region (Loubser, 1994).

The decision to occupy the Pietersburg Plateau (Polokwane) by the Ndebele would have been influenced by several reasons. Since agriculture was an integral component of the Ndebele economy in the so called Iron Age period, the choice of location would have been influenced by suitability of the biophysical qualities of the area. According to Loubser (1994), the Pietersburg Plateau is suitable for subsistence agriculture, and to date, the agricultural footprint is still visible on the landscape. In addition, Loubser notes that two ridges to the south of Pietersburg were used as grazing lands by the Ndebele farmers.

Loubser (1994) excavated one site each from the three classes discussed above. The excavations in a Group 1 site produced human remains, hut floors, ceramics, floor smothers, upper grindstones and bone pendants (Loubser, 1994). Group II excavations produced hut floors, floor smothers, stone milk strainers, pottery discs among other material culture. Finally, Group III sites yielded among other things upper grindstones, faunal remains (e.g. of cattle) iron ring, soap-stone slabs etc. In the analysis of these findings, Loubser spotted Eiland pottery which was excavated in the Old Eastern Transvaal (Evers, 1975). He argues that this pottery predates the oral histories of the Pietersburg Ndebele following tentative dating of between AD850 – 1200 (Loubser, 1994: 138). In addition to the Eiland ceramics, Moloko pottery of the Sotho Tswana speakers (Evers, 1981) tentatively dating to the 14th century (Loubser, 1991) was also excavated. Interestingly, Moloko pottery appears at the same time as the Letaba pottery in areas south of Pietersburg and discontinues when Mzilikazi ravaged the area during the Mfecane, on his way to modern day Zimbabwe. Although the Letaba pottery has been strongly linked to the Ndebele, Loubser (1991) convincingly linked the same pottery to Venda speaking communities. Loubser argues that the Letaba pottery was a mixture of Moloko pottery of the Sotho Tswana and the Khami pottery of the Shona in the Soutpansberg area. In addition, Loubser (1991) articulated that only the Letaba pottery occurs at Soutpansberg during mid-16th century and early 20th century, a period in which Venda speaking peoples are known to have occupied the area.

The long Iron Age occupation sequence of the Pietersburg area is further discussed by Roodt (2010) who discovered archaeological resources at the Edupark complex. In their unpublished report, Roodt discovered human remains dating to 991 AD. They also discovered cow dung dating to the late 1600s while a midden dated to 1018AD. These findings fit into the common narrative that the Pietersburg area has an extensive history of

occupation by African communities long before the Europeans arrived.

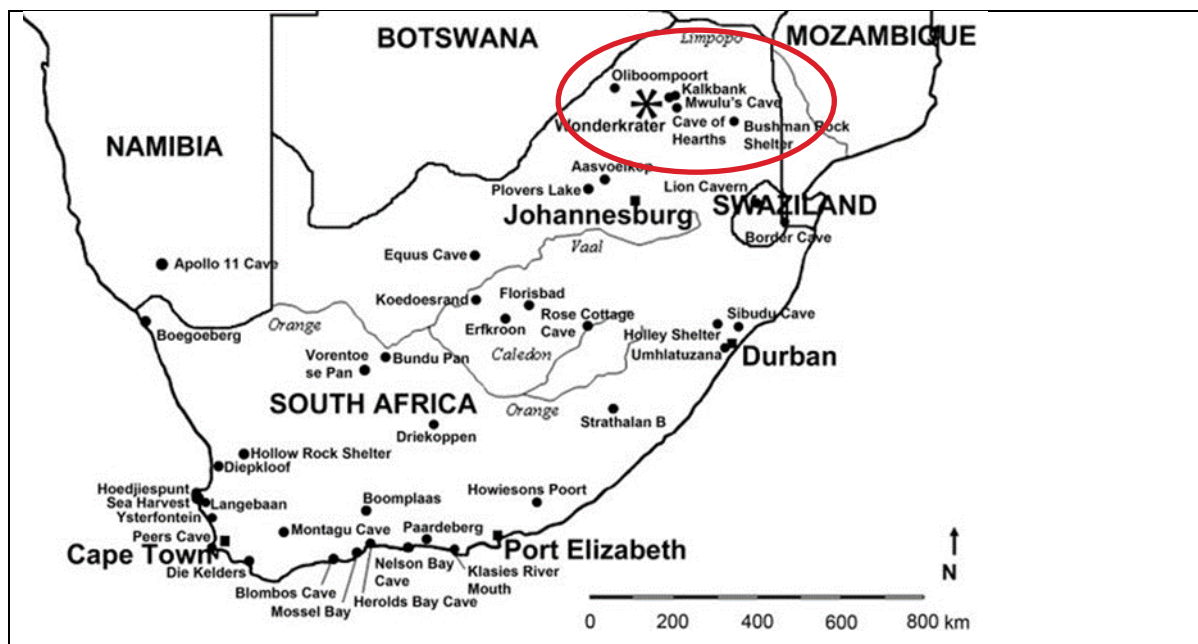


Figure 11: Some of the known Iron Age Sites in South Africa (Limpopo sites in circled in Red)

#### 6.4 Historical background of the study area

The district is named Capricorn District Municipality on account of the Latitudinal Tropic of Capricorn passing through the northern parts of the district. It is one of the 5 districts of Limpopo province of South Africa, with its administrative seat and that of the province residing in the City of Polokwane. The town became a city in 1992 and was previously named Pietersburg in honour of the Voortrekker leader Petrus Jacobus Joubert. It was renamed Polokwane, meaning 'place of peace' in 2005. The city and district were once the capital for the Northern Sotho/Pedi clan of the Bakone ba Matla a Thaba, who lived in the area in the 17th century. The Koni and Tau tribes were already living in that area (Yakan 1999)

The skilled clan successfully defended their territory resulting in the abandonment of the town established by the Voortrekkers under the leadership of Andries Potgieter which was once called Zoutpansbergdorp just 100km north of Polokwane. The Boers abandoned the town in favour of laagering in Polokwane. The district hosts the Bakone Malapa Northern Sotho Open-Air Museum in Polokwane which showcases the traditional and modern-day lifestyle of the Bakone people. The museum is centred on a traditional village still occupied by members of the tribe, who sell various crafts to tourists. Within the museum complex one can find archaeological sites with remains of the iron- and copper-smelting installations, as well as rock paintings which date back to around 1000 B.C. The Eersteling Monuments in Pietersburg /

Polokwane is the site of South Africa's first gold crushing site and its first gold power plant is marked by monuments. In 2017, Polokwane was named the "Greenest Municipality in South Africa".

Lebowagomo lies directly North West of Polokwane and until 1974 comprising of the non-independent Bantustan of; Lebowa. Lebowa was abolished in 1994. Lebowa was a former non-independent Bantustan that was in Northern Transvaal, South Africa. It comprised two major and several minor exclaves (detached portions). Lebowa was designated by the South African government as the national territory for the northern Sotho people (Pedi, Lovedu, Kanga-Kone, and others). Lebowa was a territorial assembly, established in 1962, was replaced by a legislative assembly in 1971. The following year Lebowa was granted self-government. Political parties became defined soon after the first election, held in 1973. The Lebowa People's Party, under Chief Minister C.N. Phatudi, controlled the legislative assembly, while the Lebowa National Party, led by M.M. Matlala, constituted the opposition. By 1978, Lebowa was the actual residence of more than half of South Africa's northern Sotho people, all of whom were legally Lebowa citizens. Under the South African constitution that abolished the apartheid system, Lebowa was reincorporated into South Africa in 1994 as part of the newly created Northern (now Limpopo) Province.

This history of the Waterberg District extends as far back as the Stone Age and is diverse. The history was greatly influenced by natural phenomena and features of the area. Some important cultural and historical features of the area include rock paintings and stone tools of San hunters and Khoe Khoe herders, Bambata clay pottery, and also ruins of Langa Ndebele settlements. The Waterberg District has a rich cultural history also, with various tribes that inhabited the area, as well as the colonial settlements. The interaction between the colonial Voortrekkers and local tribes in the area are of importance especially at sites such as the Makapan's Caves.

The Sekhukhune District Municipality is located in the south-eastern part of Limpopo, which is South Africa's most northern province. The district borders on the Capricorn and Mopani Districts in the north, Mpumalanga in the south and east, and the Waterberg District in the west. The district was formed during the year 2000 and is one of the five District Municipalities in the Limpopo Province. It shares boundaries with Capricorn and Mopani Districts in the north, Mpumalanga in the south and east, and the Waterberg District in the west.

South of the proposed development site is the Tšate Provincial Heritage Site which is located within the Tubatse Local Municipality of the Greater Sekhukhune District in the Limpopo Province. The Tšate Provincial Heritage Site is one of the most important heritage sites in the northern part of South Africa. Küsel (2008) remarked that this provincial heritage site forms an integral part of the rise and fall of the Pedi Empire, one of the largest empires of black people before colonisation. The Tšate Provincial Heritage Site portrays the struggle and resistance of the Pedi people against colonisation. It lies east of the Leolo Mountain and west of Modimolle Hills on the farms Djate 249KT and Hackney 116KT. It is south of the road between Mosego and Swale (Thotse 2015). The Tšate Provincial Heritage Site is 150 km from Polokwane, and 250 kms from Mbombela.

This heritage site represents to the Pedi their history, greatness, struggle, and ancestors. Thotse (2015) noted that the events of the Sekhukhune Wars took place over a large portion of what is known as 'Sekhukhuneland', but also links with Burgersfort, Steelpoort and eventually with Mapoch's caves at Roosenekal and Botshabelo near Middelburg. The Tšate Provincial Heritage Site was declared a Provincial Heritage Site on 23 February 2007 (Thotse 2015).

The origin of the Sotho-Tswana people pre-date oral history and was only recently mapped out by means of archaeological research, combined with linguistics. According to Huffman (2007) the origins of the Sotho-Tswana can be traced to the Moloko Branch of the Uruwe Tradition in East Africa. The earliest recorded presence of Moloko south of the Limpopo River is the Icon facies at about AD1300. At least three separate facies derived from Icon, each with a similar direction of change in motifs; Letsibogo in Botswana, Madikwe in North West Province and Botswana, and Olifantspoort in the Magaliesberg. These facies date to AD1500 - 1700 (Huffman 2007). Madikwe pottery in turn developed into Buispoort, where the Kgatla once lived. The Pedi are an important offshoot of the Kgatla who are thought to have moved northeast from the Pretoria/Rustenburg area in the mid-seventeenth century to what is now known as Sekhukhune land (Huffman 2007). According to oral history the Pedi finally settled in the area between the Oliphants and Steelpoort Rivers, now known as Driekop (Rammala 2002). When the Pedi arrived, they were led by Thobela, who was nicknamed Lellelateng (It cries inside) (Magubane 1998).

## **6.6 Cultural Landscape Assessment of Significance**

Significance is not absolute and can only be identified in relation to each individual development and its unique location. It is important that any assessment of significance adopts an informed and well-reasoned judgement, supported through a clear justification as to how the conclusions about significance for each

effect have been derived. It should be emphasised that whilst this methodology is designed to be robust and transparent, professional judgement is ultimately applied to determine the level of significance applied to each effect.

The two principal criteria determining the significance of effects are the scale or magnitude of effect, and the cultural heritage sensitivity of the location or receptor. With regard to visual receptors, a **HIGH** significance of effect would be from **HIGH** sensitivity receptors such as Regional to National significance old buildings and heritage sites with a Local rating where they would receive a major change in the view. A low significance of effect would be from the least sensitive low significance old buildings and heritage sites with a Local rating would be affected for a smaller period of time as they would experience transient views. Where no change is identified the significance is assessed as neutral. These thresholds will be determined by combining sensitivity and magnitude, with reference to any general terminology accepted for the whole Heritage Impact Assessment.

### ***6.7 Cultural Heritage Tourism Sites***

Limpopo's cultural heritage pathways can be traced back to Bakone Malapa Open Air Museum. Rock carvings indicate the presence of San people thousands of years ago. Stone Age implements were also found. Stone wall complexes, cattle kraals and pottery remains suggest that Northern Ndebele people lived here between 1600 and 1650, followed by the Bakone ba Matlala in 1700. Shangaan people joined them later approximately 1850. Traditional cooking, dancing, woodcraft and basketry are demonstrated to visitors.

The Zion Christian Church which is located on mount Moria, this church draws millions of pilgrims to the annual Easter worship ceremonies that extend over three days (Limpopo Tourism Agency, 2016). Near Modimolle in the south is the sacred flat-topped mountain known as the Mountain of God. The Bakgatla, Bantwane and Langa Ndebele clan are associated with this mountain. It is seen as a sacred place where people still sacrifice food and snuff to the ancestors. The mountain is also used extensively by traditional healers for training and collection of medicinal plants. It is believed that a very large snake mamogaswa lives on the mountain (Limpopo Tourism Agency, 2016).

Limpopo is also home to some of the biggest trees in South Africa, like the Mighty baobabs in Sagole and also near Modjadjiskloof. At Gravelotte, there is another baobab tree which had found a place in the history books because it had a large hollow inside its trunk, this was used by the prospectors and miners from goldfield at Leydsdorp to store their beer. The temperature inside was just a few degrees cooler than outside (Limpopo Tourism Agency, 2016).

Further down there is the Greater Tzaneen which include Magoebaskloof, Haenertsburg and Letsitele, home to the Makgoebaskloof and Georges Valley routes which boasts tea estates, waterfalls, the Ebenezer Dam, Bluegum

and Pine tree plantations, restaurants and the only cheese factory in this area. This area also offers adventure tourism packages including horse riding, quad biking, and river rafting and canopy tours. Tzaneen is also the biggest producer of bananas, pawpaw, citrus, mango and macadamia nuts (South African Tourism, 2011).

**Table 2: Cultural Heritage Tourism Sites Observed in the Broader Study area**

<b>Polokwane Art Museum</b>
Schoeman St, Polokwane. Founded in 1970 by Jack Botes, a former Town Clerk of the city. Houses over 800 artworks by various artists of Limpopo, including sculptures and a variety of traditional Tsonga, Pedi and Venda crafts.
<b>Bakone Malapa Open Air Museum</b>
Situated on the R37, Chuenespoort Road. Reconstructed in the style used by the Sotho people. Traditional beer brewing, maize grinding, fire making, pottery making, beading and basketry demonstrations.
<b>The Industrial Art Park</b>
Located at N1 North to Makhado. Curates works of art produced from industrial materials.
<b>Hugh Exton Photographic Museum and Eloff Gallery</b>
74 Dorp Street, Polokwane. Housed in a Dutch Reformed Church, built in 1890. It has over 23,000 original photographs recording life in Polokwane between 1892 and 1945.
<b>The Irish House</b>
Corner Market St and Thabo Mbeki St, Polokwane. This Victorian building was originally built in the 1880s, destroyed in 1906 and rebuilt in 1910. It displays the history of Limpopo and its various cultural groups.
<b>Arend Dieperink Museum</b>
97 Thabo Mbeki Dr, Mokopane. Located in a former schoolhouse built in 1917. It portrays the history of Mokopane, including the Anglo-Boer War, San art, and fossils. The museum is characterised by beautiful gardens with old tractors, wagons and farming implements. The grave of Piet Potgieter (a South African Boer political figure) can also be found there.
<b>Makapans Valley/Caves</b>

Southern Gateway Ext. 4, N1 Main Road on route to Mokopane. The caves are key to the history of the Ndebele Tribe. The caves served as refuge during conflicts between Makapan communities and white settlers.

**Barnyard Theatre**

No fixed location – a building is presently under construction at the Farnyard grounds in Polokwane. It hosts a variety of musical shows, with various cultural acts.

**Touch of Genius Art Gallery**

Located at 50 Erasmus Street. Established in 2004. It provides an outlet for previously disadvantaged and upcoming Polokwane artists to showcase their work.

**Gemco Arts, Crafts and Curios**

Plot 124 Ivydale Polokwane. It is a supplier of original African art, crafts and curios.

**7.7 Significance of Cultural Landscape Impacts**

Table 3: Cultural Landscape Assessment of Significance

		Landscape receptor sensitivity		
		High	Medium	Low
<b>Assessment of significance of the cultural landscape impacts</b> <ul style="list-style-type: none"> <li>▪ Red cells represent significant adverse impacts</li> <li>▪ Yellow cells represent significant beneficial impacts</li> <li>▪ Blue cells represent impacts that are not significant</li> </ul>		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.
<b>Magnitude of landscape impact</b>	<b>Major adverse</b> 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
	<b>Moderate adverse</b> 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

Table 4: ICOMOS guideline for assessing significance of cultural landscape impacts

### 6.8 Cultural Landscape Significance Assessment

Table 5: Results of the Cultural Landscape Significance Assessment

<b>Broader Study Cultural Landscape</b>	The Cultural Landscape is a Landscape with National heritage significance Status sites and cultural Landscapes with Provincial heritage Significance Status
<b>Study area Cultural Landscape</b>	The Cultural Landscape contains Local Significance Heritage sites valued characteristics reasonably tolerant of changes of the type proposed.



## 7.0 DISCUSSION OF THE FINDINGS

This field visit, completed by a qualified archaeologist assessed the entire area that could be impacted during construction phase of proposed development. The field survey was undertaken on the on the 3<sup>rd</sup> and the 4<sup>th</sup> of July 2022 by Mr Roy Muroyi (Archaeologist). The survey was carried out through driving and walking. Most sections of the project area are very accessible and the field survey was effective enough to cover most sections of the project receiving environs. However, some portions of the proposed pipeline routes had limited access because of the thick vegetation cover. Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey.

The project area is predominantly agricultural, tourism attraction area and residential area. Most of the proposed pipeline routes are severely degraded from existing developments such as agriculture, bulk water pipelines, powerlines lines, residential infrastructure, and access roads. Although the general project area has got a number of archaeological sites recorded, from a contextual studies perspective, no medium to high significance archaeological, heritage landmark or monument was recorded on the direct path of the proposed pipeline routes.

Scattered rural villages which are linked with dirt roads. The outskirts of some of these villages hold informal graveyards and graves. Abandoned homesteads between these villages are sometimes associated with single, isolated graves. Some of these informal graves are not decorated and therefore are inconspicuous. Formal graveyards are easily recognisable

The findings of the field survey are given below;

Site No:	GPS Coordinates	Site Description	Heritage Significance
1	Iron Age Site Located within the Witkos Solar Park  23° 52' 31" S 29° 31' 59" E	<p>The survey noted the existence of an Iron Age farming Community. The site is characterized by round huts foundations marked with stones and a number of Iron Age farming community cattle kraals found represent the 'Central Cattle Pattern' (CCP). Iron Age farming community studies suggests that the type of cattle kraals found represent the 'Central Cattle Pattern' (CCP) where cattle were kept in the middle of the homestead, representing the wealthy of the family as well as their importance in the community. The field survey also noted the close proximity these sites to water sources. Iron Age sites of this nature were sited near water and good soils that could be cultivated with an iron hoe. Loubser (1994) groups the Iron Age sites into three (III) groups. This particular site falls within Group II of Loubser's categorization. It is argued that the Group II type sites mentioned above were authored by the Ndebele speaking communities, while some of them were built by the Koni communities. One of the sites falling under this group was radio-carbon dates to the 17th century (AD1600s). These settlements are located at the base of hills or on the slopes of valleys, and they all curiously face north. Lastly, researchers associate Group III sites with the Ndebele, Koni and Shangaan communities</p>	Medium significance  Recommendation: Generally Protected A (GP. B)  The sites need to be recorded before destruction

**Figure 12: View of an iron age abandoned structure**



**Figure 13: View of another Iron Age Structure within the same settlement/site**



**Figure 14: Ashes scattered just outside the settlement . This was done for purposes of chasing away witches**

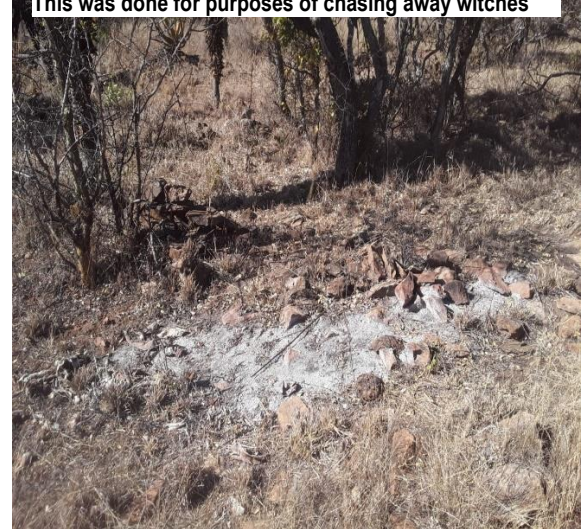




Figure 15: A rectangular structure recoded on the settlement



Figure 16: Another rectangular structure



Figure 17: View of a possible grave recorded another settlement



Table 6:View of the Site 1 .

Site No:	GPS Coordinates	Site Description	Heritage Significance
2	23° 57' 03" S 29° 27' 13" E	<p>The field survey noted the existence of the New Polokwane cemetery with marked and unmarked recent. The exact number of the graves in the cemetery could not be given as this is a large community grave site.</p> <p>The grave yard contains single burials. The different sizes of tombstones and headstones used in this graveyard make this graveyard a unique one where a mixture of burial patterns is likely to be found. It should however be noted that not all burials are marked on the surface, and the forms in which these burial grounds appear, largely depend on the social context of the buried individuals</p>	<p>High Significance</p> <p>Recommendation: Should be left <i>in -situ</i> for preservation and conservation for posterity</p>



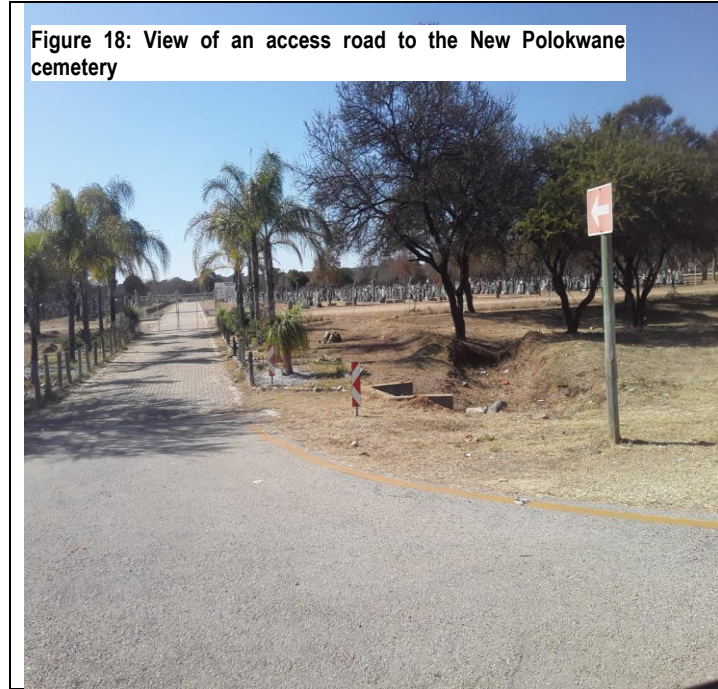


Table 7: View of site 2

Site No:	GPS Coordinates	Site Description	Assessment of Significance
3	<p>Bakone Open Air Museum</p> <p>23°59'13.89"S, 29°27'30.34"E</p>	<p>The Bakone, a sub-group of the Northern Sotho people, will happily introduce you to their contemporary customs and traditional way of life. The Bakone Malapa Museum is a showcase for the Basotho culture. Two traditional homesteads house exhibits that explain much of the multifaceted Basotho history.</p> <p>The name Bakone is a Northern Sotho clan name taken from Bakone ba Matlala a' Thaba, who lived here in the 17th century. <i>Malapa</i> is the Sotho word for homestead. Archaeological digs show that the Ndebele and the Shangaan also lived in the area, and evidence has been found of a Stone Age influence dating back 20 000 years.</p>	<p>Heritage Significance: High Significance</p> <p>Scale: National</p> <p>Recommendation: Should be left <i>in-situ</i> for preservation and conservation for posterity.</p>

Figure 21: View of the Bakone Malapa Open Air museum from the high way

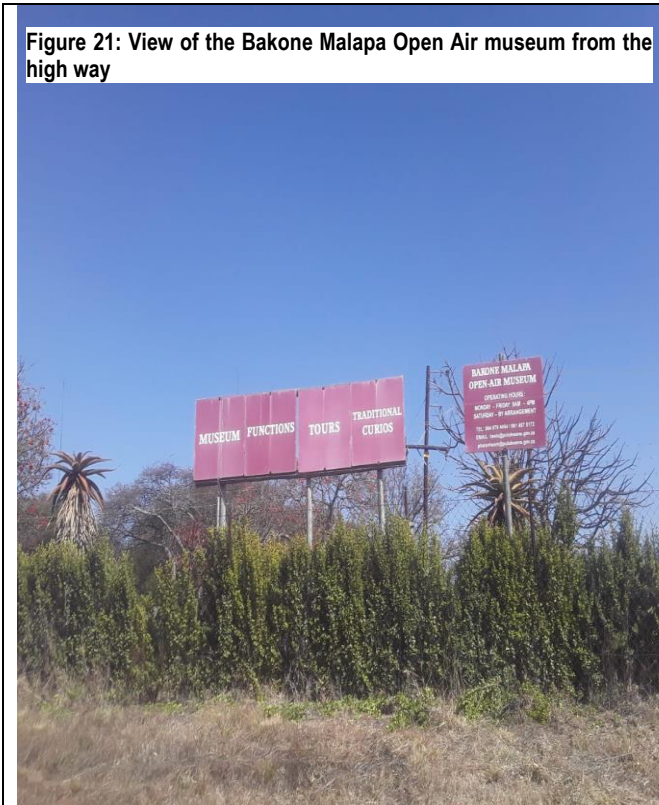


Figure 22: View of the cultural village at Bakone



Figure 23: View of one of the huts at the museum



Table 8:View of Site 3.



Site No:	Real Time GPS Tracking	Site Description	Assessment of Significance
4	Haenertsburg Cemetery  23°57'13.14"S 29°56'22.20"E	<p>This s a “beautiful” cemetery located in Haenertsburg, a village situated on the edge of the Great Escarpment in the Limpopo Province of South Africa, on the R71 road between Polokwane and Tzaneen on-route to the Kruger National Park. The scenic beauty of the Haenertsburg area attracts many tourists.</p> <p>It is a favoured spot for cycling, biking and fishing. Sailing and other watersport take place on nearby Ebenezer Dam. The grave yard contains multiple and single burials. The multiple burials contained in the graveyard vary from couple’s burials to family burials. The different sizes of tombstones and headstones used in this graveyard make this graveyard a unique one where a mixture of burial patterns is likely to the found</p>	<p>Heritage Significance: High Significance            Scale: Provincial /Regional</p> <p>Recommendation: Should be left <i>in -situ</i> for preservation cand conservation for posterity.</p>



Figure 24: View of Haenertsburg cemetery graves with long crosses



Figure 25: View of some of the graves marked by stones

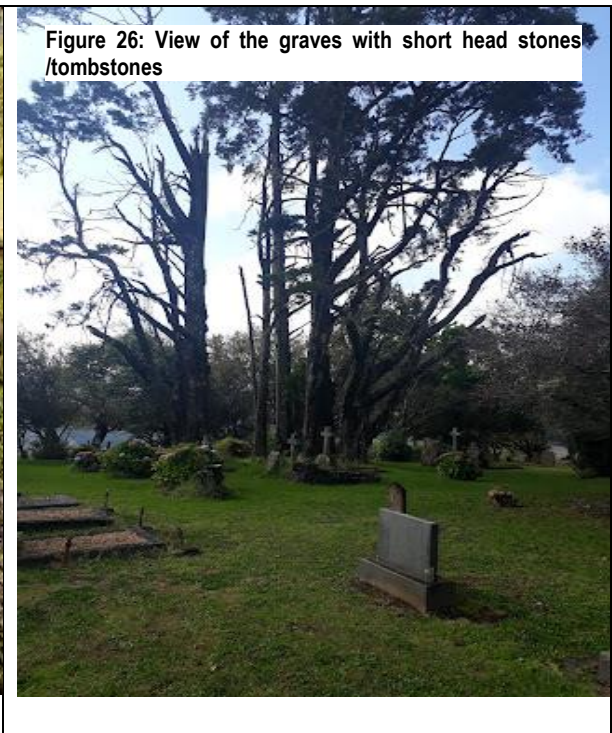


Figure 26: View of the graves with short head stones / tombstones

Table 9: View of site 4



**Figure 27: View of the Krugersburg Reservoir area from a distance showing the power lines traversing across the project area**



**Figure 28: View of the Krugersburg Reservoir**



**Figure 29: View of the Witkos Reservoir**



**Figure 30: View of the main roads junction in Krugersburg. Note the proposed pipeline will pass through this area**



**Figure 31: View of a Tourism facility in the Krugersburg area**



**Figure 32: View of a hill along the Palmietfontein area**



Figure 33: Route between Witkos and Palmietfontein



Figure 34: View of the R 37 Route



Figure 35: View of the R37 route to where the pipeline will pass through



Figure 36: Another view of the R 37 Route



Figure 37: View of the Palmietfontein reservoir



Figure 38: Surveyed portion of the R 37 Route from the Palmietfontein reservoir





Figure 39: View of an access road in the Lebowakgomo area



Figure 40: View of another access road in the same area



Figure 41: A closer view of the Olifants River



Figure 42: View an access road and some of the houses where the pipeline will pass through in Lebowakgomo



Figure 43: An electricity substation in Lebowakgomo where the pipeline will pass through



Figure 44: View of a dust road accessed for possible archaeological artefacts, the dust road is marred by a stones or different sizes and shapes



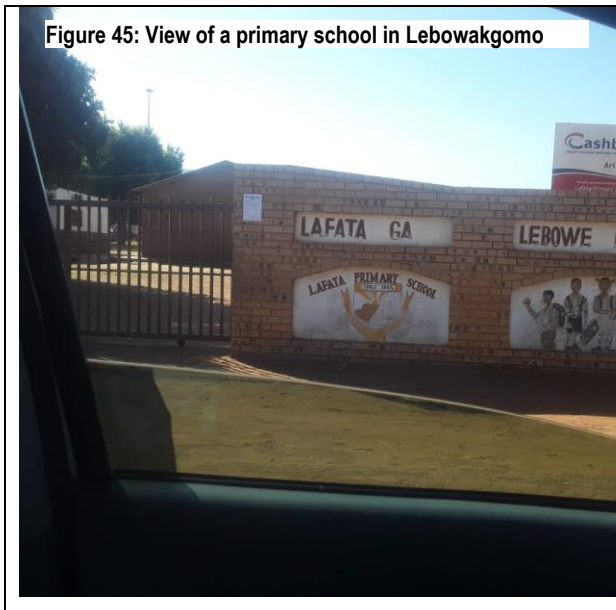


Figure 45: View of a primary school in Lebowakgomo



Figure 46: View of the Rock quarry in Oliganstpoort just outside the development footprint

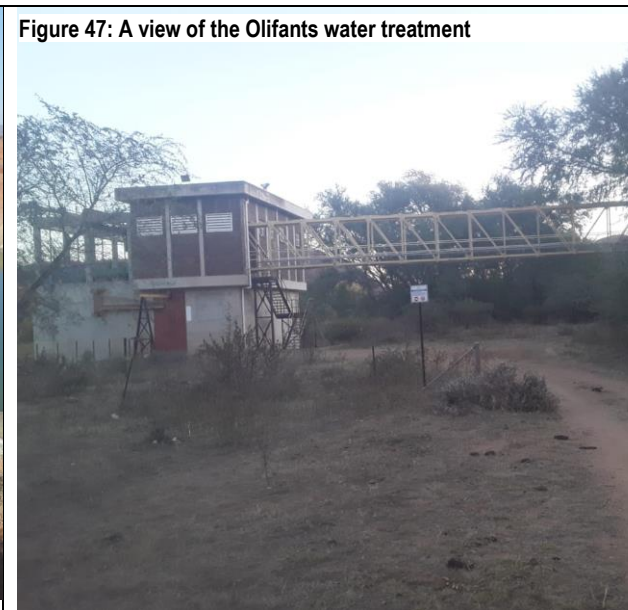


Figure 47: A view of the Olifants water treatment

Figure 48: View of the Olifants off channel dam

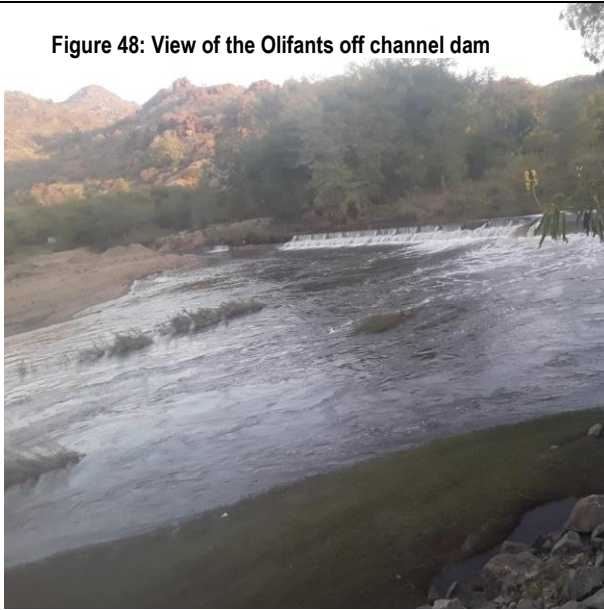


Figure 49: A view of the Olifants Abstraction

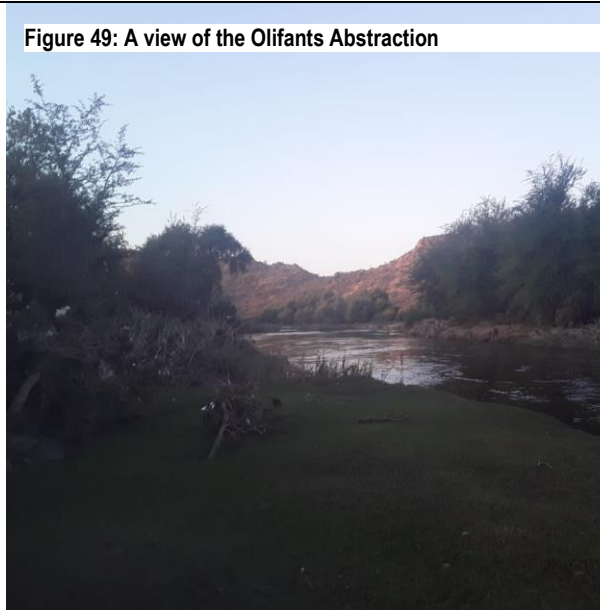
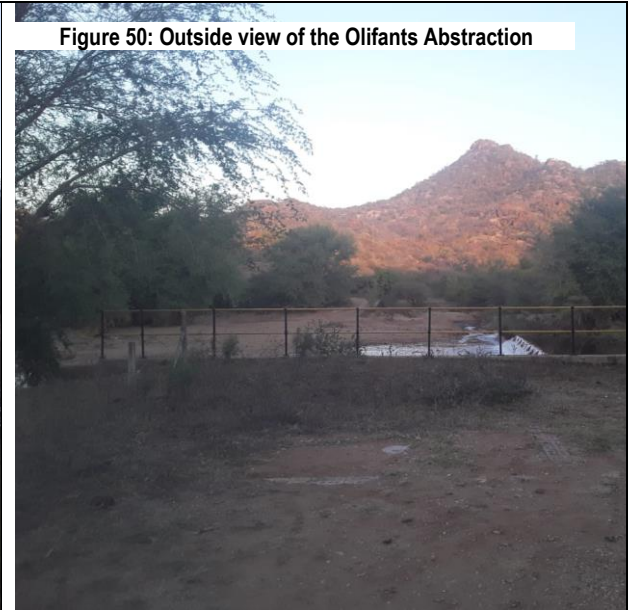


Figure 50: Outside view of the Olifants Abstraction



**Table 10:Site Assessment of values**

<b>1. Historic value</b>				
Is it important in the community, or pattern of history			No	
Does it have strong or special association with the life or work of a person, group or organization of importance in history			No	
Does it have significance relating to the history of slavery			No	
<b>2. Aesthetic value</b>				
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group			No	
<b>3. Scientific value</b>				
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage			No	
Is it important in demonstrating a high degree of creative or technical achievement at a particular period			No	
<b>4. Social value</b>				
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons			No	
<b>5. Rarity</b>				
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage			No	
<b>6. Representivity</b>				
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects			Yes	
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class			No	
Importance in demonstrating the principal characteristics 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.			No	
<b>7. Sphere of Significance</b>		High	Medium	Low
International				
National				
Provincial				
Regional				
Local				
Specific community				Yes
<b>8. Significance rating of feature</b>				
1.	Low			Yes
2.	Medium			
3.	High			
<b>9. Field Register Rating</b>				



1.	National/Grade 1: High significance - No alteration whatsoever without permit from SAHRA	
2.	Provincial/Grade 2: High significance - No alteration whatsoever without permit from provincial heritage authority.	
3.	Local/Grade 3A: High significance - Mitigation as part of development process not advised.	
4.	Local/Grade 3B: High significance - Could be mitigated and (part) retained as heritage register site	
5.	Generally protected 4A: High/medium significance - Should be mitigated before destruction	Yes
6.	Generally protected 4B: Medium significance - Should be recorded before destruction	
7.	Generally protected 4C: Low significance - Requires no further recording before destruction	

## 8.0 CONCLUSIONS AND RECOMMENDATIONS

*This report is an independent view and makes recommendations to the Limpopo Provincial Heritage Authority based on its findings. The authority will consider the recommendations and make a decision based on conservation principles. None of the recorded heritage sites fall within the exact pipeline route footprint.*

### 9.1 Assumptions and limitations

This Phase I HIA study may have missed heritage resources in the Project Area as heritage sites may occur in the grass veld which currently covers the project area 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 Project construction phase, 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 authorization (permits) from SAHRA to conduct the mitigation measures

From a heritage perspective, the proposed project is acceptable and the following is recommended;

- ➔ Whenever possible, all heritage sites identified during this study with High Significance must be preserved *in-situ* by designing the development footprints in such a way that a buffer area of at least 50m is kept clear between any development footprints and construction activities and these heritage sites. In cases where the preservation of such sites and buffer areas are not possible, site-specific mitigation measures would be required.
- ➔ With the exception of possible graves, there is a very small chance that any other heritage resources within the development servitude. However, a Chance Find Protocol should be added to the EMP. If any heritage resources listed in Appendix E are found by the contractor, environmental officer, or other responsible person once excavations have commenced then they should be reported to Provincial Heritage Resources Authority or SAHRA.

## 9.0 REFERENCES

- Assessing heritage significance Office of Environment and Heritage. Heritage publications, Publication, Guideline November (2015).
- Huffman, T. N. (2007). Handbook to the Iron Age. University of KwaZulu-Natal Press. Kruger (2012) Archaeological Impact Assessment on the farms Makotopong 1200ls and Kalkfontein 615ls for the proposed wayland iron ore mine, capricorn district municipality, limpopo province compiled by Ages on behalf of Sekoko Resources
- Berrington, C.E Fordyce, B.N.S and Moore,M.P.J. (1978)Test Excavations at Doornkop, Eastern Transvaal (unpublished honours project).
- Bergh, J.S.(1999). Geskiedenisatlas van Suid-Afrika. Die vier Noorelike Provinsies. Pretoria. J.L.van Schaik.
- Biemond, W.M. 2014. The Iron Age Sequence Around a Limpopo River Floodplain On Basinghall Farm, Tuli Block, Botswana, During The Second Millennium Ad. University of South Africa (UNISA) Unpublished Masters Thesis
- Birkholtz, P.D. & Steyn, H.S. (2002). Cultural Resources Management Plan for Marakele National Park, Produced for SANParks, Report: SANP – MNP – 2002-05-17/ Final Report. Helio Alliance
- Campbell, A.C. 1989. Archaeological Impact Assessment for the Sekoma to Ghanzi to Mamuno road. Unpublished report. Commissioned by VIAK AB for the Roads Department
- Evers, T.M. 1975. Recent Iron Age Research in the Eastern Transvaal Lowveld, South Africa. South African Archaeological Bulletin, 30: 71 – 83.
- Evers, T.M. 1981. The Iron Age in the Eastern Transvaal South Africa. In Voigt (eds) Guide to Archaeological sites in Northern and Eastern Transvaal. Prepared for the Southern African Association of Archaeologists Excursion. Transvaal Museum
- Huffman, T.N. 2007. Handbook to the Iron Age: the archaeology of pre-colonial farming societies in Southern Africa. University of KwaZulu Natal Publishers
- Loubser, J.H.N. 1991. The Ethnoarchaeology of Venda Speakers in Southern Africa. Navors.nas. Murs., Bloemfontein, 7: 145 – 164
- Loubser, J.H.N. 1994. The Ndebele Archaeology of the Pietersburg area. Human Sciences, 10: 61 – 147

## **APPENDIX A: ARCHAEOLOGICAL AND PALEONTOLOGICAL 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 and paleontological 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 and mining. The main purpose of a CFP is to raise awareness of all mine 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 moderate to high 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

## APPENDIX B: TERMINOLOGY USED IN THE TEXT

The terminology adopted in this document is mainly influenced by the NHRA of South Africa (1999) and the Burra Charter (1979).

**Adaptation:** Changes made to a place so that it can have different but reconcilable uses.

**Artefact:** Cultural object (made by humans).

**Buffer Zone:** Means an area surrounding a cultural heritage which has restrictions placed on its use or where collaborative projects and programs are undertaken to afford additional protection to the site.

**Co-management:** Managing in such a way as to take into account the needs and desires of stakeholders, neighbours and partners, and incorporating these into decision making through, amongst others, the promulgation of a local board.

**Conservation:** In relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance as defined. These processes include, but are not necessarily restricted to preservation, restoration, reconstruction and adaptation.

**Contextual Paradigm:** A scientific approach which places importance on the total context as catalyst for cultural change and which specifically studies the symbolic role of the individual and immediate historical context.

**Cultural Resource:** Any place or object of cultural significance

**Cultural Significance:** Means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance of a place or object for past, present and future generations.

**Feature:** A coincidental find of movable cultural objects.

**Grading:** The South African heritage resource management system is based on a grading system, which provides for assigning the appropriate level of management responsibility to a heritage resource.

**Heritage Resources Management:** The utilization of management techniques to protect and develop cultural resources so that these become long term cultural heritage which are of value to the general public.

**Heritage Resources Management Paradigm:** A scientific approach based on the Contextual paradigm, but placing the emphasis on the cultural importance of archaeological (and historical) sites for the community.

**Heritage Site Management:** The control of the elements that make up the physical and social environment of a site, its physical condition, land use, human visitors, interpretation etc. Management

may be aimed at preservation or, if necessary, at minimizing damage or destruction or at presentation of the site to the public.

**Historic:** Means significant in history, belonging to the past; of what is important or famous in the past.

**Historical:** Means belonging to the past, or relating to the study of history.

**Maintenance:** Means the continuous protective care of the fabric, contents and setting of a place. It does not involve physical alteration.

**Object:** Artefact (cultural object)

**Paradigm:** Theories, laws, models, analogies, metaphors and the epistemological and methodological values used by researchers to solve a scientific problem.

**Preservation:** Refers to protecting and maintaining the fabric of a place in its existing state and retarding deterioration or change, and may include stabilization where necessary. Preservation is appropriate where the existing state of the fabric itself constitutes evidence of specific cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out.

**Protection:** With reference to cultural heritage resources this includes the conservation, maintenance, preservation and sustainable utilization of places or objects in order to maintain the cultural significance thereof.

**Place :** Means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

**Reconstruction:** To bring a place or object as close as possible to a specific known state by using old and new materials.

**Rehabilitation:** The repairing and/ or changing of a structure without necessarily taking the historical correctness thereof into account.

**Restoration:** To bring a place or object back as close as possible to a known state, without using any new materials.

**Site:** A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artefacts, found on a single location.

**Sustainable:** Means the use of such resource in a way and at a rate that would not lead to its long-term decline, would not decrease its historical integrity or cultural significance and would ensure its continued use to meet the needs and aspirations of present and future generations of people.

## APPENDIX C: DEFINITION OF VALUES

Value	Definition
<b>Historic Value</b>	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.
<b>Scientific Value</b>	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
<b>Aesthetic Value</b>	Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
<b>Social Value</b>	Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
<b>Rarity</b>	Does it possess uncommon, rare or endangered aspects of natural or cultural heritage
<b>Representivity</b>	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 D: 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  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.	Archaeological remains dating to the following periods: <ul style="list-style-type: none"> <li>▪ ESA</li> <li>▪ MSA</li> <li>▪ LSA</li> <li>▪ LSA - Herder</li> <li>▪ Historical</li> <li>▪ Maritime history</li> </ul>	<ul style="list-style-type: none"> <li>▪ Subsurface excavations including ground leveling, landscaping, foundation preparation.</li> <li>▪ In the case of maritime resources, development including land reclamation, harbor/marina/water front developments, marine mining, engineering and salvaging.</li> </ul>
	Types of sites that could occur include: <ul style="list-style-type: none"> <li>▪ Shell middens</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Historical dumps</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Structural remains</li> </ul>	
C. HISTORICAL BUILT URBAN LANDSCAPE CONTEXT	<ul style="list-style-type: none"> <li>• Historical townscapes/streetscapes.</li> <li>• Historical structures; i.e. older than 60 years</li> <li>• Formal public spaces.</li> <li>• Formally declared urban conservation areas.</li> <li>• Places associated with social identity/displacement.</li> </ul>	<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"> <li>• Loss of historical fabric or layering related to demolition or alteration work.</li> <li>• Loss of urban morphology related to changes in patterns of subdivision and incompatibility of the scale, massing and form of new development.</li> <li>• Loss of social fabric related to processes of gentrification and urban renewal.</li> </ul>