



PGS HERITAGE

**PROPOSED M3C PRE-ASSEMBLY YARD AT THE MOGALAKWENA COMPLEX,
SITUATED NEAR MOKOPANE, MOGALAKWENA LOCAL MUNICIPALITY, LIMPOPO
PROVINCE**

Heritage Impact Assessment

Issue Date: 29 January 2022
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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;

HERITAGE CONSULTANT:

PGS Heritage (Pty) Ltd

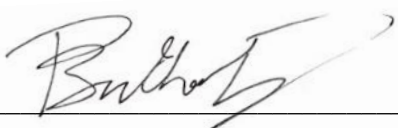
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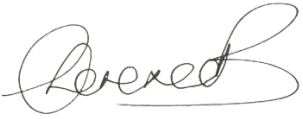
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Report Title	Heritage Impact Assessment for the Proposed M3C Pre-Assembly Yard at the Mogalakwena Complex, situated Near Mokopane, Mogalakwena Local Municipality, Limpopo Province		
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CLIENT: SRK Consulting (South Africa) (Pty) Ltd

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EXECUTIVE SUMMARY

Introduction

PGS Heritage (Pty) Ltd (PGS) was appointed by SRK Consulting (South Africa) (Pty) Ltd to undertake a Heritage Impact Assessment (HIA) for the proposed M3C Pre-Assembly Yard at the Mogalakwena Complex, situated near Mokopane, Limpopo Province.

The project area is located on sections of the farm Vaalkop 819 LR. The applicant is Anglo American Platinum (AAP).

General Desktop Study

An archival and historical desktop study was undertaken to provide a historic framework for the project area and surrounding landscape. This was augmented by a study of available historical maps and old aerial photographs. The desktop study revealed that the surroundings of the study area is characterised by a long and significant history.

Additionally, the assessment of the available old aerial photographs revealed that three black homesteads are depicted within the study area on the 1963 aerial photograph, whereas a fourth homestead is shown to be partially located within the study area on this aerial photograph. Subsequent aerial photographs were assessed and provided additional information on these homesteads. For example, the aerial photograph taken on 6 April 1970 indicates that one of the homesteads was not occupied anymore and had already started to deteriorate. Additionally, none of the four homesteads depicted on the 1963 image can be discerned on the aerial photograph that was taken on 12 July 1993. Subsequent satellite imagery from Google Earth also indicates that at least some of the sites appear to have been destroyed by activities taking place during the last two decades. This may explain why no evidence for homesteads could be identified during the fieldwork undertaken for this study.

Past experience has shown that in some cases stillborns, babies and infants were buried in close proximity to such black homesteads in unmarked graves. These graves were frequently positioned along the sides, or underneath, the parents' dwelling.

Although no evidence for homesteads could be identified during the fieldwork, the risk still exists for unmarked graves associated with these homesteads to be located within the study area. This section addresses this risk and assesses the impact of the proposed development on this risk for unmarked graves.

Palaeontology

Banzai Environmental was appointed by PGS Heritage (Pty) Ltd to conduct a Palaeontological Desktop Assessment for the proposed Pre-Assembly Yard at the Mogalakwena Complex. The full report is included under **Appendix C**. The paragraphs that follow below were primarily derived verbatim from this specialist report (Butler, 2022).

The proposed development is primarily underlain by the Malmani Subgroup (Chuniespoort Group) within the Transvaal Supergroup. According to the PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database, the Palaeontological Sensitivity of the Malmani Subgroup is Very High (Almond and Pether 2008, SAHRIS website).

The specialist report recommends that a Phase 1 Field-Based Palaeontological Assessment report be conducted to assess the value and prominence of fossils in the development area and the effect of the proposed development on the palaeontological heritage. The purpose of the report is to elaborate on the issues and potential impacts identified during the scoping process.

According to the PalaeoMap on the South African Heritage Resources Information System database the project, area falls within a Very High (red) paleo-sensitivity zone. As such a field assessment and protocol for finds is required.

Fieldwork

Intensive field surveys of the study area were undertaken on Wednesday, Thursday, 27 October 2022. This work was undertaken on foot by an experienced fieldwork team comprising one archaeologist/heritage specialist (Cherene de Bruyn) accompanied by an archaeological fieldwork assistant (Thomas Mulaudzi).

Throughout the fieldwork, hand-held GPS devices were used to record the tracklogs. The recent fieldwork undertaken resulted in the identification of one site comprising at least three structural remains. A member of the local community indicated that the site appears to have been used as a mechanical workshop.

The recent fieldwork undertaken resulted in the identification of one site comprising four structures remains. This site is included in the report as site **MPAY-01**. As homesteads may also have been associated with this site, the risk for unmarked graves can also be identified at this site. This is due to the fact that past experience has shown that in some cases stillborns, babies and infants were buried in close proximity to such black homesteads in unmarked graves. These graves were frequently

positioned along the sides, or underneath, the parents' dwelling. As the site is not occupied anymore, no direct information with regards to the presence (or not) of such graves is currently available.

Impact Assessment and Mitigation

Impact assessment calculations were undertaken to assess the impact of the proposed development on the following identified risks:

- Impact of the proposed development on possible Unmarked Graves associated with site **MPAY-01**; and
- Impact of the proposed development on possible Unmarked Graves associated with homesteads that used to be located within the study area.

The calculation of the assessment of the unmitigated impact of the proposed development on both risks, revealed that the impact significance on these risks are expected to be of **Moderate Significance**. The result of this impact assessment calculation means that mitigation measures would be required. With the mitigation measures successfully completed, the significance of the potential impact of the proposed development on these identified risks was reduced from a pre-mitigation **Moderate Significance** to a post-mitigation **Low Significance**.

Please refer to **Chapter 8** for the required mitigation measures.

Conclusions

The unmitigated impact of the proposed development is expected to result in negative impacts of moderate significance in terms of the identified heritage fabric of the study area. With mitigation successfully completed, the impact of the proposed development on the identified heritage sites will result in negative impacts of low significance. As a result, on the condition that the recommendations made in this report are adhered to, no heritage reasons can be given for the development not to continue.

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- A *Heritage Management Guidelines*
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TERMINOLOGY AND ABBREVIATIONS

Archaeological resources

This includes:

- 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;
- 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;
- 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;
- 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

This means 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, including:

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

Early Stone Age

The archaeology of the Stone Age between 700 000 and 2 500 000 years ago.

Fossil

Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage

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

Heritage resources

This means any place or object of cultural significance and can include (but not limited to) as stated under Section 3 of the NHRA,

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, and
- sites of significance relating to the history of slavery in South Africa;

Holocene

The most recent geological time period which commenced 10 000 years ago.

Late Stone Age

The archaeology of the last 30 000 years associated with fully modern people.

Late Iron Age (Early Farming Communities)

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

Middle Stone Age

The archaeology of the Stone Age between 30 000-300 000 years ago, associated with early modern humans.

Palaeontology

Any 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 any site which contains such fossilised remains or trace.

Table 1 – List of abbreviations used in this report.

Abbreviations	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
ECO	Environmental Control Officer
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
IAP	Interested and Affected Party
LSA	Late Stone Age
LIA	Late Iron Age
MSA	Middle Stone Age
MIA	Middle Iron Age
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Authority
PSSA	Palaeontological Society of South Africa
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency

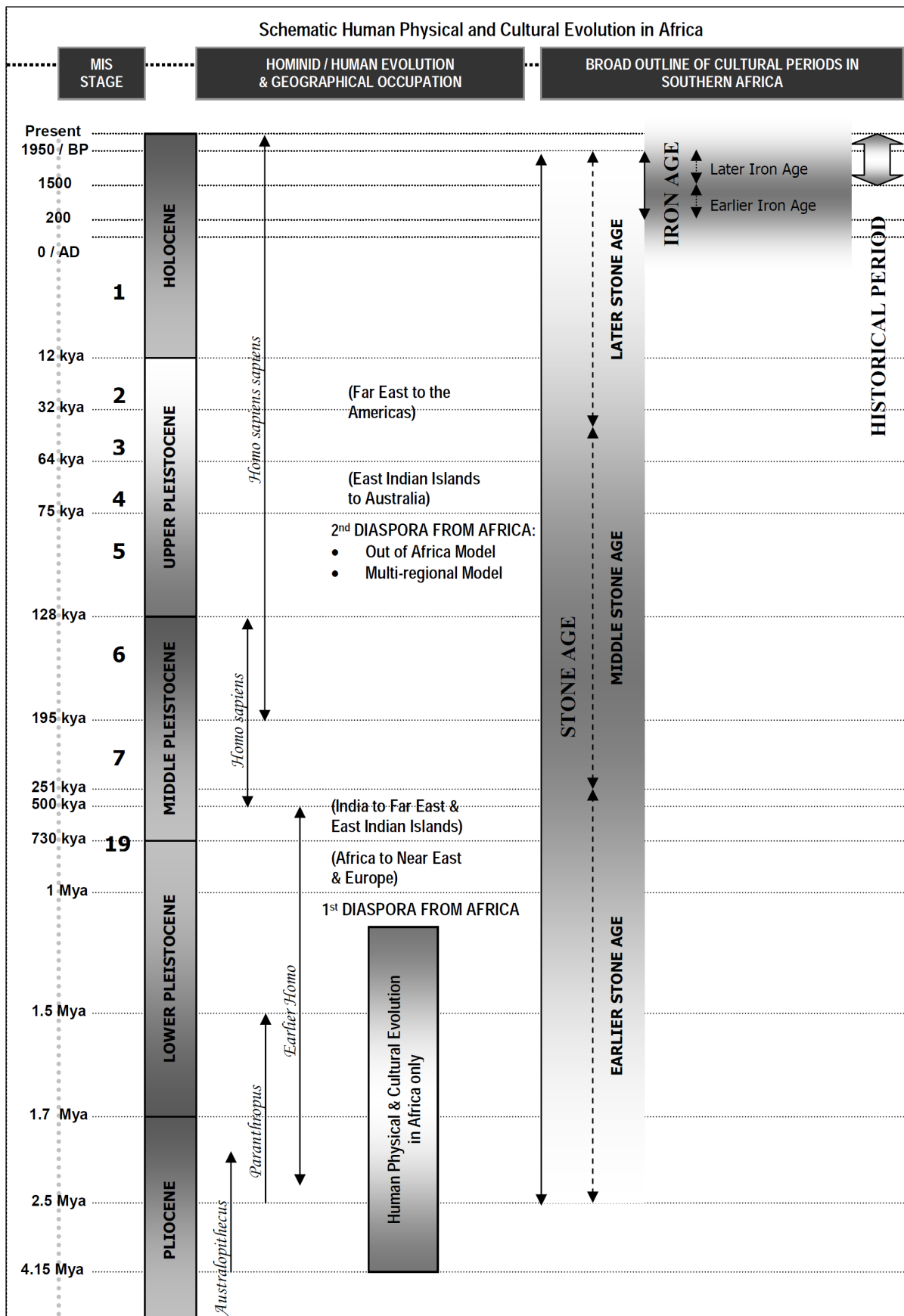


Figure 1 - Human and Cultural Timeline in Africa (Morris, 2008).

1 INTRODUCTION

PGS Heritage (Pty) Ltd (PGS) was appointed by SRK Consulting (South Africa) (Pty) Ltd to undertake a Heritage Impact Assessment (HIA) for the proposed M3C Pre-Assembly Yard at the Mogalakwena Complex, situated near Mokopane, Limpopo Province.

The project area is located on sections of the farm Vaalkop 819 LR. The applicant is Anglo American Platinum (AAP).

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 study area. This HIA aims to inform the Basic Assessment (BA) to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

1.2 Specialist Qualifications

This HIA report was compiled by PGS. The staff at PGS has a combined experience of nearly 90 years in the heritage consulting industry. PGS and its staff have extensive experience in managing heritage impact and management processes. PGS will only undertake heritage assessment work where they have the relevant expertise and experience to undertake that work competently.

The following individuals were involved with this study:

- Polke Birkholtz, the project manager and principal heritage specialist, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is also accredited with the Cultural Resources Management (CRM) Section of the same association. He has 21 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, the author of this report is registered with ASAPA as a Professional Archaeologist and is accredited as a Principal Investigator and Field Director. She is also a member of the International Association for Impact Assessment South Africa (IAIASA). She holds an 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 regarding this study and report 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. In fact, due to the dense vegetation and steep topographic gradients found within the study area, it is highly likely that the presently identified heritage sites are not a complete record of all the archaeological and heritage resources located within the study area. 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 and development footprints 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.

1.4 Legislative Context

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

1.4.1 Statutory Framework: The National Heritage Resources (Act 25 of 1999)

The NHRA has applicability, as the study forms part of an overall HIA in terms of the provisions of Section 34, 35, 36 and 38 of the NHRA and forms part of a heritage scoping study that serves to identify key heritage resources, informants, and issues relating to the palaeontological, archaeological, built environment and cultural landscape, as well as the need to address such issues during the impact assessment phase of the HIA process.

1.4.2 Section 34 – Structures

According to Section 34 of the NHRA, no person may alter, damage or destroy any structure that is older than 60 years, and which forms part of the sites built environment, without the necessary permits

from the relevant provincial heritage authority.

1.4.3 Section 35 – Archaeology, Palaeontology and Meteorites

According to Section 35 (Archaeology, Palaeontology and Meteorites) and Section 38 (Heritage Resources Management) of the NHRA, PIAs and AIAs are required by law in the case of developments in areas underlain by potentially fossiliferous (fossil-bearing) rocks, especially where substantial bedrock excavations are envisaged, and where human settlement is known to have occurred during prehistory and the historic period.

1.4.4 Section 36 – Burial Grounds & Graves

A section 36 permit application is made to the SAHRA or the competent provincial heritage authority which protects burial grounds and graves that are older than 60 years and must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit. SAHRA must also identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with these graves and must maintain such memorials. A permit is required under the following conditions:

Permit applications for burial grounds and graves older than 60 years should be submitted to the South African Heritage Resources Agency:

- a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of the conflict, or any burial ground or part thereof which contains such graves.
- b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- d) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant.

A NHRA Section 38 (Heritage Impact Assessments) application is required when the proposed development triggers one or more of the following activities:

- a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- b) the construction of a bridge or similar structure exceeding 50 m in length;
- c) any development or other activity which will change the character of a site,
 - i. exceeding 5 000 m² in extent; or
 - ii. involving three or more existing erven or subdivisions thereof; or
 - iii. involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - iv. the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- d) the re-zoning of a site exceeding 10 000 m² in extent; or
- e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority

In this instance, the heritage assessment for the property is to be undertaken as a component of the EIA for the project. Provision is made for this in terms of Section 38(8) of the NHRA, which states that:

- An HIA report is required to identify, and assess archaeological resources as defined by the NHR Act, assess the impact of the proposal on the said archaeological resources, review alternatives and recommend mitigation (see methodology above).

Section 38 (3) Impact Assessments are required in terms of the statutory framework to conform to basic requirements as laid out in Section 38(3) of the NHRA. These are:

- The identification and mapping of heritage resources in the area affected;
- The assessment of the significance of such resources;
- The assessment of the impact of the development on the heritage resources;
- An evaluation of the impact on the heritage resources relative to sustainable socio/economic benefits;
- Consideration of alternatives if heritage resources are adversely impacted by the proposed development;

- Consideration of alternatives; and
- Plans for mitigation.

1.4.6 Notice 648 of the Government Gazette 45421

Although minimum standards for archaeological (2007) and palaeontological (2012) assessments were published by SAHRA (2016), Government Notice (GN) 648 of 2019 requires sensitivity verification for a site selected on the national web-based environmental screening tool for which no specific assessment protocol related to any theme has been identified. The requirements for this GN are listed in **Table 2** and the applicable section in this report is noted.

Table 2 - Reporting requirements for GN 648 of 2019

GN 648	Relevant section in report	Where not applicable
2.2 (a) a desktop analysis, using satellite imagery	Section 4 and 5	-
2.2 (b) a preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web-based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.	Section 4 and 5	-
2.3(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web-based environmental screening tool	Section 1 and 5	-
2.3(b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity	Section 4 provides a description of the current use and confirms the status in the screening report	-

An assessment of the Environmental Screening tool provides the following sensitivity ratings for archaeological resources that fall within the proposed project area rated as Low (**Figure 2**), while palaeontological resources are rated as Very High (**Figure 3**).

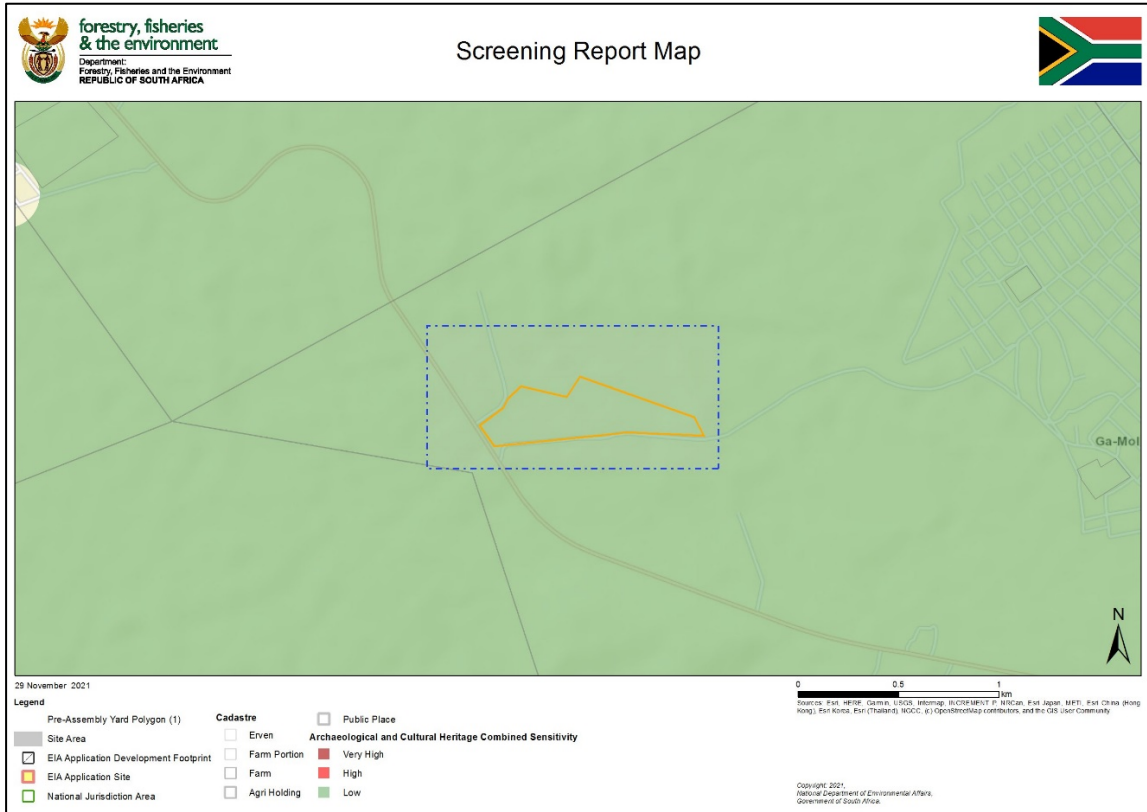


Figure 2 - Environmental screening tool's depiction of the archaeological and heritage sensitivity of the study area and surroundings.

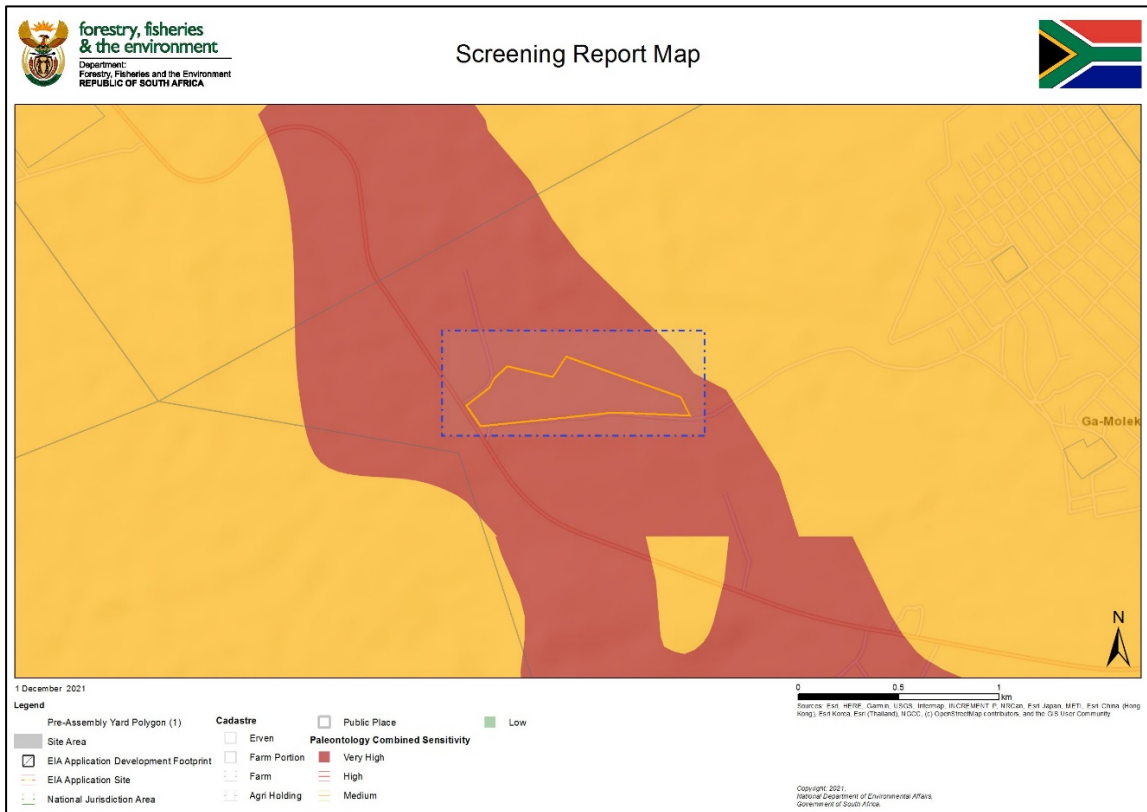


Figure 3 - Environmental screening tool's depiction of the palaeontological sensitivity of the study area and surroundings.

1.4.7 NEMA – Appendix 6 requirements

The HIA report has been compiled considering the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and EIA Regulations (2014, and as amended in 2017). **Table 3** below sets out the relevant sections as listed in Appendix 6 of the EIA Regulations (2017), which describes the requirements for specialist reports. For ease of reference, **Table 3** provides cross-references to the report sections where these requirements have been addressed. It is important to note that where something is not applicable to this HIA, this has been indicated in the table below.

Table 3 - Reporting requirements as per NEMA, as amended, for specialist reports.

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report	Comment where not applicable
1.(1) (a) (i) Details of the specialist who prepared the report	Page ii of Report – Contact details and company	-
(ii) The expertise of that person to compile a specialist report including a curriculum vita	Section 1 – refer to Appendix B	-
(b) A declaration that the person is independent in a form as may be specified by the competent authority	Page ii of the report	-
(c) An indication of the scope of, and the purpose for which, the report was prepared	Section 1 and 2	-
(cA) An indication of the quality and age of base data used for the specialist report	Section 3, 4 and 5	-
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 6, 7 and 8	-
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3	-
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3	-
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Sections 5, 6, 7 and Appendix C	-
(g) An identification of any areas to be avoided, including buffers	Sections 5, 6, 7, 8 and 9	-
(h) 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;	Figure 21	
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1	-
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Executive summary, Section 7 and Section 9	

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report	Comment where not applicable
(k) Any mitigation measures for inclusion in the EMPr	Sections 8 and 9	
(l) Any conditions for inclusion in the environmental authorisation	Sections 8 and 9	
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Sections 8 and 9	
(n)(i) A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and	Executive Summary and Section 9	
(n)(iA) A reasoned opinion regarding the acceptability of the proposed activity or activities; and		
(n)(ii) If the opinion is that the proposed activity, activities 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	Sections 8 and 9	-
(o) A description of any consultation process that was undertaken during the course of carrying out the study		Not applicable. As far as is known, a public consultation process was handled as part of the environmental process.
(p) A summary and copies if any comments that were received during any consultation process		Not applicable. To date no comments regarding heritage resources that require input from a specialist have been raised.
(q) Any other information requested by the competent authority.		Not applicable.
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	NEMA Appendix 6 and GN648 SAHRA guidelines on HIAs, PIAs and AIAs	

2 TECHNICAL DETAILS OF THE PROJECT

2.1 Locality

Study Area Coordinates	Northernmost point: S -23.994015 E 28.917173	Easternmost point: S -23.996235 E 28.922643
	Southernmost point: S -23.996497 E 28.916843	Westernmost point: S -23.996033 E 28.912765
Location	The study area is located within the Mapela Traditional Authority and the Mogalakwena Local Municipality. It is located approximately 22km north by the north-west of Mokopane, Limpopo Province.	
Property	Portions of the farm Vaalkop 819 LR	
Topographic Map	2328DD	
Study Area Extent	The combined extent of the study area is approximately 18 hectares.	

Mogalakwena Pre-Assembly Yard
Locality Map

PGS Heritage (Pty) Ltd
Heritage Management Unit



Figure 4 – Google Earth depiction of the study area boundaries. The study area is located on the farm Vaalkop 819 LR.

2.2 Technical Project Description

SRK Consulting South Africa (Pty) Ltd (SRK) has been appointed by Mogalakwena Complex to conduct a Basic Assessment (BA) process to authorise the Mogalakwena third concentrator (MC3) pre-assembly area.

In 2019, an environmental authorisation (EA) amendment process was undertaken to authorise several new activities and associated infrastructure at Mogalakwena Complex for the expansion of its existing operations in order to improve production capacity. A new third concentrator plant (known as the M3C) and associated water management infrastructure formed part of the authorisation process which was approved in August 2020. In addition to this, a contractor's laydown area was also approved however according to Anglo American Platinum (AAP) this area is not sufficient for the proposed M3C pre-assembly activities and that an additional area is required.

In order to support the construction of the M3C, an additional footprint area of approximately 18 hectares is required to accommodate the necessary temporary construction facilities, the laydown of equipment and materials as well as the pre-assembly of structures required for the M3C (conveyors, gantries and pipe racks).

Mogalakwena Complex would like to establish the pre-assembly yard to the south of the existing return water dam which is within the mine lease area on the farm Vaalkop 819 LR (see **Figure 5** below). The area is bordered on the western side by Bakenberg Road and the main Mogalakwena North Concentrator access road, to the south by the Ga-Molekana gravel access road and on the northern side by existing contractor laydown facilities and tanks directly adjacent to the proposed buffer dam. It is bordered on the eastern side by a 22kV Eskom powerline which branches off from the 132kV Eskom overhead line.

Based on the current information available and SRK's understanding of the project, SRK is of the opinion that a Basic Assessment process may be required for the proposed project as it will require Environmental Authorisations from the Limpopo Province's Department of Mineral Resources and Energy (DMRE) in terms of the listed activities that will be triggered by the proposed project under the National Environmental Management Act (Act 107 of 1988, as amended) (NEMA) and the NEMA Environmental Impact Assessment (EIA) Regulations of 2014, as amended for the proposed activities. NEMA Listed Activities that could be triggered include:

- GNR 983 Listing notice 1, Activity 24: Development of a road where a reserve wider than 13.5 meters or where no reserve exists, where the road is wider than 8 meters.

- GNR 983 Listing notice 1, Activity 27: Clearance of an area of 1 hectare or more but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for –
 - The undertaking of a linear activity or
 - For maintenance purposes.



Figure 5 – Google Earth depiction of the study area boundaries. The study area is located on the farm Vaalkop 819 LR.

3 ASSESSMENT METHODOLOGY

3.1 Methodology for Assessing Heritage Site Significance

This report was compiled by PGS Heritage for the proposed Pre-Assembly Yard at Mogalakwena Complex, near Mokopane, Limpopo Province. The applicable maps, tables and figures are included as stipulated in the NHRA and NEMA. The HIA process consisted of three steps:

Step I – Desktop Study: A detailed archaeological and historical overview of the study area and surroundings were undertaken. This work was augmented by an assessment of reports and data contained on the South African Heritage Resources Information System (SAHRIS). Additionally, an assessment was made of the available historic topographic maps. All these desktop study components were undertaken to support the fieldwork.

Step II – Field Survey: Intensive field surveys of the study area were undertaken on Wednesday, Thursday, 27 October 2022. This work was undertaken on foot by an experienced fieldwork team comprising one archaeologist/heritage specialist (Cherene de Bruyn) accompanied by an archaeological fieldwork assistant (Thomas Mulaudzi). Throughout the fieldwork, hand-held GPS devices were used to record the tracklogs. The recent fieldwork undertaken resulted in the identification of one site comprising at least three structural remains. A member of the local community indicated that the site appears to have been used as a mechanical workshop.

Step III – Report: The final step involved the recording and documentation of relevant heritage resources, as well as the assessment of resources regarding 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
- 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 ASAPA for the Southern African Development Community (SADC) region, were used for the purpose of this report (see **Table 4**).

Table 4 – Site significance classification 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)	Grade 4A	High/Medium	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium	Recording before destruction
Generally Protected C (GP.C)	Grade 4D	Low	Destruction

3.2 Methodology for Impact Assessment

The impact assessment methodology used to assess the impact of the proposed project and to develop appropriate mitigation measures that can be implemented to reduce or eliminate the potential impacts identified is provided below and has been formalised by SRK Consulting (South Africa) (Pty) Ltd to comply with the EIA Regulations of 2014 (as amended) promulgated under NEMA, which states the following:

An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision, and must include – an assessment of each identified potentially significant impact, including –

- (i) cumulative impacts;*
- (ii) the nature, significance and consequence of the impact and risk;*
- (iii) the extent and duration of the impact and risk;*
- (iv) the probability of the impact and risk occurring;*
- (v) the degree to which the impact and risk can be reversed;*
- (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and*
- (vii) the degree to which the impact and risk can be mitigated.*

Based on the above, the Impact Assessment Methodology requires that each potential impact identified is clearly described (providing the nature of the impact) and be assessed in terms of the following factors:

- **extend** (spatial scale) - *will the impact affect the national, regional or local environment, or only that of the site?;*
- **duration** (temporal scale) - *how long will the impact last?;*
- **magnitude** (severity) - *will the impact be of high, moderate or low severity?;* and
- **probability** (likelihood of occurring) - *how likely is it that the impact may occur?.*

To enable a scientific approach for the determination of the environmental significance (importance) of each identified potential impact, a numerical value has been linked to each factor. Please refer table on the subsequent page.

Once the above factors had been ranked for each identified potential impact, the environmental significance of each impact can be calculated using the following formula:

$$\text{Significance} = (\text{duration} + \text{extend} + \text{magnitude}) \times \text{probability}$$

The maximum value that can be calculated for the environmental significance of any impact is 100.

The environmental significance of any identified potential impact is then rated as either: high, moderate or low on the following basis:

- More than 60 significance value indicates a high (H) environmental significance impact;
- Between 30 and 60 significance value indicates a moderate (M) environmental significance impact; and
- Less than 30 significance value indicates a low (L) environmental significance impact.

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

In order to assess the degree to which the potential impact can be reversed and be mitigated, each identified potential impact will need to be assessed twice.

- Firstly, the potential impact will be assessed and rated **prior** to implementing any mitigation and management measures; and
- Secondly, the potential impact will be assessed and rated **after** the proposed mitigation and management measures have been implemented.

The purpose of this dual rating of the impact before and after mitigation is to indicate that the significance rating of the initial impact is and should be higher in relation to the significance of the impact after mitigation measures have been implemented.

In order to assess the degree to which the potential impact can cause irreplaceable loss of resources, the following classes (%) will be used and will need to be selected based on the specialist informed decision and discretion:

- 5 100% - Permanent loss
- 4 75% - 99% - significant loss
- 3 50% - 74% - moderate loss
- 2 25% - 49% - minor loss
- 1 0% - 24% - limited loss

Please note that the Loss of Resources aspect will not affect the overall significance rating of the impact.

In terms of assessing the cumulative impacts, specialists are required to address this in a sentence/ paragraph fashion as the spatial extent of the cumulative impacts will vary from project to project. Cumulative impact, in relation to an activity, means the impact of an activity that in itself may not be significant, but may become significant when added to the existing or potential impacts eventuating from similar or diverse activities or undertakings in the area.

4 CURRENT STATUS QUO

The study area is characterised by primarily level areas situated west of the N11 between Mokopane and Grobler Bridge. As indicated above, the study area is bordered on the western side by Bakenberg Road and the main Mogalakwena North Concentrator access road, to the south by the Ga-Molekana gravel access road and on the northern side by existing contractor laydown facilities and tanks directly adjacent to the proposed buffer dam. It is bordered on the eastern side by a 22kV Eskom powerline which branches off from the 132kV Eskom overhead line.

In terms of vegetation, the study area is located within the Makhado Sweet Bushveld vegetation type. This vegetation type is described as “...*slightly to moderately undulating plains sloping generally down to the north, with some hills in the southwest. Short and shrubby bushveld with a poorly developed grass layer* (www.sanbi.org). Significant sections of the study area are characterised by vegetation in the form of thorn-bearing trees and bushes.

In terms of geology and soils, the Makhado Sweet Bushveld vegetation type is “...*underlain by the gneisses and migmatites of the Hout River Gneiss (Randian Erathem) and the potassium-deficient gneisses of the Goudplaats Gneiss (Swazian Erathem). Sandstones and mudstones of the Matlabas Subgroup (Mokolian Waterberg Group) are also found. Soils include deep, greyish sands, eutrophic plinthic catenas, red-yellow apedal freely drained soils with high base status, clayey in bottomlands.*” (www.sanbi.org).

Existing surrounding land uses associated with the project area include a combination of:

- Residential settlement: Ga-Molekana is located to the east of the study area,
- Powerlines; and
- Sections of the study area were used for the grazing of animals.

Sections of the footprint overlay disturbed terrain. Illegal dumping was observed in areas. Sections of the area are characterised by extensively eroded watercourses.

Overall, the accessibility of the project footprint area was fairly good. Visibility of the site was limited due to the grassy vegetation and dense thorny trees. Several photographs below provide general views of the study area and the landscape within which it is located.



Figure 6 - General view of the project area, which is characterised by thorn-bearing trees and bushes.



Figure 7 - Existing powerlines run through the project area. One of the mine dumps from the Mogalakwena Complex can be seen in the back.



Figure 8 - A water reservoir and treatment plant are located to the north of the project area.



Figure 9 – The study area is also used by the local community for grazing of cattle and goats.



Figure 10 - View of the access road to the Mogalakwena North Concentrator. This road is located to the north of the project area.

5 DESKTOP STUDY FINDINGS

5.1 Archaeological overview of the Study Area and Surroundings

5.1.1 Early Stone Age (ESA) (>200 000 – 2 million years Before Present/BP)

General characteristics: Early stages include simple flakes struck from cobbles, core and pebble tools; later stages include intentionally shaped handaxes, cleavers and picks; final or transitional stages have tools that are smaller than the preceding stages and include large blades (Lombard *et al.* 2012). Phases of the Early Stone Age:

- *Oldowan:* 1.5 to >2 million years ago - Technological characteristics: Cobble, core or flake tools with little retouch and no flaking to predetermined patterns; Hammerstones, manuports, cores; and polished bone fragments/tools (Lombard *et al.* 2012).
- *Acheulean:* 300 thousand to 1.5 million years ago - Technological characteristics: Bifacially worked handaxes and cleavers, large flakes > 10 cm; some flakes with deliberate retouch, sometimes classified as scrapers; gives the impression of being deliberately shaped, but could indicate result of knapping strategy; sometimes shows core preparation; and generally found in disturbed open-air locations (Lombard *et al.* 2012).
- *ESA-MSA transition:* 200 to 600 thousand years ago - Technological characteristics: Described at some sites as *Fauresmith* or *Sangoan*; *Fauresmith* assemblages have large blades, points, Levallois technology, and the remaining ESA components have small bifaces; the *Sangoan* contains small bifaces (<100 mm), picks, heavy and light-duty denticulated and notched scrapers; The *Sangoan* is less well described than the *Fauresmith* (Lombard *et al.* 2012).

As far as is currently known, Limpopo province is not as well known for its Early Stone Age resources as other parts of the country. The closest occurrences of major finds from this time period are located at the Cave of Hearths (Herries 2011), which is dated to 1.1-1.4 Ma (best age estimates interpreted from contexts of direct/associated dates) and characterised by *Acheulian* assemblages.

5.1.2 Middle Stone Age (MSA) (20 000 – 300 000 BP)

General characteristics: Levallois or prepared core techniques (for definitions see Van Peer 1992; Boeda 1995; Pleurdeau 2005) occur in which triangular flakes with convergent dorsal scars, often with faceted striking platforms are produced; Discoidal systems (for definition see Inizan *et al.* 1999) and intentional blade production from volumetric cores (for definition see Pleurdeau 2005) also occur; formal tools may include unifacially and bifacially retouched points, backed artefacts, scrapers, and denticulates (for definition see Bisson 2000); evidence of hafted tools; occasionally includes marine shell beads, bone points, engraved ochre nodules, engraved OES fragments, engraved bone

fragments, and grindstones (Lombard et al. 2012). Phases of the MSA:

- *early Middle Stone Age*: 130 to 300 thousand years - Technological characteristics: Includes discoidal and Levallois flake technologies, blades from volumetric cores and a generalised toolkit (Lombard et al. 2012).
- *Klasies River*: 105 to 130 thousand years ago - Technological characteristics: Recurrent blade and convergent flake production; end products are elongated and relatively thin, often with curved profiles; platforms are often small with diffused bulbs; low frequencies of retouch; and denticulated pieces (Lombard et al. 2012).
- *Mossel Bay*: 77 to 105 thousand years ago - Technological characteristics: Recurrent uni-polar Levallois point and blade reduction; products have straight profiles; percussion bulbs are prominent and often splintered or ring-cracked; formal retouch is infrequent and restricted to sharpening the tip or shaping the butt (Lombard et al. 2012).
- *Still Bay*: 70 to 77 thousand years ago - Technological characteristics: Characterised by thin (<10 mm), bifacially worked foliate or lanceolate points; semi-circular or wide-angled pointed butts; and could include blades and finely serrated points (Lombard et al. 2010).
- *Howieson's Poort*: 58 to 66 thousand years ago - Technological characteristics: Characterised by blade technology; includes small (<4 cm) backed tools, e.g. segments, scrapers, trapezes and backed blades; some denticulated blades; and pointed forms are rare or absent (Lombard et al. 2012).
- *Sibudu*: 45 to 58 thousand years ago – Technological characteristics: Most points are produced using Levallois technique; most formal retouch aimed at producing unifacial points; some plain butts; rare bifacially retouched points; some side scrapers are present; and backed pieces are rare (Lombard et al. 2012).
- *final Middle Stone Age*: 20 to 40 thousand years - Technological characteristics: Characterised by high regional variability that may include, e.g. bifacial tools, bifacially retouched points, hollow-based points; triangular flake and blade industries; small bifacial and unifacial; Sibudu point characteristics: short, stout, lighter in mass compared to points from the Sibudu technocomplex, but heavier than those from the Still Bay; can be microlithic; can include bipolar technology; and could include backed geometric shapes such as segments, as well as side scrapers (Lombard et al. 2012).

Most MSA sites in Limpopo Province are caves or rock shelters, the best-known being Cave of Hearths (Mason 1962, 1988; Sampson 1974; Sinclair 2009), Olieboomspoort (Mason 1962; Van der Ryst 2006), Bushman Rock Shelter (Plug 1981; Porraz *et al.* 2015) and Mwulu's Cave (Tobias 1949; Sampson 1974).

5.1.3 Later Stone Age (LSA) (40 000 – < 2 000 BP)

General characteristics: Variability between assemblages; a wide range of formal tools, particularly scrapers (microlithic and macrolithic), backed artefacts, evidence of hafted stone and bone tools, borers, bored stones, upper and lower grindstones, grooved stones, ostrich eggshell (OES) beads and other ornaments, undecorated/decorated OES fragments, flasks/flask fragments, bone tools (sometimes with decoration), fishing equipment, rock art, and ceramics in the final phase (Lombard et al. 2012).

Phases of Later Stone Age:

- *Early Later Stone Age:* 18 to 40 thousand years ago - Technological characteristics: Characterised by unstandardised, often microlithic, pieces and includes the bipolar technique; described at some sites, but not always clear whether assemblages represent a real archaeological phase or a mixture of LSA/MSA artefacts (Lombard et al. 2012).
- *Robberg:* 12 to 18 thousand years ago - Technological characteristics: Characterised by systematic bladelet (<26 mm) production and the occurrence of outils écaillés or scaled pieces (for the definition of outils écaillés see Hayden 1980); significant numbers of unretouched bladelets and bladelet cores; few formal tools; and some sites have significant macrolithic element (Lombard et al. 2012).
- *Oakhurst:* 7 to 12 thousand years ago - Technological characteristics: Flake-based industry; characterised by round, end, and D-shaped scrapers and adzes; wide range of polished bone tools; and few or no Microliths (Lombard et al. 2012).
- *Wilton:* ~4 to 8 thousand years ago - Technological characteristics: Fully developed microlithic tradition with numerous formal tools; highly standardised backed microliths and small convex scrapers (for the definition of standardisation see Eerkens & Bettinger 2001); OES is common; Ochre is common; and bone, shell and wooden artefacts occur (Lombard et al. 2012).
- *Final Later Stone Age:* ~1 hundred to ~4 thousand years ago - Technological characteristics: Much variability can be expected; variants include macrolithic (similar to Smithfield [Sampson 1974]) and/or microlithic (similar to Wilton) assemblages; assemblages are mostly informal (Smithfield); often characterised by large untrimmed flakes (Smithfield); sometimes microlithic with scrapers, blades and bladelets, backed tools and adzes (Wilton-like); worked bone is common; OES is common; Ochre is common; iron objects are rare; ceramics are absent (Lombard et al. 2012).
- *Ceramic final Later Stone Age:* Generally <2 thousand years ago - Contemporaneous with, and broadly similar to, final Later Stone Age, but includes ceramics - Economy may be associated with hunter-gatherers or herders -Technological characteristics: Stone tool assemblages are often microlithic (for a definition of 'microlithic' see Elston & Kuhn 2002);in

some areas they are dominated by long end scrapers and few backed Microliths and in others formal tools are absent or rare; grindstones are common, ground stone artefacts, stone bowls and boat-shaped grinding grooves may occur; includes grit- or grass-tempered pottery; ceramics can be coarse, or well-fired and thin-walled; sometimes with lugs, spouts and conical bases; sometimes with decoration; sometimes shaped as bowls; Ochre is common; OES is common; metal objects, glass beads and glass artefacts also occur (Lombard et al. 2012).

Major LSA sites occurring in the Limpopo Province include: Balerno Main Shelter (Van Doornum 2007a), Goergap 113 KR (Van der Ryst 1998), New Belgium (Van der Ryst 1998), Schurfpoort 112 KR (Van der Ryst 1998) and Tshisiku Shelter (Van Doornum 2007b).

5.1.4 Rock Art

By the beginning of the Later Stone Age, human behaviours were undoubtedly modern (Huffman 2005). Uniquely human traits, such as rock art and purposeful burials with ornaments, became regular practice (Huffman 2005).

South Africa's rock art tradition is the engravings and paintings produced by forager or San communities (Smith & Ouzman 2004). Though considered predominantly shamanistic and symbolic, San rock art also concerns gender, landscape, and politics (Smith & Ouzman 2004).

In addition, Bantu-speaking farmers' rock art also exists that was made by groups that appeared in southern Africa about 2,000 years ago (Vogel 1995) from East and Central Africa (e.g., Ten Raa 1974; B. Smith 1995, 1997, 2002). This art has several distinct traditions, among them the northern Sotho initiation and protest rock arts (Smith and van Schalkwyk 2002, van Schalkwyk and Smith 2004), the rock engravings of Late Iron Age settlements (e.g., Maggs 1995), and the boys' initiation rock art of the southern Sotho and Zulu. Most of these traditions are informed by oral history, and some may continue to be practiced (Smith & Ouzman 2004).

Four areas known from the northern part of the country where rock art clusters are found, comprise the Limpopo River Valley, the Makabeng-Blouberg Mountains, the Soutpansberg Mountains and the Waterberg. Each of these areas has its own distinct iconography but also shares a number of common qualities that make it different from the south-eastern mountain complex (Blundell and Ferreira 2017). These common attributes are:

- A greater representation in the art of diverse animal species. The rock art of the south-eastern mountain complex, as well as other parts of South Africa, heavily emphasizes eland. After eland, reedbuck and hartebeest are the most numerically important animal-images. Images of felines, elephant, domestic animals and other species do occur but are generally numerically

poorly represented, both at a single site (only a single feline may be present at a site, whereas hundreds of images of eland might be present for example) and as a category of images within the corpus of rock art for a region. The rock art of the northern part of South Africa differs from that of the south-eastern mountains because there is greater species variability and numerical representation of those species both at a single shelter and throughout the corpus of rock art. Giraffe, elephant, hartebeest/tsessebe, kudu and other animals are commonly found at rock art sites. The numerical dominance of eland appears to wane in the northern parts of the country (Blundell & Ferreira 2017).

- A greater proportion of images of women when compared to other parts of South Africa. Women typically make up between 2% and 14% of identifiable human images in the rock art of most parts of South Africa but in the northern parts of the country this increases dramatically to 31% (Blundell & Ferreira 2017).
- A widespread emphasis at rock art sites of images of clothing. These images include both men's loincloths (Y-shaped images) and female aprons (stretched out skin-shapes). Such motifs are exceptionally rare in the south-eastern mountain complex but common in the northern areas of the country (Blundell & Ferreira 2017).

5.1.5 Iron Age Sequence

In the northern regions of South Africa at least three settlement phases have been distinguished for early prehistoric agropastoralist settlements during the Early Iron Age (EIA). Diagnostic pottery assemblages can be used to infer group identities and to trace movements across the landscape. The first phase of the Early Iron Age, known as Happy Rest (named after the site where the ceramics were first identified), is representative of the Western Stream of migrations, and dates to AD 400 - AD 600. The second phase of Diamant is dated to AD 600 - AD 900 and was first recognized at the eponymous site of Diamant in the western Waterberg. The third phase, characterised by herringbone-decorated pottery of the Eiland tradition, is regarded as the final expression of the Early Iron Age (EIA) and occurs over large parts of the North West Province, Northern Province, Gauteng and Mpumalanga. This phase has been dated to about AD 900 - AD 1200. These sites are usually located on low-lying spurs close to water (Coetzee 2015).

The Late Iron Age (LIA) settlements are characterised by stone-walled enclosures situated on defensive hilltops c. AD 1640 - AD 1830). This occupation phase has been linked to the arrival of ancestral Northern Sotho, Tswana and Ndebele (Nguni-speakers) in the northern regions of South Africa with associated sites dating between the sixteenth and seventeenth centuries AD. The terminal LIA is represented by late 18th/early 19th century settlements with multichrome Moloko pottery commonly attributed to the Sotho-Tswana. These settlements can in many instances be correlated with oral traditions on population movements during which African farming communities sought refuge in

mountainous regions during the processes of disruption in the northern interior of South Africa, resulting from the so-called difaqane (or mfecane) (Coetzee 2015).

5.2 Historical overview of the Study Area and Surroundings

The archival and desktop research of the history of the study area and surrounding landscape identified a number of historical aspects which can be associated with the study area as well as its immediate surroundings. These historical facets will be discussed in more detail and in chronological sequence below.

Please note that the authors are aware of the Makapan Valley with its various historical, archaeological and palaeontological significant sites and features such as Makapan's Caves, Cave of Hearths etc. The authors are also aware that the Makapan Valley is both a National Heritage and World Heritage site. However, the Makapan Valley is located approximately 30km south-east of the study area. As a result, the Makapan Valley is not directly associated with the history of the study area and was not included in this section or overall report.

5.2.1 The Northern Transvaal Ndebele

The Ndebele-speaking people in the Mokopane and Polokwane regions (including the small Kekana group around Hammanskraal) were classified by Van Warmelo (1930) as the Northern Transvaal Ndebele. He classified the local Ndebele into Northern Transvaal Ndebele and Southern Transvaal Ndebele on the basis of geographical location; the division roughly mirrored a cultural split between the two groups. He also mapped the common descent of the Transvaal Ndebele from the original chiefdom under Musi, and outlined the succession battle following Musi's death and the formation of several chiefdoms (Lekgoathi, 2009).

The study area and its surrounding landscape are strongly associated without especially two Late Iron Age / Historic agropastoralist groups, namely the Langa Ndebele and the Kekana Ndebele.

5.2.1.1 The Langa Ndebele

The Langa Ndebele originally lived in present-day Kwazulu-Natal and was associated with the extensive and powerful Hlubi kingdom. Centuries before the rise and expansion of the Zulu kingdom, the Langa Ndebele departed from present-day Kwazulu-Natal in c. 1650. This migration was most likely led by Chief Masebe I.

Their migration from present-day Kwazulu-Natal took many years. It is understood that one of the first settlements along their migration was within present-day Swaziland. From here they moved to Ga-

Maferera, on the Olifants River. The Langa Ndebele then migrated to Bošega, east of present-day Polokwane. Their closest neighbours at the time were the Matlala of the Matlala Mountains and the Kekana Ndebele of Chief Moletlane at present-day Zebediela. The Langa Ndebele stayed at Bošega for only a short period of time before moving to a hill located south-east of Polokwane known as Thaba Tšhweu. At Thaba Tšhweu a number of the Langa Ndebele chiefs ruled and died, including Masebe I, Mapuso, Podile and Masebe II. This points to a relatively long occupation of the settlement.

While residing at Thaba Tšhweu, the Langa Ndebele adopted the Sotho custom of circumcision. Some scholars believe that it was the relatively nearby Matlala people who introduced circumcision to the Langa Ndebele. The first of their leaders to have been circumcised appears to have been Chief Podile. During this same period, the Langa Ndebele obtained the medicated pumpkin for their first fruits ceremony from the Kekana Ndebele of Moletlane. Similarly, it is believed that the Kekana Ndebele had to be notified by the Langa Ndebele before the latter Ndebele group could undertake initiation and form age-sets. These factors suggest that the Langa Ndebele were subject to the Kekana Ndebele, or that as a minimum they recognised the genealogical superiority of the Kekana Ndebele.

Masebe II was succeeded at Thaba Tšhweu as ruler by Chief Seritarita in c. 1775. Shortly after his succession, Seritarita led his people from Thaba Tšhweu to Maleoko, on the present-day farm Bultongfontein 239 KR. This farm is located immediately east of the farm Vaalkop 819 LR. It is therefore clear that the arrival of the Langa Ndebele at Maleoko represented the first settlement of the Langa Ndebele in the general surroundings of the present study area.

Seritarita remained at Maleoko for approximately three years before moving with his people to Moumong-wa-Matswake, located on the present-day farm Zuid-Holland 773 LR. This settlement of Moumong-wa-Matswake was also known as Mokgokgong. The farm Zuid-Holland is located approximately 10km north-east of the closest point along the present study area.

Seritarita lived at Moumong-wa-Matswake until his death, and was succeeded by Chief Mapela, the son of his third-ranking wife. Seritarita's principal wife had had no sons, whereas his son by his second-ranking wife, Makgenene (Mamaala) was not deemed fit to hold the office of chief as he was believed to have deserted his father. Furthermore, it also appears that a *ngwetši* (daughter-in-law) was married to produce an heir on behalf of the principal wife. The *ngwetši* bore a son named Mosoge. While Mosoge, as the most senior of Seritarita descendants, was therefore to have become chief in time, this never happened. Some scholars believe that he was unfit to succeed and that he preferred to spend his time farming rather than to succeed as the ruler of the Langa Ndebele. Other scholars believe that by the time that Mosoge was old enough to succeed, Mapela had entrenched his position as chief to such an extent that it was impossible for Mosoge to take over the chieftainship from Mapela. In the end, during the mfecane, Mosoga led his followers away from Moumong-wa-Matswake to settle at a small hill named Mabjanamaswana, immediately east of Thutlane, and located some distance north and west

of Moumong-wa-Matswake. Incidentally, Tutlane is located approximately 22km north-west of the present study area.

At the time of his 'desertion', Makgenene moved with his followers away from Moumong-wa-Matswake and settled at Tsotsodi, on the present-day farm Planknek 43 KS, situated east of Mokopane and approximately 19.5km south-east of the present study area. Makgenene also lived at Segodini, located on the present-day farm Makapansgat 39 KS. Their settlement at Segodini was ruled by three successive chiefs, namely Makgenene, Selepe and Mphunye (Mapunya).

During the reign of Mapela, the Langa Ndebele experienced a growth period during which their number and fame increased. During his reign, Mapela incorporated a number of smaller Sotho groups and clans, some voluntary and others by force. He also managed to defeat the Phalane Nareng of Mabuela and the Pedi of Matlou. These two groups had been settled along the Mogalakwena River for some time, and had been unsuccessfully attacked by the Langa Ndebele even before their arrival at Moumong-wa-Matswake and before the succession of Mapela. It is interesting to note that a present-day settlement located approximately 14km west by northwest of the present study area, bears the name Ga-Mabuela (i.e. the place of Mabuela). The Bibidi of Šongwane were also defeated during the reign of Mapela and fled to the Bobibidi hill near Villa Nora. Similarly, the Kwena of Ramorulane and the Hurutshe of Molokomme were defeated by Mapela's forces at Senta Hill and Swartkop. The Koni of Masenya and Puka, the Tlokwa of Pila and the followers of Tšhokwe joined the Langa Ndebele voluntarily during Mapela's reign.

During his old age, Mapela moved his capital from Moumong-wa-Matswake to Fothane Hill (Moordkoppie) where he died in 1825. Fothane Hill is located approximately 8km west by northwest of the study area. After Mapela's death, Mankopane, the son of Mapela's second-ranking son, Masekamiša, was earmarked to succeed. However, at the time Mankopane was still too young and as a result, Maleya, Mapela's son from a lower ranking wife was appointed as chief. Chief Maleya ruled the Kekana Ndebele from his capital on the Ditlotswane Hills, situated approximately 12.4km north-west of the present study area.

Maleya proved to be an unpopular chief, and as soon as Mankopane was old enough to succeed he ousted Maleya and became ruler of the Langa Ndebele. Mankopane's succession is believed to have taken place around 1835 or 1836.

After Mapela's death, the Mamaala group returned to the Langa Ndebele capital and claimed the chieftainship under their current leader, Mphunye. This was denied and as indicated above, Mankopane succeeded Mapela as the chief of the Langa Ndebele. As a result, the Mamaala group planned to kill Mankopane, but without success.

During Chief Mankopane's reign, the Langa Ndebele attacked and defeated the Bibidi of Šongwane at their settlement Bobididi near Villa Nora. Villa Nora is located approximately 90km north-west of the present study area. The Langa Ndebele also attacked and scattered the copper miners of Musina, near the present-day town bearing the same name (Jackson 1983).

5.2.1.2 The Kekana Ndebele

The Kekana Ndebele group, which is associated specifically with the area around Mokopane and Zebediela, seems to be a sub-group of the so-called Northern Transvaal Ndebele (Bergh 1990) (Skhosana 2010). Skhosana (2010) references Van Warmelo (1930) and other scholars who subscribe to the view that the so-called Southern and Northern Ndebele of the Republic of South Africa constitutes a single ethnic group that claims its origin from the ancestral chief, Musi (or Msi). According to these scholars, the Ndebele originate from KwaZulu-Natal. They originally split from the main Hlubi group circa 1552 under the chieftainship of Mafana and subsequently travelled northwards.

The AmaNdebele crossed the Vaal River and entered what is today known as Gauteng, and initially settled around eMhlangeni, known as Randfontein, which is on the western side of Johannesburg. From eMhlangeni, they moved to KwaMnyamana near Pretoria and arrived there in 1610. At KwaMnyamana, the AmaNdebele were under the chieftainship of Musi who, according to Van Warmelo (1930), had either five or six sons, namely Manala, Nzunza (or Ndzundza), Mhwaduba, Dlomu, Mthombeni and Siobasa or M'pafuli (or Mphafudi).

Historically, KwaMnyamana is considered to be an important settlement of the AmaNdebele of the Republic of South Africa, because it is the place where the AmaNdebele split into two main groups and numerous smaller sub-groups. When Musi died in 1630, a succession struggle between two of his sons, namely Manala and Nzunza (or Ndzundza), resulted in them splitting into the Southern and Northern Ndebele, respectively, as well as into other smaller groups. The Southern Ndebele comprised the followers of Manala and Nzunza while the Northern Ndebele consisted of the followers of Mthombeni. Together with his brother, Nzunza (or Ndzundza), Mthombeni left KwaMnyamana and travelled to KwaSimkhulu, north of Belfast in the present Mpumalanga Province. At KwaSimkhulu, Mthombeni parted ways with Nzunza (or Ndzundza) and moved northwards along the Olifants River until he reached the area around Zebediela. On his way northwards, Chief Mthombeni became known as Gegana (or Kekana) and his followers were referred to as the 'people of Gegana (or Kekana)' instead of remaining the 'people of Mthombeni'. In explaining how Mthombeni changed his name to Gegana (or Kekana), De Beer (cited in Skhosana, 2010) states that, "*Die naam Gegana is afgelei van die Noord-Ndebele woord, kugega, wat beteken om saam met of parallel met iets te beweeg en verwys na die feit dat Mthombeni en sy volgelinge in hulle noordwaartse migrasie al langs die Olifantsrivier op beweeg het. Daarom word daar ook na hulle verwys as Gegana nomlambo, dit wil se die Gegana wat met die revier (mulambo) opgetrek het.*"

Bergh (1990) states that the Kekana Ndebele (Mathombeni/Yangalala) settled south-east of Potgietersrus at Moletlane. According to him, this community had earlier split from the Ndzundza group. A further split within the Kekana community occurred when the Vaaltyn-Kekana established a separate community closer to the present day town of Mokopane on the farm Pruissen. This group was known as the Kekana Ndebele of Chief Mugombhane (who was also known as Sejwamadi, Mokopane and Makapane) (Bergh, 1999).

5.2.2 The arrival and settlement of the Voortrekkers and the establishment of Potgietersrus

The Historical Period within the study area and surroundings commenced with the arrival of newcomers to this area. The first arrivals would almost certainly have been travellers, traders, missionaries, hunters and fortune seekers. However, with time, this initial trickle was replaced by a flood of white immigrants during the 1830s, when mass migration of roughly 2 540 Afrikaner families (comprising approximately 12 000 individuals) from the frontier zone of the Cape Colony to the interior of Southern Africa took place. The people who took part in this Great Trek were named Voortrekkers (those who travel ahead) and formed part of the first mass movement of whites into the interior of Southern Africa (Visagie, 2011). The reasons behind this migration are complex, but in general, terms include aspects such as a general discontent with the British authorities and the way in which they dealt with various aspects on the frontier.

In 1836, two pathfinding parties under the leadership of Louis Tregardt and Johannes Jacobus Janse (Lang Hans) van Rensburg passed the outskirts of present-day Heidelberg in a northward direction. While the exact route followed by these Voortrekkers are not always equally clear, Bergh (1999) and others contend that they followed the Olifants River (or alternatively followed a route a short distance west of the river) before passing through a poort in the Strydpoort Mountains. The Strydpoort Mountains are located approximately 50km south-east of the present study area.

However, at the Strydpoort Mountains, the two parties separated, apparently due to differences of opinion the two trek leaders held regarding the purpose of the expedition. Van Rensburg was anxious to reach Lourenço Marques to replenish his store of ammunition (for ivory hunting), while Tregardt was in favour of reaching the Zoutpansberg Mountains, now only seventy miles away. Van Rensburg's party separated from Tregardt's and they never saw each other again. The place where they parted ways has since become known as the Strydpoort—the Pass of the Quarrel (Ransford, 1968). After the separation of the two Voortrekker parties, Louis Tregardt continued northward and passed the present-day town of Polokwane before reaching the Soutpansberg. He eventually reached Delagoa Bay, where, tragically, Louis Trichardt and many of his party died of malaria (Ransford. 1968). The Van Rensburg trek met a violent end in present-day Mozambique when they were attacked and the entire party (with the exception of two children) annihilated by a Zulu impi (www.wikipedia.org).

With time, other Voortrekker parties followed and in 1846 the Voortrekker town of Andries Orieg Stad (Ohrigstad) was established. The original Voortrekker town had a short existence, and by 1849 most of its residents had moved to the newly established Voortrekker towns of Schoemansdal (along the Soutpansberg Mountains) and Lydenburg (Changuion 1986).

On 16 January 1852 the Sand River Convention was signed between the British Government and the Transvaal Boers. This convention formally recognised the existence and independence of the Boer Republic north of the Vaal River by the British Government. As a result, this agreement allowed for the creation of a Boer Republic, namely the *Zuid-Afrikaansche Republiek* (South African Republic) (Oberholster, 1972). The *Zuid-Afrikaansche Republiek* remained in existence until the end of the South African War in 1902.

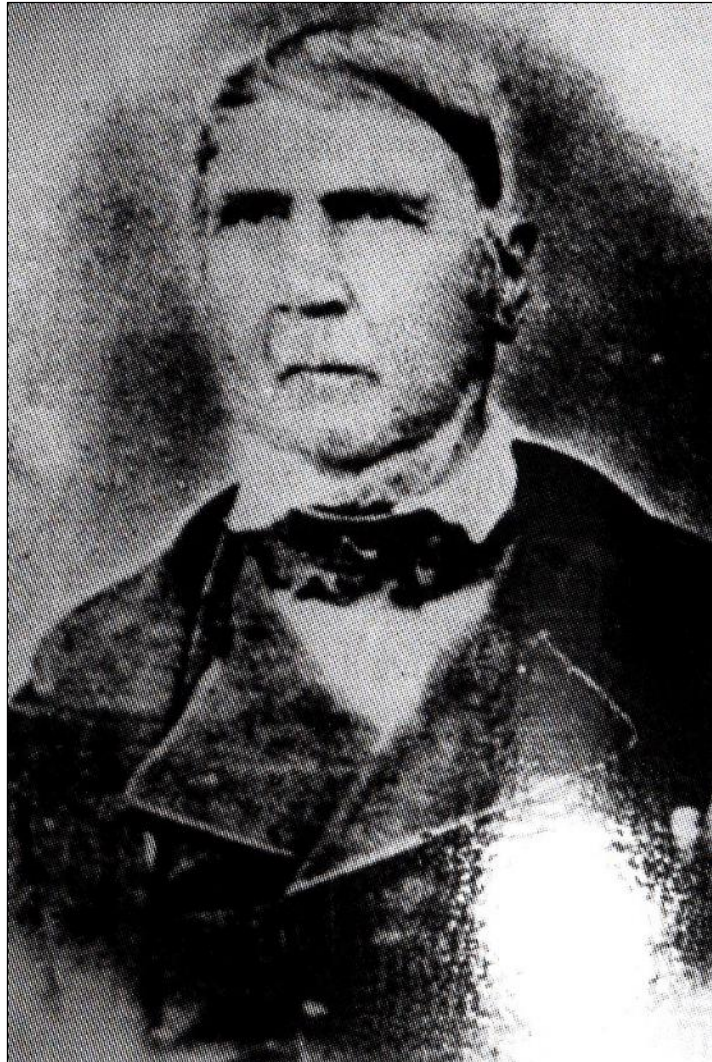


Figure 11 – Voortrekker leader Louis Tregardt (Visagie, 2011:500).

The constitution of the newly established *Zuid-Afrikaansche Republiek* stated that each burger who had established himself within the republic before 1852, could choose and receive two farms of roughly 3

000 morgen each. Those burgers who arrived after 1852 could only obtain one such farm, and had to pay an amount of 10 shillings for it annually. The initial settlement and concentration of Voortrekkers tended to be along the Mooi River (near present-day Potchefstroom), Magaliesberg Mountains (near the present-day towns of Pretoria and Rustenburg) and Lydenburg areas. However, the establishment of farms by the Voortrekkers in the surroundings of the study area appears to have been isolated and sporadic during these early years with some settlement only taking place during the 1850s and early 1860s (Bergh 1999).

On 19 March 1852 the Volksraad of the newly established *Zuid-Afrikaansche Republiek* approved the establishment of a town named Vredeburg in the Makanspoort area. Vredeburg was however never established (Bergh 1999).

5.2.3 Moordkoppie, Moorddrift and Pruizen

In September 1854 three events took place in the surroundings of the study area which were to have a profound impact on the history and characteristics of the surrounding landscape. Moordkoppie, Moorddrift and Pruizen, the three scenes of these events, would echo in the combined memory of both white and black residents of these parts for years to come. In fact, one of these places, Moorddrift, would be proclaimed as a National Monument in 1940, whereas a monument commemorating the victims of all three events was erected in Potgietersrus (present-day Mokopane) in 1909. The events associated with especially Moorddrift and Pruizen also led to a battle and siege which was to become synonymous with the town of Potgietersrus / Mokopane to this day, namely Makapan's Caves. Makapan's Caves were declared a National Monument in 1938 (Bergh 1999).

During late September 1854, the Langa Ndebele of Mankopane and Kekana Ndebele of Mokopane attacked three groups of Voortrekkers. A total of 28 Voortrekkers were killed during these attacks, which comprised 14 men that were killed by the Langa Ndebele near their capital at Fothane Hill (Moordkoppie), a party of 12 men, women and children killed at Moorddrift by the Kekana Ndebele and two men killed at the capital of the Kekana Ndebele on the farm Pruizen.

The attack at Fothane Hill (Moordkoppie) was first, and those killed included Voortrekker leader Andries Hendrik Potgieter's younger brother Hermanus Philippus Potgieter. The attacks at Moorddrift and Pruizen took place the following day. The three attacks taking place in such a short period of time by two different, though neighbouring Ndebele groups, suggest that the attacks were orchestrated and planned beforehand (Jackson 1983). The reasons for the Ndebele attacks on the three Voortrekker parties are explained by Dr Alex Schoeman of the University of the Witwatersrand as follows: "*Tension between the Ndebele and the Trekkers had been mounting for a number of years prior to the siege. This hostility was fuelled by the Trekkers' interest in the territory of the Kekana and Langa Ndebele because of its strategic importance as a route to the ivory-rich northern Transvaal (now Limpopo*

Province). In 1852 Commandant-General A.H. Potgieter intended to establish a town (De Vaal 1990: 140) in the Makapanspoort to lay claim to the route and facilitate the movement of goods and people between Schoemansdal and the Magaliesberg (Rustenburg). His objectives remained unrealized because he fell ill and died in December the same year (De Vaal 1990: 140). By 1854 the Kekana, who had fallen repeatedly victim to Trekker raids, demands and various acts of cruelty under the leadership of the Potgieters, joined a growing network of resistance against the Trekkers. In 1854 the Trekkers, who were also finding it increasingly difficult to exert their control over Sekwati's Pedi (Delius & Trapido 1983: 62), shifted their trade route from the Strydpoort to the Makapanspoort (Potgieter 1958: 3), and in doing so triggered a cycle of violence and resistance between themselves and the Ndebele.” (Schoeman 2010:67).

When news of the attacks reached Commandant-General Piet Potgieter at his farm near present-day Modimolle, he set about calling up a commando. Within a relatively short period of time his commando numbered 150 men from essentially the Schoemansdal (Zoutpansberg) Voortrekkers. However, he realised that more men were required, and requested the assistance of Commandant-General Marthinus Wessel Pretorius of the Magaliesberg (Rustenburg) Voortrekkers. The news of the attacks reached Pretorius on 25 September 1854, and he immediately started calling up his men. By 14 October 1854 his commando numbered 334 men, with whom he proceeded northwards to assist Commandant-General Piet Potgieter. For reasons not presently clear, the combined Voortrekker force of nearly 500 men ignored the Langa Ndebele and proceeded to attack the Kekane Ndebele of Mokopane at their defensive stronghold known today as Makapan’s Caves. The Voortrekkers placed the cave under siege, which lasted from 25 October to 21 November 1854. By the end of the siege, nearly 2 000 members of the Kekana Ndebele had lost their lives (Jackson 1983). Schoeman (2010) states that a number of Ndebele women and children were also captured during the siege. On the Voortrekker side, Naidoo (1987) indicates that two Voortrekkers were killed during the siege and a number wounded. One of those Voortrekkers killed during the siege was Commandant-General Piet Potgieter, and it was his name that was commemorated in the naming of the nearby town that was established in September 1858, namely Piet Potgietersrust.

After the lifting of the siege, the Voortrekkers proceeded to Fothane Hill to attack the Langa Ndebele. However, fearing reprisals from the Voortrekkers, Mankopane and his Langa Ndebele had fled from Fothane Hill to a flat-topped and steep-sided mountain named Magagamatala on the present-day farm Ruigtevley 710 LR. Magagamatala is located approximately 49km north-west of the present study area.

Moordkoppie (Fothane Hill) is the closest of the three attacks of September 1854 to the present study area. Jackson (1983) states that the scene of the attack on Hermanus Potgieter and his party at Fothane Hill took place in proximity to where the Kgabare Primary School is located today. This school appears to be located approximately 7.6km north-west of the present study area.

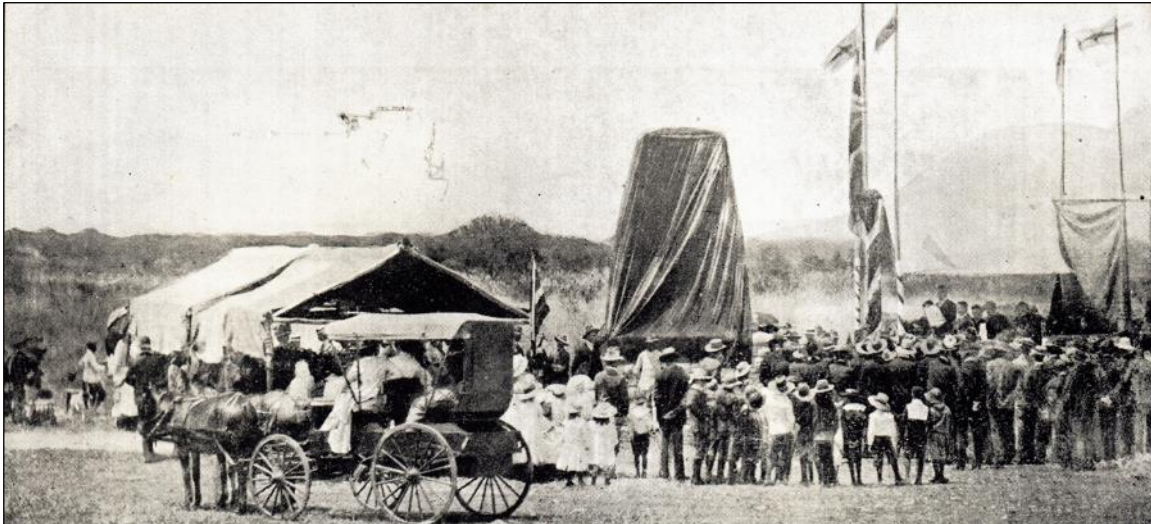


Figure 12 – Historic photograph depicting the unveiling of the memorial to the Voortrekkers who had lost their lives at Moordkoppie, Moorddrift and Pruizen. This monument was erected and unveiled in the square adjacent to the town hall of Potgietersrus in 1909 (Combrink 1954:18).

5.2.4 Establishment of Piet Potgietersrust and the conflict between the Langa Ndebele and the Transvaal Republic

In September 1858 the Volskraad approved the establishment of a new town that was to be named Piet Potgietersrust in honour of Commandant-General Piet Potgieter (the son of Commandant-General Andries Hendrik Potgieter) who was killed during the siege of Mokopane (see the section above). In December 1860 Commandant-General Stephanus Schoeman announced that the laying out of the town would commence on 10 December 1860. Work on the development of the town proceeded slowly, and by 21 January 1861 only a water furrow had been dug. By September 1862, however, a number of residents had settled down in the newly established town (Bergh 1999).

The establishment and early existence of the town of Piet Potgietersrust became synonymous with the conflict between the Langa Ndebele of Chief Mankopane and the Transvaal Republic. The first serious battle between the two groups took place on 14 April 1858, when in retaliation for incursions and attacks by Mankopane's men, his mountain stronghold named Magagmatala was attacked by a force commanded by Commandant-General Stephanus Schoeman. During the attack, the later President of the *Zuid-Afrikaansche Republiek*, Commandant S.J.P. (Paul) Kruger played a crucial role and the Langa Ndebele suffered a devastating defeat. In the words of Jackson (1983:18) "...it is said that some 800 of Mankopane's subjects were killed that night." As a result of the attack of 14 April 1858, Mankopane moved his capital to Thutlwane Hill on the farm Kromkloof 744 LR. Thutlwane is located approximately 35.8km north-west of the present study area (Jackson 1983).

In January 1868 the town of Piet Potgietersrust was attacked by the Kekana Ndebele of Mogemi, who acted as regent for Mankopane II. His attack on the town was supported by Mankopane's Langa Ndebele.

The increasing conflict between the two sides came to a head on 2 March 1868, when a Boer Commando commanded by Commandant Paul Kruger laid siege to Mogemi and his followers at Sefakaulo Hill near Piet Potgietersrust. In the time that Sefakaulo Hill was under siege, Mankopane's men raided a number of farms in the town's surroundings. Realising the threat posed by Mankopane, and concluding that he did not have the manpower to force Mogemi's surrender, Kruger decided to rather attack Mankopane at Thutlwane. This attack started on 13 June 1868 and continued for a couple of days. Although Kruger's force managed to occupy most of the mountain stronghold at Thutlwane, Chief Mankopane eventually proved victorious in the battle and forced Kruger, who by now was running low on ammunition and supplies, to order his men back to Piet Potgietersrust (Jackson 1983).

A peace accord between the Boers and the Langa Ndebele was eventually agreed upon on 6 July 1869. However, this provided little stimulus for the growth and development of Piet Potgietersrust. By 1870 the entire white population of town had been evacuated *inter alia* due to the effects of Malaria. The evacuation and abandonment of the town continued from 1870 until 1890, when Piet Potgietersrust was re-occupied (Bergh 1999).

On 30 May 1877, a few years after the evacuation of the white population of Piet Potgietersrust, Chief Mankopane passed away at Thutlwane. He was buried here the following day, and his son Masebe succeeded as chief of the Langa Ndebele on 3 June 1877 (Jackson 1983).



Figure 13 – Historic photograph of various chiefs from the then Zoutpansberg District who were called to a meeting in Pretoria with Captain Oscar Dahl in August 1881. Chief Masebe of the Langa Ndebele is standing behind Dahl and to his right, with Chief Mokopane II of the Kekana Ndebele standing left of Dahl (De V. Pienaar, 1990:166).

Between 1883 and 1886 a war raged between the Langa Ndebele of Masebe and the Kekana Ndebele of Mokopane II. While the exact localities for the various events associated with this war are not presently known, at least one of the battles appear to have taken place along the Mogalakwena River. On this occasion, Masebe's forces slept at Fothane Hill (Moordkoppie) the night before the battle. The war came to an end when State President Paul Kruger visited these parts and ordered Masebe and Mokopane II to appear before him, upon which he insisted that they make peace (Jackson 1983).

From 1890 onwards, and under the leadership of Commandant Henning Pretorius, the town was of Piet Potgietersrus developed and expanded (Bergh 1999). Incidentally, Commandant Pretorius was an early owner of two of the farms from within the study area, namely Utrecht and Overysel.

5.2.5 Establishment of 'Native Locations' in the Surroundings of the Study Area

After the dramatic defeat of the British forces under command of Major General Sir George Pomeroy Colley to the Boers at the Battle of Majuba on 27 February 1881, the First Boer War (also known as the Transvaal War of Independence) came to an end. The formal peace agreement between the British Government and Boers was signed on 5 April 1881 in Pretoria and became known as the Pretoria Convention. The agreement was ratified by the Transvaal Volksraad on 3 August 1881 and was superseded by the London Convention of 1884.

Three sections from the Pretoria Convention are of importance for the present study. These sections are provided verbatim below, and deal with the creation of a so-called 'Native Location Commission' which had to reserve or proclaim defined locations within the Transvaal Republic for the various black groups who lived within its borders. The three sections are as follows:

XIII. Natives will be allowed to acquire land, but the grant or transfer of such land will in every case be made to, and registered in the name of, the Native Location Commission, hereinafter mentioned, in trust for such natives.

XXI. Forthwith, after the taking effect of this Convention, a Native Location Commission will be constituted, consisting of the President (or in his absence the Vice-President) of the State, or some one deputed by him, the Resident, or some one deputed by him, and a third person to be agreed upon by the President (or the Vice-president, as the case may be) and the Resident; and such Commission will be a standing body for the performance of the duties hereinafter mentioned.

XXII. The Native Location Commission will reserve to the native tribes of the State such locations as they may be fairly and equitably entitled to, due regard being had to the actual occupation of such tribes. The Native Location Commission will clearly define the boundaries of such locations, and for that purpose will, in every instance, first of all ascertain the wishes of the parties interested in such land. In

case land already granted in individual titles shall be required for the purpose of any location, the owners will receive such compensation, either in other land or in money, as the Volksraad shall determine. After the boundaries of any location have been fixed no fresh grant of land within such location will be made, nor will the boundaries be altered without the consent of the Location Commission. No fresh grants of land will be made in the districts of Waterberg, Zoutpansberg, and Lijdenberg, until the locations in the said districts respectively shall have been defined by the said Commission (www.sahistory.org.za).

The Transvaal Location Commission as it is sometimes referred to, existed between 1881 and the outbreak of hostilities during the South African War in 1899. Initially, its members were Paul Kruger (Vice-President of the *Zuid-Afrikaansche Republiek*), George Hudson (British Resident in the Transvaal Republic) and H.J. Schoeman. Later, Kruger was replaced by the Superintendent of Native Affairs, General P.J. (Piet) Joubert with Fritz Stiemens as the Commission Secretary.

After the Pretoria Convention was replaced by the London Convention in 1884, the members of the commission also changed. By 1891, the work of the commission was replaced by a meeting that was called in every district of the Transvaal Republic and which was attended by the relevant district's magistrate, commandant field-cornets (Bergh 1999).

In May 1882, shortly after the adoption of the Pretoria Convention, the Executive Council of the *Zuid-Afrikaansche Republiek* was instructed by the Location Commission to already decide which black groups would be allocated locations. Only 17 black groups were included in this initial list, and in terms of the surroundings of the present study area this list included the Langa Ndebele as well as the Kekana Ndebele of Mugombhane (Makapan) (Bergh 1999).

On 26 May 1890 the Location Commission visited Potgietersrus, and found that Chief Mugombhane had passed away a few months before. As a result, the commission met and negotiated with the regent Ntala (known to the commission members as Willem Makapan). The Location Commission proceeded to demarcate the farms Makalakaskop 2324, Knapdaar 1548 (portion), Tweefontein 1033 (portion), Rietfontein 1562, Turfspruit 2323 and Pietpotgietersrust 2247 (portion) as a location for the Kekana Ndebele.

In January 1894 the Location Commission declared that the Mogalakwena River would define the southwestern boundary of the reservation, through which small sections of the following farms were added to the reservation: De Hoogedoorn 706, Blinkwater 707 and Lisbon 2366.

At the same time, the portion of the farm Pietpotgietersrust 2247 that was originally included, was now excluded from the reservation (Bergh, 1999).

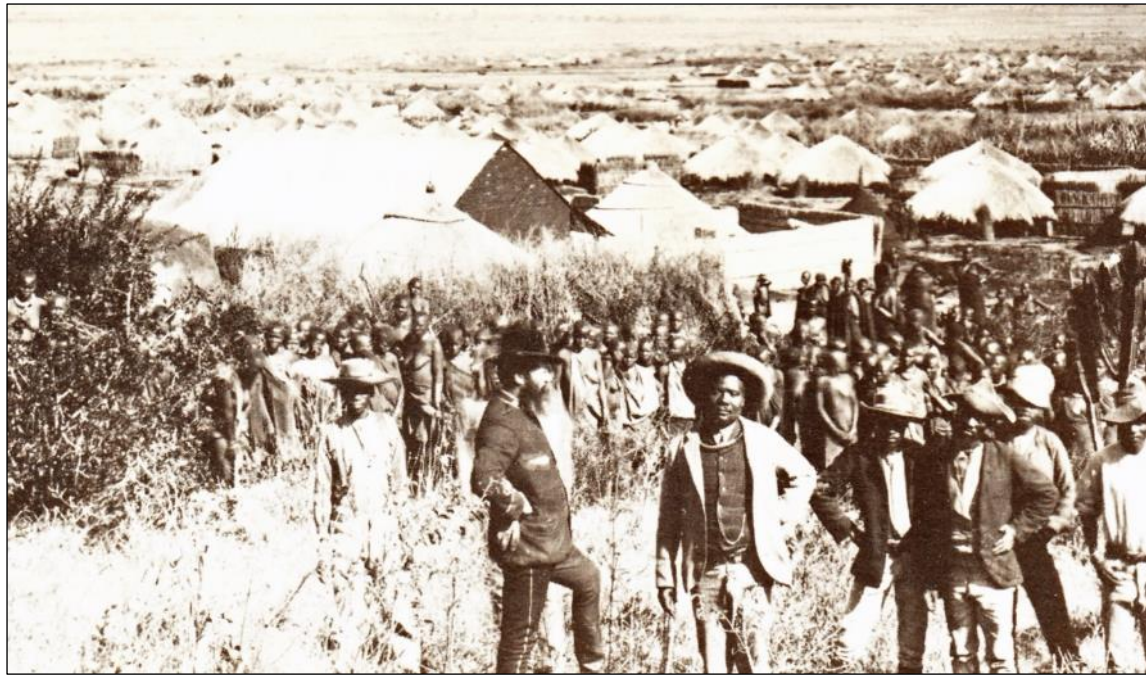


Figure 14 – Historic photograph of a meeting between an official of the Transvaal Republic and a person believed to be Chief Mugombhane of the Kekana Ndebele (Cartwright & Cowan 1978:10). The Location Commission visited the Langa Ndebele between 10 and 13 June 1890.

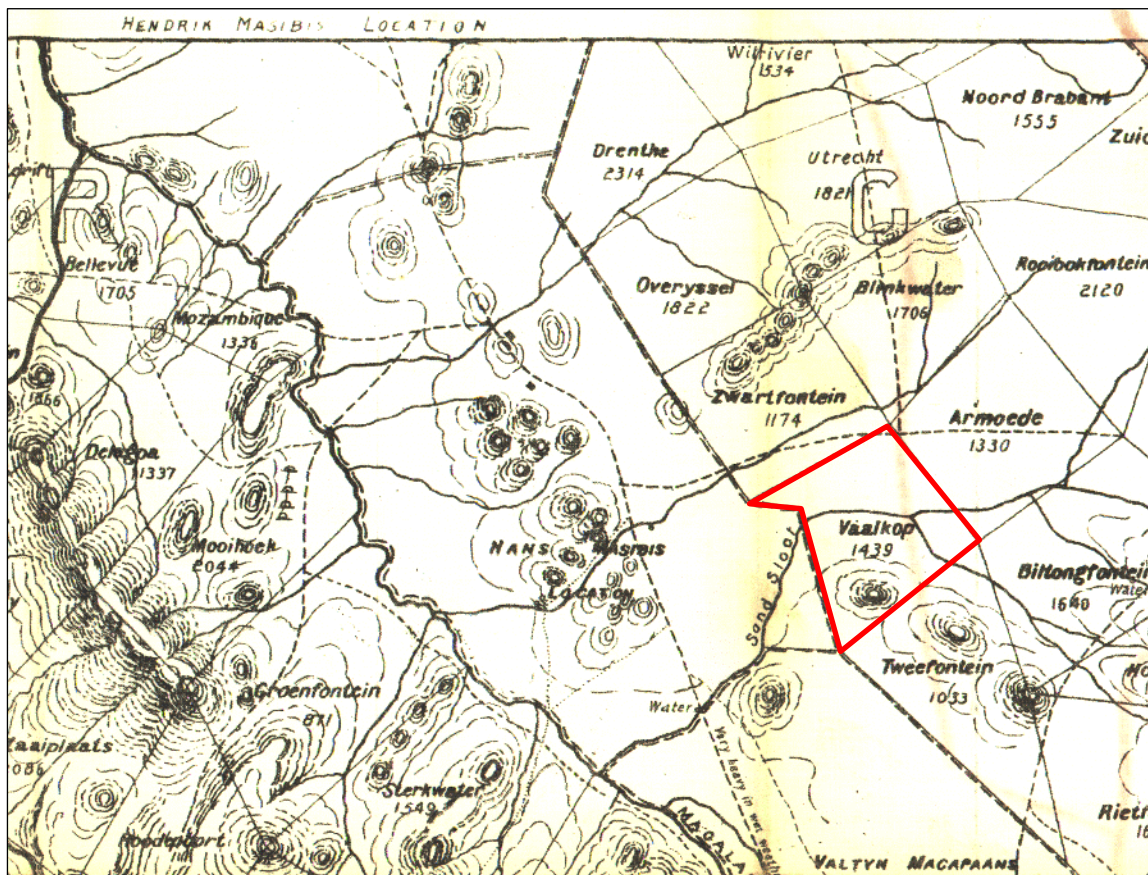


Figure 15 – Detail view of the Nylstroom-Pietersburg Sheet of the Major Jackson Map Series that was compiled during the South African War. This particular sheet is the revised edition dated to June 1901. The boundaries of the three 'native locations' located closest to the study area are shown in stippled line. The boundary of the farm Vaalkop is outlined.

5.2.6 From Location to Lebowa: the Study Area and Surroundings from c. 1890 into the Twentieth Century

The partition of the Langa Ndebele into sections falling under the two sons of Mapela had a profound impact on this Nguni group. The southern section of the overall location that was allocated to the Langa Ndebele in 1890, was established as the land of Chief Hans Masibi and his followers whereas the northern section of the location was given to Chief Backenberg Masibi. Incidentally, the southern section included Fothane Hill where the old capital of Chief Mapela was once located. As a result, this southern chiefdom became known as *ba ga Mapela* (those of Mapela's place) (Jackson 1983).

Jackson (1983:39) makes the following interesting comment regarding the composition of the two partitioned Langa Ndebele groups. He states that "...almost all the Sotho subjects of the Langa supported Hans, whereas the majority of the Langa clansmen supported Bakenberg. In this way, the chiefdom that went to Hans comprised a high percentage of people of alien (mainly Sotho) stock and a small percentage of Langa clansmen."

With the partition of the Langa Ndebele, Chief Hans Masibi moved his capital from his father's seat of residence at Thutlwane to the eastern foot of Mogope Hill. Mogope Hill is located approximately 5km south-west of the present study area, and the Mapela capital was situated here from 1890 to 1957 (Jackson 1983).

The years of the partition saw conflict between the Mapela on the one side and followers of Chief Backenberg Masibi on the other. Raids and attacks were undertaken from both sides during these years and lasted until April 1901, when the British Army occupied Pietersburg (present-day Polokwane) and ordered the two chiefs to stop fighting. During the period of war and bloodshed associated with the partition, Chief Hans Masibi had four of his uncles who had supported his brother's succession, shot at Raphaga Hill. This event took place in 1900. Raphaga Hill is located approximately 6km south-west of the study area.

After the death of Chief Hans Masibi on 29 November 1905, his uterine brother Marcus Masibi was appointed as regent. On 8 August 1913, the farm Zwartfontein 818 LR was registered in the name of Chief Marcus in trust for the Mapela people. The farm was purchased by the people of Mapela (Jackson 1983). As a result, the section of the study area falling within the farm Zwartfontein became the property of the Mapela in 1913.

The Mapela chiefdom purchased the farms Bavaria 678 LR, Blinkwater 680 LR and Scirappes 681 LR in 1926. The funds for the purchase of the three farms came from the sale of the mineral rights of the farm Zwartfontein 818 LR, where platinum had been mined for some time (Jackson 1983). The farm Vaakop adjoins this farm.



Figure 16 - Chief Hans Masibi, the ruler of the Langa Ndebele and Mapela from 1890 to 1905 (Jackson 1983:38).

In 1941, during the reign of Nkgalabe Johannes Masibi, the farms Blinkwater 820 LR, Leyden 804 LR, Overysel 815 LR and Vaalkop 819 LR, which had been purchased by the South African Development Trust, were transferred to the Mapela in exchange for three farms, namely Bavaria, Blinkwater and Scirapps (Jackson 1983). In this way, the sections of the study area falling within the farms Blinkwater and Overysel became the property of the Mapela in 1941.

The apartheid-created bantustan or “homeland” of Lebowa was given internal self-government on 2 October 1972, with its capital initially at Seshego and later at Lebowakgomo (Bergh 1999). It is expected that during the existence of Lebowa, all the farms from within the study area fell or came to fall within the boundaries of this bantustan. In 1994, all the former bantustans were fully incorporated into South Africa again.

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.

5.3.1 First Edition of the 2328DD Limburg Topographic Sheet

This section deals with the First Edition of the 2328DD Limburg Topographical Sheet. This sheet was based on aerial photography undertaken in 1965, was surveyed in 1969 and drawn in 1970 by the Trigonometrical Survey Office. This particular topographical sheet was printed by the Government Printer in 1979.

Overlays of the study area over this map sheet are provided in the image below. The following observations can be made from this overlay:

- Significant sections of the study area are depicted as cultivated lands; and
- Four structures are depicted within or very close to the study area boundaries.

Table 5 - Features that were identified within the present study area from the First Edition of the 2328DD Limburg Topographic Sheet.

Feature Number	Coordinates (WGS84)	Description
Feature 1	S -23.995819 E 28.912833	A single structure is depicted here. The legend of the map indicates that this symbol was used to depict black homesteads.
Feature 2	S-23.996786 E 28.914753	A single structure is depicted here. The legend of the map indicates that this symbol was used to depict black homesteads.
Feature 3	S -23.995998 E 28.916400	A single structure is depicted here. The legend of the map indicates that this symbol was used to depict black homesteads.
Feature 4	S -23.996481 E 28.919516	A single structure is depicted here. The legend of the map indicates that this symbol was used to depict black homesteads.

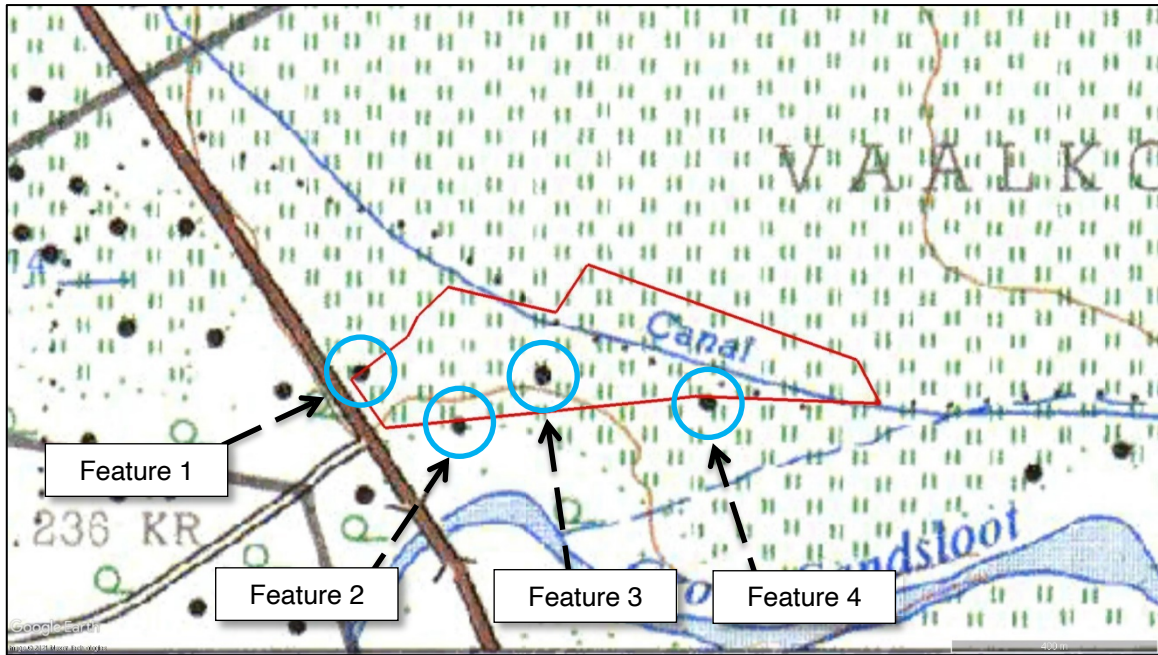


Figure 17 – Detail view of the depiction of the study area on the First Edition of the 2328DD Limburg Topographic Sheet. The study area boundary is depicted in red.

5.3.2 Second Edition of the 2328DD Limburg Topographic Sheet

This section deals with the Second Edition of the 2328DD Limburg Topographical Sheet. The map sheet was compiled in 1983 by the Chief Directorate: Surveys and Land Information.

Overlays of the study area over this map sheet are provided in the image below. The following observations can be made from this overlay:

- Significant sections of the study area are depicted as cultivated lands; and
- A single structure is depicted within the study area. See Feature 1 below.

Table 6 - Features that were identified within the present study area from the Second Editions of the 2328DD Limburg Topographic Sheet.

Feature Number	Coordinates (WGS84)	Description
Feature 1	S -23.996316 E 28.919284	A single structure is depicted here. This depicted structure appears to be in almost the same position as the one marked as Figure 4 on the First Edition map.

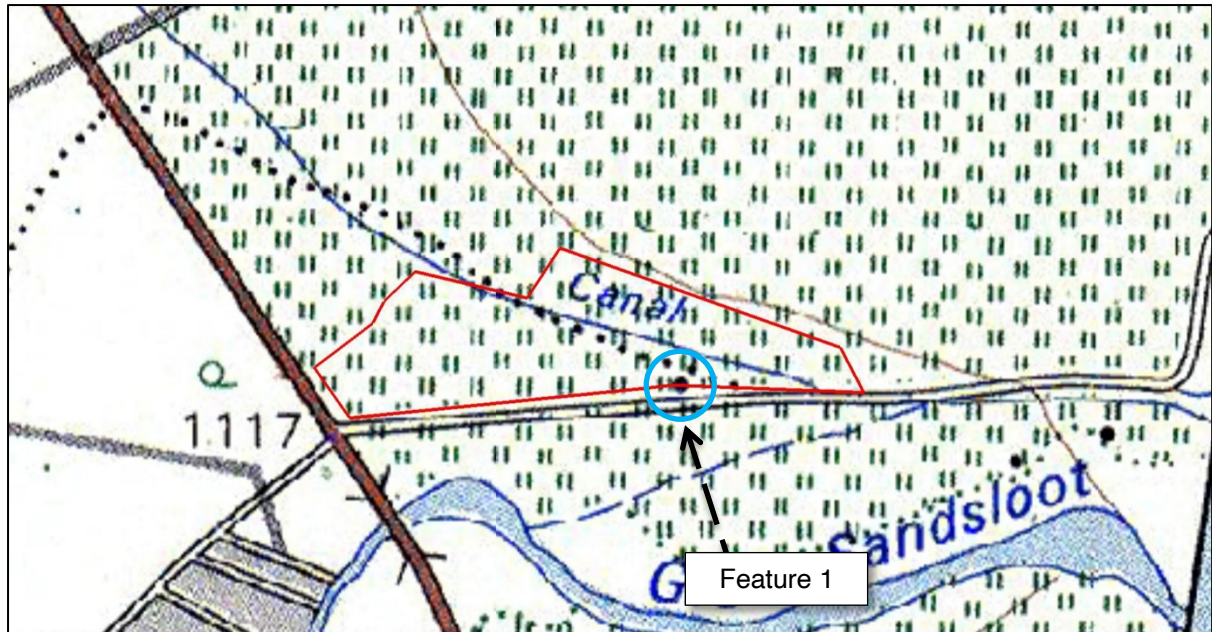


Figure 18 – Detail view of the depiction of the study area on the Second Edition of the 2328DD Limburg Topographic Sheet. The study area boundary is depicted in red.

5.4 Old Aerial Photographs

An assessment of available old aerial photographs was undertaken. Such an assessment assists with the identification of possible heritage features and also augments the interpretation of the history of a particular area. Aerial photographs of the study area dating to 1963 and 2004 were obtained from the Chief Directorate: National Geo-Spatial Information of the Department of Agriculture, Land Reform and Rural Development in Cape Town.

5.4.1 Aerial Photograph taken in 1963

This section deals with the aerial photograph that was taken on 3 May 1963 (NGI, Aerial Photographs, 480_09_00273). An overlay of the study area boundary over this aerial photograph was made using Google Earth. See **Figure 19** below.

The following general observations can be made from this depiction of the study area:

- Three homesteads are depicted within the study area boundary with a fourth homestead located immediately south of the study area. These homesteads are discussed in more details below. No evidence for any of these homesteads could be identified during the fieldwork undertaken for this study.
- Extensive sections of the study area were used for the cultivation of crops. These cultivated

lands are especially visible in the eastern and north-eastern sections of the study area. This said, cultivated lands are depicted throughout the study area.

- A secondary gravel road is seen cutting diagonally through the study area. Additionally, smaller tracks can also be discerned providing access to the various homesteads from within the study area.

The table below provides details of the specific features that can be identified on the 1963 depiction of the study area.

Table 7 - Features that were identified within the present study area on the 1963 aerial photograph

Feature Number	Coordinates (WGS84)	Description
Feature 1	S -23.996001 E 28.912748	A black homestead is depicted near the north-western corner of the study area. The homestead is shown to be comprised of several structures. A livestock enclosure is depicted a short distance south-east of the homestead.
Feature 2	S -23.996123 E 28.914170	A black homestead is depicted here and is shown to be comprised of several structures, including one rectangular structure.
Feature 3	S -23.996565 E 28.914556	An extensive black homestead comprising a high number of structures is depicted here. Only a relatively small section of the northern end of the homestead layout appears to have been located within the study area.
Feature 4	S -23.996107 E 28.916496	A black homestead is depicted here and is shown to be comprised of several structures. The homestead appears to have been enclosed by an outer wall that was likely built from stone.

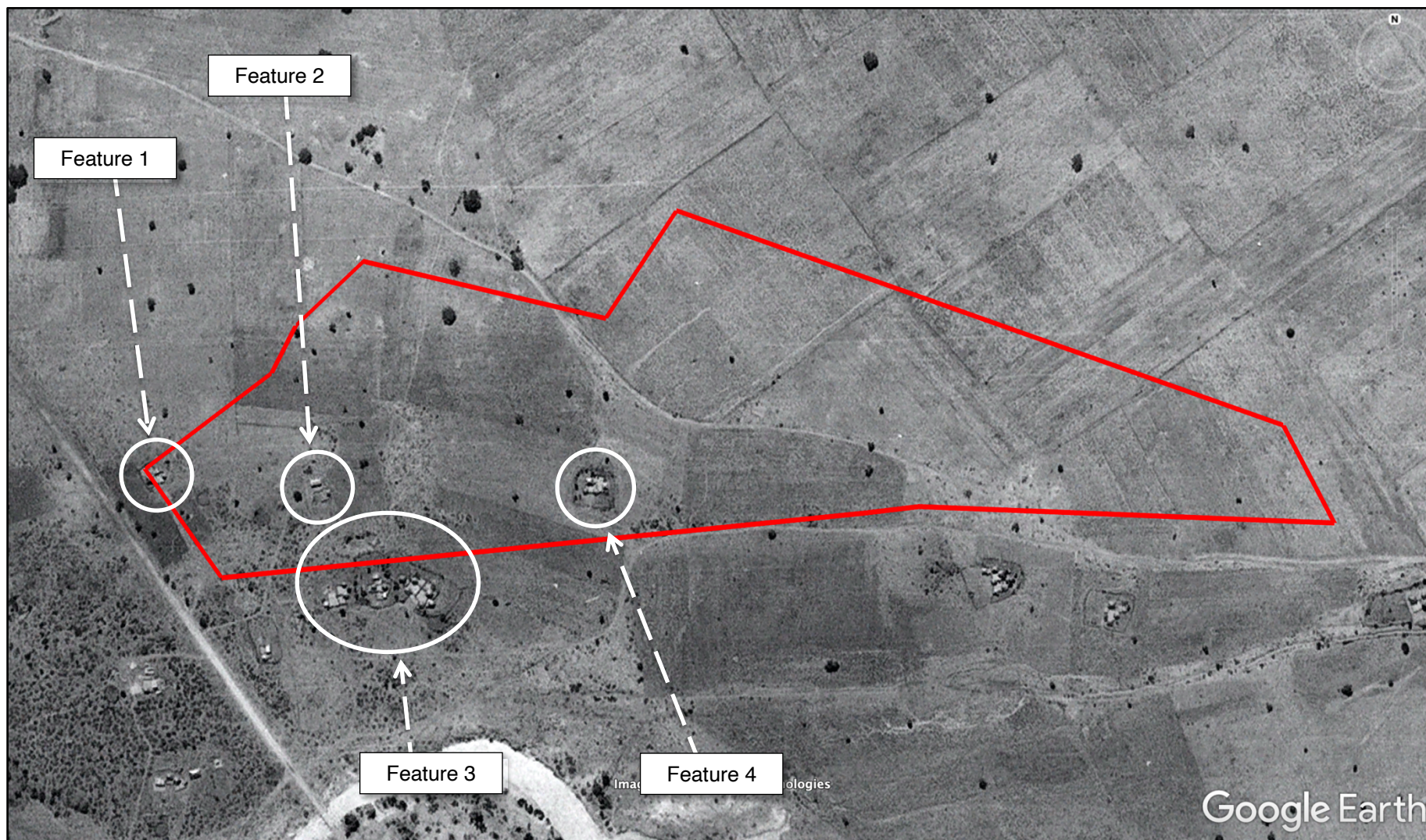


Figure 19 – The study area as depicted on the 1963 aerial photograph ((NGI, Aerial Photographs, 480_09_00273). The study area boundary is shown in red line. The features identified and numbered in this image are discussed in more detail in the corresponding text.

5.4.2 Aerial Photograph taken in 2004

This section deals with the aerial photograph that was taken on 20 July 2004 (NGI, Aerial Photographs, 498_478_10_0005). An overlay of the study area boundary over this aerial photograph was made using Google Earth. See **Figure 20** below.

The following general observations can be made from this depiction of the study area:

- None of the homesteads that were depicted on the 1963 aerial photograph can still be seen on this 2004 image. Other available aerial photographs of poor resolution that were not included in this report, provide additional information on the homesteads. For example, the aerial photograph taken on 6 April 1970 indicates that the homestead at Feature 4 was not occupied anymore and had already started to deteriorate. Additionally, none of the four homesteads depicted on the 1963 image can be discerned on the aerial photograph that was taken on 12 July 1993.
- Extensive sections of the study area appears to still have been used for the cultivation of crops.
- Three massive water reservoirs are depicted a short distance north of the study area. A rectangular arrangement of buildings is shown in the section between the study area and these reservoirs. These buildings may have been associated with the construction of these reservoirs and the mine.
- The same gravel road is again seen cutting diagonally through the study area. Additionally, A new gravel road is shown to cut through the western end of the study area. Finally, newly built roads are shown to the west and immediately south of the study area. These roads may have been built by the mine.

The table below provides details of the specific features that can be identified on the 2004 depiction of the study area.

Table 8 - Features that were identified within the present study area on the 2004 aerial photograph

Feature Number	Coordinates (WGS84)	Description
Feature 5	S -23.996460 E 28.915943	Four building clusters are depicted here. The structural remains of this site was identified during the fieldwork (see site MPAY-1 below).
Feature 6	S -23.996338 E 28.918459	A canal is shown to cut through the study area. The coordinates shown on the left indicate the point where the canal exits the study area on its southern end.

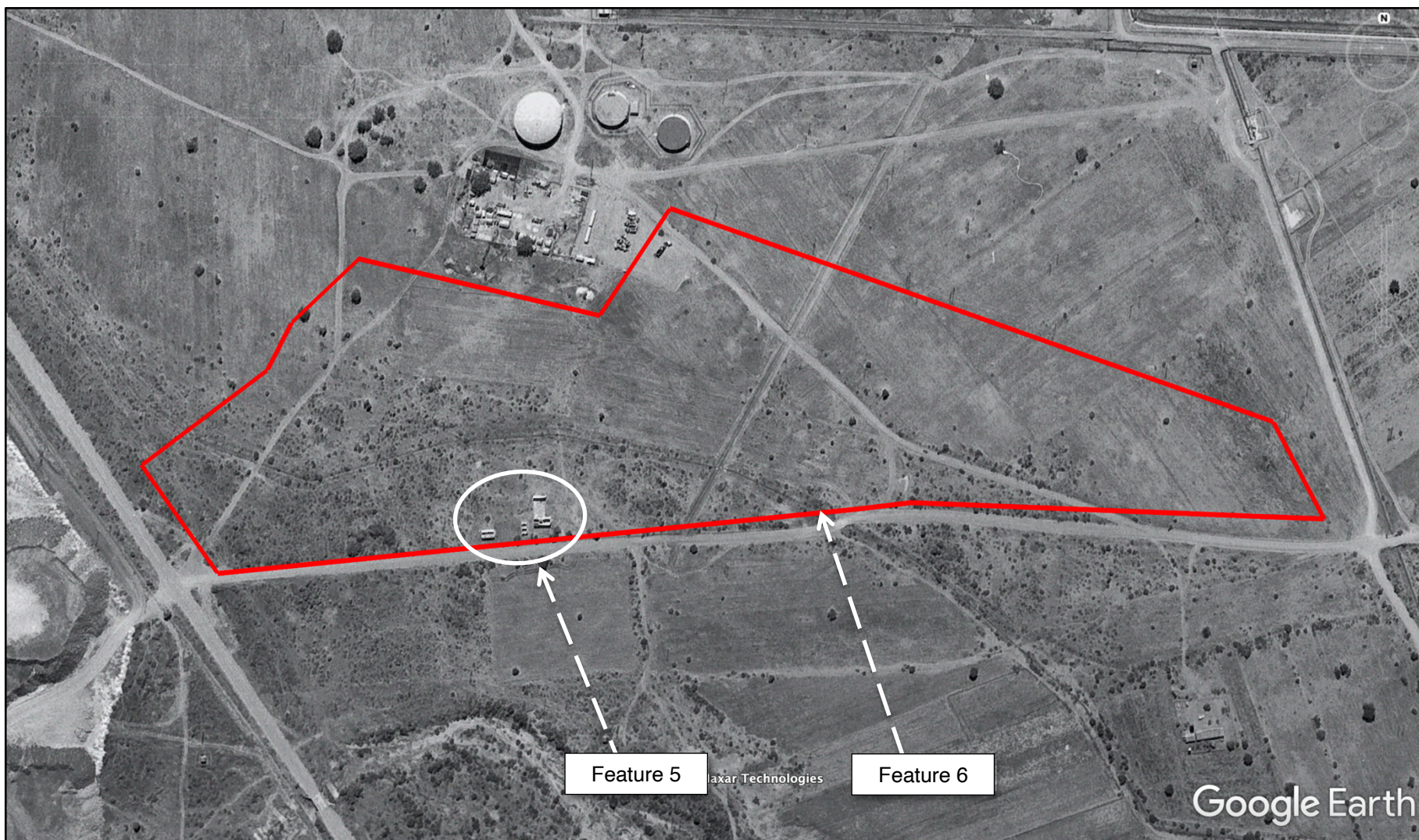


Figure 20 – The study area as depicted on the 2004 aerial photograph ((NGI, Aerial Photographs, 498_478_10_0005). The study area boundary is shown in red line. The features identified and numbered in this image are discussed in more detail in the corresponding text.

5.5 Previous Heritage Impact Assessment Reports from the Study Area and Surroundings

An assessment of the South African Heritage Resources Information System (SAHRIS) of SAHRA was undertaken to establish whether any previous archaeological and heritage impact assessments had revealed archaeological and heritage sites within, and in close proximity, to the present study area footprints.

This assessment has revealed that a number of previous studies had been undertaken in the surroundings of the study area, with various heritage and archaeological site types identified.

All these previous studies located on the SAHRIS system will be briefly discussed in chronological order below. In each case, the results of each study are shown in bold.

- PISTORIUS, J. C. 2002. A cultural heritage impact assessment for the proposed new open pit for prust on the farm Zwartfontein 818lr In The Northern Province Of South Africa. Amendment To The Prust Environmental Management Programme Report (EMPR). **Heritage resources consisting of the ruins of dwellings and old abandoned mines were discovered in and near the proposed new open pit area. Six sites with graves and the ruins of dwellings dating from the relatively recent past also occur in and near the open pit area.**
- ROODT, F. 2008. Phase 1 Heritage Resources Scoping Report Mogalakwena Bulk Water Supply Scheme - Phase 1 of Zone 1 Mokopane: Limpopo. **No historical or archaeological resources were uncovered in this assessment except for several burial grounds.**
- ROODT, F. 2008. Phase 1 Heritage Impact Assessment (Scoping & Evaluation) Landfill and Salvage Yard, Anglo Platinum: Mogalakwena Section, Limpopo. **A low significance MSA stone tool scatter was uncovered in this assessment.**
- COETZEE, F.P. 2011. Cultural Heritage Survey of the Proposed Provincial Road Deviation (P4380) Project for the Mogalakwena Platinum Mine, near Mokopane, Mogalakwena Municipality, Limpopo Province. **Several historical structures and burial grounds were uncovered in this assessment.**
- MURIMBIKA, E. 2012. Proposed Eskom Platreef Power Line and Substation Project within Mogalakwena Local Municipality, Waterberg District in Limpopo Province: Archaeological and Heritage Impact Assessment Report. **Low significance historical homestead remains as well as several burial grounds were uncovered in this assessment.**

- ROODT, F. 2012. Phase 1 Heritage Resource Impact Assessment (Scoping & Evaluation): Maruteng Waste Water Treatment Works Mokopane, Limpopo. **No heritage resources were uncovered in this assessment.**
- HUTTEN, M. 2013. Proposed Water Supply Infrastructure for the Residential Clusters of Tshamahansi, Sekuruwe, Seema, Phafola, Maala Perekisi, Witrivier and Millennium Park in the Mogalakwena Local Municipality, Waterberg District, Limpopo Province. **A living heritage site was uncovered in this assessment.**
- HUTTEN, M. 2014. Proposed Development of a Shopping Centre on Portion 1 of the Farm Kroonstad 468 LR, west of Marken in the Mogalakwena Local Municipality, Waterberg District, Limpopo Province. **No heritage resources were uncovered in this assessment.**
- VAN DER WALT, J. 2016. Archaeological Impact Assessment for the Proposed Bulk Water Supply Pipelines from Pruissen to Piet-Se-Kop Reservoir, as Part of the Mogalakwena Water Master Plan, Mogalakwena Municipality Area, Limpopo Province. **Low significance Iron Age remains as well as some MSA stone tool scatters were uncovered in this assessment.**
- VAN SCHALKWYK, J. 2017. Phase 1 Cultural Heritage Impact Assessment: the proposed development of the Mogalakwena Mini Water Scheme Pipeline, Waterberg District Municipality, Limpopo Province. **Scattered surface occurrences of Middle Stone Age stone tools and flakes were identified in a few areas across the pipeline route, four graves, and the remains of old homesteads.**
- ROODT, F. 2017. Proposed filling station and shopping complex at Bakenberg. Mogalakwena Local Municipality. Waterberg District. Limpopo Province. **A stone-walled settlement of the Langa Ndebele was uncovered just outside of the proposed study area in this assessment. This stonewalled site is located on top of Basogadi Hill, just outside of Bakenberg. The site exhibits the typical stone-walled settlement pattern for the area and according to local residents, the site is ancestral to the Langa Ndebele.**
- VAN DER WALT, J. 2017. Heritage Impact Assessment (Required under Section 38(8) of the NHRA (No. 25 of 1999) Mogalakwena Municipality Water Master Plan: Phase 2A Bulk Water Supply Zone 1, Waterberg District Municipality, Limpopo Province. **Middle Stone Age stone tool scatters, Late Iron Age structural remains, historical stone-walled structural remains and several burial grounds were uncovered in this assessment.**

- VAN DER WALT, J. 2017. Heritage Impact Assessment for the proposed water supply pipelines and associated infrastructure, as part of the Mogalakwena Water Master Plan, Mokopane Area, Waterberg District Municipality. **During the survey, Iron Age Scatters (FS 1 and 2), stone-walled enclosures (MIW 4 and 5) as well as three grave/ burial sites (MIW 1-3) were recorded.**
- BIRKHOLTZ, P. AND SMEYATSKY, I. 2019. Heritage Impact Assessment for the Mogalakwena Mine Expansion Project near Mokopane, Limpopo Province. **The fieldwork resulted in the identification of a total of seventy-one (71) archaeological and heritage sites. Eleven sites containing confirmed graves and burial grounds, four sites containing possible graves, two sites containing relocated burial grounds which may still contain graves, twenty-eight black homesteads, one historic farmstead, twelve stone age sites, one possible rain-making site, one late iron age stonewalled site, eight sites comprising historic to recent stonewalling, one site comprising a single lower grinding stone, one site comprising a rock boulder associated with cupules and stonewalling and one site comprising a rubbing post.**
- BIRKHOLTZ, P. 2019. Heritage Screening Assessment for the proposed Solar PV Plant at Armoede, near Mokopane, Limpopo Province. **The fieldwork resulted in the identification of five sites, including three MSA sites, a possible grave, and a historical structure.**
- BIRKHOLTZ, P. AND DE BRUYN, C. 2020. Heritage impact assessment for the proposed Mogalakwena Mine Integrated Permitting Project near Mokopane, Limpopo Province. **No evidence for any archaeological or heritage sites could be identified.**
- BIRKHOLTZ, P. AND DE BRUYN, C. 2020. Heritage Scoping Assessment for the Proposed Solar PV Plant at Armoede, near Mokopane, Limpopo Province. **The fieldwork undertaken resulted in the identification of a total of seven (7) sites. These were numbered from MGSP 06 to MGSP 12.**
- BIRKHOLTZ, P. AND DE BRUYN, C. 2021. Heritage Impact Assessment for the Proposed Solar PV Plant at Armoede, near Mokopane, Limpopo Province. **The recent fieldwork undertaken resulted in the identification of a total of twenty-one (21) sites. These were numbered from MGSP 13 to MGSP 33.**

6 FIELDWORK FINDINGS

6.1 Introduction

The aim of all this fieldwork was to identify tangible remains of archaeological, historical and heritage significance within the proposed development area for the Pre-Assembly Yard.

Intensive field surveys of the study area were undertaken on Wednesday, Thursday, 27 October 2022. This work was undertaken on foot by an experienced fieldwork team comprising one archaeologist/heritage specialist (Cherene de Bruyn) accompanied by an archaeological fieldwork assistant (Thomas Mulaudzi).

It is important to note that although as intensive a fieldwork coverage as possible was undertaken, sections of the study area are located in areas that are densely overgrown, which limited accessibility and visibility in those areas of the study area.

Throughout the fieldwork, hand-held GPS devices were used to record the tracklogs. The fieldwork undertaken resulted in the identification of one site comprising at least three structural remains. A member of the local community indicated that the site appears to have been used as a mechanical workshop

The distribution of the identified site in relation to the study area boundaries is shown in **Figure 19** below. This map also depicts the tracklogs recorded by the team during the fieldwork.

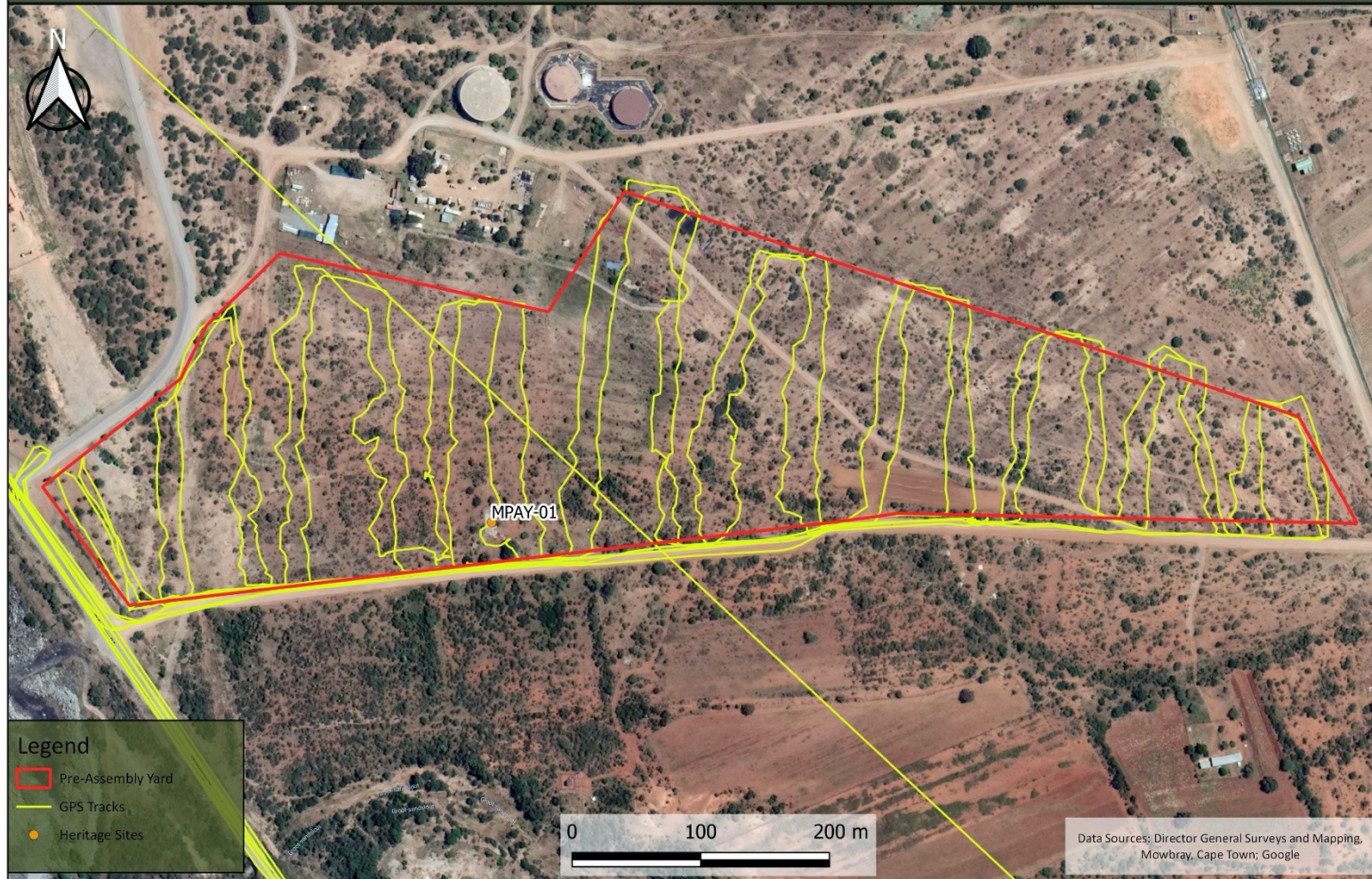


Figure 21 – Google Earth image depicting the tracklogs that were recorded in the field. The identified heritage site is also shown.

6.2 Heritage Sites identified during the Fieldwork

6.2.1 MPAY-01

GPS Coordinates:

MPAY-01 (A)	MPAY-01 (B)	MPAY-01 (C)	MPAY-01 (D)
S -23.996494 E 28.915694	S -23.996431 E 28.915990	S -23.996380 E 28.916114	S -23.996225 E 28.916112

Type: Remains of four structures

Description:

The site comprises the remains of at least four structures. The four sets of coordinates provided in the table above define the location of these four structures. Two of the structures are connected by a concrete foundation. The remains of a toilet was also identified. The buildings have collapsed and only rubble and foundations remain.

An assessment of the available aerial photographs indicates that the buildings from the site were erected between 30 April 1983 and 12 July 1993. This is said as no evidence for the site can be discerned on the aerial photograph taken in 1983, whereas the site is clearly depicted on the 1993 aerial photograph.

A member of the local community indicated that the site appears to have been used as a mechanical workshop. This is confirmed by the presence of a vehicle inspection or grease pit identified at one of the structures.

Although the site appears to have been used as a mechanical workshop, it seems likely for a homestead(s) to also have been located here. Past experience has shown that in some cases stillborns, babies and infants were buried in close proximity to such black homesteads in unmarked graves. These graves were frequently positioned along the sides, or underneath, the parents' dwelling. As the site is not occupied anymore, no direct information with regards to the presence (or not) of such graves is currently available.

Significance:

Due to the contemporary nature of the site, the structural remains of the site are deemed to be of **Generally Protected C (GP. C) or Low Significance.**

However, the risk for the presence of unmarked graves does exist. Until such time that the presence of graves in the area has been confirmed or disproved, the site must be viewed as containing graves. All graves have high levels of emotional, religious and in some cases historical significance. The possible presence of graves requires a higher significance level for the site. Site MPAY-01 is therefore deemed to be of **Generally Protected A (GP. A)** or **High/Medium Significance**, which means that mitigation is required.

Site Extent:

The site is 60m x 50m in extent.

Impact Assessment and Mitigation:

See **Chapter 8** for impact assessment calculations and **Chapter 9** for required mitigation measures.



Figure 22 - General view of the site. Some of the structural remains can be seen.



Figure 23 - View of the collapsed walls of one of the structures. The scale is in 10cm increments.



Figure 24 - View of the remains of a concrete floor of a larger building. A vehicle inspection or grease pit can be seen within the structure. This supports the information provided by a community member who indicated that a mechanical workshop was located here.



Figure 25 - View of the structural remains of a third building.



Figure 26 - View of the remains of a toilet.

7 IMPACT OF PROPOSED DEVELOPMENT ON HERITAGE

7.1 General Observations

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

The following general observations will apply for the impact assessment undertaken in this report:

- The impact assessment methodology utilised in this section was provided by the client and is outlined and explained in more detail in **Section 3.2** of this report.
- Heritage sites assessed to have a low heritage significance are not included in these impact risk assessment calculations. The reason for this is that sites of low significance will not require mitigation. However, since there is a risk of unmarked stillborn babies and infant graves in the area, impact ratings for the site will be calculated.

7.2 Assessment of Pre-Mitigation Impact on the identified Heritage Sites

7.2.1 Assessment of the Pre-Mitigated Impact on Possible Unmarked Graves at MPAY-01

In this section, the unmitigated impact of the proposed development on site **MPAY-01** will be assessed. As indicated in the site description, one or more homesteads may have been associated with the mechanical workshop identified at the site. Past experience has shown that in some cases stillborns, babies and infants were buried in close proximity to such black homesteads in unmarked graves. These graves were frequently positioned along the sides, or underneath, the parents' dwelling. As the site is not occupied anymore, no direct information with regards to the presence (or not) of such graves is currently available.

In terms of the project phases, and without mitigation undertaken, this site is expected to be completely destroyed during the Pre-Construction Phase. With their destruction completed during the Pre-Construction Phase, no impacts are expected during the Construction, Operational and Decommissioning and Rehabilitation Phases.

Please note that in the calculations undertaken below, the level of probability was taken to be the level of probability graves that would be present at this site.

Table 9 - Assessment of Pre-Mitigated Impact of Proposed Development on Possible Unmarked Graves at site MPAY-01

Nature of the impact	Significance of potential impact BEFORE mitigation							
	Probability	Duration	Extent	Magnitude	Loss of Resources (%)	Significance		
Pre-Construction Phase								
Complete destruction of site MPAY-01, where the risk exists for graves to be located	-	3	5	3	8	3	48	Moderate
Construction Phase								
No further impacts expected	0	0	0	0	0	0	0	None
Operational Phase								
No further impacts expected	0	0	0	0	0	0	0	None
Closure/Rehabilitation Phase								
No further impacts expected	0	0	0	0	0	0	0	None
Post-Closure Phase								
No further impacts expected	0	0	0	0	0	0	0	None

The calculation of the assessment of the unmitigated impact of the proposed development on this site, has revealed that the impact significance on these sites is expected to be of **Moderate Significance**. The result of this impact assessment calculation means that mitigation measures would be required for these sites. See **Chapter 8** for required mitigation measures.

7.2.2 Assessment of the Pre-Mitigated Impact on Possible Unmarked Graves

In this section, the unmitigated impact of the proposed development on possible unmarked graves from within the study area will be assessed. Such unmarked graves can potentially be associated with the black homesteads depicted on the topographic maps and aerial photographs. As indicated in **Section 5.3** and **Section 5.4** above, three black homesteads are depicted within the study area on the 1963 aerial photograph, whereas a fourth homestead is shown to be partially located within the study area on this aerial photograph. Subsequent aerial photographs were assessed and provided additional information on these homesteads. For example, the aerial photograph taken on 6 April 1970 indicates that one of the homesteads was not occupied anymore and had already started to deteriorate. Additionally, none of the four homesteads depicted on the 1963 image can be discerned on the aerial photograph that was taken on 12 July 1993. Subsequent satellite imagery from Google Earth also indicates that at least some of the sites appear to have been destroyed by activities taking place during the last two decades. This may explain why no evidence for homesteads could be identified during the fieldwork undertaken for this study.

Although no evidence for homesteads could be identified during the fieldwork, the risk still exists for

unmarked graves associated with these homesteads to be located within the study area. This section addresses this risk and assesses the impact of the proposed development on this risk for unmarked graves.

In terms of the project phases, and without mitigation undertaken, these unmarked graves, if they still exist, are expected to be completely destroyed during the Pre-Construction Phase. With their destruction completed during the Pre-Construction Phase, no impacts are expected during the Construction, Operational and Decommissioning and Rehabilitation Phases.

Please note that in the calculations undertaken below, the level of probability was taken to be the level of probability for the sites to actually still exist and for graves to be present at these sites.

Table 10 - Assessment of Pre-Mitigated Impact of Proposed Development on Possible Unmarked Graves

Nature of the impact	Significance of potential impact BEFORE mitigation							
	Probability	Duration	Extent	Magnitude	Loss of Resources (%)	Significance		
Pre-Construction Phase								
Complete destruction of possible unmarked graves that may be located within the study area	-	2	5	3	8	3	42	Moderate
Construction Phase								
No further impacts expected	0	0	0	0	0	0	0	None
Operational Phase								
No further impacts expected	0	0	0	0	0	0	0	None
Closure/Rehabilitation Phase								
No further impacts expected	0	0	0	0	0	0	0	None
Post-Closure Phase								
No further impacts expected	0	0	0	0	0	0	0	None

The calculation of the assessment of the unmitigated impact of the proposed development on this site, has revealed that the impact significance on these sites is expected to be of **Moderate Significance**. The result of this impact assessment calculation means that mitigation measures would be required for these sites. See **Chapter 8** for required mitigation measures.

7.3 Assessment of Post-Mitigation Impact on the identified Heritage Sites

7.3.1 Assessment of the Post-Mitigation Impact on Graves and Burial Grounds

In this section, the post-mitigation impact of the proposed development on site **MPAY-01** will be calculated. For the impact assessment calculations included in this section, it is assumed that all the

mitigation measures as outlined in **Chapter 8** have been successfully completed.

Again, the only impacts are expected during the Pre-Construction Phase, based on the understanding that all development footprints areas will be cleared during this phase and any tangible remains left on site after mitigation will be completely destroyed during the Pre-Construction Phase.

With the mitigation measures successfully completed, the significance of the potential impact of the proposed development on this site is expected to be of **Low Significance**. Please note that in the calculations undertaken below, the level of probability also takes cognisance of the level of probability that graves would be present.

With the significance of the impact of the development reduced from a pre-mitigation **Moderate Significance** to a post-mitigation **Low Significance**, the degree to which the potential impact could be reversed and mitigated with the mitigation measures proposed in **Chapter 8**, is estimated to be 54.2%.

Table 11 - Assessment of Post-Mitigation Impact of Proposed Development on Possible Unmarked Graves at site MPAY-01

Nature of the impact	Significance of potential impact AFTER mitigation							
	Probability	Duration	Extent	Magnitude	Loss of Resources (%)	Significance		
Pre-Construction Phase								
<i>Post-mitigation impact on 33 sites</i>	-	2	5	2	4	2	22	Low
Construction Phase								
<i>No further impacts expected</i>	0	0	0	0	0	0	0	None
Operational Phase								
<i>No further impacts expected</i>	0	0	0	0	0	0	0	None
Closure/Rehabilitation Phase								
<i>No further impacts expected</i>	0	0	0	0	0	0	0	None
Post-Closure Phase								
<i>No further impacts expected</i>	0	0	0	0	0	0	0	None

7.3.2 Assessment of the Post-Mitigation Impact on Possible Unmarked Graves

In this section, the post-mitigation impact of the proposed development on the possible presence of unmarked graves will be assessed. For the impact assessment calculations included in this section, it is assumed that all the mitigation measures as outlined in **Chapter 8** have been successfully completed.

Again, the only impacts are expected during the Pre-Construction Phase, based on the understanding that all development footprints areas will be cleared during this phase and any tangible remains left on site after mitigation will be completely destroyed during the Pre-Construction Phase.

With the mitigation measures successfully completed, the significance of the potential impact of the proposed development on this site is expected to be of **Low Significance**. Please note that in the calculations undertaken below, the level of probability also takes cognisance of the level of probability that graves would be present.

With the significance of the impact of the development reduced from a pre-mitigation **Moderate Significance** to a post-mitigation **Low Significance**, the degree to which the potential impact could be reversed and mitigated with the mitigation measures proposed in **Chapter 8**, is estimated to be 31.3%.

Table 12 - Assessment of Post-Mitigation Impact of Proposed Development on Possible Unmarked Graves

Nature of the impact	Significance of potential impact BEFORE mitigation						Significance	
	Probability	Duration	Extent	Magnitude	Loss of Resources (%)			
Pre-Construction Phase								
<i>Complete destruction of possible unmarked graves that may be located within the study area</i>	-	2	5	2	4	2	22	Low
Construction Phase								
<i>No further impacts expected</i>	0	0	0	0	0	0	0	None
Operational Phase								
<i>No further impacts expected</i>	0	0	0	0	0	0	0	None
Closure/Rehabilitation Phase								
<i>No further impacts expected</i>	0	0	0	0	0	0	0	None
Post-Closure Phase								
<i>No further impacts expected</i>	0	0	0	0	0	0	0	None

8 REQUIRED MITIGATION MEASURES

8.1 Introduction

In this chapter, required mitigation measures for the following impacts will be outlined:

- Impact of the proposed development on possible Unmarked Graves associated with site **MPAY-01**; and
- Impact of the proposed development on possible Unmarked Graves associated with homesteads that used to be located within the study area.

8.2 Required Mitigation Measures

8.2.1 Required Mitigation for Possible Unmarked Graves associated with site MPAY-01

The impact significance calculations undertaken in **Chapter 7** have shown that the significance of the unmitigated impact of the proposed development on this site is estimated to be of **Moderate Significance**. As a result, mitigation measures are required for this site.

Depending on the final development footprints and requirements of the mine, the following two options exist:

- Preserve site **MPAY-01** in situ. In terms of this option, the only requirement would be for a 100m wide buffer area to be kept clear of any development around the site. This 100m wide buffer area must be calculated around each of the four coordinates provided in the site description in **Section 6.2.1**; and
- Mitigate the possible risk for the presence of Unmarked Graves. In terms of this option, the mitigation measures outlined below will be required.

The following initial mitigation measure is required:

- A social consultation process to assess whether any local residents or the wider public is aware of the presence of graves at these sites.

Depending on the outcome of the social consultation process, three different outcomes would be the result, namely:

- Outcome 1: The social consultation absolutely confirms that no graves are located here.
- Outcome 2: The social consultation absolutely confirms that graves are located here.
- Outcome 3: The social consultation does not yield any confident results.

The following mitigation measures would be required for sites falling under Outcome 1:

- No further grave-related mitigation would be required.

The following mitigation measures would be required for sites falling under Outcome 2:

- A grave relocation process must be undertaken.
- A detailed social consultation process, at least 60 days in length, comprising the attempted identification of the next-of-kin in order to obtain their consent for the relocation.
- Bilingual site and newspaper notices indicating the intent of the relocation.
- Permits from all the relevant and legally required authorities.
- An exhumation process that keeps the dignity of the remains and family intact.
- An exhumation process that safeguards the legal rights of the families as well as that of the mining company.
- The process must be done by a reputable company well versed in the mitigation of graves.

The following mitigation measures would be required for sites falling under Outcome 3:

- Test excavations to physically confirm the presence or absence graves.
- If no evidence for graves is found, the site will fall within Outcome 1 as outlined above. This means that no further mitigation measures would be required.
- If evidence for graves is found, the site will fall within Outcome 2 as outlined above. This means that a full grave relocation process must be implemented.

Additionally, the following mitigation measures must be undertaken for all these sites:

- All structures and site layouts from each site must be recorded using standard survey methods. The end result would be site layout plans for all these sites.
- A mitigation report must be compiled for these sites within which all the mitigation measures and its findings will be outlined. The recorded drawings from the previous item must also be included in this mitigation report.
- The completed mitigation report must be submitted to the relevant heritage authorities.

8.2.2 Required Mitigation for Possible Unmarked Graves located within the Study Area

The impact significance calculations undertaken in **Chapter 7** have shown that the significance of the unmitigated impact of the proposed development on this site is estimated to be of **Moderate Significance**. As a result, mitigation measures are required for this site.

No evidence for any of the four homesteads could be observed during the fieldwork. This may be due to various reasons, including disturbance of the sites, vegetation cover and the possibility for only subterranean aspects of the homesteads to still be located within the study area. With this as background, the following mitigation measures are required:

- An archaeological watching brief must be implemented during the entire initial period when the surface of the site is cleared of vegetation, graded and levelled;
- During the watching brief, which will be undertaken during the early stages of the construction, the archaeologist must be allowed to provide guidance and instructions to the construction team as to the depth and extent at which grading activities are undertaken. This is to ensure that the initial disturbance from the graders and machinery do not impact at such a depth to destroy any evidence for graves; and
- An archaeological watching brief report must be compiled and submitted to SAHRA after the end of the watching brief.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Introduction

PGS Heritage (Pty) Ltd (PGS) was appointed by SRK Consulting (South Africa) (Pty) Ltd to undertake a Heritage Impact Assessment (HIA) for the proposed M3C Pre-Assembly Yard at the Mogalakwena Complex, situated near Mokopane, Limpopo Province.

The project area is located on sections of the farm Vaalkop 819 LR. The applicant is Anglo American Platinum (AAP).

9.2 General Desktop Study

An archival and historical desktop study was undertaken to provide a historic framework for the project area and surrounding landscape. This was augmented by a study of available historical maps and old aerial photographs. The desktop study revealed that the surroundings of the study area is characterised by a long and significant history.

Additionally, the assessment of the available old aerial photographs revealed that three black homesteads are depicted within the study area on the 1963 aerial photograph, whereas a fourth homestead is shown to be partially located within the study area on this aerial photograph. Subsequent aerial photographs were assessed and provided additional information on these homesteads. For example, the aerial photograph taken on 6 April 1970 indicates that one of the homesteads was not occupied anymore and had already started to deteriorate. Additionally, none of the four homesteads depicted on the 1963 image can be discerned on the aerial photograph that was taken on 12 July 1993. Subsequent satellite imagery from Google Earth also indicates that at least some of the sites appear to have been destroyed by activities taking place during the last two decades. This may explain why no evidence for homesteads could be identified during the fieldwork undertaken for this study.

Past experience has shown that in some cases stillborns, babies and infants were buried in close proximity to such black homesteads in unmarked graves. These graves were frequently positioned along the sides, or underneath, the parents' dwelling.

Although no evidence for homesteads could be identified during the fieldwork, the risk still exists for unmarked graves associated with these homesteads to be located within the study area. This section addresses this risk and assesses the impact of the proposed development on this risk for unmarked graves.

9.3 Palaeontology

Banzai Environmental was appointed by PGS Heritage (Pty) Ltd to conduct a Palaeontological Desktop Assessment for the proposed Pre-Assembly Yard at the Mogalakwena Complex. The fully report is included under **Appendix C**. The paragraphs that follow below were primarily derived verbatim from this specialist report (Butler, 2022).

The proposed development is primarily underlain by the Malmani Subgroup (Chuniespoort Group) within the Transvaal Supergroup. According to the PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database, the Palaeontological Sensitivity of the Malmani Subgroup is Very High (Almond and Pether 2008, SAHRIS website).

The specialist report recommends that a Phase 1 Field-Based Palaeontological Assessment report be conducted to assess the value and prominence of fossils in the development area and the effect of the proposed development on the palaeontological heritage. The purpose of the report is to elaborate on the issues and potential impacts identified during the scoping phase.

According to the PalaeoMap on the South African Heritage Resources Information System database the project, area falls within a Very High (red) paleo-sensitivity zone. As such a field assessment and protocol for finds is required.

9.4 Fieldwork

Intensive field surveys of the study area were undertaken on Wednesday, Thursday, 27 October 2022. This work was undertaken on foot by an experienced fieldwork team comprising one archaeologist/heritage specialist (Cherene de Bruyn) accompanied by an archaeological fieldwork assistant (Thomas Mulaudzi).

Throughout the fieldwork, hand-held GPS devices were used to record the tracklogs. The recent fieldwork undertaken resulted in the identification of one site comprising at least three structural remains. A member of the local community indicated that the site appears to have been used as a mechanical workshop.

The recent fieldwork undertaken resulted in the identification of one site comprising four structures remains. This site is included in the report as site **MPAY-01**. As homesteads may also have been associated with this site, the risk for unmarked graves can also be identified at this site. This is due to the fact that past experience has shown that in some cases stillborns, babies and infants were buried in close proximity to such black homesteads in unmarked graves. These graves were frequently positioned along the sides, or underneath, the parents' dwelling. As the site is not occupied anymore,

no direct information with regards to the presence (or not) of such graves is currently available.

9.5 Impact Assessment and Mitigation

Impact assessment calculations were undertaken to assess the impact of the proposed development on the following identified risks:

- Impact of the proposed development on possible Unmarked Graves associated with site **MPAY-01**; and
- Impact of the proposed development on possible Unmarked Graves associated with homesteads that used to be located within the study area.

The calculation of the assessment of the unmitigated impact of the proposed development on both risks, revealed that the impact significance on these risks are expected to be of **Moderate Significance**. The result of this impact assessment calculation means that mitigation measures would be required. With the mitigation measures successfully completed, the significance of the potential impact of the proposed development on these identified risks was reduced from a pre-mitigation **Moderate Significance** to a post-mitigation **Low Significance**.

Please refer to **Chapter 8** for the required mitigation measures.

9.6 Conclusions

The unmitigated impact of the proposed development is expected to result in negative impacts of moderate significance in terms of the identified heritage fabric of the study area. With mitigation successfully completed, the impact of the proposed development on the identified heritage sites will result in negative impacts of low significance. As a result, on the condition that the recommendations made in this report are adhered to, no heritage reasons can be given for the development not to continue.

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10.3 Historical Topographic Maps

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

10.4 Internet

www.angloboerwar.com

<https://screening.environment.gov.za/screeningtool/>

www.sahistory.org.za

www.sanbi.org

www.wikipedia.org

11.5 Google Earth

At least some of the aerial depictions of the study area were obtained using Google Earth.

Appendix A
HERITAGE MANAGEMENT GUIDELINES

1. **General Management Guidelines**

1. The National Heritage Resources Act (Act 25 of 1999) states that, any person who intends to undertake a development categorised as-
 - (a) the construction of a road, wall, transmission line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
 - (b) the construction of a bridge or similar structure exceeding 50m in length;
 - (c) any development or other activity which will change the character of a site-
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - (d) the re-zoning of a site exceeding 10 000 m² in extent; or
 - (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

In the event that an area previously not included in an archaeological or cultural resources survey is to be disturbed, the SAHRA needs to be contacted. An enquiry must be lodged with them into the necessity for a Heritage Impact Assessment.

2. In the event that an additional heritage assessment is required, it is advisable to utilise a qualified heritage practitioner, preferably registered with the Cultural Resources Management Section (CRM) of the Association of Southern African Professional Archaeologists (ASAPA). This survey and evaluation must include:
 - (a) The identification and mapping of all heritage resources in the area affected;
 - (b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6 (2) or prescribed under section 7 of the National Heritage Resources Act;
 - (c) An assessment of the impact of the development on such heritage resources;
 - (d) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

- (e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
 - (f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
 - (g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.
3. In the event that a possible find is discovered during construction, the following steps must be taken:
- (a) All activities must be halted in the area of the discovery and a qualified archaeologist contacted;
 - (b) The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures;
 - (c) If mitigation is necessary, an application for a rescue permit must be lodged with SAHRA; and
 - (d) After mitigation, an application must be lodged with SAHRA for a destruction permit. This application must be supported by the mitigation report generated during the rescue excavation. Only after the permit is issued may such a site be destroyed.
4. In the case where a grave is identified during construction, the following measures must be taken:
- a. Upon the accidental discovery of graves, a buffer of at least 20 meters should be implemented;
 - b. If graves are accidentally discovered during construction, activities must cease in the area and a qualified archaeologist be contacted to evaluate the find;
 - c. To remove the remains, a permit must be applied for from SAHRA and other relevant authorities. The local South African Police Services must immediately be notified of the find; and
 - d. Where it is recommended that the graves be relocated, a full grave relocation process that includes a comprehensive social consultation must be followed. Such a grave relocation process must include the following:
 - (i) A detailed social consultation process that aims to trace the next-of-kin and obtain their consent for the relocation of the graves, that will be at least 60 days in length;
 - (ii) Site notices indicating the intent of the relocation;
 - (iii) Newspaper notices indicating the intent of the relocation;
 - (iv) Permits from the relevant permitting authorities, including the local authority; the Provincial Department of Health; the South African Heritage Resources Agency

(SAHRA) (if the graves are older than 60 years or unidentified and thus presumed older than 60 years) etc.

- (vii) An exhumation process that keeps the dignity of the remains intact;
- (viii) The whole process must be done by a reputable company that is well versed in relocations; and
- (ix) The exhumation process must be conducted in such a manner as to safeguard the legal rights of the families as well as that of the mining company.

PGS Heritage can be contacted on the way forward in this regard.

Table 13: Roles and responsibilities of archaeological and heritage management.

ROLE	RESPONSIBILITY	IMPLEMENTATION
A responsible specialist needs to be allocated and should attend all relevant meetings, especially when changes in design are discussed, and liaise with SAHRA.	The client	Archaeologist and a competent archaeological support team
If chance finds and/or graves or burial grounds are identified during construction or operational phases, a specialist must be contacted for evaluation.	The client	Archaeologist and a competent archaeological support team
Comply with defined national and local cultural heritage regulations on management plans for identified sites.	The client	Environmental Consultancy and the Archaeologist
Consult the managers, local communities and other key stakeholders on mitigation of archaeological sites.	The client	Environmental Consultancy and the Archaeologist
Implement additional programs, as appropriate, to promote the safeguarding of our cultural heritage.	The client	Environmental Consultancy and the Archaeologist
If required, conservation or relocation of burial grounds and/or graves according to the applicable regulations and legislation.	The client	Archaeologist, and/or competent authority for relocation services
Ensure that recommendations made in the Heritage Report are adhered to.	The client	The client
Provision of services and activities related to the management and monitoring of significant archaeological sites.	The client	Environmental Consultancy and the Archaeologist
After the specialist/archaeologist has been appointed, comprehensive feedback reports should be submitted to relevant authorities during each phase of development.	Client and Archaeologist	Archaeologist

Appendix B
PROJECT TEAM CVs

**PROFESSIONAL CURRICULUM VITAE
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: 20 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*.
 - EThekweni 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 the *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*

PROFESSIONAL CURRICULUM VITAE FOR CHERENE DE BRUYN

Professional Archaeologist for PGS Heritage

2016-2017	MA in Archaeology University College London, United Kingdom
2015	BSC Honours in Physical Anthropology, University of Pretoria, South Africa
2013	BA Honours in Archaeology University of Pretoria, South Africa
2010-2012	BA (General) University of Pretoria, South Africa Major subjects: Archaeology and Anthropology

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
 - Principal Investigator: Grave relocation
 - Field Director: Colonial period archaeology, Iron Age archaeology
 - Field Supervisor: Rock art, Stone Age archaeology
 - Laboratory Specialist: Human Skeletal Remains
- KZN Amafa and Research Institute - Accredited Professional Heritage Practitioner

Languages:

Afrikaans & English

SUMMARY OF EXPERIENCE

Expertise in Heritage Impact Assessment Management, Historical and Archival Research, Archaeology, Physical Anthropology, Grave Relocations, Fieldwork, Geographic Information Systems and Project Management including *inter alia* -

Involvement in various grave relocation projects

- Grave exhumation, test excavations and grave “rescue” excavations in the various provinces of South Africa.
- Permit applications with SAHRA BGG and AMAFA, including relevant Municipalities and Authorities for grave relocation projects.

Involvement with various Heritage Impact Assessments,

- Heritage Impact Assessments and Management for various projects within Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape, North West and Western Cape Province.
- Archaeological Walkdowns for various projects.
- Instrument Survey and recording for various projects.
- Desktop, archival and heritage screening for projects.

INFORMATION TECHNOLOGY EXPERIENCE:

- MS Office – Word, Excel, Publisher & Powerpoint
- Google Earth
- QGIS, ArcGIS Online, ArcGIS Collector

- *Inkscape*

Heritage Assessment Projects

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

- Heritage Management Plan for the proposed development of the 305MW Oya solar photovoltaic (PV) facility and associated infrastructure near Matjiesfontein, Western Cape.
- Heritage Impact Assessment for the Proposed Township Establishment on the Remainder of Portion 8 of the Farm Boschoek 103 JQ, near Boschoek, North West Province.
- The Proposed Irenedale Water Pipeline Between Bosjesspruit Colliery And A Local Reservoir, Located In The Lekwa Local Municipality And The Govan Mbeki Local Municipality, Gert Sibande District Municipality, Mpumalanga Province.
- Heritage Impact Assessment for the proposed development of the Msobo Coal Tselentis Colliery: Albion Opencast project, Near Breyten, Mpumalanga Province.
- Heritage Impact Assessment for the proposed development of an Airport For Kolomela Mine In Postmasburg, Northern Cape.
- Heritage Impact Assessment for the Proposed South African Coal Estates (SACE) Clydesdale Pit Project, near Emalahleni, Mpumalanga Province.
- Heritage Impact Assessment for the Amendment of the Mogalakwena Mine Expansion Project, near Mokopane, Limpopo Province.
- Heritage Impact Assessment for the Mogalakwena Mine Integrated Permitting Project near Mokopane, Limpopo Province.
- Heritage Impact Assessment for the Proposed Solar PV Plant at Armoede, near Mokopane,
- Heritage Impact Assessment for the Proposed New Cargo Precinct For The O.R. Tambo International Airport On The Farm Witkoppie 64, Gauteng Province.
- Heritage Impact Assessment for the upgrade of road d4407 between Hluvukani and Timbavati, road d4409 at Welverdiend and road d4416/2 between Welverdiend and road P194/1 in the Bohlabela region of the Mpumalanga Province.
- Heritage Impact Assessment for the proposed Piggery on Portion 46 of the farm Brakkefontien 416, within the Nelson Mandela Bay Municipality, Eastern Cape.
- Heritage Impact Assessment for proposed development On Erf 30, Letamo Town, Farm Honingklip 178 Iq, Mogale Local Municipality, Gauteng Province.

Grave Relocation Projects

Below, a selection of grave relocation projects involvement:

- Report On Test Excavations. Ivn_078 Maruma Graves, Farm Turfspruit 241 Kr, Mokopane, Limpopo Province. Test Excavation Of Possible Burial Ground As Identified By The Maruma Family.
- Relocation Of Two Infant Graves From The Farm Wonderfontein 428 Js, Belfast, Mpumalanga Province.
- Relocation Of Approximately 4 Stillborn Graves From Farm Wonderfontein 428 Js, Umsimbithi Mining (Pty) Ltd, Belfast, Chief Albert Luthuli Local Municipality, Mpumalanga Province.

EMPLOYMENT SUMMARY:

Positions Held

- 2020 – to date: Archaeologist - PGS Heritage (Pty) Ltd
- 2018 – 2019: Manager of the NGT ESHS Heritage Department – NGT Holdings (Pty) Ltd
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

Appendix C
PALAEONTOLOGICAL DESKTOP STUDY