HERITAGE IMPACT ASSESSMENT

PROPOSED DEVELOPMENT OF A TAILINGS STORAGE FACILITY AT BAKUBUNG PLATINUM MINE NEAR LEDIG, MOSES KOTANE LOCAL MUNICIPALITY, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE

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Declaration of Independence

- I, Polke Birkholtz, declare that –
- General declaration:
- I act as the independent heritage practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting heritage impact assessments, 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 will take into account, to the extent possible, the matters listed in section 38 of the NHRA when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- All the particulars furnished by me in this form are true and correct;
- I will perform all other obligations as expected from a heritage practitioner in terms of the Act and the constitutions of my affiliated professional bodies; and
- I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the NEMA.

Disclosure of Vested Interest

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;

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SIGNATURE: 

Report Title	Proposed Development of a Tailings Storage Facility at Bakubung Platinum Mine near Ledig, Moses Kotane Local Municipality, Bojanala District Municipality, North West Province		
Control	**Name**	**Signature**	**Designation**
Author	Polke Birkholtz		Principal Heritage Specialist / Archaeologist / Project Manager
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DETAILS OF CLIENT:

CLIENT: Knight Piésold (Pty) Ltd

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The heritage impact assessment report has been compiled taking into account the NEMA Appendix 6 (2014, as amended 2017) requirements for specialist reports as indicated in the table below.

NEMA Regs (2014, as amended 2017) - Appendix 6	Relevant section in report
Details of the specialist who prepared the report	Page iii and Section 1.2
The expertise of that person to compile a specialist report including a curriculum vita	Section 1.2 – refer to **Appendix A**
A declaration that the person is independent in a form as may be specified by the competent authority	Page ii of the report
An indication of the scope of, and the purpose for which, the report was prepared	Section 1
The date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3
A description of the methodology adopted in preparing the report or carrying out the specialised process	Section 3
The specific identified sensitivity of the site related to the activity and its associated structures and infrastructure	Sections 5 & 6
An identification of any areas to be avoided, including buffers	Sections 6 & 8
A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Not applicable as no archaeological or heritage sites were identified.
A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1.3
A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Sections 7 & 8
Any mitigation measures for inclusion in the EMPr	Section 8
Any conditions for inclusion in the environmental authorisation	Section 8
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 8
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised and	Executive Summary & Section 9
If the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	
A description of any consultation process that was undertaken during the course of carrying out the study	Not applicable. No public participation process was undertaken by PGS Heritage.
A summary and copies if any comments that were received during any consultation process	Not applicable. See comment above.
Any other information requested by the competent authority.	Not applicable. No consultation with the heritage authorities has as of yet taken place.

EXECUTIVE SUMMARY

Introduction

PGS Heritage (Pty) Ltd was appointed by Knight Piésold (Pty) Ltd to undertake a Heritage Impact Assessment (HIA), which forms part of the environmental process for the proposed Talings Storage Facility (TSF) at Bakubung Platinum Mine, Moses Kotane Local Municipality, Bojanala District Municipality, North West Province.

General Desktop Study

An archaeological and historical desktop study was undertaken to provide a historical framework for the project area and surrounding landscape (refer **Chapter 5**). This was augmented by an assessment of previous archaeological and heritage studies completed for the study area and surrounding landscape. Furthermore, an assessment was made of the early editions of the relevant topographic maps.

During the desktop study component an overlay was made of the footprint areas for the proposed TSF over the palaeontological sensitivity map of SAHRA. This overlay indicated that the project footprint is located entirely within an area demarcated as grey on this map. This grey coloration defines those areas from the palaeontological sensitivity map with Insignificant/Zero Palaeontological Significance. As a result, no palaeontological desktop studies or mitigation would be required.

Fieldwork

Intensive field surveys of the study area were undertaken on foot by an experienced fieldwork team comprising one archaeologist/heritage specialist (Polke Birkholtz) accompanied by a fieldwork assistant (Derrick James). Despite the intensive fieldwork undertaken as part of this study, no evidence for any archaeological or heritage sites could be identified.

Impact Assessment

Despite an intensive walkthrough of the footprint area for the proposed TSF, no evidence for any archaeological or heritage sites could be identified. As a result, no impact is expected from the proposed development on heritage. Furthermote, with the study area located within an area

demarcated on the SAHRA palaeontological sensitivity map as of insignificant/zero palaeontological sensitivity, no impact is expected from the proposed development on palaeontology. Refer **Chapter 7**.

Mitigation

With no impact expected on heritage, no further mitigation is required. Refer **Chapter 8** of this report.

Conclusions

Despite the intensive desktop study work and fieldwork undertaken for the purposes of this study, no evidence for any archaeological or heritage sites could be identified within the study area. Furthermore, no impact is also expected from the proposed development on palaeontology. As a result, and on the condition that the development does not extend beyond the development footprint currently assessed, the authors of this report can provide no heritage reasons for the proposed development not to continue.

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List of Appendices

1 INTRODUCTION

PGS Heritage (Pty) Ltd was appointed by Knight Piésold (Pty) Ltd to undertake a Heritage Impact Assessment (HIA), which forms part of the environmental process for the proposed Talings Storage Facility (TSF) at Bakubung Platinum Mine, Moses Kotane Local Municipality, Bojanala District Municipality, North West Province.

1.1 Scope of the Study

The aim of the study is to identify possible heritage sites and finds that may occur in the proposed development area. The HIA aims to inform the EIA in the development of a comprehensive EMPr to assist the project applicant in managing the identified heritage resources in a responsible manner in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act (Act 25 of 1999) (NHRA).

1.2 Specialist Qualifications

This HIA was compiled by PGS Heritage (Pty) Ltd. The staff at PGS Heritage (Pty) Ltd. has a combined experience of nearly 70 years in the heritage consulting industry and has extensive experience in managing HIA processes. PGS will only undertake heritage assessment work where the staff has the relevant expertise and experience to undertake that work competently.

Polke Birkholtz, the author, principal heritage specialist and project manager, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is also accredited with the CRM Section of the same association. He has 19 years of experience in the heritage assessment and management field and holds a B.A. (cum laude) from the University of Pretoria specialising in Archaeology, Anthropology and History and a B.A. (Hons.) in Archaeology (cum laude) from the same institution.

Cherene de Bruyn, co-author of this report, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is accredited as a Principal Investigator and Field Director, she is further also a member of the International Association for Impact Assessment South Africa (IAIASA). She holds a MA in Archaeology from University College London, and a BSc (Hons) in Physical Anthropology and a BA (Hons) in Archaeology from the University of Pretoria.

1.3 Assumptions and Limitations

The following assumptions and limitations to this study exist:

- Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources present within the area. Various factors account for this, including the subterranean nature of some archaeological sites, as well as the density of vegetation cover found in some areas. As such, should any heritage features and/or objects not included in the present inventory be located or observed, a heritage specialist must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way, until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well. In the event that any graves or burial places are located during the development, the procedures and requirements pertaining to graves and burials will apply as set out below.

- The study area boundaries depicted in this report were provided by the client. As a result, these were the areas assessed during the fieldwork. Should any additional development footprints located outside of these study area boundaries be required, such additional areas will have to be assessed in the field by an experienced archaeologist / heritage specialist before construction commences.

1.4 Legislative Context

The identification, evaluation, and assessment of any cultural heritage site, artefact or finds in the South African context is required and governed by the following legislation:

i. National Environmental Management Act (NEMA) Act 107 of 1998
ii. National Heritage Resources Act (NHRA) Act 25 of 1999
iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

The following sections in each Act refer directly to the identification, evaluation, and assessment of cultural heritage resources.

i. GNR 982 (Government Gazette 38282, 14 December 2014) promulgated under the National Environmental Management Act (NEMA) Act 107 of 1998

   a. Basic Assessment Report(BAR) – Regulations 19 and 23
   b. Environmental Scoping Report (ESR) – Regulation 21
   c. Environmental Impacts Assessment (EIA) – Regulation 23
   d. Environmental Management Programme (EMPr) – Regulations 19 and 23

ii. National Heritage Resources Act (NHRA) Act 25 of 1999

   a. Protection of Heritage Resources – Sections 34 to 36; and
   b. Heritage Resources Management – Section 38

iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

   a. Section 39(3)

The NHRA stipulates that cultural heritage resources may not be disturbed without authorisation from the relevant heritage authority. Section 34(1) of the NHRA states that "*no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority*…". The NEMA (No 107 of 1998) states that an integrated EMP should (23:2 (b)) "…*identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage*". In accordance with legislative requirements and EIA rating criteria, the regulations of SAHRA and ASAPA have also been incorporated to ensure that a comprehensive and legally compatible HIA report is compiled.

1.5 Terminology and Abbreviations

Archaeological resources

i. material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
ii. rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;

iii. wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
iv. features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural Significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Development

Any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in a change to the nature, appearance or physical nature of a place or influence its stability and future well-being. These may include:

i. construction, alteration, demolition, removal or change in use of a place or a structure at a place;
ii. carrying out any works on or over or under a place;
iii. subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
iv. constructing or putting up for display signs or boards;
v. any change to the natural or existing condition or topography of land; and
vi. any removal or destruction of trees, or removal of vegetation or topsoil

Early Stone Age

The earliest archaeological phase identified in South Africa. It refers to the archaeology of the Stone Age, dating to between roughly 700 000 and 2 500 000 years ago.

Heritage

That which is inherited and forms part of the National Estate (historical places, objects, and fossils as defined by the National Heritage Resources Act 25 of 1999).

Heritage Resources

This means any place or object of cultural significance

Later Stone Age

The archaeology of the last 20 000 years, associated with fully modern people.

Late Iron Age

The archaeology of the last 1000 years up to the 1800s, associated with ironworking and farming activities such as herding and agriculture.

Middle Stone Age

The archaeology of the Stone Age, dating to between 20 000-300 000 years ago, associated with early modern humans.

Palaeontology

The study of fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and of any site which contains such fossilised remains or trace.

Study Area

The term study area refers to the area that is defined in Section 2.1 of this report.

Development Footprint Areas

Development footprint areas represent the actual development areas such as the TSF extension area.

Table 1 - Abbreviations

ABBREVIATION	*DESCRIPTION*
AIA	**Archaeological Impact Assessment**
ASAPA	**Association of South African Professional Archaeologists**
CRM	**Cultural Resources Management**
DEA	**Department of Environmental Affairs**
EAP	**Environmental Assessment Practitioner**
ECO	**Environmental Control Officer**
EIA	**Environmental Impact Assessment / Early Iron Age**
EMPr	**Environmental Management Programme Report**
ESA	**Early Stone Age**
GPS	**Global Positioning System**
HIA	**Heritage Impact Assessment**
I&AP	**Interested & Affected Party**
LSA	**Later Stone Age**
LIA	**Late Iron Age**
MIA	**Middle Iron Age**
MSA	**Middle Stone Age**
NEMA	**National Environmental Management Act**
NHRA	**National Heritage Resources Act**
PHRA	**Provincial Heritage Resources Authority**
SAHRA	**South African Heritage Resources Agency**
SAHRIS	**South African Heritage Resources Information System**

Refer to **Appendix A** for further discussion on heritage management and legislative matters.

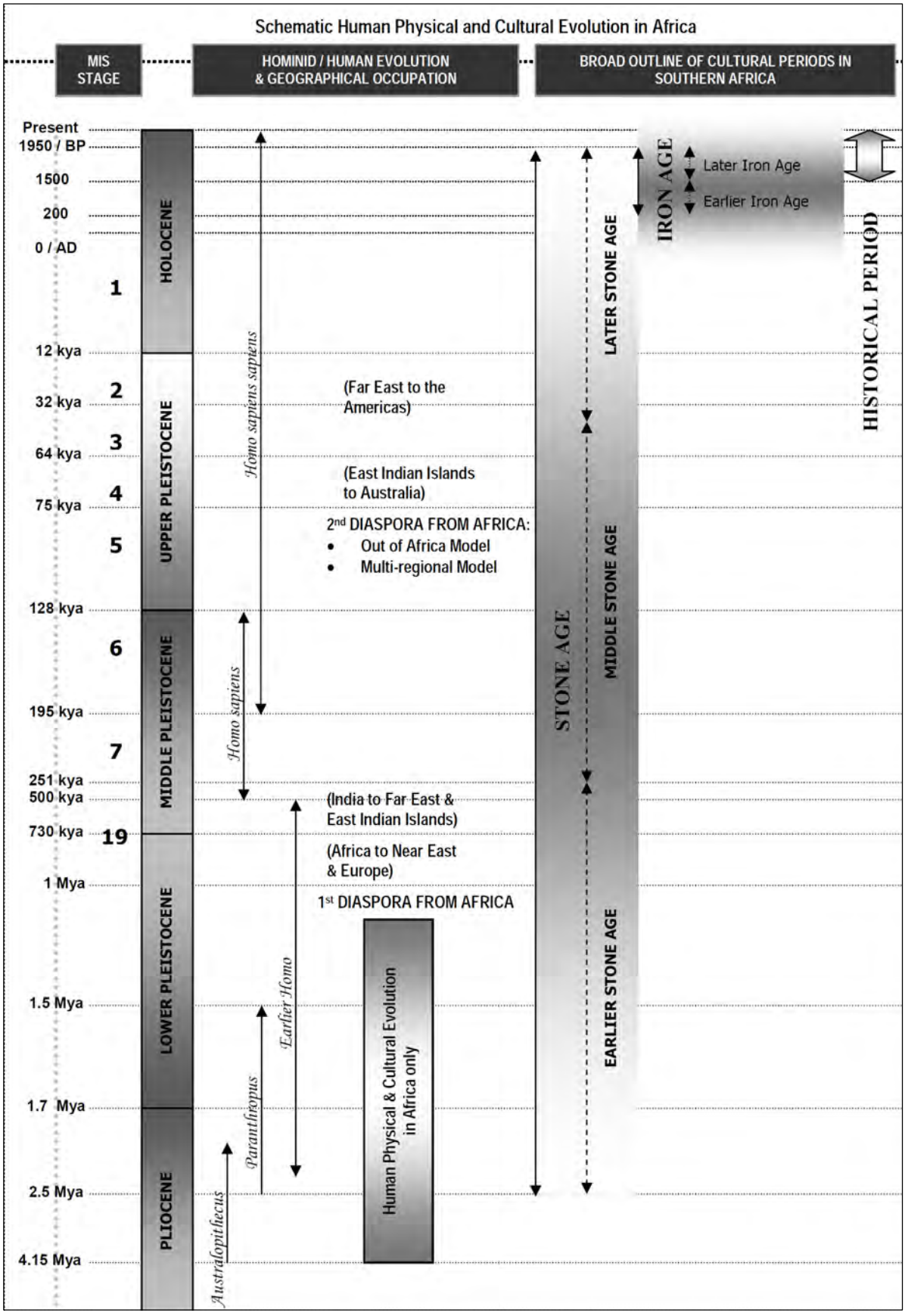

Figure 1 – Human and Cultural Timeline in Africa (Morris, 2008).

2 SITE LOCATION AND TECHNICAL DETAILS OF THE PROJECT

2.1 Site Location

Study Area Coordinates	Northernmost point: S 25.383631 E 27.077581	Easternmost point: S 25.387781 E 27.078579
	Southernmost point: S 25.388468 E 27.077137	Westernmost point: S 25.385219 E 27.072869
Location	The study area is located within the Moses Kotane Local Municipality and the Bojanala District Municipality, North West Province. The study area is located almost immediately south of Ledig. Furthermore, it is located 4.5km south-west of Sun City and 35.5km north-west of Rustenburg.	
Property	A Portion of the Farm Frischgewaagd 96-JQ	
Topographic Map	2527AC	
Study Area Extent	The extent of the study area is 25 hectares in extent.	

2.2 Technical Project Description

The content of this section was provided by Knight Piésold (Pty) Ltd.

2.2.1 Project Description

Wesizwe Platinum Limited is the owner of Bakubung Platinum Mine. In 2008, Wesizwe conducted an EIA process for the development of the Bakubung Platinum Mine. The mine received Environmental Authorisation in 2009. While construction at the mine has commenced, not all facilities have yet been built and mining has not yet commenced. In 2015 Wesizwe proposed to make several changes to the approved mine to allow for an increase in ore processing capacity, as well as additional support infrastructure. The proposed changes required additional Environmental Authorisation, a Waste Management Licence and additional water uses requiring an amendment to their existing Water Use Licence. Wesizwe also has an existing mining right but proposed to include waste rock into the existing mining right to sell the waste rock as aggregate, which required an amendment to their mining right.

Currently Wesizwe's Bakubung Platinum Mine is undertaking a project to design, build and operate a 1 MTPA capacity platinum ore concentrator plant. The major areas of the concentrator plant are as follows:

- Ore Storage and Preparation (Stockpad, Crushing, Screening and Silos),
- Milling and Flotation,
- Concentrate Product Handling; and
- Tailings Handling.

The Tailings Storage Facility (TSF) for the concentrator is located in the south-western section of the mine property and uses dry stacking method for deposition.

The tailings handling section consist of two stages of solid/liquid separation units, namely:

- High Rate Thickener; and
- Pressure Filtration.

The pressure filtration unit produces a filter cake with 15% moisture, which is disposed via a dry stacking system o the tailings dump.

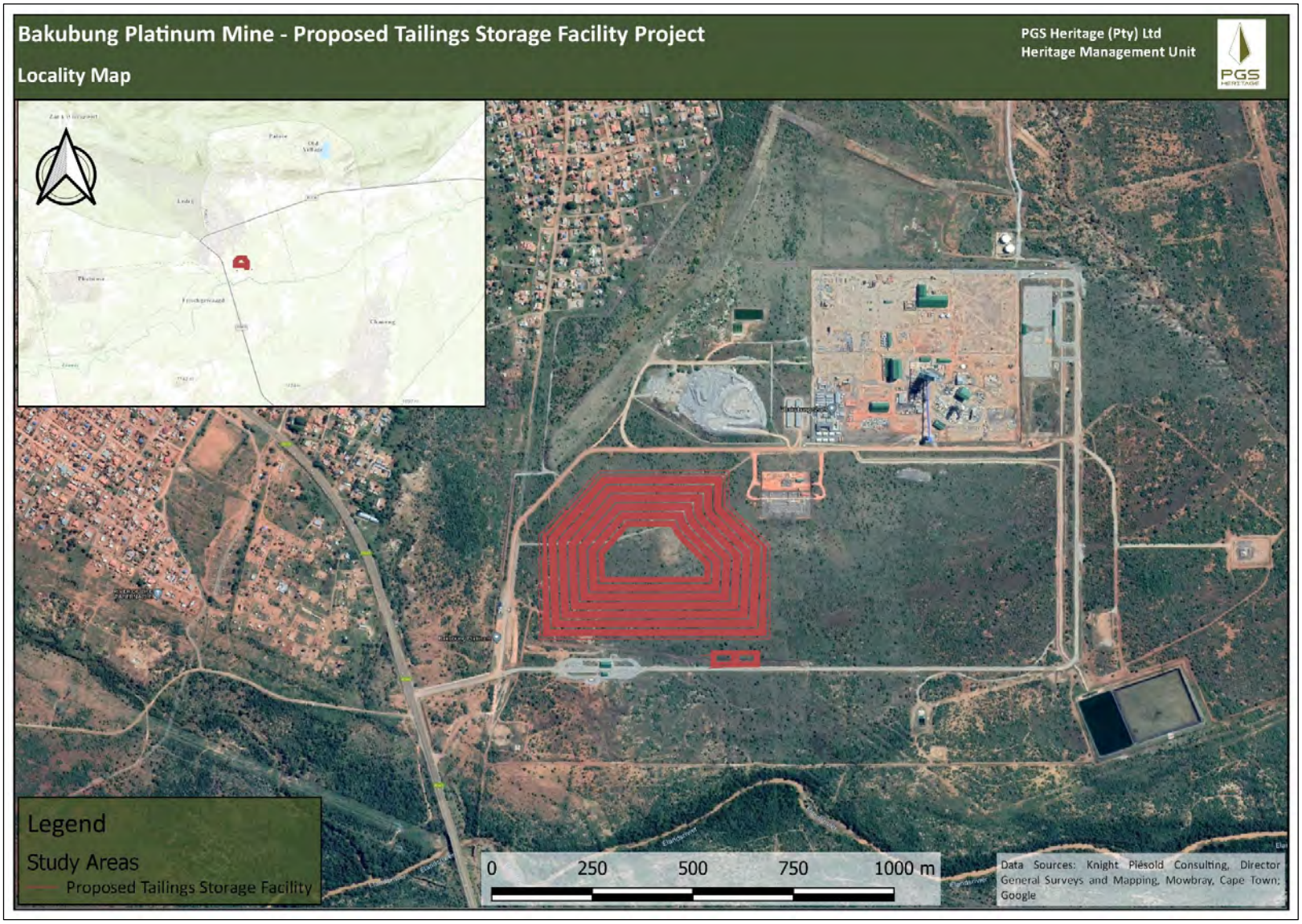

Figure 2 – Locality plan depicting the study area (marked in red) within its surrounding landscape

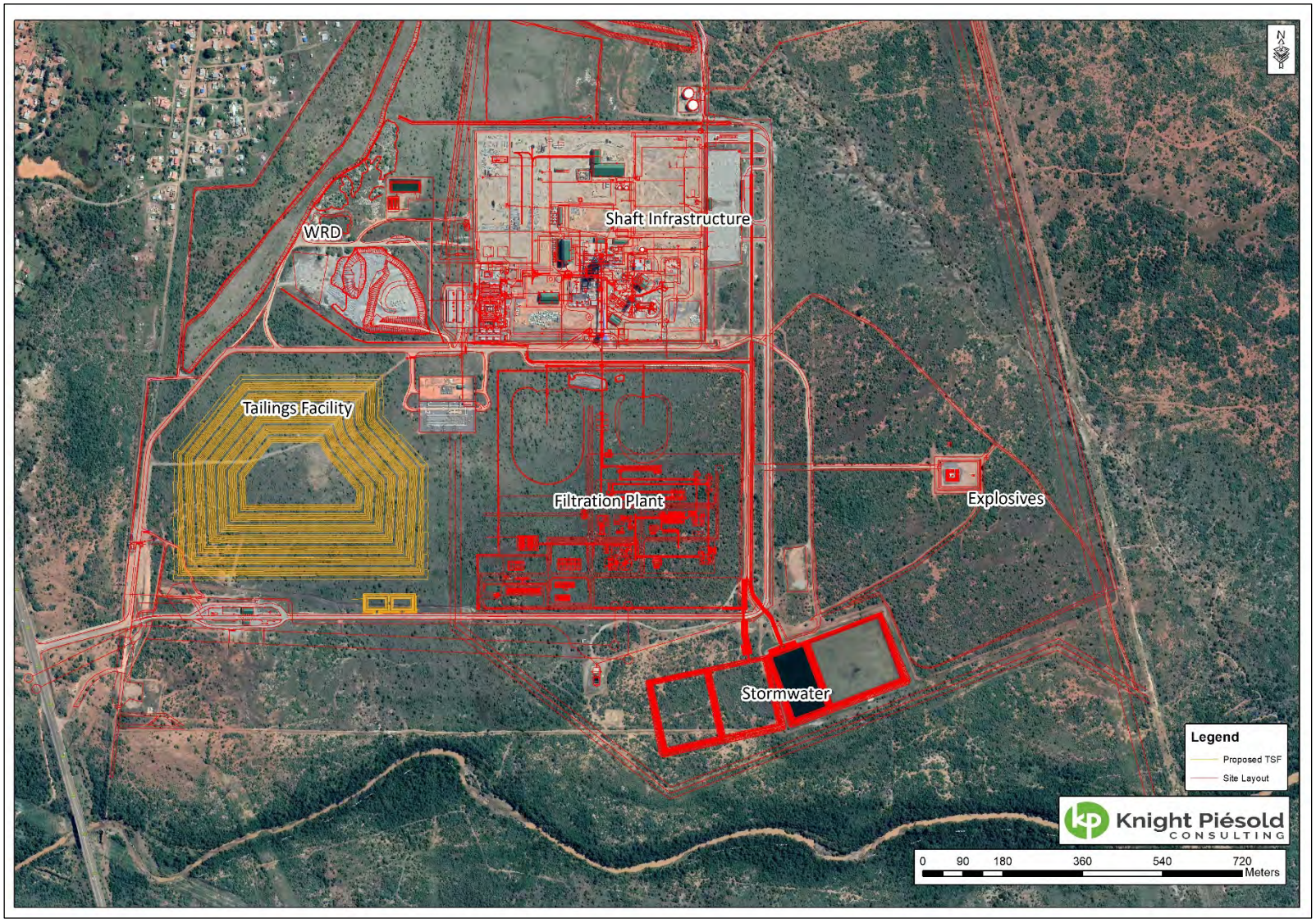

Figure 3 – Development layout plan showing the proposed TSF within its context.

3 ASSESSMENT METHODOLOGY

3.1 Methodology for Assessing Heritage Site Significance

The HIA process consisted of three steps:

Step I – Desktop Study: An archaeological and historical background study was undertaken using available sources. Previous archaeological and heritage studies from the study area and surroundings were also accessed using inter alia the South African Heritage Resources Information System (SAHRIS) of the South African Heritage Resources Agency (SAHRA). Furthermore, an assessment was made of the early editions of the releveant archival and historical maps.

Step II – Physical Survey: Intensive field surveys of the study area were undertaken on foot by an experienced fieldwork team comprising one archaeologist/heritage specialist (Polke Birkholtz) accompanied by a fieldwork assistant (Derrick James). The fieldwork was aimed at locating and documenting sites falling within the proposed development area. The fieldwork was undertaken on Monday, 9 March 2020.

Step III – The final step involved the recording and documentation of relevant heritage resources, the assessment of resources in terms of the heritage impact assessment criteria and report writing as well as mapping and recommendations.

The significance of heritage sites was based on five main criteria:

- site integrity (i.e. primary vs. secondary context),
- amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter)
    - Low - <10/50m²
    - Medium - 10-50/50m²
    - High - >50/50m²
- uniqueness and
- the potential to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

A - No further action necessary;

B - Mapping of the site and controlled sampling required;

C - No-go or relocate development position

D - Preserve site, or extensive data collection and mapping of the site; and

E - Preserve site

Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report (see table below).

Table 2 - Site significance classification standards as prescribed by SAHRA

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	-	High/Medium	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium	Recording before destruction
Generally Protected C (GP.C)	-	Low	Destruction

3.2 Methodology for Impact Assessment

The impact assessment methodology used in this report was supplied by Knight Piésold (Pty) Ltd. The impact significance rating process serves two purposes: firstly, it helps to highlight the critical impacts requiring consideration in the management and approval process; secondly, it shows the primary impact characteristics, as defined above, used to evaluate impact significance.

An impact is essentially any change to a resource or receptor brought about by the presence of the proposed project component or by the execution of a proposed project related activity. The terminology used to define the nature of an impact is detailed in **Table 3** below.

Table 3 - Impact Nature

Term	Definition
Positive (+)	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative (-)	An impact that is considered to represent an adverse change from the baseline or introduces a new undesirable factor.
Direct impact (D)	Impacts that result from a direct interaction between a planned project activity and the receiving environment/receptors (e.g. between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
Indirect impact (I)	Impacts that result from other activities that are encouraged to happen as a consequence of the Project (e.g. in-migration for employment placing a demand on resources).
Cumulative impact (C)	Impacts that act together with other impacts (including those from concurrent or planned future third party activities) to affect the same resources and/or receptors as the Project.

The impact significance rating system is based on the following equation:

Significance of Environmental / Social Impact = Consequence x Probability

The consequence of an impact can be derived from the following factors:

- Severity / Magnitude – the degree of change brought about in the environment
- Reversibility - the ability of the receptor to recover after an impact has occurred
- Duration - how long the impact may be prevalent
- Spatial Extent - the physical area which could be affected by an impact.

The severity, reversibility, duration, and spatial extent are ranked using the criteria indicated in **Table 4** and then the overall consequence is determined by adding up the individual scores and multiplying it by the overall probability (the likelihood of such an impact occurring). Once a score has been determined, this is checked against the significance descriptions indicated in **Table 5.**

Table 4 - Ranking Criteria

Severity / magnitude (M)	Reversibility (R)	Duration (D)	Spatial extent (S)	Probability (P)
5 – Very high – The impact causes the characteristics of the receiving environment/ social receptor to be altered by a factor of 80 – 100 %	**5 – Irreversible** – *Environmental* - where natural functions or ecological processes are altered to the extent that it will permanently cease. *Social* - Those affected will not be able to adapt to changes and continue to maintain-pre impact livelihoods.	**5 – Permanent** - Impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the Project lifetime.	**5 – International** - Impacts that affect internationally important resources such as areas protected by international conventions, international waters etc.	**5 – Definite** - The impact will occur.
4 – High – The impact alters the characteristics of the receiving environment/ social receptor by a factor of 60 – 80 %		**4 – Long term** - impacts that will continue for the life of the Project, but ceases when the Project stops operating.	**4 – National** - Impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences.	**4 – High probability** – 80% likelihood that the impact will occur
3 – Moderate – The impact alters the characteristics of the receiving environment/ social receptor by a factor of 40 – 60 %	**3 – Recoverable** *Environmental* - where the affected environment is altered but natural functions and ecological processes may continue or recover with human input.	**3 – Medium term** - Impacts are predicted to be of medium duration (5 – 15 years)	**3 – Regional** - Impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem.	**3 – Medium probability** – 60% likelihood that the impact will occur u

	Social - Able to adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support or intervention.			
2 – Low – The impact alters the characteristics of the receiving environment/ social receptor by a factor of 20 – 40 %		**2 – Short term** - Impacts are predicted to be of short duration (0 – 5 years)	**2 – Local** - Impacts that affect an area in a radius of 2 km around the site.	**2 – Low probability** - 40% likelihood that the impact will occur
1 – Minor – The impact causes very little change to the characteristics of the receiving environment/ social receptor and the alteration is less than 20 %	**1 – Reversible** *Environmental* - The impact affects the environment in such a way that natural functions and ecological processes are able to regenerate naturally. *Social* - People/ communities are able to adapt with relative ease and maintain pre-impact livelihoods.	**1 – Temporary -** Impacts are predicted to intermittent/ occasional over a short period.	**1 – Site only** - Impacts that are limited to the site boundaries.	**1 – Improbable** - 20% likelihood that the impact will occur

Table 5 - Significance Definitions

Score According to Impact Assessment Matrix	Significance Definitions	Colour Scale Ratings	
Negative Ratings		**Negative Ratings**	**Positive Ratings**
Between 0 and 29 significance points indicate **Low Significance**	An impact of low significance is one where an effect will be experienced, but the impact magnitude is sufficiently small and well within accepted standards, and/or the receptor is of low sensitivity/value.	**Low**	**Low**
Between 30 and 59 significance points indicate **Moderate Significance**	An impact of moderate significance is one within accepted limits and standards. The impact on the receptor will be noticeable and the normal functioning is altered, but the baseline condition prevail, albeit in a modified state. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is As Low As Reasonably Practicable (ALARP). This does not necessarily mean that "moderate" impacts have to be reduced to "low" impacts, but that moderate impacts are being managed effectively and efficiently to not exceed accepted standards.	**Moderate**	**Moderate**
60 to 100 significance points indicate **High Significance**	An impact of high significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. An impact with high significance will completely modify the baseline conditions. A goal of the ESIA process is to get to a position where the Project does not have any high negative residual impacts, certainly not ones that would endure into the long term or extend over a large area. However, for some aspects there may be high residual impacts after all practicable mitigation options have been exhausted (i.e. ALARP has been applied). It is then the function of regulators and stakeholders to weigh such negative factors against the positive factors, such as employment, in coming to a decision on the Project.	**High**	**High**

4 CURRENT STATUS QUO

During the fieldwork, the study area was found to be located in a landscape that is generally level. Sections of the study area had been disturbed. These disturbances include tracks and roads, electrical transmission lines as well as a section of the northern end of the study area which comprises a raised area of disturbed and discarded soil.

The vegetation found within the study area during the fieldwork comprised extensive sections of the grass cover interposed here and there by trees and bushes.

According to the National Vegetation Map of South Africa, the study area is located within the vegetation type known as Zeerust Thornveld. This vegetation type comprises "…*deciduous, open to dense short thorny woodland, dominated by Acacia species with herbaceous layer of mainly grasses on deep, high base-status and some clay soils on plains and lowlands, also between rocky ridges*…" (www.sanbi.org).

In terms of geology and soils, the Zeerust Thornveld vegetation type is underlain by "…*sediments of the Pretoria Group (Transvaal Supergroup) in this area, particularly the Silverton and Rayton Formations, are mostly shale with less quartzite and conglomerate. Carbonates, volcanic rocks, breccias and diamictites also occur in the Pretoria Group. Bronzite, harzburgite, gabbro and norite of the Rustenburg Layered Suite (Bushveld Igneous Complex) are also found. Soils are mostly deep, red-yellow, apedal, freely drained with high base status also with some vertic or melanic clays*." (www.sanbi.org).

Existing land uses found in the surroundings of the project area include the following:

- Mining infrastructure, including office complexes, access gate compelxes, plants, shafts, an electrical substation etc.;
- Residential areas such as Ledig; and
- Transport infrastructure, including including provincial tar roads.

A number of photographs below provide general views of the study area.

Figure 4 – General view of a section of the study area grass interposed by bushes and trees. In the background, the shaft of the Bakubung Platinum Mine can be seen.

Figure 5 – Another general view of a section of the study area.

Figure 6 – View of the study area showing the gate complex for the mine that is currently under construction in the background. Noe the electrical transmission line passing through the study area.

Figure 7 – One of the roads that passes through the study area.

5 DESKTOP STUDY FINDINGS

5.1 Overview of the History of the Study Area and Surroundings

5.1.1 Historical Overview

DATE	DESCRIPTION
2.5 million to 250 000 years ago	The Earlier Stone Age is the first and oldest phase identified in South Africa's archaeological history and comprises two technological phases. The earliest of these is known as Oldowan and is associated with crude flakes and hammer stones. It dates to approximately 2 million years ago. The second technological phase is the Acheulian and comprises more refined and better made stone artefacts such as the cleaver and bifacial hand axe. The Acheulian dates back to approximately 1.5 million years ago. Possible Early Stone Age material was identified within the mine property during an archaeological impact assessment by Matakoma-ARM (2007).
250 000 to 40 000 years ago	The Middle Stone Age is the second oldest phase identified in South Africa's archaeological history. This phase is associated with flakes, points and blades manufactured by means of the so-called 'prepared core' technique.
40 000 years ago to the historic past	The Later Stone Age is the third archaeological phase identified and is associated with an abundance of very small artefacts known as microliths.
AD 350 – AD 650	The Bambata facies of the Benfica Sub-Branch of the Kalundu Ceramic Tradition represents the earliest known Iron Age period within the surroundings of the study area. The decoration on the ceramics from this facies is characterised by "...*fine decoration, multiple bands and cross-hatching on long rim, alternating blocks of stamped and incised lines in neck*." (Huffman, 2007:215).
AD 1000 – AD 1300	The Eiland facies of the Kalundu Ceramic Tradition represents the fourth known Iron Age period within the surroundings of the study area. The decoration on the ceramics from this facies is characterised by "...*fine herringbone with stamping*." (Huffman, 2007:221).
1500 AD – 1700 AD	The Olifantspoort facies of the Moloko Branch of the Urewe Ceramic Tradition is the second Iron Age facies to be identified within the surroundings of the study area. The Olifantspoort facies can likely be dated to between AD 1500 and AD 1700. The key features of the decoration used on the ceramics from this facies include multiple bands of fine stamping or narrow incision separated by colour (Huffman, 2007). The type site for this facies is located on the farm Olfantspoort 328 JQ, which is situated 53km south-east of the present study area. After an archaeological team under Professor R.J. Mason of the University of the Witwatersrand identified a number of stonewalled settlements on the farm Olifantspoort by using aerial photographs, archaeological field research and excavations were undertaken during 1971 at eight of these sites located

	on the farm Olifantspoort as well as another site located on an adjacent farm. These sites were numbered 20/71, 21/71, 26/71, 27/71, 28/71, 60/71, 61/71, 62/71, 64/71 and 65/71. The focus of the research turned to Site 20/71 which proved to be a very large stonewalled site. A total of 85 huts as well as a number of middens were excavated here during the 1971 season alone. As many as 80 individual rock engraving panels were identified in the vicinity of the site. These engravings all depict settlement plans (Mason, 1973). A copper mine was also identified on the farm (Steel, 1987). In the following year sites 2/72 and 29/72 were added and researched, with sites 38/73 and 47/73 added the year after. A few years later in 1984 an Olifantspoort site was identified at Broederstroom and in 1985 another Olifantspoort site was identified at Ifafi (Huffman, 2007). The Olifantspoort facies holds an important position in the sequence of the Moloko or Sotho-Tswana group. The earliest facies to be associated with the Moloko is the Icon facies (AD 1300 – 1500), with sites found across large sections of what is today the Limpopo Province. The Icon facies resulted in three different and parallel Iron Age facies, namely the Madikwe facies (AD 1500 – 1700) (which in turn led to the Buispoort facies between AD 1700 and 1850), the Letsibogo facies (AD 1500 – 1700) and thirdly the Olifantspoort facies. The Olfantspoort facies developed into the Thabeng facies (AD 1700 – 1850) (Huffman, 2007). It is therefore evident that the Olifantspoort facies represents a key pillar in our understanding of the origins and sequence of the Sotho-Tswana people of today (Huffman, 2007).
1500 AD – 1700 AD	The Madikwe facies of the Blackburn Branch of the Urewe Ceramic Tradition represents the next phase in the Iron Age of the study area and surroundings. This facies can likely be dated to between AD 1500 and AD 1700. The decoration on the ceramics associated with this facies is characterised by multiple bands of cord impressions, incisions, stabs and punctates separated by colour (Huffman, 2007). As indicated above, the Madikwe facies represents one of three parallel Iron Age facies which had developed from the original Moloko facies known as Icon. As such, the Madikwe facies was the contemporary of the Olifantspoort and Letsibogo facies, and developed into the Buispoort facies (AD 1700 – AD 1850) (Huffman, 2007). Four Iron Age sites (2527AC-MHC002, 2527AC-MHC006, 2527AC-MHC008 and 2527AC-MHC018) with ceramics that could be associated with the Madikwe facies were identified within the mine property during an archaeological impact assessment by Matakoma-ARM (2007).
1650 AD – 1820 AD	The Uitkomst facies of the Blackburn Branch of the Urewe Ceramic Tradition represents another Iron Age period identified for the surroundings of the study area. This facies can likely be dated to between AD 1650 and AD 1820. The decoration on the ceramics associated with this facies is characterised by stamped arcades, appliqué of parallel incisions, stamping and cord impressions and is described as a mixture of the characteristics of both Ntsuanatsatsi (Nguni) and Olifantspoort (Sotho) (Huffman, 2007). The type-site is Uitkomst Cave, which is situated approximately 95km south-east of the study area. The site was excavated by Professor R.J. Mason of the University of the Witwatersrand as part of a project to excavate five cave

	sites in the Witwatersrand-Magaliesberg area. These five sites are Glenferness, Hennops River, Pietkloof, Zwartkops and Uitkomst. Uitkomst was chosen as the type site for the particular Iron Age material excavated at these sites as the Uitkomst deposit was found to be well stratified and the site "...illustrates the combination of a certain kind of pottery with evidence for metal and food production and stone wall building found at the open sites..." (Mason, 1962:385). The Uitkomst pottery is viewed as a combination of Ntsuanatsatsi and Olifantspoort, and with the Makgwareng facies is seen as the successors to the Ntsuanatsatsi facies. The Ntsuanatsatsi facies is closely related to the oral histories of the Early Fokeng people and represents the earliest known movement of Nguni people out of Kwazulu-Natal into the inland areas of South Africa. Regarding this theory, the Bafokeng settled at Ntsuanatsatsi Hill in the present-day Free State Province. Subsequently, the BaKwena lineage had broken away from the Bahurutshe cluster and crossed southward over the Vaal River to come in contact with the Bafokeng. As a result of this contact a Bafokeng-Bakwena cluster was formed, which moved northward and became further 'Sotho-ised' by coming into increasing contact with other Sotho-Tswana groups. This eventually resulted in the appearance of Uitkomst facies type pottery which contained elements of both Nguni and Sotho-Tswana speakers (Huffman, 2007). Huffman states that that the Uitkomst facies is directly associated with the Bafokeng (Huffman, 2007). However, it worth noting that not all researchers agree with this preposition of the Bafokeng origins. In their book on the history of the Bafokeng, Bernard Mbenga and Andrew Mason indicate that the research of Prof. R.J. Mason and Dr. J.C.C. Pistorius "...*would indicate that the Bafokeng originated from the Bahurutshe-Bakwena-Bakgatla lineage cluster. Tom Huffman holds a different view*..." (Mbenga & Mason, 2010).
1700 AD – 1840 AD	The Buispoort facies of the Moloko branch of the Urewe Ceramic Tradition is the next phase to be identified within the study area's surroundings. It is most likely dated to between AD 1700 and AD 1840. The key features on the decorated ceramics include rim notching, broadly incised chevrons and white bands, all with red ochre (Huffman, 2007). It is believed that the Madikwe facies developed into the Buispoort facies. The Buispoort facies is associated with sites such as Boschhoek, Buffelshoek, Kaditshwene, Molokwane and Olifantspoort (Huffman, 2007).
c. 1650 – c. 1700	During this time the Bathlako were living in proximity to the area today known as Cullinan, east of Pretoria. During the second half of the seventeenth century Kgosi Thatwe, the Bathlako chief, dispatched a reconnaissance party to the west of his chiefdom to assess the grazing conditions there. His sons Leema, Matutu and Modisane subsequently established themselves at Pharami (Boshoek) before settling along the Toelanie River near Pella. At Pella the chiefdom was split with Leema and his followers establishing the Batlhako ba Leema chiefdom and Matutu and his followers establishing the Batlhako ba Leemana chiefdom. In turn, the ancestors of the Batloung moved to Mabjanatsiri near the present day farm Grootwagendrift 233 JP, situated roughly 7.2 km west of the present study area (Breutz, 1957).

	Later, the son of Matutu, namely Seutlwane moved with his followers to Maseletsane on the northern end of the Pilwe Hills (Breutz, 1957). The northern end of the Pilwe Hills is situated roughly 7.5km north-west of the present study area.
Early 1700s	At the time, and possibly for some time before this date, the area surrounding present-day Rustenburg would have been occupied by the Bafokeng and the Tlokwa people (Hall et al., 2008). Mbenga and Mason (2010) indicate that Prof. R.D. Coertze estimation was that the Bafokeng had settled in the vicinity of Rustenburg at the end of the 17th century. Their land at the time stretched from the "...*Ngwaritsi (Selons) River to the west, the Bakwena-ba-Mogopa to the east, the Magaliesberg to the south and the Kgetleng (Elands) River to the north* (Mbenga & Mason, 2010: 7). With the Elands River located directly south of the study area, it is evident that at the time, the land of the Bafokeng was located immediately to the south.
1750s	During the mid eighteenth century the Batlokwa ba ga Sedumedi under Kgosi Mosima Tsele moved from Tlokwe (in proximity to present-day Potchefstroom) to the Pilanesberg. They settled at Bote, which is presently located on the farm of Houwater 54 JQ in the Pilanesberg National Park (Hall et.al., 2008) (Anderson, 2009). While at Bote, Mosima passed away and was succeeded by Monaheng (Hall et.al., 2008) (Anderson, 2009). The farm Houwater is located 6.5 km north by northeast of the present study area. At roughly the same time, the son of Seutlwane, namely Mabe, moved with his followers from Maseletsane on the northern end of Pilwe Hill to Mothoutlung situated on the present day farm Palmietfontein 208 JP (Breutz, 1953), some 7.5km north-west of the present study area.
Late 1700s	During the reign of kgosi Sekete IV the Bafokeng had "...*relations of conflict*..." with their Batswana neighbours (Mbenga & Mason, 2010).
1760 – 1770	As a result of the conflict between the Bafokeng and its neighbours (including the Batlokwa ba ga Sedumedi), Kgosi Monaheng moved with his people from Bote to Itlholanoga (Hall et.al., 2008) (Anderson, 2009). They remained here from 1760 to 1770 (Anderson, 2009). Itlholanoga is believed to be located on the present day farm Doornhoek 91 JQ. Sections of both the Pilanesberg National Park and Sun City are located on this farm. The farm is located 760m north-east of the present study area.
1780 – 1785	The Batlokwa ba ga Sedumedi chiefdom moved from Itlholanoga to Mankwe in c. 1780. The settlement of Mankwe coincided with the rule of Kgosi Taukobong. Mankwe is located on the farm Zwaarverdiend 234 JP. This farm is situated 2.8 km west of the present study area.
1785 – 1815	In c. 1785 Kgosi Taukobong led the Batlokwa ba ga Sedumedi chiefdom from Mankwe to Maruping, which is located in the Pilwe Hills (Anderson, 2009) some 6k m north-west of the present study area (Anderson, 2009). A succession battle during the early nineteenth century split the Tlokwa chiefdom in two, with Kgosi Molefe and his followers fleeing 30 miles to the west to establish themselves at Kolontwaneng (present day farm

	Grootfontein 225 JP). Molefe and his followers established the Batlokwa ba ga Bogatsu at Kolontwaneng. Meanwhile, the balance of the Batlokwa ba ga Sedumedi remained at the Pilwe Hills until 1815 (Anderson, 2009).
1815	Under its new leader Bogatsu, the Batlokwa chiefdom moved to Marothodi in 1815. Marothodi is located on the present day farms of Bultfontein 204 JP, Diamant 206 JP and Vlakfontein 207 JP. Of these, the latter farm is situated nearest to the present study area at a distance of 9.5 km to the north-west. While the chief moved to Marothodi, a section of the Batlokwa ba ga Sedumedi remained behind in the Pilwe Hills (Anderson, 2009).
c. 1820	During the reign of Bogatsu, the Batlokwa became embroiled in another conflict with the Bafokeng. As a result, the Bafokeng, under its chief Moseletsane, marched on the Batlokwa at Pilwe and Marothodi. The Tlokwe met the Bafokeng on the plain to the west of the Pilwe Hills where the Bafokeng chief was eventually captured and executed (Anderson, 2009).
c. 1823	The Batlokwa ba ga Sedumedi remained at Marothodi until c. 1823 when they moved to present-day Botswana (Anderson, 2009).
1827 - 1832	The Khumalo Ndebele of Mzilikazi established themselves along the Magaliesberg Mountains, having moved here from the central Vaal River. In c. 1832 the Khumalo Ndebele moved to the Marico River (Bergh, 1999).
1836	The first Voortrekker parties started crossing the Vaal River (Bergh, 1999).
Late 1830s – Early 1840s	These years saw the early establishment of farms by the Voortrekkers in the general vicinity of the study area (Bergh, 1999). One of these Voortrekkers was Stephanus Johannes Paulus (Paul) Kruger, who was President of the Zuid-Afrikaansche Republiek between 1883 and the end of the South African War in 1902. His family formed part of the Voortrekkers who settled in these parts during this time and, in 1841 at the age of 16 Kruger himself became an owner of a farm (Waterkloof) near Rustenburg. He would eventually own a large number of farms in the Rustenburg area, including Saulspoort (located roughly 22 km north-east of the present study area). During this period the first contacts between the black people residing in the Rustenburg area at the time (including the Bafokeng) and white people took place. According to Bergh (2005) these early contacts resulted in the setting aside of land by the Voortrekker leadership for the Bafokeng people. Mbenga (1997) indicates that the relationship between the Voortrekkers and the Bakgatla were initially also amicable. However, within a short period the relationship between the Voortrekkers and the black groups living in the area around Rustenburg became increasingly strained. For example, Bergh (2005) states that the Bafokeng were eventually dispossessed of their farms. The system of unpaid labour enforced by the Voortrekkers on the local black groups would certainly have deteriorated the relationship further. See for example Morton (1992).
1851	Both the district and town of Rustenburg were established in this year

	(Bergh, 1999). The study area fell within the Rustenburg district at the time.
28 April 1859	The farm Onderstepoort was inspected by S. Eloff on this day. On 8 March 1860 the farm was transferred to its first owner, namely Tjaart Andries van der Walt (National Archives, RAK, 3011).
28 April 1859 continued	The farm Ledig was inspected on the same day by S. Eloff. On 8 July 1859 the farm was transferred to its first owner, namely J.H. du Plessis (National Archives, RAK, 3011). The "S. Eloff" referred to in the farm ownership histories, appears to have been Sarel Johannes Eloff (22 August 1822 – 11 April 1889) (Visagie, 2011), who became Kommandant of Swartruggens and appears to have been a life-long friend of President Paul Kruger. During the 1880s Eloff acted as Chairperson for the Inspection Commission in the Swartruggens and Harts River Districts (National Archives, SS, 899, R724/84).
Early 1860s	After 1861, Tshomankane Pilane moved with a significant section of the Bakgatla ba ga Kgafela from Saulspoort (on the north-eastern end of what is today known as the Pilanesberg National Park) to establish himself at a place known as Bopitiko (Breutz, 1953). While some authors indicate that Bopitiko is located on the present day farm Doornhoek 91 JQ (Maree, 1966), others (Breutz, 1953) (Schapera, 1965) indicates that Bopitiko was located on the farm presently known as Ledig 90 JQ.

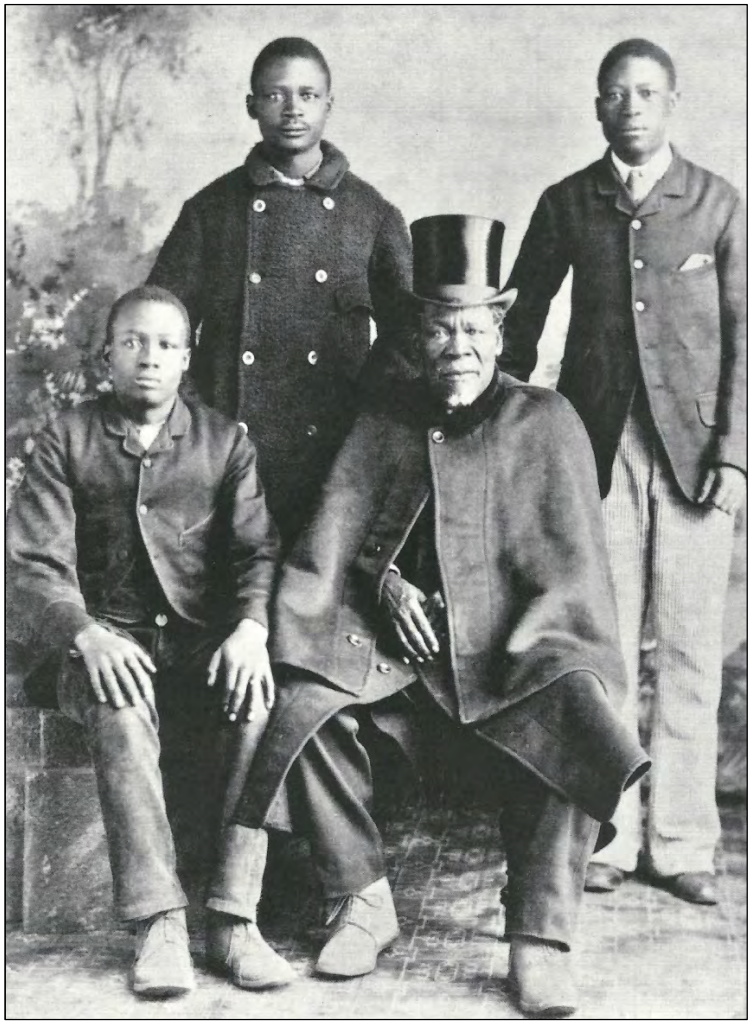

Figure 8

Photograph taken in 1887 of Kgosi Mokgatle and his sons (Mbenga & Manson, 2010).

1860s – 1870s	With the assistance provided by German missionary Christoph Penzhorn of the Hermannsburg Missionary Society, Kgosi Mokgatle and the Bafokeng bought a number of farms in proximity to Rustenburg (Bergh, 2005). These acquisitions were an attempt by the Kgosi and the Bafokeng to procure land that had been theirs before the arrival of the first white people. Mbenga & Manson (2010) states that the Bafokeng acquired a total of 24 farms during the second half of the 19th century. Of these, the closest farms to the present study area are Styldrift 90 JQ (located directly east of the present study area), Hartbeestspruit 88 JQ (roughly 7.1 km east of the present study area) and Goedgedacht 110 JQ (some 6.2 km south-east of the present study area) (Bergh, 2005).
1862	In 1862 Henry Gonin arrived in the Rustenburg District to establish a missionary station for the Dutch Reformed Church. His first mission station was established on the farm Welgeval 171 JQ (Morton, 1992), which is presently located within the Pilanesburg National Park and is located roughly 11.8k north-west of the present study area.
26 March 1862	The farm Vrischgewaagd (today spelled Frischgewaagd) was inspected by N.J. Theunissen on this day. On 25 July 1862 the farm was transferred to its first owner, P.J. Robbertse. On the same day the farm was transferred from Robbertse to Jacobus Johannes Erasmus (National Archives, RAK, 3015).
April 1870	At the end of April 1870, an infamous event occurred in the Pilanesberg area that is still remembered today. At the time, politician and farmer, Kommandant Paul Kruger (later President of the South African Republic), convened a public meeting at his farm Saulspoort to which Kgosi Kgamanyane Pilane of the Bakgatla ba ga Kgafela and all the neighbouring chiefs were invited. The meeting followed on the refusal of the Bakgatla ba ga Kgafela of Kgamanyane Pilane to continue working under such difficult conditions on the construction of a new irrigation dam that was being built in the Pilanesberg by Kruger. At the meeting, Kgamanyane was tied to the wheel of a wagon and flogged by Kruger in front of the neighbouring chiefs and the Bakgatla (Mbenga, 1997). As indicated by Mbenga (1997:129) "…*the humiliation of the flogging incident became forever embedded in the collective psyche of the Kgatla*…" Shortly thereafter, Kgamanyane with at least half of the Bakgatla ba ga Kgafela, left Saulspoort and settled at Mochudi in present-day Botswana where their descendants still live today. As indicated elsehwere, Saulspoort is located roughly 22 km north-east of the present study area.
1880-1881	The First Boer War (also known as the First War of Independence) took place during this time. The most significant aspect of the war for the town of Rustenburg would have been the besiegement of a company of 2nd Batallion Royal Scots Fusiliers by Boer forces. The siege lasted for 93 days (Wulfsohn, 1992). While the earthwork fort in which the British forces were besieged does not exist anymore, its present location would have been the corner of

	Kerk and Von Wielligh Streets. This position is some 35 km south-east of the present study area (Wulfsohn, 1992).
1888	Tshomankane Pilane returned with his followers to the proximity of Saulspoort, namely the farm Kruidfontein, from Bopitiko. The farm Kruidfontein is located roughly 23 km north of the present study area.
1899 - 1902	The Anglo Boer (South African) War took place during these years. While no skirmishes or battles are known from within the study area, a number of events and activities associated with the war from the immediate surroundings of the study area are known. In early 1900 for example, a group of men from Rustenburg were called upon to establish a laager on the drift over the Elands River "…on the present day main road to Sun City…" (Wulfsohn, 1992:68). This was to prevent an invasion into Rustenburg by the Bakgatla from Saulspoort and Bechuanaland. The men holding the drift included W.T. Dawes, August Schoch, J.S. (Sammy) Mundel and Philip Brink (Wulfsohn, 1992). The position of this drift (if it still existed today) is roughly 340m south of the present study area. During the war years the Bakgatla from Saulspoort and Bechuanaland under Kgosi Linchwe I (the son of Kgamanyane Pilane) actively resisted and fought the Boer Commandos and also raided Boer farms across the present-day North West and Gauteng Provinces as far as south of Rustenburg (some sources even indicate that the Kgatla regiments raided farms in the Pretoria District as well). While no clear victors in the fight for the land north of the Elands River emerged, the Bakgatla succeeded in harassing and attacking the Boer forces to the extent that the far north-western areas of the Transvaal Republic were largely left unmanned and unoccupied by Boer forces during much of the war, and especially so as the war progressed. While numerous skirmishes would have taken place around the Pilanesberg as a result of the tug of war between the Boers and Baklgatla, two pitched battles did occur in this area namely at Janskop and Draaiberg (Morton, 1992). These battlefields are located on the northern and north-western ends of the Pilanesberg, and as a result some distance from the present study area. Apart from the drift over the Elands River, another highly strategic point from the surroundings of the study area during the war years was Boschoek Nek. Situated roughly 7.5km south of the present study area, this topographic feature represented one of only a few passes through the Magaliesberg Mountains. The strategic importance of the nek was not realised at first by the British authorities, with the Boer forces utilising it with impunity on numerous occasions to move men across the mountain range. Even as late as 21 May 1902, reports were received by the British Command in Rustenburg that a group of 30 Boers had crossed over the nek from the west to carry out raids on the Kana Mission Station and Magatostad (Wulfsohn, 1992). The Staff Diaries of the Rustenburg District provide further insight into war-time events which occurred in the surroundings of the study area. For example, on 6 February 1902 a patrol of Imperial Yeomanry commanded by Captain Johnstone and accompanied by a group of Burgher Scouts under a British Intelligence Officer left Rustenburg for the Pilanesberg. The Burgher

	Scouts were tasked with the construction of a line of blockhouses. Upon completing this task, the Imperial Yeomanry returned to Rustenburg, arriving safely on 16 February 1902 with valuable information on Saulspoort and the Pilanesberg. The Burgher Scouts remained behind on the farm Palmietfontein (Wulfsohn, 1992). As mentioned elsewhere, this latter farm is located roughly 7.5km north-west of the present study area. Other recorded events include the returning to Rustenburg of a column under the command of Colonel Colenbrander on 10 March 1902 from a patrol of the Elands River beyond Boschhoek (Rustenburg Staff Diary, March 1902). While the details of this patrol are not known, it would have been carried out in the immediate surroundings of the study area. Also, on 21 March 1902, Captain Johnstone, in command of a patrol of Imperial Yeomanry, as well as Lieutenant Haigh of the Field Intelligence Department, returned to Rustenburg from the Pilanesberg (Rustenburg Staff Diary, March 1902). The reason for their visit to the Pilanesberg is not known, nor is the route that was followed by this column.
 Figure 9 Colonel Colenbrander, who led a British column on a patrol of the Elands River beyond Boschhoek (Creswicke, 1902: 76).	
1902	At the end of the South African War the Rustenburg District was divided into three wards, namely Swartruggens, Hex River and Elands River. The study area now fell within the Elands River Ward of the Rustenburg District (Bergh, 1999). During this time, Ramono, the brother of Linchwe I, was installed as kgosi of the Bakgatla bag a Kgafela living in the then Transvaal (Tlou & Campbell, 1997).

1914 -1915	In 1914 the South African government under General Louis Botha decided to assist Great Britain in its war with Germany. A number of Boer leaders were not happy about this turn of events, and when General Koos de la Rey was killed at a roadblock in Johannesburg emotions reached a boiling point and a Boer rebellion broke across the then Transvaal and Free State. This was also true for the Pilanesberg area. On 6 and 7 November 1914, for example, a force of 18 rebels attacked the Pilanesberg Police Station, which at the time was held by a single policeman, Constable Petrus Paulus Jacobus (Piet) Botha. The attack did not succeed (Wulfsohn, 1989). While the exact location of this police station is not presently known, Mr Wulfsohn indicates that it was near Sun City.
Figure 10 Dr. Hans Merensky, the geologist who discovered the platinum reef at Rustenburg (Machens, 2009).	
1924	In this year the famous geologist Hans Merensky was shown a sample of platinum ore that a Mr. Andries Lombard had found near Lydenburg. Merensky managed to trace a platinum reef all along the outer edge of the Bushveld Complex from Lydenburg to Rustenburg. This reef was to be known as Merensky Reef (Carruthers, 2007). The discovery of the Bushveld Complex was of extensive economic significance for South Africa. As indicated by Wikipedia, the Bushveld Igneous Complex "*…contains the world's largest reserves of platinum-group-metals (PGMs) – platinum, palladium, osmium, iridium, rhodium, and ruthenium – along with vast quantities of iron, tin, chromium, titanium and*

	vanadium." The complex was traced along two zones or belts, known as the Western and Eastern Belt. The Western Belt is of significance for the present study. The relevant government survey reports and later studies all indicate that the Western Belt "*…extends for about 100 miles as follows: from Brits towards Rustenburg and then northwards, skirting the Pilanesberg on its western side and continuing almost as far as the Crocodile River*." See for example The Official Year Book of the Union (1938:862). The identification of the Bushveld Igneous Complex inter alia between Rustenburg and the Pilanesberg, meant that the surroundings of the study area were increasingly prospected and mined in the period after 1924.
December 1924	A branch line was opened between Rustenburg and Boschhoek (Higginson, 2014). This development would have stimulated mining exploration and development in areas north of Boschhoek. At the time, the Boschhoek railhead would have been located roughly 10.5 km from the present study area.
April 1929	In April 1929, E.R. Schoch published his "Notes on the Nickel and Copper Deposits in the Norite Complex of the Pilansberg, District Rustenburg, Transvaal" in the Journal of the South African Institute of Mining and Metallurgy. This, and other attempts at prospecting and exploring the mineral wealth of the areas to the west of the Pilanesberg, would have stimulated the mineral development of the surroundings of the study area.
August 1936	Palmiet Chrome (Pty) Ltd was established in August 1936. It owned 3,807 morgen of chrome rights on the farm Palmietfontein 208 JP (South African Mining Yearbook, 1941/2), situated some 7.5 km to the north-west.
15 January 1938	Rustenburg Chrome Mines (Pty) Ltd was established on this day and at the time held options on the farm Vogelstruisnek 173 JP (South African Mining Yearbook, 1941/2), situated roughly 14.5 km north-west of the study area.
1966	In 1966 the Apartheid government forcibly relocated the Bakubung ba Ratheo from Molotestad near Boons (roughly 73 km south-east of the present study area) to the farms Wydhoek, Ledig and Koedoesfontein. When Bophutatswana was established a decade later, these farms were handed over to the Bantustan (www.wikipedia.org). See also Historia (2000) and De Satgé (2006). These farms are located directly north of the study area.
6 December 1977	The South African government granted independence to Bophutatswana on 6 December 1977 (www.wikipedia.org).
1977	The Pilanesberg National Park was established in 1977 and during its early years was managed by the then Agricultural Development Corporation of Bophutatswana (Carruthers, 2011).
7 December 1979	The Sun City resort was opened on this day and at the time fell within the Bantustan of Bophutatswana (www.wikipedia.org).

5.1.2 Findings from the Historical Overview

Although the historical overview of the study area and surroundings has revealed a long and significant history for this area, almost none of the historical events highlighted in this report can be positively linked to the study area itself. This said, in a number of cases, mention is made to properties and localities located adjacent or very close to the study area.

The following events from the historic overview can be linked to the study area and its immediate surroundings:

- During the Late Iron Age, a number of groups established themselves in the immediate surroundings of the study area. In geographic terms some of the closest examples of these groups include the Bafokeng and the Batlokwa bag a Sedumedi. During the early 1700s (and possibly before this date) the Bafokeng land stretched in a northward direction all the way to the Kgetleng (Elands) River, which is located immediately south of the study area. In terms of the Batlokwa ba ga Sedumedi, they established themselves at Itlholanoga (c. 1760 – c. 1770) located roughly 2 km north of the study area. In c. 1780 the Batlokwa ba ga Sedumedi moved from Itlholonoga to Mankwe (Zwaarverdiend 234 JP) located roughly 2.8 km west of the present study area.

- The district of Rustenburg was established in 1851. The study area fell within this district.

- The farms Onderstepoort and Ledig were both inspected on 28 April 1859. Their first owners were Tjaart Andries van der Walt and J.H. du Plessis. The farm Vrischgewaagd (Frischgewaagd) was inspected on 26 March 1862 and subsequently transferred to its first owner, P.J. Robbertse.

- During the early 1860s Tshomankane Pilane moved with a significant section of the Bakgatla ba ga Kgafela from Saulspoort to Bopitiko. While some authors believe that Bopitiko was located on the present-day farm Doornhoek 91 JQ, others believe that it was located on the farm Ledig 90 JQ.

- During the 1860s and 1870s the Bafokeng bought a total of 24 farms in the Rustenburg District, including the farm Styldrift located immediately to the east of the present study area.

- In early 1900, during the South African War (1899 – 1902), a group of Rustenburg burghers established a laager at the drift over the Kgetleng (Elands) River. Some authors believe this drift to have been located where the present-day tar road between Rustenburg and Sun City crosses the river. If so, this military position would have been roughly 340 m from the present study area.

- In 1902, at the end of the South African War, the Rustenburg district was divided into three wards. The study area now fell within the Elands River Ward of the Rustenburg district.

- On 6 and 7 November 1914, the Pilanesberg Police Station was attacked by 18 Boer rebels. This was during the Boer Rebellion. Some authors believe the police station to have been located near present-day Sun City.

- During 1924 the famous geologist Hans Merensky traced a platinum reef all along the edge of the Bushveld Complex from Lydenburg to Rustenburg. The Bushveld Complex was traced along two zones or belts, with the Western Belt extending "…from Brits towards Rustenburg and then northwards, skirting the Pilanesberg on its western side and continuing almost as far as the Crocodile River." The tracing of the Western Belt through these parts meant that the surroundings of the study area were increasingly prospected and mined in subsequent years.

- In 1966 the Apartheid government forcibly relocated the Bakubung ba Ratheo from Molotestad near Boons to the farms Wydhoek, Ledig and Koedoesfontein. The farm Ledig is located immediately north of the study area.

- The South African government granted independence to Bophutatswana on 6 December 1977.

- The Pilanesberg National Park was established in 1977.

- The Sun City resort was officially opened on 7 December 1979.

5.2 Archaeological Background to the Study Area and Surroundings

A number of archaeological surveys and research projects have been undertaken in the vicinity of Pilanesberg and the study area. The reason for this focus in archaeological work in the surrounding

area is largely due to the extensive platinum, chrome and nickel mining activities that have taken place in this area and the resulting requirement for archaeologists to assess the proposed mining areas.

With this as background, two main types of archaeological reports and publications were used to compile this overview. The first source of information on the archaeology of the area was the use of published literature, which primarily relates to academic research carried out by archaeologists associated with universities and museums. The second of these are reports that were all accessed from the SAHRA electronic database known as the SAHRIS (South African Heritage Resources Information System), and which for the most part came about due to the requirement for archaeological and heritage impact assessments to be undertaken for mining (and other development) activities. It is important to note that the information listed here do not necessarily represent all the previous archaeological work undertaken in the vicinity of the study area. Rather this section attempts to provide a very brief overview of such previous archaeological work from within the study area and its surroundings.

5.2.1 Archaeological Sites as Revealed through a Study of Published Literature

A study of the available archaeological journals and books revealed the following archaeological sites situated within the surroundings of the study area. The sites are individually discussed and at the end of each description the approximate distance between each site and the present study area is provided.

- **Itlholanoga**

  During the 1980s, Professor Revil Mason of the University of the Witwatersrand excavated a stonewalled Iron Age site on the hills above Sun City named Site 33/81. Mason (1986:688) describes the site as follows "…*on the crest of a ridge about 150 metres vertically above the Sun City workers' residences, on the radio tower hill…the Site 33/81 complex is in two parts. The main part covers an area of about 250 x 250 metres on the upslope edge of the road. The second part is a line of three separate structures extending for 300 metres on the north-west corner of the main part*."

  Professor Revil Mason excavated seven ash heaps and nine huts at the site, and recovered 69

decorated potsherds, 338 undecorated potsherds, one drilled ceramic pendant, 15 dagga pipes, six conical figurines, one cattle figurine, one sliding door trackway, one iron arrowhead, two iron fragments, two slag bits and two shell beads (Mason, 1986). The decorated ceramics recovered by Mason could identified as Uitkomst and Buispoort pottery (Huffman, 2007) (Mason, 1986). Mason (1986) was able to date the site to AD 1800 using C^{14} dating that was obtained from samples recovered from Ash Heaps 3 and 7. He associated both the ceramics and settlement layout of the site with Kaditshwene and suggested that the site may have been built by Sotho-Tswana people associated with the Hurutshe group.

Professor Tom Huffman (2007) of the University of the Witwatersrand mapped the same complex in 2005 and identified a multi-component site comprising Molokwane walling associated with Buispoort pottery as the second more recent occupation with Uitkomst pottery found in middens associated with the remnants of earlier walling from a previous occupation. Huffman (2007) concludes that the Kgatla were responsible for the Molokwane walling whereas the Tlokwa can most likely be associated with the earlier walling.

According to the oral histories recorded by Breutz (1953) and others, the Batlokwa ba ga Sedumedi under Kgosi Monaheng moved their capital from Bote to Itlholanoga (on the present-day farm Doornhoek 91 IQ) sometime between 1760 and 1770. The stimulus for this move was the conflict between influence The Batlokwa capital remained here until 1780 to 1785, when it was moved to Mankwe (present-day farm Zwaarverdiend 234 JP). The site excavated by Mason (1986) and Huffman (2007) is believed to be the Tlokwa capital Itlholanoga.

Itlholanoga is located roughly 2 km north of the present study area.

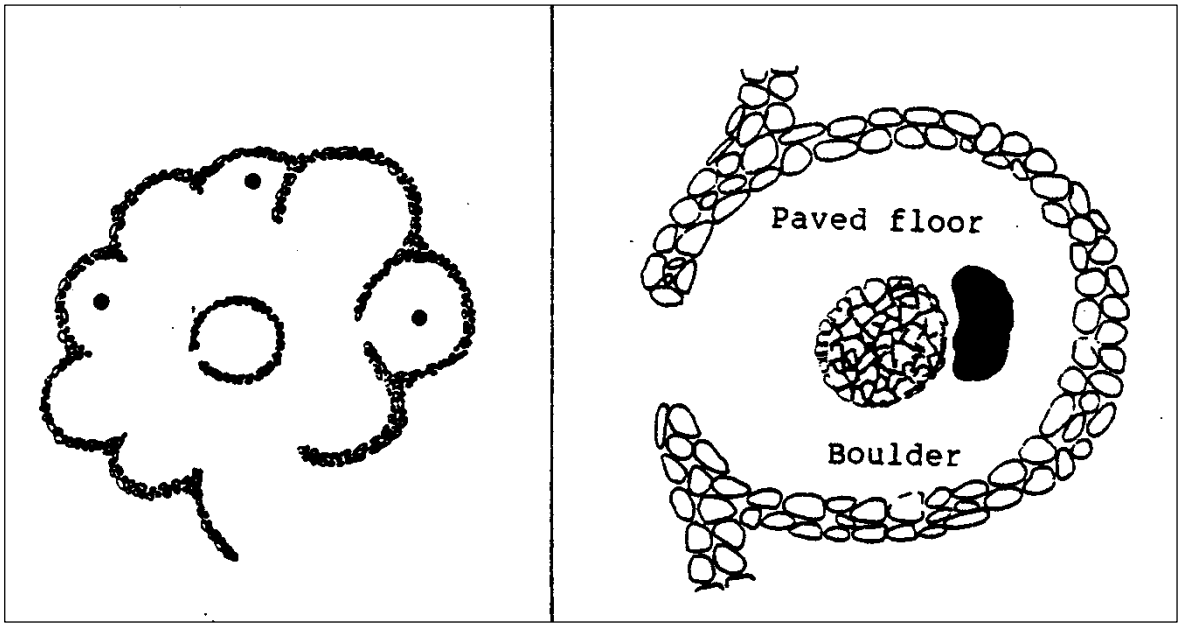

Figure 11 – Hut wall details at Site 33/81 (Mason, 1986:690).

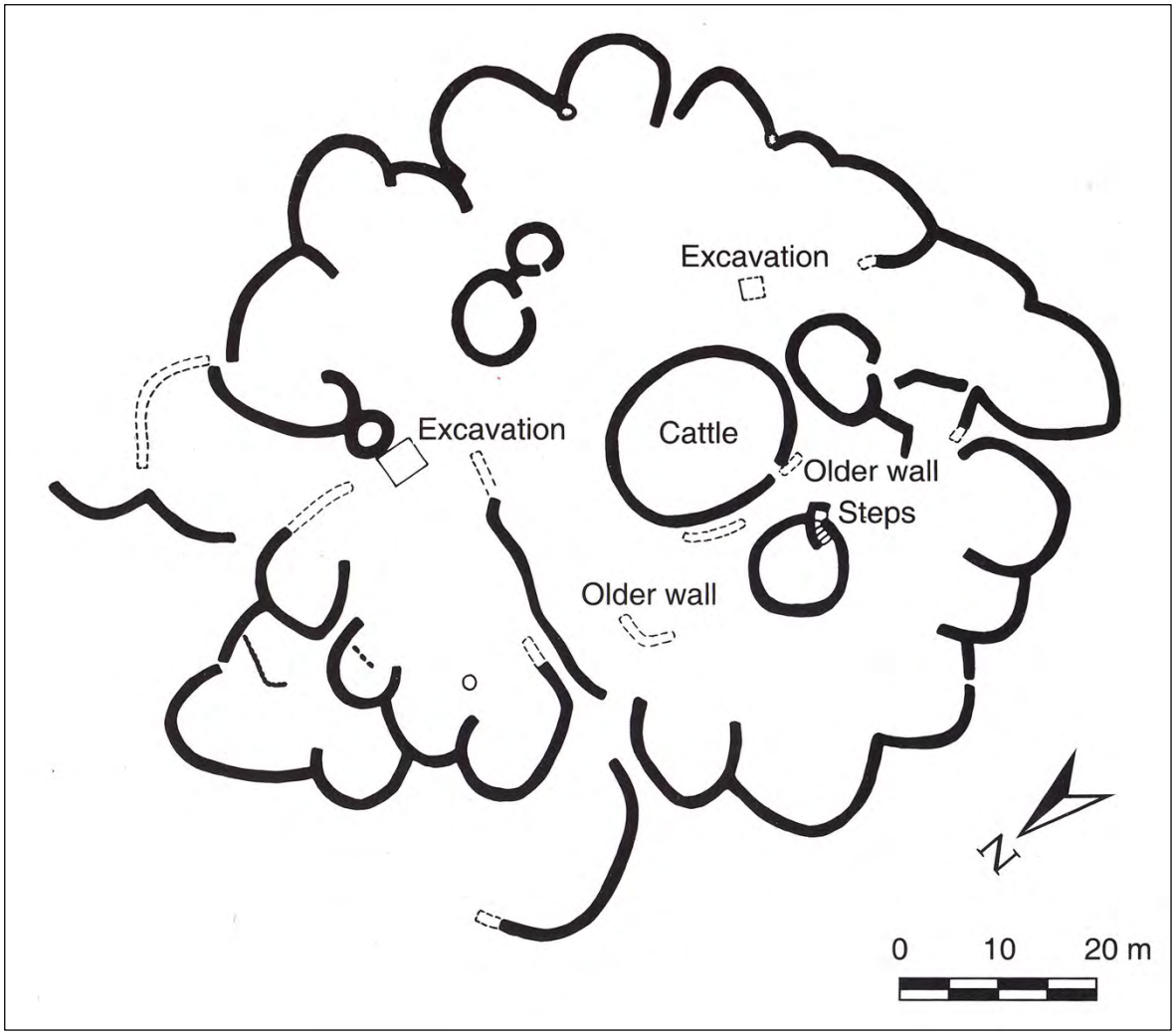

Figure 12 – Layout plan of Itlholanoga as recorded by Huffman (2007:438).

- **Marothodi**

During the 1980s, the Eskom Land Survey Department identified a Late Iron Age stonewalled megasite at Vlakfontein, to the west of the Pilanesberg. Professor Revil Mason of the University of the Witwatersrand carried out an initial assessment of the site (Mason, 1986). Between 2002 and 2008, the site was excavated by Dr Mark Anderson for his Doctoral Thesis at the University of Cape Town (Anderson, 2009).

The oral histories revealed that the Batlokwa ba ga Sedumedi moved to Marothodi in 1815. They remained here until c. 1823, when the Tlokwa capital was moved to present-day Botswana (Anderson, 2009).

Anderson (2009:326-327) states that the "…*excavation at Marothodi has confirmed that the dominant ceramic style associated with the Tlokwa in the early 19th century is representative of the Uitkomst facies, which is part of the Fokeng cluster. In the ceramic sequence…Uitkomst is derived from Nstuanatsatsi, demonstrating the link between the Marothodi Tlokwa and the first group of Bantu speakers to cross the Vaal River from KwaZulu-Natal in the south-east. These early Fokeng originated among Northern Nguni people (Huffman, 2007).*

The presence of Nguni characteristics at Marothodi further underscores the association of the site with the Tlokwa. These characteristics include the central placement of the middens within the homestead as well as the intermittent capping of these middens using soil. Anderson (2009:327) adds that "*Marothodi must be understood against an historical backdrop somewhat different to those of the neighbouring aggregated towns inhabited by 'typical' western Tswana in the region, such as the Kwena at Molokwane and the Hurutshe at Kaditshwene. Instead, we glimpse a process of 'Tswana-isation' somewhere along their journey north-westward, possibly soon after their arrival in the Pilanesberg, which eventually resulted in the cultural expression we see at Marothodi in the early 19th century. While Uitkomst remains the dominant ceramic expression at Marothodi, a trajectory of increasing interaction with other regional communities is represented in elements of imported Buispoort pottery appearing in the assemblages, and in the adoption of a western Tswana worldview so vividly demonstrated in the culturally driven organisation of settlement space and commodity production*."

The research at Marothodi also revealed a significant emphasis on metal production, and

especially copper. With copper possibly valued high enough to be exchanged for cattle, the large cattle enclosures at Marothodi may have been the result of trade with other communities (Anderson, 2009).

Marothodi is located roughly 14.9 km north-west of the present study area.

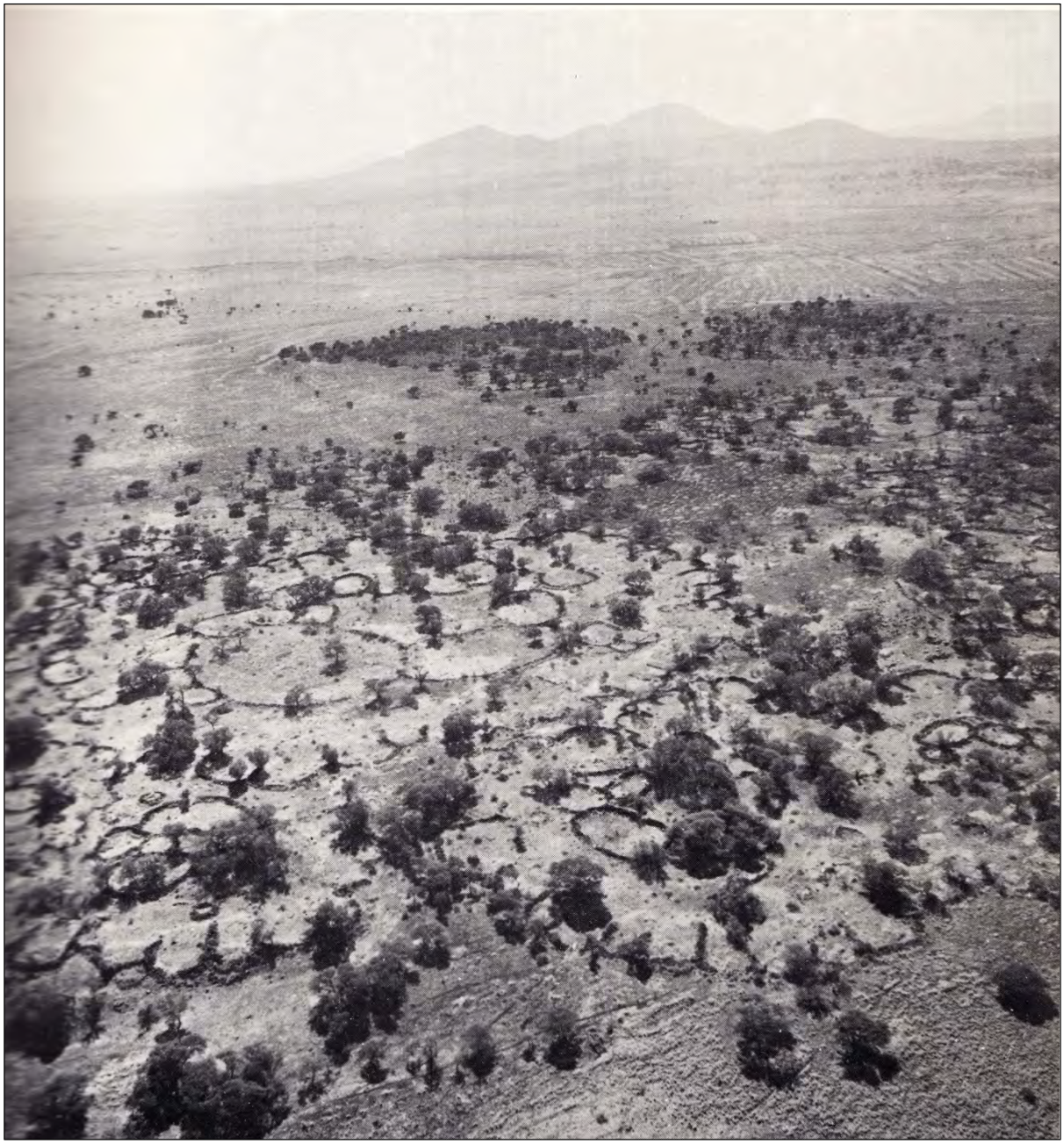

Figure 13 – This aerial view of Marothodi was taken by Professor Revil Mason (1986:3).

- **Pilanesberg National Park**

  Mr F.P. Coetzee of UNISA has carried out an archaeological survey of the Pilanesberg National Park since 1995. The survey has revealed large numbers of primarily Late Iron Age sites across the park. The Pilanesberg National Park is located approximately 2.6 km north of the present study area.

5.2.2 Archaeological Sites as Revealed through a Study of the SAHRIS Database

The reports discussed here were all accessed from the SAHRA electronic database known as SAHRIS (South African Heritage Resources Information System). It is important to note that the reports listed here do not necessarily represent all the previous archaeological work undertaken in the vicinity of the study area. An attempt was made to locate reports on the database dealing with farms located either within the present study area, or directly adjacent to it.

The search of SAHRIS revealed a total of two previous heritage and archaeological impact assessments undertaken of study areas which either included the current study area, or that were located in the immediate surroundings the present study area. These two reports are discussed individually below.

- ***Van der Walt, J. 2007. Proposed platinum mining on portions of the farms Ledig 909JQ, Frischgewaagd 96JQ & Mimosa 81 JQ, North West Province. Matakoma - ARM Heritage Contracts Unit.***

  This Heritage Impact Assessment formed part of the Environmental Impact Assessment carried out for proposed platinum mining on the farms Frischgewaagd 96 JQ (Portions 3, 4 and 11), Ledig 909 JQ (Portions 1, 2, 3, 4, 5 and 6) and Mimosa 81JQ. The study area for this 2007 archaeological report included the present study area.

  A total of 24 heritage sites were identified during the survey, including two extensive cemeteries, four sites containing one or more possible graves, one historic site containing circular and rectangular structures as well as 17 Iron Age sites. The largest majority of these Iron Age sites comprised a surface scatter of decorated and undecorated ceramics that in some cases were found in conjunction with lower grinders, slag and hut daga. Only three of the Iron Age

sites contained stone foundations for grain bins and huts. Furthermore, the decoration observed on the ceramics found at four of the Iron Age sites could be associated with the Madikwe facies.

None of the heritage sites identified during this 2007 study area located within the present study area. Only two of these sites are located in the general surroundings of the present study area, namely a low density surface scatter of undecorated potsherds at site MHC005 and a large cemetery at site MHC017. Site MHC005 is located approximately 99m south-west of the proposed TSF footprint area on the opposite side of a new access road and gate complex currently under construction, whereas site MHC017 is located approximately 189m north-west of the proposed TSF footprint area on the opposite side of the main access road of the mine. As a result, the proposed TSF development will not pose any impact on these two sites.

- ***Birkholtz, P.D. 2016.*** **Proposed Changes to Infrastructure at Bakubung Platinum Mine, Ledig, Bojanala District Municipality, North West Province. PGS Heritage (Pty) Ltd.**

  This Heritage Impact Assessment formed part of the Environmental Impact Assessment and Environmental Management Programme Report for proposed changes to the approved mine plan of Bakubung Platinum Mine. The study area for this 2016 report included sections located in proximity to the present study area, however no section of the 2016 study area was located within the present study area.

  While a number of the sites identified during the 2007 study were located within the study area for this 2016 report, a total of three new heritage sites were also identified. These three sites are MHC025, MHC026 and MHC027, comprising possible graves and structures. An overlay of the 24 heritage sites from the 2007 survey and the additional three heritage sites that were identified during the 2016 report was made over the mining footprints proposed in 2016. From this it became evident that a total of 11 sites were located within the development footprints proposed in 2016. These sites are MHC002, MHC003, MHC004, MHC005, MHC018, MHC019, MHC020, MHC021, MHC025, MHC026 and MHC027.

  The nearest of any of these 11 sites to the present study area, is site MHC005. As discussed above, this site is a low density surface scatter of undecorated potsherds and is located approximately 99m south-west of the proposed TSF footprint area on the opposite side of a new access road and gate complex currently under construction. As a result, the proposed TSF

development will not pose any impact on this site.

Apart from the above-mentioned two reports, the search of SAHRIS revealed a total of 10 previous heritage and archaeological impact assessments undertaken of study areas located in the wider surroundings of the present study area. These reports are discussed individually below.

- ***Pistorius JCC. 2001. An Archaeological Impact Assessment Study for Rasimone Platinum Mine on the farms Boschkoppie 104 JQ and Styldrift 90 JQ in the North-West Province of South Africa: Amendment for the current Environmental Management Programme. Metago Environmental Engineers. Bafokeng Rasimone Platinum Mine.***

  The study area for this AIA report included the farm Styldrift, immediately to the east of the present study area. Unfortunately, the version of this report that is located on the SAHRIS database is missing the pages that would provide information on what heritage resources (if any) were found in the study area covered by this particular report.

- ***Küsel, US. 2007. Cultural Heritage Resources Impact Assessment for the proposed Quality Vacation Club and a Golf Course at Sun City (Farm Ledig 909 JQ) North West Province. African Heritage Consultants CC. For Chand Environmental Consultants.***

  This Heritage Impact Assessment was undertaken for the development of a proposed Vacation Club and Golf Course at the Sun City complex on the farm Ledig 909 JQ.

  Five heritage sites were found, namely a small Iron Age stone enclosure with a single wall (Site 1), an Iron Age stonewall (Site 2), a low circular enclosure (Site 3), one possible grave (Site 4) as well as a modern square foundation structure (Site 5).

  These five sites are located roughly 3 km north-west of the present study area.

- ***Coetzee, FP. 2008. Phase 2 Archaeological Assessment of Late Iron Age Structures on the farm Ledig 909 JQ (Quality Vacation Club and Golf Course), North West Province for Chand Environmental Consultants.***

  The aim of this Phase 2 archaeological assessment was to record and mitigate the Late Iron Age

structures that were identified in a Phase 1 Cultural Heritage Impact Assessment that was conducted during August 2007 (see Küsel 2007).

The three Late Iron Age stonewalled sites (Site 1, Site 2 and Site 3) identified in the Phase 1 HIA report were recorded and fully mitigated. During the detailed recording, it was found that Site 2 and Site 3 are probably part of one larger site (renamed Site 2). The two sites were mapped and photographed. It was recommended that the client may apply for a destruction permit for those two sites from the South African Heritage Resources Agency (SAHRA) if the findings in the report were accepted. The possible grave (previous Site 3) was reassessed and found to be a packed heap of stones and not a grave.

A permit for the destruction of the two Iron Age sites was subsequently issued by SAHRA in 2008 (SAHRA Permit No. 80/08/08/008/51).

As indicated above, these sites are located roughly 3 km north-west of the present study area.

- ***Van der Walt, J. 2011. For the proposed WBJV Maseve Platinum Project on Portion 2 of the farm Elandsfontein 102 JQ and various portions of the farm Frischgewaagd 96 JQ. Prepared for Quanto Environmental Solutions. Heritage Contracts and Archaeological Consulting CC***.

  The study area for this report covered Portion 2 of the farm Elandsfontein 102 JQ and Portions 7, 10, 14 and 17 of the farm Frichgewaagd 96 JQ. No heritage sites were identified in the study area.

  The study area for this 2011 report is located to the south of the present study area.

- ***Van Vollenhoven, AC. 2015. A Report on a Basic Cultural Heritage Assessment for the proposed Impofu – Ngwedi 132kv Line Project, Northwest Province. For Texture Environmental Consultants***

  The study area for this report was located on the farm Frischgewaagd 96 JQ, situated to the north of Boshoek, which lies to the north of Rustenburg in the Northwest Province. The study area at that time fell within the mine boundary of the Maseve Mine. Although two proposed routes for the line had been identified, the entire area was investigated as it was foreseen that

the line could be placed anywhere within the demarcated area.

During the survey no sites of cultural heritage significance were identified. The report noted that the area was mostly disturbed and therefore the absence of heritage sites was to be expected.

The study area for this 2015 report is located to the south of the present study area.

- ***Pistorius, J. 2011. A Phase I Heritage Impact Assessment for Eskom's proposed construction of the Ngwedi Network Development Plan consisting of seven 132kv power lines from the Ngwedi MTS to various substations in the Sun City area in the North-West Province.***

  Although this report is referred to on the SAHRIS database, a copy of the report is not available to download.

- ***Pelser, AJ. 2012. A Report on a Heritage Walkdown and Impact Assessment for the Ngwedi (Mogwase) Proposed Line Corridor near Pilanesberg, Northwest Province. For Baagi Environmental Consultancy.***

  The focus of the study was the proposed corridor for the proposed Ngwedi (Mogwase) Powerline near Pilanesberg and Sun City in the Northwest Province. The survey concentrated on the various pylon positions on that line.

  The report identified 27 heritage sites and find spots, dating from the Stone Age, Iron Age and more recent Historical period. The report also noted that previous research and a HIA (dating to 2010) for the 5 proposed corridors and substation locations had revealed a large number of heritage sites and features and recommended the most preferred Corridor and Substation locations. It was noted that this 2012 assessment focused on Corridors 1 & 2.

- ***Pelser A.J. 2012. A Report on a Heritage Impact Assessment for the proposed Ngwedi (Mogwase) Substation Near Pilanesberg, Northwest Province. For Baagi Environmental Consultancy***

  The report was undertaken for the proposed development of the Ngwedi (Mogwase) Substation located in the Northwest Province, close to Pilanesberg and Sun City. Various villages such as

Ledig, Mogwase, Mahobieskraal, Chaneng and Phalane are located close-by. A number of farms, including Frischgewaagd 96 JQ, Elandsrivierspoort 210 JP, Mahobieskraal 211 JP and Kleingenoeg 124 JP, formed part of the study area. No sites or features of any cultural heritage (archaeological & historical) significance were recorded in the area of the proposed Substation.

- ***Van Schalkwyk, J. 2013. Cultural Heritage Impact Assessment for the proposed Township Development on portions of the farm Rooiwal 285 JQ, North West Province. For Interdesign Landscape Architects.***

  The report was undertaken for Rustenburg Local Municipality's proposed development of a township development on Portions 4, 5, 6, 8, 9 and 10 of the farm Rooiwal 285JQ, Rustenburg. Two sites of cultural heritage significance were identified in the study area namely a stone walled settlement dating to the Late Iron Age and a formal cemetery.

- ***Tomosi, N. 2015. A Heritage Impact Assessment Study of Ngwedi Turnings Eskom Deviations as part of Ngwedi Turn-Ins Transmission Powerlines, North West Province, South Arica***

  The report was undertaken to survey the proposed Eskom deviations as part of the Ngwedi Turn-ins Transmission Powerlines project, in compliance with SAHRA Final Comments on the 2012 HIA conducted for the study area. A total of seven heritage sites were identified, assessed and evaluated in terms of their heritage significance and impact significance.

  The project was granted an Interim Review Comment by SAHRA in August 2013 requesting clarification on the treatment of Marothodi sites identified in the Pelser report from 2012. NGT Projects & Heritage Consultants subsequently facilitated a consultation process between SAHRA, Eskom and Baagi. A Final Review Comment was issued by SAHRA following this process. The Final Comment clearly stated that the Marothodi sites should be avoided at all costs and be treated as a No-Go-Area because they are a Grade 1 heritage resource and of National Heritage importance. As a result, Eskom developed a deviation from the existing Transmission route with a view of completely avoiding the Marothodi sites.

5.2.3 Findings from the Archaeological Background

The archaeological background provided above clearly shows that the study area is located in a

landscape with a wide array of archaeological resources.

The study area has the potential to contain any of a number of archaeological and heritage sites, including the following:

- Surface scatters of Late Iron Age ceramics and grindstones
- Late Iron Age stonewalled sites
- Possible Graves
- Graves and Cemeteries
- Historic to Recent Black Homesteads

In fact, the use of the SAHRIS database has revealed 24 known sites from the immediate surroundings of the study area that were identified by Van der Walt (2007). These sites comprise two extensive cemeteries, four sites containing one or more possible graves, one historic site containing circular and rectangular structures as well as 17 Iron Age sites. Additionally, a more recent the study undertaken in the immediate surrondings of the study area identified an additional three heritage sites that were identified by Birkholtz (2016). These three sites comprised possible graves and structures.

5.3 Archival and Historical Maps

An assessment of available archival and historical maps was undertaken as a way to establish a historic layering for the study area. These historic maps are also valuable resources in identifying possible heritage sites and features located within the study area. The only map used for the present study is the First Edition of the 2527AC Topographic Sheet.

5.3.1 Topographical Maps

5.3.1.1 First Edition of the 2527AC Topographic Sheet

The figure below depicts an overlay of the proposed development footprints over a section of the First Edition of the 2527AC Topographical Sheet. The sheet was based on aerial photography undertaken in 1961, was surveyed in 1963 and drawn by the Trigonometrical Survey Office in 1964. No heritage features are depicted within the study area on this map. A number of heritage features from the surroundings of the study area are marked on the depiction below.

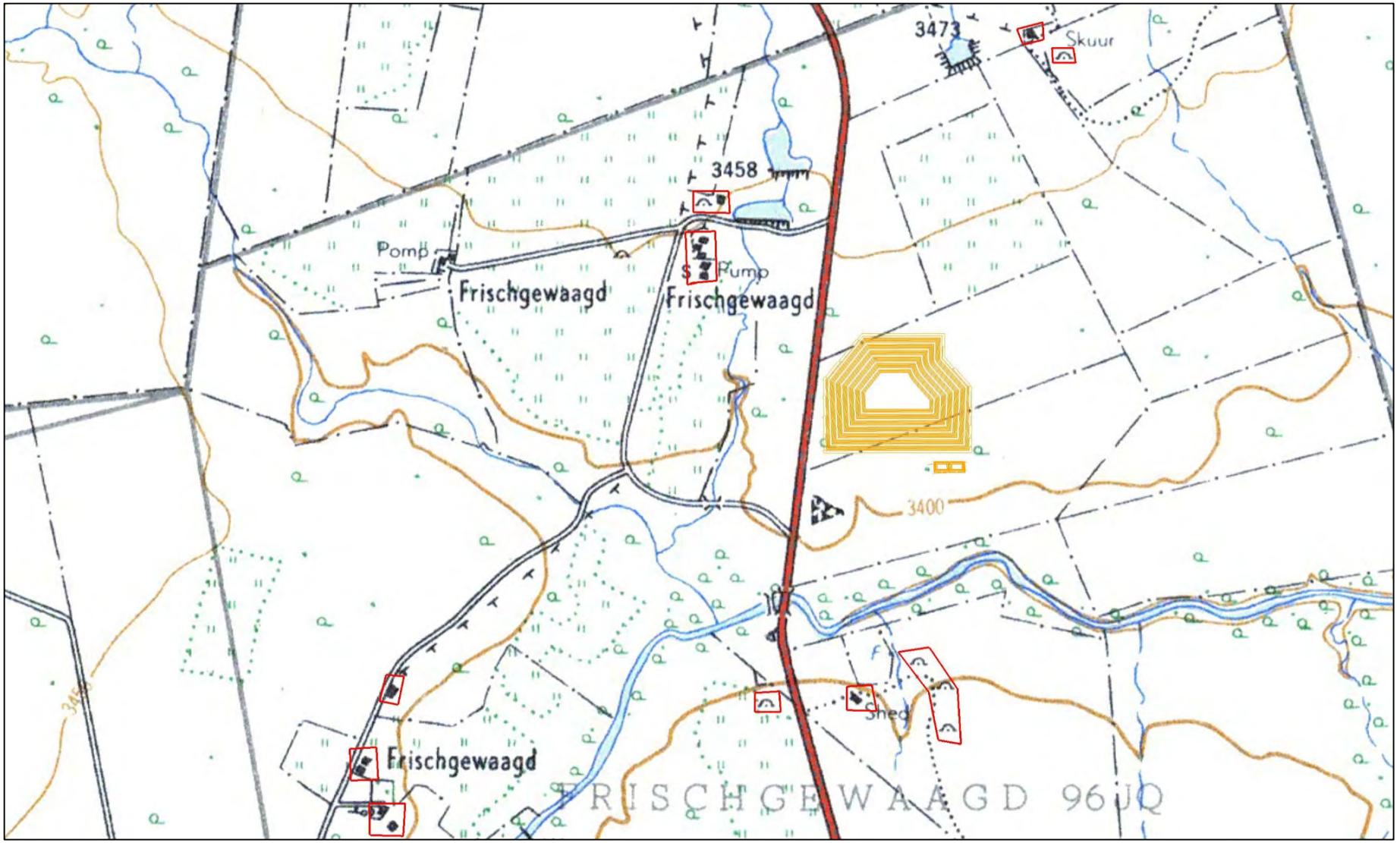

Figure 14 – First Edition of the 2527AC Topographical Map dating to 1963 showing the footprint area of the TSF in gold. A number of heritage features depicted in the wider surroundings of the study area are marked in red.

5.4 Palaeontology

The Palaeontological Sensitivity Map of South Africa was obtained from the SAHRA website (www.sahra.org.za). As can be seen in **Figure 15,** an overlay was made of the footprint areas for the proposed TSF over this palaeontological sensitivity map.

This overlay clearly shows that the project footprint is located entirely within an area demarcated as grey on the map. This grey coloration defines those areas from the palaeontological sensitivity map with Insignificant/Zero Palaeontological Significance. As a result, no palaeontological desktop studies or mitigation would be required.

Figure 15 – Overlay of the Bakubung Platinum Mine project area (in gold) over the palaeo-sensitivity map from the SAHRIS database. This shows that most of the area is coloured grey which is rated as Zero/Insignificant sensitivity

Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 16 – Screen capture from SAHRIS website indicating the meaning of each colour used on the palaeontological sensitivity map.

6 FIELDWORK FINDINGS

6.1 Introduction

Intensive field surveys of the study area were undertaken on foot by an experienced fieldwork team comprising one archaeologist/heritage specialist (Polke Birkholtz) accompanied by a fieldwork assistant (Derrick James). The fieldwork was aimed at locating and documenting sites falling within the study area. The fieldwork was undertaken on Monday, 9 March 2020.

During the fieldwork, hand-held GPS devices were used to record track logs. These recorded track logs show the routes followed by the fieldwork team on site. The recorded track logs are shown on a map depicted below.

Despite the intensive fieldwork undertaken, no evidence for any archaeological or heritage sites could be identified within the study area.

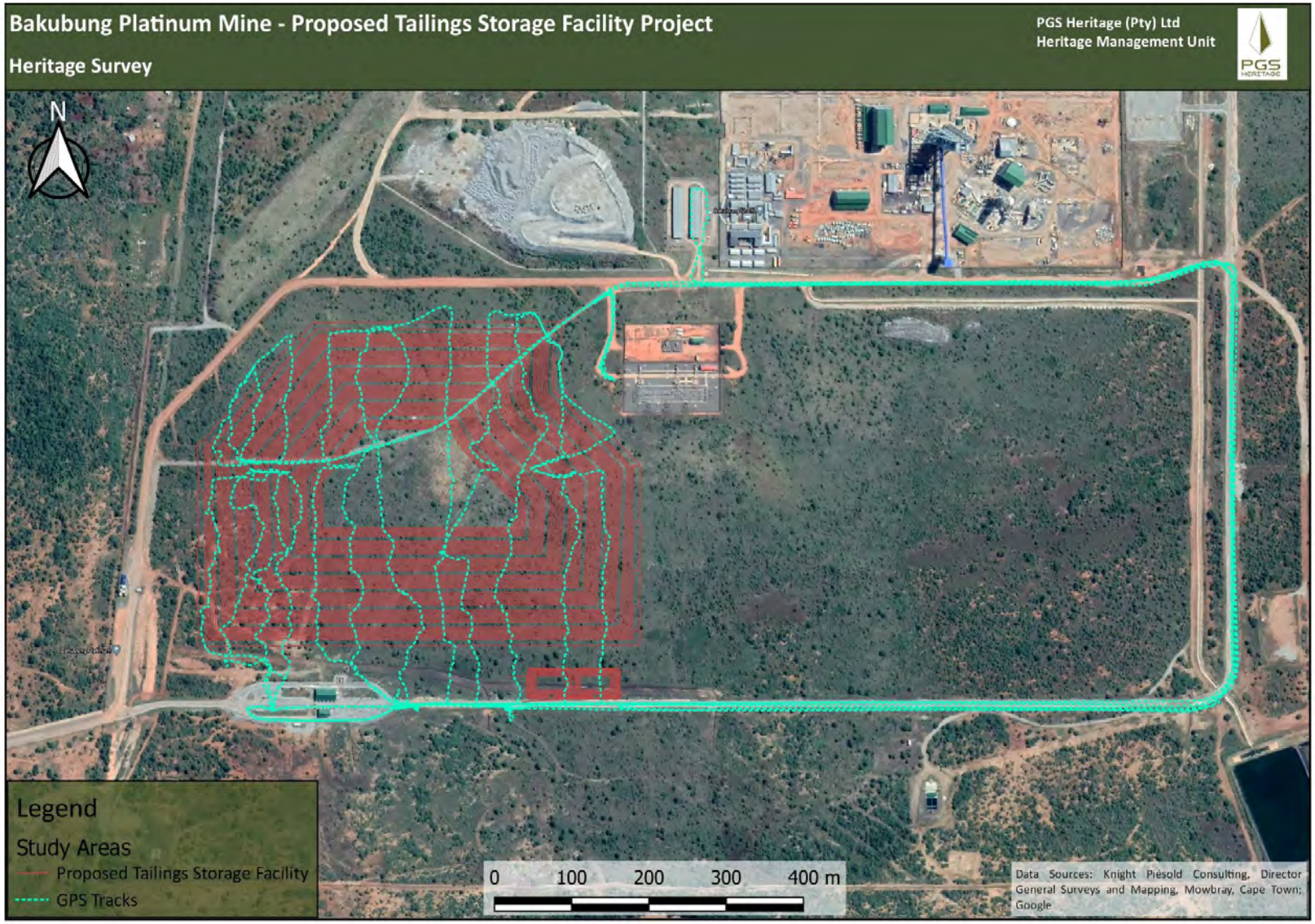

Figure 17 – Google Earth image depicting the footprint of the proposed TSF in red, with the recorded track logs in green stippled line.

7 ASSESSMENT OF IMPACT OF PROPOSED DEVELOPMENT

7.1 Introduction

In this section, an assessment will be made of the impact of the proposed development on the identified heritage sites.

7.2 Assessment of Impact of Proposed Development on Identified Heritage Sites

Despite an intensive walkthrough of the footprint area for the proposed TSF, no evidence for any archaeological or heritage sites could be identified. As a result, no impact is expected from the proposed development on heritage.

7.3 Assessment of Impact of Proposed Development on Palaeontology

The project footprint is located entirely within an area demarcated as grey on the palaeontological sensitivity map of SAHRA. This grey coloration defines those areas from the palaeontological sensitivity map with Insignificant/Zero Palaeontological Significance. As a result, no palaeontological desktop studies or mitigation would be required. As a result, no impact is expected from the proposed development on palaeontology.

8 REQUIRED MITIGATION MEASURES

Despite an intensive walkthrough of the footprint area for the proposed TSF, no evidence for any archaeological or heritage sites could be identified. As a result, no impact is expected from the proposed development on heritage. Furthermote, with the study area located within an area demarcated on the SAHRA palaeontological sensitivity map as of insignificant/zero palaeontological sensitivity, no impact is expected from the proposed development on palaeontology.

With no impac expected on heritage, no mitigation is required.

9 CONCLUSIONS AND RECOMMENDATIONS

Introduction

PGS Heritage (Pty) Ltd was appointed by Knight Piésold (Pty) Ltd to undertake a Heritage Impact Assessment (HIA), which forms part of the environmental process for the proposed Talings Storage Facility (TSF) at Bakubung Platinum Mine, Moses Kotane Local Municipality, Bojanala District Municipality, North West Province.

General Desktop Study

An archaeological and historical desktop study was undertaken to provide a historical framework for the project area and surrounding landscape (refer **Chapter 5**). This was augmented by an assessment of previous archaeological and heritage studies completed for the study area and surrounding landscape. Furthermore, an assessment was made of the early editions of the relevant topographic maps.

During the desktop study component an overlay was made of the footprint areas for the proposed TSF over the palaeontological sensitivity map of SAHRA. This overlay indicated that the project footprint is located entirely within an area demarcated as grey on this map. This grey coloration defines those areas from the palaeontological sensitivity map with Insignificant/Zero Palaeontological Significance. As a result, no palaeontological desktop studies or mitigation would be required.

Fieldwork

Intensive field surveys of the study area were undertaken on foot by an experienced fieldwork team comprising one archaeologist/heritage specialist (Polke Birkholtz) accompanied by a fieldwork assistant (Derrick James). Despite the intensive fieldwork undertaken as part of this study, no evidence for any archaeological or heritage sites could be identified.

Impact Assessment

Despite an intensive walkthrough of the footprint area for the proposed TSF, no evidence for any

archaeological or heritage sites could be identified. As a result, no impact is expected from the proposed development on heritage. Furthermote, with the study area located within an area demarcated on the SAHRA palaeontological sensitivity map as of insignificant/zero palaeontological sensitivity, no impact is expected from the proposed development on palaeontology. Refer **Chapter 7**.

Mitigation

With no impact expected on heritage, no further mitigation is required. Refer **Chapter 8** of this report.

Conclusions

Despite the intensive desktop study work and fieldwork undertaken for the purposes of this study, no evidence for any archaeological or heritage sites could be identified within the study area. Furthermore, no impact is also expected from the proposed development on palaeontology. As a result, and on the condition that the development does not extend beyond the development footprint currently assessed, the authors of this report can provide no heritage reasons for the proposed development not to continue.

10 PREPARERS

This Heritage Impact Assessment was written by the following preparers:

- Polke Birkholtz – Project Manager / Archaeologist / Author
- Cherene de Bruyn – Archaeologist / Co-Author

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RAK, 3015

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Historical Topographic Maps

All the historic topographical maps used in this report were obtained from the Directorate: National Geo-spatial Information of the Department of Rural Development and Land Reform in Cape Town.

Internet

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Google Earth

All the aerial depictions and overlays used in this report are from Google Earth.

Appendix A

CURRICULUM VITAE

PROFESSIONAL CURRICULUM
FOR POLKE DOUSSY BIRKHOLTZ

Name: *Polke Doussy Birkholtz*

Date & Place of Birth: *9 February 1975 – Klerksdorp, North West Province, South Africa*

Place of Tertiary Education & Dates Associated:

Institution: University of Pretoria
Qualification: BA (Cum Laude) - Bachelor of Arts Specializing in Archaeology, History & Anthropology
Date: 1996

Institution: University of Pretoria
Qualification: BA Hons (Cum Laude) - Bachelor of Arts with Honours Degree Specializing in Archaeology
Date: 1997

Qualifications:

BA	-	Degree specialising in Archaeology, History and Anthropology
BA Hons	-	Professional Archaeologist

Memberships:

Association of Southern African Professional Archaeologists (ASAPA)
Professional Member of the CRM Section of ASAPA

Overview of Post Graduate Experience:

1997 – 2000 – Member/Archaeologist – Archaeo-Info
2001 – 2003 – Archaeologist/Heritage Specialist – Helio Alliance
2000 – 2008 – Member/Archaeologist/Heritage Specialist – Archaeology Africa
2003 - Present – Director / Archaeologist / Heritage Specialist – PGS Heritage

Languages: English: Speak, Read & Write & Afrikaans: Speak, Read & Write

Total Years' Experience: 19 Years

Experience Related to the Scope of Work:

- Polke has worked as a **HERITAGE SPECIALIST / ARCHAEOLOGIST / HISTORIAN** on more than 300 projects, and acted as **PROJECT MANAGER** on almost all of these projects. His experience includes the following:
    - Development of New Sedimentation and Flocculation Tanks at Rand Water's Vereeniging Pumping Station, Vereeniging, Gauteng Province. Heritage Impact Assessment for *Greenline*.

- EThekwini Northern Aqueduct Project, Durban, KwaZulu-Natal. Heritage Impact Assessment for *Strategic Environmental Focus*.
- Johannesburg Union Observatory, Johannesburg, Gauteng Province. Heritage Inventory for *Holm Jordaan*.
- Development at Rand Water's Vereeniging Pumping Station, Vereeniging, Gauteng Province. Heritage Impact Assessment for *Aurecon*.
- Comet Ext. 8 Development, Boksburg, Gauteng Province. Phase 2 Heritage Impact Assessment for *Urban Dynamics*.
- Randjesfontein Homestead, Midrand, Gauteng Province. Baseline Heritage Assessment with Nkosinathi Tomose for Johannesburg City Parks.
- Rand Leases Ext. 13 Development, Roodepoort, Gauteng Province. Heritage Impact Assessment for *Marsh*.
- Proposed Relocation of the Hillendale Heavy Minerals Plant (HHMP) from Hillendale to Fairbreeze, KwaZulu-Natal. Heritage Impact Assessment for *Goslar Environmental*.
- Portion 80 of the farm Eikenhof 323 IQ, Johannesburg, Gauteng Province. Heritage Inventory for *Khare Incorporated*.
- Comet Ext. 14 Development, Boksburg, Gauteng Province. Heritage Impact Assessment for *Marsh*.
- Rand Steam Laundries, Johannesburg, Gauteng Province. Archival and Historical Study for *Impendulo* and *Imperial Properties*.
- Mine Waste Solutions, near Klerksdorp, North West Province. Heritage Inventory for *AngloGold Ashanti*.
- Consolidated EIA and EMP for the Kroondal and Marikana Mining Right Areas, North West Province. Heritage Impact Assessment for *Aquarius Platinum*.
- Wilkoppies Shopping Mall, Klerksdorp, North West Province. Heritage Impact Assessment for *Center for Environmental Management*.
- Proposed Vosloorus Ext. 24, Vosloorus Ext. 41 and Vosloorus Ext. 43 Developments, Ekurhuleni District Municipality, Gauteng Province. Heritage Impact Assessment for *Enkanyini Projects*.
- Proposed Development of Portions 3, 6, 7 and 9 of the farm Olievenhoutbosch 389 JR, City of Tshwane Metropolitan Municipality, Gauteng Province. Heritage Impact Assessment for *Marsh*.
- Proposed Development of Lotus Gardens Ext. 18 to 27, City of Tshwane Metropolitan Municipality, Gauteng Province. Heritage Impact Assessment for *Pierre Joubert*.
- Proposed Development of the site of the old Vereeniging Hospital, Vereeniging, Gauteng Province. Heritage Scoping Assessment for *Lekwa*.
- Proposed Demolition of an Old Building, Kroonstad, Free State Province. Phase 2 Heritage Impact Assessment for *De Beers Consolidated Mines*.
- Proposed Development at Westdene Dam, Johannesburg, Gauteng Province. Heritage Impact Assessment for *Newtown*.
- West End, Central Johannesburg, Gauteng Province. Phase 1 Heritage Impact Assessment for the *Johannesburg Land Company*.
- Kathu Supplier Park, Kathu, Northern Cape Province. Heritage Impact Assessment for *Synergistics*.
- Matlosana 132 kV Line and Substation, Stilfontein, North West Province. Heritage

Impact Assessment for *Anglo Saxon Group* and *Eskom*.

- Marakele National Park, Thabazimbi, Limpopo Province. Cultural Resources Management Plan for *SANParks*.
- Cullinan Diamond Mine, Cullinan, Gauteng Province. Heritage Inventory for *Petra Diamonds*.
- Highveld Mushrooms Project, Pretoria, Gauteng Province. Heritage Impact Assessment for *Mills & Otten*.
- Development at the Reserve Bank Governor's Residence, Pretoria, Gauteng Province. Archaeological Excavations and Mitigation for the *South African Reserve Bank*.
- Proposed Stones & Stones Recycling Plant, Johannesburg, Gauteng Province. Heritage Scoping Report for *KV3*.
- South East Vertical Shaft Section of ERPM, Boksburg, Gauteng Province. Heritage Scoping Report for *East Rand Proprietary Mines*.
- Proposed Development of the Top Star Mine Dump, Johannesburg, Gauteng Province. Detailed Archival and Historical Study for *Matakoma.*
- Soshanguve Bulk Water Replacement Project, Soshanguve, Gauteng Province. Heritage Impact Assessment for *KWP*.
- Biodiversity, Conservation and Participatory Development Project, Swaziland. Archaeological Component for *Africon*.
- Camdeboo National Park, Graaff-Reinet, Eastern Cape Province. Cultural Resources Management Plan for *SANParks*.
- Main Place, Central Johannesburg, Gauteng Province. Phase 1 Heritage Impact Assessment for the *Johannesburg Land Company*.
- Modderfontein Mine, Springs, Gauteng Province. Detailed Archival and Historical Study for *Consolidated Modderfontein Mines.*
- Proposed New Head Office for the Department of Foreign Affairs, Pretoria, Gauteng Province. Heritage Impact Assessment for *Holm Jordaan Group*.
- Proposed Modification of the Lukasrand Tower, Pretoria, Gauteng Province. Heritage Assessment for IEPM.
- Proposed Road between the Noupoort CBD and Kwazamukolo, Northern Cape Province. Heritage Impact Assessment for *Gill & Associates*.
- Proposed Development at the Johannesburg Zoological Gardens, Johannesburg, Gauteng Province. Detailed Archival and Historical Study for *Matakoma.*

- Polke's **KEY QUALIFICATIONS:**

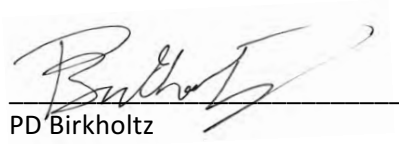
  - Project Management
  - Archaeological and Heritage Management
  - Archaeological and Heritage Impact Assessment
  - Archaeological and Heritage Fieldwork
  - Archival and Historical Research
  - Report Writing

- Polke's **INFORMATION TECHNOLOGY EXPERIENCE:**

  - *MS Office – Word, Excel, & Powerpoint*

- *Google Earth*
- *Garmin Mapsource*
- *Adobe Photoshop*
- *Corel Draw*

I, Polke Doussy Birkholtz, hereby confirm that the above information contained in my CV is true and correct.



PD Birkholtz

5 January 2019
Date

PROFESSIONAL CURRICULUM FOR CHERENE DE BRUYN

Name:	Cherene de Bruyn
Profession:	Archaeologist
Date of Birth:	1991-03-01
Parent Firm:	PGS Heritage (Pty) Ltd
Position in Firm:	Archaeologist
Years with Firm:	1 Month
Years' experience:	2
Nationality:	South African
HDI Status:	White Female

EDUCATION:

Name of University or Institution	:	University of Pretoria
Degree obtained:	:	BA
Major subjects	:	Archaeology and Anthropology
Year	:	2010-2012

Name of University or Institution	:	University of Pretoria
Degree obtained	:	BA (Hons)
Major subjects	:	Archaeology
Year	:	2013

Name of University or Institution	:	University of Pretoria
Degree obtained	:	BSc (Hons)
Major subjects	:	Physical Anthropology
Year	:	2015

Name of University or Institution	:	University College London
Degree obtained	:	MA
Major subjects	:	Archaeology
Year	:	2016/2017

Professional Qualifications:

Association of Southern African Professional Archaeologists - Professional Member (#432)

International Association for Impact Assessment South Africa - Member (#6082)

Association of Southern African Professional Archaeologists - CRM Accreditation

- Principle Investigator: Grave relocation
- Field Director: Colonial period archaeology, Iron Age archaeology
- Field Supervisor: Rock art, Stone Age archaeology
- Laboratory Specialist: Human Skeletal Remains

Languages:

Afrikaans

English

KEY QUALIFICATIONS

Heritage Impact Assessment Management, Historical and Archival Research, Archaeology, Physical Anthropology, Grave Relocations, Fieldwork and Project Management including *inter alia*

Summary of Experience

Involvement in various grave relocation projects and grave "rescue" excavations in the various provinces of South Africa

Involvement with various Heritage Impact Assessments, within South Africa

- Heritage Impact Assessments for various projects

HERITAGE ASSESSMENT PROJECTS

Below a selected list of Heritage Impact Assessments (HIA) Projects involvement:

- Piggery On Portion 46 Of The Farm Brakkefontien 416, Heritage Impact Assessment, Nelson Mandela Bay Municipality, Eastern Cape.
- Upgrade Of Road D4407 Between Hluvukani And Timbavati, Road D4409 At Welverdiend And Road D4416/2 Between Welverdiend And Road P194/1, Heritage Impact Assessment, Bohlabela Region, Mpumalanga Province.
- Rapid Land Release Programme for the Gauteng Department of Human Settlement: Rietfontein Site, Heritage Impact Assessment, Lenasia, Gauteng Province.
- Heritage Impact Assessment for the proposed piggery on Portion 46 of the Farm Brakkefontien 416, within the Nelson Mandela Bay Municipality, Eastern Cape Province.
- Heritage Impact Assessment for the thepProposed Rapid Land Release Programme for the Gauteng Department of Human Settlement: Rietfontein Site, Gauteng Province.
- Heritage Impact Assessment for the proposed Prospecting Right Application on the Farm Reserve No 4 15823 And 7638/1, near St Lucia, within the jurisdiction of the Mfolozi Local Municipality in the King Cetshwayo District Municipality, KwaZulu-Natal Province.
- Heritage Public Participation report for the proposed alterations Of Erf 1/966 Rosettenville or 94 Main Street Rosettenville within the City Of Johannesburg Metropolitan Municipality, Gauteng Province.
- Heritage Impact Assessment for the proposed mining rights on the Farm Waterkloof 95 located between Griekwastad and Groblershoop in the Pixley Ka Seme District Municipality within the Northern Cape Province.
- Heritage Impact Assessment for the proposed East Coast Gas 400 Kv Power Lines, located in Richards Bay, within the Umhlathuze Local Municipality in the King Cetshwayo District Municipality in the Kwazulu-Natal Province.
- Heritage Impact Assessment for the mining right application for the Farm Woodlands 407, situated in the Free State Province.
- Heritage Impact Assessment for the refurbishments of Lyttelton Primary School, Lyttelton Manor, Centurion, Gauteng Province.

- Heritage Impact Assessment for the amendment of an existing prospecting right and environmental authorization for Bothaville NE Ext A, situated in the Free State Province.
- Heritage Impact Assessment Study for the Proposed New Lambano Sub Acute Facility on Stand 5454, 5455, 5456,5457 and New Training Facility on Stands 5458 and 5460 in Kensington, Johannesburg.
- Heritage Impact Assessment for the Prospecting Right and Environmental Authorization Application for Ventersburg B situated in the Free State Province.
- Heritage Impact Assessment for the proposed prospecting rights application and environmental authorisation for the farm Three Sisters in Barberton, within the city of Mbombela Local District, Mpumalanga.
- Heritage Impact Assessment and Integrated Cultural Resources Management Study for The Proposed Mfolozi-Mbewu 765kv Transmission Line, Zululand And King Cetshwayo District Municipality, KwaZulu-Natal.
- Heritage Impact Assessment the prospecting right and environmental authorisation application for Kroonstad South situated in the Free State Province.
- Heritage Impact Assessment the prospecting right and environmental authorisation application for Vredefort West situated in the Free State Province.

GRAVE RELOCATION PROJECTS

Below, a selection of grave relocation projects involvement:

- Relocation Of Approximately 4 Stillborn Graves From Farm Wonderfontein 428 Js, Umsimbithi Mining (Pty) Ltd, Belfast, Chief Albert Luthuli Local Municipality, Mpumalanga Province.
- Grave exhumation and relocation of 19 graves on erf 3 of Holding 87 North Riding Agricultural Holdings, City of Johannesburg, Gauteng Province.
- Report on the exhumation and reburial report of 16 graves from Doornkop, to Voortrekker Cemetery in Middelburg, Mpumalanga Province
- Exhumation and reburial report of 4 graves located at Tombo, Eastern Cape Province.
- Report on rescue excavations and skeletal analyses of two archaeological graves inadvertently uncovered in Boitekong, North-West Province.
- Rescue excavation of an unmarked graveyard at Diamond Park, Greenpoint, Kimberley, Northern Cape Province.
- Report on Follow-up site visit excavation and physical anthropological analyses of archaeological human remains transferred from SAPA Victim Identification Centre to Department of Anatomy. Mamelodi East Phase 2 House 566.
- Excavation of human remains from Marulaneng village, Bakenberg Limpopo Province.
- Follow up site visit on human remains found at Bothlokwa (Ramatjowe & Mphakahne), Limpopo Province.
- Follow up site visit on human remains found in Waterpoort, Soutpansberg, Limpopo Province.

EMPLOYMENT SUMMARY:

Positions Held

- 2020 – to date: Archaeologist - PGS Heritage (Pty) Ltd
- 2019: Manager of the NGT ESHS Heritage Department – NGT Holdings (Pty) Ltd

- 2018 – 2019: Archaeologist and Heritage Consultant – NGT Holdings (Pty) Ltd
- 2015-2016: Archaeological Contractor - BA3G, University of Pretoria
- 2014 – 2015: DST-NRF Archaeological Intern, Forensic Anthropological Research Centre

Amendment Of Environmental Authorisation And Waste Management Licence And Integrated Water Use License Application For Bakabung Platinum Mine

Our Ref:

an agency of the
Department of Arts and Culture

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South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Natasha Higgitt
Tel: 021 462 4502
Email: nhiggitt@sahra.org.za
CaseID: 15078

Date: Thursday November 19, 2020

Final Comment

In terms of Section 38(4), 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Bakubung Platinum Mine

Proposed amendment of the existing approved Environmental Authorisation (EA) and Waste Management Licence (WML) granted in 2017 – (NW/30/5/1/2/3/2/1/(339) EM) of the Bakubung Platinum Mine (BPM). The mine is located on the farm Frischgewaagd 96JQ (Portions 3, 4 and 11), near Ledig, just south of the Pilanesberg Game Reserve and Sun City in the North West Province.

Knight Piésold Consulting has been appointed by Bakubung Minerals (Pty) Ltd to undertake an Environmental Authorisation (EA) Application for the proposed amendment to the Bakabung Platinum Mine, near Ledig, North West Province.

A draft Amendment Report has been submitted in terms of the National Environmental Management Act, no 107 of 1998 (NEMA) and the NEMA Environmental Impact Assessment (EIA) Regulations. The proposed amendment includes the following:

- Capacity change from 3 MT/annum to 1 MT/annum and 2 MT/annum
- Construction of an additional Tailings Storage Facility (TSF) on Frischgewaagd Farm
- Change of liner for stock pad area

PGS Heritage (Pty) Ltd has been appointed to provide heritage specialist input to comply with section 24(4)b(iii) of NEMA and section 38(8) of the National Heritage Resources Act, Act 25 of 1999 (NHRA).

Birkholtz, P and de Bruyn, C. 2020. Heritage Impact Assessment: Proposed Development of a Tailings Storage Facility at Bakubung Platinum Mine near Ledig, Moses Kotane Local Municipality, Bojanala District Municipality, North West Province.

No heritage resources were identified within the proposed footprint. No recommendations were provided.

Final Comment

The following comments are made as a requirement in terms of section 3(4) of the NEMA Regulations and

an agency of the
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section 38(8) of the NHRA in the format provided in section 38(4) of the NHRA and must be included in the Final Amendment report and EMPr:

- 38(4)a – The SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit has no objections to the proposed development;
- 38(4)b – The recommendations of the specialists are supported and must be adhered to. No additional specific conditions are provided for the development;
- 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
- 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
- 38(4)d – See section 51(1) of the NHRA;
- 38(4)e – The following conditions apply with regards to the appointment of specialists:
- i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;
- The Final Amendment report and EMPr must be submitted to SAHRA for record purposes;
- The decision regarding the EA Amendment Application must be communicated to SAHRA and uploaded to the SAHRIS Case application.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

an agency of the
Department of Arts and Culture

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South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
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Natasha Higgitt
Heritage Officer
South African Heritage Resources Agency

Phillip Hine
Manager: Archaeology, Palaeontology and Meteorites Unit
South African Heritage Resources Agency

ADMIN:
Direct URL to case: http://www.sahra.org.za/node/536476

Terms & Conditions:

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.
2. If any heritage resources, including graves or human remains, are encountered they must be reported to SAHRA immediately.
3. SAHRA reserves the right to request additional information as required.