



ARCHAEOLOGICAL IMPACT ASSESSMENT

PROPOSED DEVELOPMENT ON ERF 30, LETAMO TOWN, FARM HONINGKLIP 178 IQ, MOGALE LOCAL **MUNICIPALITY, GAUTENG PROVINCE**

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(a) + 27 (0) 12 332 5305



+27 (0) 86 675 8077

(contact@pgsheritage.co.za

PO Box 32542, Totiusdal, 0134

Head Office: 906 Bergarend Streets Waverley, Pretoria, South Africa

Offices in South Africa, Kingdom of Lesotho and Mozambique

Directors: HS Steyn, PD Birkholtz, W Fourie

Declaration of Independence

The report has been compiled by PGS Heritage (Pty) Ltd, an appointed Heritage Specialist for Ecologic Afrika (Pty) Ltd. The views stipulated in this report are purely objective and no other interests are displayed during the decision making processes discussed in the Heritage Impact Assessment.

HERITAGE CONSULTANT: PGS Heritage (Pty) Ltd

CONTACT PERSON:

Cherene de Bruyn Tel: +27 (0) 12 332 5305 Email: cherene@pgsheritage.co.za

Glereret

SIGNATURE:

DETAILS OF CLIENT:

CLIENT:

Letamo Estate (Pty) Ltd

CONTACT PERSON:

Manie van Aswegen Tel: 082 411 0244. Email: admin@letamo.net/ manria@webmail.co.za

Report Title	Archaeological Impact Assessment for a proposed development on Erf 30 Letamo Town, Farm Honingklip 178 IQ, Mogale Local Municipality, Gauteng Province		
Control	Name Signature Designation		Designation
Author	Cherene de Bruyn	Cleveret	Archaeologist/ PGS Heritage
Co-Author	Polke Birkholtz	Butho	Project Manager / Heritage Specialist & Archaeologist

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

NEMA Regs (2014, as amended 2017) - Appendix 6	The relevant section in the report
Details of the specialist who prepared the report	Page iii and Section 1.2
The expertise of that person to compile a specialist report including a curriculum vita	Section 1.2 – refer to Appendix B
A declaration that the person is independent in a form as may be specified by the competent authority	Page ii of the report
An indication of the scope of, and the purpose for which, the report was prepared	Section 1
The date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3
A description of the methodology adopted in preparing the report or carrying out the specialised process	Section 3
The specifically identified sensitivity of the site related to the activity and its associated structures and infrastructure	Sections 5 & 6
An identification of any areas to be avoided, including buffers	Sections 6 & 8
A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Refer Figures 3, 10 & 11
A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1.3
A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Sections 7 & 8
Any mitigation measures for inclusion in the EMPr	Section 8
Any conditions for inclusion in the environmental authorisation	Section 8
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 8
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised and	
If the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Executive Summary & Section 9
A description of any consultation process that was undertaken during the course of carrying out the study	Not applicable. No public participation process was undertaken by PGS Heritage.
A summary and copies of any comments that were received during any consultation process	Not applicable. See comment above.
Any other information requested by the competent authority.	Not applicable. No consultation with the heritage authorities has as of yet taken place.

EXECUTIVE SUMMARY

Introduction

PGS Heritage (Pty) Ltd (PGS) was appointed by Letamo Estate (Pty) Ltd (Letamo Estate) to undertake an Archaeological Impact Assessment (AIA) which will serve to inform the Environmental Impact Assessment (EIAs) for the proposed development on Erf 30 Letamo Town, Farm Honingklip 178 IQ, Mogale City Local Municipality (MCLM) within the West Rand District Municipality (WRDM). The study area falls within the Cradle of Humankind. The project will entail the subdivision and development (12x erven Residential 1, Special for access and access control, and 2x erven Private Open Space) on Erf 30 Letamo Town, Farm Honingklip 178 IQ, Mogale City.

General Desktop Study

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

Fieldwork

Intensive field surveys of the study area were undertaken on foot by an archaeologist (Cherene de Bruyn) from PGS. The fieldwork was aimed at locating and documenting sites falling within the proposed development area and was undertaken on Wednesday, 18 March 2020.

The intensive fieldwork resulted in the identification of eight heritage sites. For the purposes of this project, these sites were numbered from LES-01 to LES-8, and comprise the following:

- LES-01 and LES-07: Old farm infrastructure;
- **LES-02**: Old black homesteads/structures
- LES-03: Old house
- LES-04: Abandoned brick stables
- **LES-05**: Old farm entrance gate
- LES-06 and LES-08: Contemporary structures/buildings

Impact Assessment

All sites identified within the proposed study area were assessed to be fully impacted upon by the proposed development in the sense that they will be destroyed. Both pre-mitigation and post-mitigation impact assessments were undertaken. Please refer **Chapter 7** for the impact assessment calculations. A series of site-specific mitigation measures are outlined in **Chapter 8** of this report.

Conclusions

While the unmitigated impact of the proposed development is expected to result in Medium/High to Low negative impacts in terms of the identified heritage fabric of the study area, these impacts can be suitably mitigated to acceptable levels by way of a range of mitigation measures outlined in this report. 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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1. INTRODUCTION

PGS was appointed by Letamo Estate to undertake an AIA which will serve to inform the EIAs for the proposed development on Erf 30 Letamo Town, Farm Honingklip 178 IQ. The project will entail the subdivision and development on Erf 30 Letamo Town, Farm Honingklip 178 IQ, MCLM within the WRDM in the Gauteng Province. The study area falls within the Cradle of Humankind.

The developers are the founders of the Letamo Estate since 1999 and are aware of the sensitivity of the site. The estate has it's own Environmental Management Plan (EMP) since 2000 and the current EMP is under review and will be changed to an Environmental Management Programme Report (EMPr).

1.1. Scope of the Study

This AIA aims to identify possible heritage sites and finds that may occur in the proposed development area and to assess the impact of the proposed development on these identified heritage sites. The study also aims to inform the developers to manage the discovered heritage resources responsibly, 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 AIA was compiled by PGS. The staff at PGS has a combined experience of nearly 70 years in the heritage consulting industry and has extensive experience in managing the AIA and Heritage Impact Assessment (HIA) processes. PGS will only undertake heritage assessment work where the staff has the relevant expertise and experience to undertake that work competently.

Cherene de Bruyn, the author of this report, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is accredited as a Principal Investigator and Field Director, she is further also a member of the International Association for Impact Assessment South Africa (IAIASA). She holds a MA in Archaeology from University College London, and a BSc (Hons) in Physical Anthropology and a BA (Hons.) in Archaeology from the University of Pretoria. Polke Birkholtz, the project manager and co-author, is registered with ASAPA as a Professional Archaeologist and is also accredited with the CRM Section of the same association. He has 19 years of experience in the heritage assessment and management field and holds a B.A. (cum laude) from the University of Pretoria specialising in Archaeology, Anthropology and History and a B.A. (Hons.) in Archaeology (cum laude) from the same institution.

1.3. Assumptions and Limitations

The following assumptions and limitations to this study exist:

- Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources present within the area. Various factors account for this, including the subterranean nature of some archaeological sites, as well as the density of vegetation cover found in some areas. As such, should any heritage features and/or objects not included in the present inventory be located or observed, a heritage specialist must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way, until such time that the heritage specialist has been able to assess as to the significance of the site (or material) in question. This applies to graves and cemeteries as well. In the event that any graves or burial places are located during the development, the procedures and requirements pertaining to graves and burials will apply as set out below.
- The study area boundaries depicted in this report were provided by the client. As a result, these were the areas assessed during the fieldwork. Should any additional development footprints located outside of these study area boundaries be required, such additional areas will have to be assessed in the field by an experienced archaeologist/heritage specialist before construction commences.

1.4. Legislative Context

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

i. National Environmental Management Act (NEMA) Act 107 of 1998

- ii. National Heritage Resources Act (NHRA) Act 25 of 1999
- iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

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

- GNR 982 (Government Gazette 38282, 14 December 2014) promulgated under the National Environmental Management Act (NEMA) Act 107 of 1998
 - a. Basic Assessment Report(BAR) Regulations 19 and 23
 - b. Environmental Scoping Report (ESR) Regulation 21
 - c. Environmental Impacts Assessment (EIAs) Regulation 23
 - d. Environmental Management Programme (EMPr) Regulations 19 and 23
- ii. National Heritage Resources Act (NHRA) Act 25 of 1999
 - a. Protection of Heritage Resources Sections 34 to 36; and
 - b. Heritage Resources Management Section 38
- iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
 - a. Section 39(3)

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

1.5. Terminology and Abbreviations

Archaeological resources

- material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- ii. rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- iii. wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
- iv. features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural Significance

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

Development

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

- construction, alteration, demolition, removal or change in the 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 earliest archaeological phase identified in South Africa. It refers to the archaeology of the Stone Age, dating to between roughly 700 000 and 2 500 000 years ago.

Heritage

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

Heritage Resources

This means any place or object of cultural significance

Later Stone Age

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

Late Iron Age

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

Middle Stone Age

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

Palaeontology

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

Study Area

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

Development Footprint Areas

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

ABBREVIATION	DESCRIPTION
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
сонwнs	Cradle of Humankind World Heritage Site
CRM	Cultural Resources Management
DEA	Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Early Iron Age
EIAs	Environmental Impact Assessment
EMP	Environmental Management Plan
EMPr	Environmental Management Programme Report
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&AP	Interested & Affected Party
IAIASA	International Association for Impact Assessment South Africa
Letamo Estate	Letamo Estate (Pty) Ltd
LSA	Later Stone Age
LIA	Late Iron Age
MIA	Middle Iron Age
MSA	Middle Stone Age
MCLM	Mogale City Local Municipality
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Authority
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SANBI	South African National Biodiversity Institute
WRDM	West Rand District Municipality

Table 1 - Abbreviations



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

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

2. TECHNICAL DETAILS OF THE PROJECT

2.1. Site Location

Study Area Coordinates	Northernmost point: S 26.03088889°	Easternmost point: S 26.03263889°
	E 27.77861111°	E 27.78111111°
	Southernmost point:	Westernmost point:
	S 26.03379444°	S 26.03138889°
	E 27.77916667°	E 27.77611111°
Location	The proposed project area is located between the towns of Krugersdorp and Muldersdrift in the MCLM within the WRDM.	
Property	Erf 30, Letamo Town, Farm Honingklip 178 IQ	
Topographic Map	2627BB	
Study Area Extent	The extent of the study area is 15,1345ha in extent.	



Figure 2 – Locality map of Erf 30, Letamo Town, Farm Honingklip 178 IQ project area. This map was compiled by PGS Heritage using QGIS.

2.2. Technical Project Description

The content of this section was provided by Ecologic Afrika (Pty) Ltd.

2.3. Project Description

The proposed project will consist of the subdivision of Erf 30 into twelve residential stands (sizes vary from 0,6094ha to 1,368ha) and two private open space stands (.6473ha and .95000ha). Individual stands will be sold off for residential development (one dwelling per Erf) by prospective buyers. Private open space stands will be left natural, exotic vegetation will be removed, and stands will be enhanced by indigenous plants. Water will be provided by internal reticulation from a water network owned and operated by Letamo Game Farm Pty (Ltd) on behalf of Mogale City. Sewage disposal will be by conservancy/suction tank at each stand. Power supply to be off-grid by PV/solar batteries, LPG gas and standby silent generators.



Figure 3 – Development layout plan for the Proposed Establishment of Erf 30, Letamo Town, Farm Honingklip 178 IQ. Plan supplied by the client.



Figure 4 - Site Layout Plan. Plan supplied by the client.

3. ASSESSMENT METHODOLOGY

3.1. Methodology for Assessing Heritage Site Significance

The HIA process consisted of three steps:

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

Step II – Physical Survey: Intensive field surveys of the study area were undertaken on foot by an archaeologist (Cherene de Bruyn) from PGS. The fieldwork was aimed at locating and documenting sites falling within the proposed development area. The fieldwork was undertaken on Wednesday, 18 March 2020.

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

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

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

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

- A No further action necessary;
- B Mapping of the site and controlled sampling required;
- C No-go or relocate development position
- D Preserve the site or extensive data collection and mapping of the site; and
- E Preserve site

Site Significance

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

Table 2 - Site significance classification standards as prescribed by SAHRA

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

3.2. Methodology for Impact Assessment

To ensure uniformity, a standard impact assessment methodology has been utilised so that a wide range of impacts can be compared. The impact assessment methodology makes provision for the assessment of impacts against the following criteria:

- Significance;
- Spatial scale;
- Temporal scale;
- Probability; and
- Degree of certainty.

A combined quantitative and qualitative methodology was used to describe impacts for each of the aforementioned assessment criteria.

A summary of each of the qualitative descriptors, along with the equivalent quantitative rating scale for each of the aforementioned criteria, is given in **Table 3** below.

RATING	SIGNIFICANCE	EXTENT SCALE	TEMPORAL SCALE
1	VERY LOW	Isolated corridor / proposed corridor	Incidental
2	LOW	Study area	Short-term
3	MODERATE	Local	<u>Medium-term</u>
4	HIGH	Regional / Provincial	Long-term
5	VERY HIGH	Global / National	<u>Permanent</u>

Table 3 – Quantitative rating and equivalent descriptors for the impact assessment criteria

A more detailed description of each of the assessment criteria is given in the following sections.

Significance Assessment

The significance rating (importance) of the associated impacts embraces the notion of extent and magnitude but does not always clearly define these since their importance in the rating scale is very relative. For example, 10 structures younger than 60 years might be affected by a proposed development, and if destroyed the impact can be considered as VERY LOW in that the structures are all of Low Heritage Significance. If two of the structures are older than 60 years and of historic significance, and as a result of High Heritage Significance, the impact will be considered to be HIGH to VERY HIGH. A more detailed description of the impact significance rating scale is given in **Table 4** below.

Table 4 – Description of the significance rating scale

RATING		DESCRIPTION
5	VERY HIGH	Of the highest order possible within the bounds of impacts which could occur. In the case of adverse impacts: there is no possible mitigation and/or remedial activity which could offset the impact. In the case of beneficial impacts, there is no real alternative to achieving this benefit.
4	HIGH	The impact is of substantial order within the bounds of impacts which could occur. In the case of adverse impacts: mitigation and/or remedial activity is feasible but difficult, expensive, time-consuming or some combination of these. In the case of beneficial impacts, other means of achieving this benefit are feasible but they are more difficult, expensive, time-consuming or some combination of these.
3	MODERATE	The impact is real but not substantial in relation to other impacts, which might take effect within the bounds of those which could occur. In the case of adverse impacts: mitigation and/or remedial activity are both feasible and fairly easily possible. In the case of beneficial impacts: other means of achieving this benefit are about equal in time, cost, effort, etc.
2	LOW	The impact is of a low order and therefore likely to have a little real effect. In the case of adverse impacts: mitigation and/or remedial activity is either easily achieved or little will be required, or both. In the case of beneficial impacts, alternative means for achieving this benefit are likely to be easier, cheaper, more effective, less time consuming, or some combination of these.
1	VERY LOW	The impact is negligible within the bounds of impacts which could occur. In the case of adverse impacts, almost no mitigation and/or remedial activity is needed, and any minor steps which might be needed are easy, cheap, and simple. In the case of beneficial impacts, alternative means are almost all likely to be better, in one or several ways, than this means of achieving the benefit. Three additional categories must also be used where relevant. They are in addition to the category represented on the scale, and if used, will replace the scale.
0	NO IMPACT	There is no impact at all - not even a very low impact on a party or system.

Spatial Scale

The spatial scale refers to the extent of the impact i.e. will the impact be felt at the local, regional, or global scale.

The spatial assessment scale is described in more detail in **Table 5** below.

Table 5 – Description of the spatial significance rating scale

RATING		DESCRIPTION
5	Global/National	The maximum extent of any impact.
4	Regional/Provincial	The spatial scale is moderate within the bounds of possible impacts and will be felt at a regional scale (District Municipality to Provincial Level). The impact will affect an area up to 50 km from the site.
3	Local	The impact will affect an area up to 5 km from the proposed site.
2	Study Area	The impact will affect an area not exceeding the study area boundary.
1	Isolated Sites / proposed site	The impact will affect an area no bigger than the site.

Temporal/Duration Scale

In order to accurately describe the impact, it is necessary to understand the duration and persistence of an impact on the environment. The temporal or duration scale is rated according to criteria set out in **Table 6** below.

RATING		DESCRIPTION
1	Incidental	The impact will be limited to isolated incidences that are expected to occur very sporadically.
2	Short-term	The environmental impact identified will operate for the duration of the construction phase or a period of less than 5 years, whichever is the greater.
3	Medium-term	The environmental impact identified will operate for the duration of life of the project.
4	Long-term	The environmental impact identified will operate beyond the life of operation of the project.
5	Permanent	The environmental impact will be permanent.

Table 6 – Description of the temporal rating scale

Degree of Probability

The probability or likelihood of an impact occurring will be outlined in **Table 7** below.

Table 7 – Description of the degree of probability of an impact occurring

RATING	DESCRIPTION
1	Practically impossible
2	Unlikely
3	Could happen
4	Very likely
5	It's going to happen/has occurred

Degree of Certainty

It is not possible to be 100% certain of all facts, and for this reason, a standard "degree of certainty" scale is used, as discussed in **Table 8**. The level of detail for specialist studies is determined according to the degree of certainty required for decision-making.

RATING	DESCRIPTION
Definite	More than 90% sure of a particular fact.
Probable	Between 70 and 90% sure of a particular fact, or of the likelihood of that impact occurring.
Possible	Between 40 and 70% sure of a particular fact, or of the likelihood of an impact occurring.
Unsure	Less than 40% sure of a particular fact or the likelihood of an impact occurring.
Can't know	The consultant believes an assessment is not possible even with additional research.

Table 8 – Description of the degree of the certainty rating scale

Quantitative Description of Impacts

To allow for impacts to be described quantitatively, in addition to the qualitative description given above, a rating scale of between 1 and 5 was used for each of the assessment criteria. Thus the total value of the impact is described as the function of significance, spatial and temporal scale, as described below:

Impact Risk = (Significance + Spatial + Temporal) X Probability

An example of how this rating scale is applied is shown below:

3

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	Low	Local	Medium Term	Could Happen	Low
Impact on heritage structures	2	3	3	3	1.6

5

Note: The significance, spatial and temporal scales are added to give a total of 8, which is divided by 3 to give a criterion rating of 2.67. The probability (3) is divided by 5 to give a probability rating of 0.6. The criteria rating of 2.67 is then multiplied by the probability rating (0,6) to give the final rating of 1,6.

The impact risk is classified according to five classes as described in the table below.

Table 10 – Impact Risk Classes

RATING	IMPACT CLASS	DESCRIPTION
0.1 - 1.0	1	Very Low
1.1 – 2.0	2	Low
2.1 - 3.0	3	Moderate
3.1 - 4.0	4	High
4.1-5.0	5	Very High

Therefore, with reference to the example used for heritage structures above, an impact rating of 1.6 will fall in Impact Class 2, which will be considered to be a low impact.

4. CURRENT STATUS QUO

The project area falls within the boundaries of the Cradle of Humankind, a UNESCO World Heritage site (COHWHS) (Figure 5).

According to the National Vegetation Map of South Africa, the study area is located within the Egoli Granite Grassland (www.sanbi.org). This vegetation type comprises of "...tall, usually Hyparrhenia hirta-dominated grassland, with some woody species on rocky outcrops or rock sheets. The rocky habitats show a high diversity of woody species, which occur in the form of scattered shrub groups or solitary small trees" (www.sanbi.org).

In terms of geology and soils, the site "...*is underlain by highly deformed and metamorphosed mafic and ultramafic igneous rocks of the Muldersdrift Complex of the Archaean Basement*" (Durand, 2019). According to the South African National Biodiversity Institute's (SANBI) the site is underlying "Archaean granite and gneiss of the Halfway House Granite at the core of the Johannesburg Dome supporting leached, shallow, coarsely grained, sandy soil poor in nutrients of Glenrosa form" (Sanbi, 2020).

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

- Residential settlements;
- Dirt roads; and
- Electricity lines.

During the fieldwork, the study area was found to be located in a landscape that is generally level. As a result, the vast majority of the Letamo Estate footprint overlays highly disturbed terrain and a preexisting dirt/farm road. Overall, the accessibility of the project footprint area was fairly good. Visibility of the site was limited due to the grassy vegetation and previous agricultural and residential activities that have disturbed the area. Several photographs below provide general views of the study area and the landscape within which it is located (Figure 6 to Figure 14).



Figure 5 – Map of Erf 30, Letamo Estate within the Cradle of Humankind. This map was compiled by PGS Heritage using QGIS.



Figure 6 – The main access road into the Letamo Estate and project area, with the boomed security access gate visible in the back.



Figure 7 – Several existing informal farm roads are found throughout the site.



Figure 8 – Electricity lines found throughout the site. Note the security wall visible on the right.



Figure 9 – Parts of property previously used for the feeding of animals.



Figure 10 – View of the north-eastern corner of the project area. Note the dense vegetation.



Figure 11 – View of the south-eastern corner of the project area.



Figure 12 – View of the north-western corner of the project area.



Figure 13 – View of the south-western corner of the project area.



Figure 14 - Existing houses found next to the proposed project area.

5. DESKTOP STUDY FINDINGS

DATE	DESCRIPTION	
	The Study Area and Surroundings during the Stone Age	
Several Stone Age sites h	Several Stone Age sites have been recorded in the study area and its immediate surroundings.	
	The Earlier Stone Age (ESA) is the first and oldest phase identified in South Africa's archaeological history and comprises two technological phases. The earliest of these technological phases is known as Oldowan which is associated with crude flakes and hammerstones and dates to approximately 2 million years ago. Several ESA sites have been researched and recorded in the COHWHS near Krugersdorp. Examples of such tools have been excavated from Sterkfontein Member 5 and Coopers D. Oldowan stone tools have been found at Swartkrans (Sutton, 2012), Sterkfontein (Kuman & Field, 2009; Reynolds & Kibii, 2011), Malapa (Berger et al., 2010), and Kromdraai (Kuman et al., 1997). Several hominin fossil species have also been excavated at these sites (Reynolds & Kibii, 2011).	
2.5 million to 250 000 years ago	The second technological phase in the ESA of Southern Africa is known as the Acheulian and comprises more refined and better-made stone artefacts such as the cleaver and bifacial handaxe. The Acheulian phase dates back to approximately 1.5 million years ago (Klein, 2000; Mitchell, 2002; Diez-Martín et al., 2015; De La Torre 2016). At the Gladysvale Cave located, a hand axe dating to the Acheulean stone tool complex was found by Hall et al., (2006). Examples of this phase have been found at Swartkrans and the river gravels of the 'Cradle of Humankind' (Hilton-Barber & Berger, 2002). Apart from the sites located in the COHWHS, several other Earlier Stone Age sites are also known from the closer vicinity of the study area including two sites from the farm Honinklip 178-IQ as well as an Acheulian site from the farm Roodekranz 183-IQ.	
	Other ESA sites have been identified to the west of Pretoria near the Magaliesriver as well as in the region of the Magaliesberg mountains (Van Vollenhoven, 2006).	
>250 000 to 40 000 years ago	The Middle Stone Age (MSA) dates to between 250 000 to 40 000 years BP. MSA dates of around 250 000 BP originate from sites such as Leopards Kopje in Zambia, while the late Pleistocene (125 000 BP) yields several important dated sites associated with modern humans (Deacon & Deacon, 1999). The MSA is characterised by flake and blade industries, the first use of grindstones, wood and bone artefacts, personal ornaments, use of red ochre, circular hearths and hunting and gathering lifestyle. Examples of such artefacts have been found in the COHWHS at Swartkrans and Plovers Lake (Hilton-Barber & Berger, 2002).	
40 000 years ago to c. The 1800s	The LSA Is the third phase identified in South Africa's archaeological history. It is associated with an abundance of very small stone artefacts known as microliths. A large number of Later Stone Age sites are known from the COHWHS (Hilton-Barber & Berger, 2002). In Southern Africa, the LSA is characterised by the appearance of rock art in the form of paintings and engravings.	

5.1. Overview of the Archaeology and History of the Study Area and Surroundings

The Study Area and Surroundings during the Iron Age

The arrival of early farming communities during the first Millenium heralded the start of the Iron Age for South Africa. The Iron Age is that period in South Africa's archaeological history associated with pre-colonial farming communities who practised cultivation and pastoralist farming activities, metalworking, cultural customs such as lobola and whose settlement layouts show the tangible representation of the significance of cattle (known as the Central Cattle Pattern) (Huffman, 2007).

The tangible remains of the Iron Age are frequently identified in the general surroundings of the study area, and these may include potsherds, stonewalled settlements, grinding stones and metal smelting and forging sites. During the period between AD 1650 and AD 1900 the area north of the Magaliesberg Mountains, from Rustenburg in the west to Onderstepoort in the east, was characterised by thousands of stonewalled settlements located along with the bases of the granite outcrops of the area. These settlements represented the spheres of influence of various Sotho-Tswana chiefdoms, including the Kgatla, Po, Kwena and Fokeng (Nienaber & Steyn, 2002).

AD 200 – AD 900	The earliest phase in the Iron Age history of Southern African is known as the Early Iron Age (EIA).
	Mzonjani Facies (AD 450-750) of Kwale branches form the Urewe tradition have been found in the areas surrounding Pretoria and Johannesburg (Evers, 1975, 1977; Huffman, 2007).
	The only EIA remains known in the greater region is the Broederstroom village site, and the Melville Koppies sites excavated by Professor Mason (Miller, 2016)
	No EIA sites are known from the immediate vicinity of the footprint area.
AD 900 – AD1300	The second phase in the Iron Age history of Southern Africa is known as the Middle Iron Age (MIA).
	The third and final phase in the Iron Age history of Southern Africa is known as the Late Iron Age (LIA).
	Based on the available archaeological and oral evidence from this period, the sixteenth and seventeenth centuries saw the movement of Sotho/Tswana communities from the lower-lying Bushveld habitats in the north (where they had been settled since AD 1500) toward the higher, predominantly grassland areas to the south. By AD 1650 these communities had successfully settled in these areas (Hall, 2007).
AD 1300 – AD 1840	Ceramics of the Ntsuanatsatsi facies (AD 1450 to 1650) of the Blackburn Branch and Urewe Tradition, have been found near Johannesburg (Mason, 1986; Huffman, 2007). The Uitkomst facies (AD 1650 – 1820) of the same branch is seen as the successors to the Ntsuanatsatsi facies and contains elements of both Nguni (Ntsuanatsatsi facies) and Sotho-Tswana speakers (Olifantspoort facies) pottery styles (Huffman, 2007). This represents the contact between these two groups. Ceramics of the Uitkomst facies have been found throughout the Gauteng Province around Johannesburg and Pretoria (Huffman, 2007). The excavations of R.J. Mason (1997, 2000) at Glenferness Cave and Boulders in the Midrand area have revealed that the arrival of LIA people in that area was associated with the presence of clay pottery very similar to artefacts excavated at Uitkomst Cave.

area. LIA sites containing Uitkomst-type pottery have also been found on the farm Honinklip 178-IQ.
The Olifantspoort facies (AD 1500-1700) of the Moloko Branch has been found around the Potchefstroom, Rustenburg and Pretoria regions (Mason, 1986; Mitchell, 2002; Huffman, 2007). Mason (1974) has also found pottery similar to the Olifantspoort facies on the slopes of Platberg, near Klerksdorp. Olifantspoort pottery is characterised by <i>"multiple bands of fine stamping and narrow incision</i> <i>separated by colour"</i> (Huffman, 2007: 193). Ceramics of the Olifantspoort facies have been identified along the region surrounding the Vaal River, in Potchefstroom and the Gauteng Province around the Johannesburg and Pretoria regions (Huffman, 2007). Buispoort ceramics (AD 1700 – 1840), of the Moloko Branch, have been found to the north of Potchefstroom, and in the Gauteng Province around the Johannesburg and Pretoria regions (Mason, 1962, 1986; Huffman, 2007). Buispoort ceramics are characterised by <i>"rim notching, broadly</i> <i>incised chevrons and white bands"</i> (Huffman, 2007: 205).

The Study Area and Surroundings during the Historical Period

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 mass flood of white immigrants during the 1830s, when a 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 later named Voortrekkers (Visagie, 2011).

As this period carried on, the general surroundings of the study area underwent significant changes during the Twentieth Century, including extensive development in the form of granite and iron mining, railway and transportation development.

1827	During the so-called Difaqane the Khumalo Ndebele (Matabele) of Mzilikazi moved through the general vicinity of the study area in a northward direction toward the Magalies River and Commando Nek (Bergh, 1999).
	The first Europeans to move through the area were early travellers, including hunters and missionaries. The first was the expedition of Andrew Smith in 1835, who camped at Zeekoegat, close to modern-day Krugersdorp (Bergh, 1999), followed by Cornwallis Harris in 1836 and David Livingstone in 1847 (Bergh, 1999).
AD 1830-AD 1900	With the discovery of gold in 1852 on the highveld region, the highveld brought about prospects of mining. Soon after this, Roodepoort, Vogelstruisfontein, Paardekraal and Wilgespruit were declared public diggings (Van de Walt, 2016). In 1852 J.H. Davis discovered gold on the Farm Paardeplaats/Groot Paardekraal (Bergh, 1999). On 9 October 1853 P.J. Marais discovered alluvial gold on the farm Zandfontein (Bergh, 1999).
	The Farm Rietvallei, located directly east of the Farm Honingklip, was first inspected on 18 September 1856 by Field Cornet A.P. van der Walt (RAK, 2880). On the 24 th of October 1864, Stephanus Johannes Grobler became the first registered owner of the Farm Rietvallei. On the very same day, he transferred the farm to Theunis Marthinus Petrus Johannes Snyman (12 July 1828 – 13 October 1872) (RAK, 2880).

Later in 1876, Tobias Johannes Mare discovered gold on Wilgespruit and Braamfontein (Bergh, 1999). By 1881 the discovery of gold on the farm Kromdraai was made by S.J.Minnaar (Bergh, 1999). This discovery focussed attention back to the Krugersdorp area after it had shifted to the region south of Heidelberg (Bergh, 1999).
In 1882 gold was discovered on Tweefontein, adjacent to Kromdraai. On 8 December 1885 Kromdraai was also proclaimed as a public digging, becoming the first farm in the Witwatersrand to be officially proclaimed as a goldfield (Bergh, 1999).
The first gold reef in the Witwatersrand was discovered mid-1886 at the Witwatersrand Main Reef (Emden, 1935; Cartwright, 1962; Appelgryn, 1984; Beavon 2004). In January 1884 Fred Struben discovers gold on Sterkfontein (Fourie, 2015). In April 1884 Fred Struben discovers banket formations for the first time on the farm Paardeplaats/Groot Paardekraal (Fourie, 2015). He also discovered the Confidence Reef on the eastern side of the Farm Wilgespruit in September 1884, and a gold-bearing conglomerate on the Farm Honingklip in March 1885 (Bergh, 1999; Fourie, 2015). The discovery of gold along the Witwatersrand and the proclamation of public diggings on various farms in the area such as Paardekraal, Vogelstruisfontein, Luipaardsvlei, Klippaat, Heuningklip and Wilgespruit led to the establishment of a stands township on the farm Paardekraal in 1887. On the request of Paardekraal's owner, the town was named after President Paul Kruger. The district town of Krugersdorp was proclaimed in November 1894 (Du Plooy, 2004).
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5.2. Overview of the known heritage sites from the study area and surrounds.

5.2.1. The 'Cradle of Humankind' and known hominid fossil sites

In 1999 South Africa's first World Heritage Site was proclaimed by UNESCO and was known as the *Fossil Hominid Sites of Sterkfontein, Swartkrans, Kromdraai and the Environs*. The site is more commonly known as the 'Cradle of Humankind'. The project area falls within the boundaries of the COHWHS. Several hominid fossil sites are located within the area known as the COHWHS (Hilton-Barber & Berger, 2002). The seven closest hominid fossil sites to the study area that could be found in the literature are (Figure 15):

- Sterkfontein
 Approximately 4,7 km north-west of the study area
- Swartkrans approximately 5.7 km north-west of the study area
- Kromdraai approximately 3.6 km north-west of the study area
- Coopers B approximately 3.7 km north-west of the study area
- Minaars approximately 5 km north-west of the study area
- Rising Star Cave approximately 6.7 km west-north-west of the study area
- Bolt's Farm approximately 6.3 km west of the study area


Figure 15 - Map of Erf 30, Letamo Town, Farm Honingklip 178 IQ and its proximity to sites within the Cradle of Humankind. This map was compiled by PGS Heritage using QGIS.

5.3. Historical Background of the Farm Honingklip

5.3.1. The Farm Honingklip

During 1882 Stephanus Isaac Minnaar, one of the early prospectors on the Witwatersrand, discovered gold on Honingklip. This is the earliest reference to gold prospecting and mining found in terms of the farm in question (Cunningham, 1987, cited in Fourie, 2015:28).

Macdonald (1933) mentions that Stephanus Minnaar was Hendrik Grobler's son-in-law. Macdonald (1933) in turn indicates that Minnaar only started prospecting on Honingklip after Fred Struben's discovery on Wilgespruit (Confidence Reef was discovered on 18 September 1884), and before this time had been prospecting on a reef close to the Crocodile River where some gold was found (Fourie, 2015).

Macdonald (1933) mentions that when Struben's attention was drawn to Honingklip during 1884, the farm had already been prospected by a Potchefstroom syndicate without success. Upon hearing of their failure, Struben contacted the syndicate and indicated that he was certain that he would be able to locate a new gold-bearing reef on Honingklip, in exchange for shares in the company for him and his brother. Although the company initially refused, they subsequently invited him to join them on his terms (Fourie, 2015).

Charles Andries Celliers also acquired a five-year lease in the form of "...*the full and sole right to dig and mine for gold…*" on Honingklip (Cunningham, 1987, cited in Fourie, 2015:29). The lease commenced on 11 May 1884 and its annual rental was £50. Seven months after the commencement of the lease, Celliers asked Fred Struben to prospect the farm (Cunningham, 1987, cited in Fourie, 2015:29). During March 1885 Fred Struben opened a geological bed at Honingklip to a depth of ten feet. It is stated in one of his publications that "...*this was the first work ever done on banket formation…*" (Cunningham, 1987, cited in Fourie, 2015:29).

He subsequently discovered a continuation of the Confidence Reef on Honingklip, which was named Struben's Reef (Fourie, 2015). In a letter written from Honingklip and dated 18 March 1885, Fred Struben describes his discovery of the Confidence Reef on Honingklip to his sister-in-law (Macdonald, 1933). Further, in the same year, Fred Struben identified another reef to the south on the farm Paardeplaats and called it Surprise Reef (Fourie, 2015).



Figure 16 - Map of Krugersdorp compiled by John T. Wood in 1900 for the Field Intelligence Department. The Farm Honingklip indicated by the yellow polygon. (Source: UCT Online Collection, 2020)

5.4. 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.

Archival and historical maps for various years (1943, 1954 and 1977) were assessed to observe the development of the area over time and to attempt to identify any sites which may be considered of heritage significance, such as historical structures and burial grounds. The maps were also used to assess the possible age of structures identified during the fieldwork to determine whether they could be considered as heritage sites. Map overlays were created showing the possible heritage sites identified within the areas of concern, as can be seen below (Figure 16-Figure 22).

The relevant archival and historical maps include:

- Map of the Southern Goldfield of the Transvaal. 1896.
- Potchefstroom. Computed and compiled from the Farm surveys of the Transvaal and all available material. Surveyed by Major Jackson. Drawn by the Surveyor General Office and photo-lithographed at the Government Printing works in 1903.
- Sheet South G35 P II Krugersdorp, 1:125 000 Topographic map. Surveyed in 1910 by a survey party R. E. under the direction of Captain C. St. B. Sladen, R. E. and Lieut. K. W. Lee, R. F. A. Drawn and printed at the War Office in 1913.
- First Edition 1:50 000 2627BB Roodepoort Topographic map. Compiled and drawn by the Survey Depot (Tech) S.A.E.C from 1:25 000 sheets by Survey Deport S. A. E. C. 1943. Printed by the Government Printer in 1955.
- Second Edition 1:50 000 2627BB Roodepoort Topographic map. Surveyed in 1954 and drawn in 1956 by the Trigonometrical Survey Office. Printed by the Government Printer in 1957.
- Third Edition 1:50 000 2627BB Roodepoort Topographic map. Remapped in 1977 by the Director-General of Surveys. Printed by the Government Printer in 1979.

The possible heritage features depicted on each of these editions will be indicated and discussed. Please note that any of the feature numbers used on these different maps below do not necessarily represent a single heritage feature over time.

5.5. Archival and Topographical Maps

5.5.1. Map of the Southern Goldfield of the Transvaal.

A section of the Map of the Southern Goldfield of the Transvaal can be seen (Figure 17). The map was compiled from Official source by Fred Jeppe, Surveyor-General's Department in 1896. Several excavation/digging pits can be observed on the Farm Honingklip.



Figure 17 - Map of the Southern Goldfield of the Transvaal. Compiled from Official sources by Fred Jeppe, Surveyor-General's Department 1896, showing the Farm Honingklip (yellow polygon

5.5.2. Major Jackson Potchefstroom Topographic Sheet

A section of the Potchefstroom. Computed and compiled from the Farm surveys of the Transvaal and all available material (Figure 18). Surveyed by Major Jackson. Drawn by the Surveyor General Office and photo-lithographed at the Government Printing works in 1903.

The following possible heritage features are depicted within the study area boundaries:

• Roads: A main road crosses the farm fro east to west. There are also several farm roads

depicted throughout the farm

- Feature 1: Several huts can be seen near the northern boundary of the Farm Honingklip (orange polygon). These hut symbols were used on these old maps to indicate black huts and kraals.
- Feature 2: A single structure can be seen on the Farm Honingklip (orange polygon). This symbol was used on these old maps to indicate Homesteads and houses.
- Feature 3: A single structure can be seen on the Farm Honingklip (orange polygon). This symbol was used on these old maps to indicate Homesteads and houses.
- Feature 4: A single structure can be seen on the Farm Honingklip (orange polygon). This symbol was used on these old maps to indicate Homesteads and houses.



Figure 18 – Potchefstroom topographic map surveyed by Major Jackson. Drawn in the Surveyor General Office and photo-lithographed at the Government Printing Works in 1903, showing the Farm Honingklip (yellow polygon).

5.5.3. Sheet South G35 P II Krugersdorp, 1:125 000 Topographic map

A section of the Sheet South G35 P II Krugersdorp, 1:125 000 Topographic map (Figure 19). The map was surveyed in 1910 by a survey party R. E. under the direction of Captain C. St. B. Sladen, R. E. and Lieut. K. W. Lee, R. F. A. It was drawn and printed at the War Office in 1913.

The following general observations can be made from the map:

 Several roads have been constructed across the Farm Honingklip, providing access to the surrounding area. One of these roads appears to have crossed through or very close to the study area.

- Feature 5: Four structures, most likely farm houses appear in the map (orange polygons).
 These structures did not appear on the Potchefstroom topographic map surveyed by Major Jackson.
- Feature 6: Six structures, most likely farm houses appear in the map (orange polygons). It is possible that Feature 2 and 3, that appear on the Potchefstroom topographic map surveyed by Major Jackson, are located close to Feature 6.
- Feature 7: One structure, most likely farmhouse appears in the map (orange polygons). These structures did not appear on the Potchefstroom topographic map surveyed by Major Jackson.



Figure 19 – Sheet South G35 P II Krugersdorp, 1:125 000 Topographic map, surveyed in 1910, showing the Farm Honingklip (yellow polygon)

5.6. First Edition 1:50 000 2627BB Roodepoort Topographic map

A section of the First Edition 1:50 000 2627BB Roodepoort Topographic map (Figure 20). The map was compiled and drawn by the Survey Depot (Tech) S.A.E.C from 1:25 000 sheets by Survey Deport S. A. E. C. 1943. It was printed by the Government Printer in 1955.

The following general observations can be made from the map:

- A comparison between the Sheet South G35 P II Krugersdorp, 1:125 000 Topographic map and the First Edition 1:50 000 2627BB Roodepoort Topographic map indicates that several buildings and structures were added within the study area boundaries between 1910 and 1943.
- Several roads connection to Krugersdorp and the surrounding farms are shown crossing through the study area.

- Feature 8: Two huts located near the western boundary of Erf 30 Letamo Town, Farm Honingklip 178 IQ
- Feature 9: One hut located near the eastern boundary of Erf 30 Letamo Town, Farm Honingklip 178 IQ (green polygon), which forms the boundary of the study area.



Figure 20 – First Edition 1:50 000 2627BB Roodepoort Topographic map with several heritage features (red polygons) located close to the project area (green polygon)

5.7. Second Edition 1:50 000 2627BB Roodepoort Topographic map

A section of the Second Edition 1:50 000 2627BB Roodepoort Topographic map (Figure 21). The map was surveyed in 1954 and drawn in 1956 by the Trigonometrical Survey Office. It was printed by the Government Printer in 1957.

The following general observations can be made from the map:

- A few areas from within the study area appear to have been used for agricultural activities.
- The huts (Feature, 3 and 4) identified on the First Edition 1:50 000 2627BB Roodepoort Topographic map, do not appear on the Second Edition 1:50 000 2627BB Roodepoort Topographic map.
- More structures can be seen in the area surrounding the project area.

- Feature 10: A hut is located near the south-western corner of the project area (green polygon).
- Feature 11: A second hut is located near the south-eastern corner of the project area (green polygon).
- Feature 12: A structure is located near the south-eastern corner of the project area (green polygon). A stone structure house was identified close to Feature 7 location during the site visit. The Feature depicted in the map could likely be the house identified during the fieldwork.



Figure 21 – Second Edition 1:50 000 2627BB Roodepoort Topographic map dating to 1954 with several heritage features (red polygons) located close to the project area (green polygon)

5.8. Third Edition 1:50 000 2627BB Roodepoort Topographic map

A section of the Third Edition 1:50 000 2627BB Roodepoort Topographic map (Figure 22). It was remapped in 1977 by the Director-General of Surveys and printed by the Government Printer in 1979.

The following general observations can be made from the map:

- Several houses and developments can be seen in the area to the west of the project area.
- Most of the area surrounding the project area is still used for agricultural activities.

- Feature 11: A structure was identified in the north-eastern section of the project area, that
 was also visible on the Second Edition 1:50 000 2627BB Roodepoort Topographic map. The
 house still exists and was identified during the site visit at site LES-03.
- Feature 13: Two structures were identified in the north-western section of the project area, that wasn't visible on the Second Edition 1:50 000 2627BB Roodepoort Topographic.
- Feature 14: Two structures and a kraal were identified in the north-eastern section of the project area, that wasn't visible on the Second Edition 1:50 000 2627BB Roodepoort Topographic map.



Figure 22 – Third Edition 1:50 000 2627BB Roodepoort Topographic map dating to 1977 with several heritage features (red polygons) located close to the project area (green polygon)

5.9. Previous Archaeological and Heritage Studies from the Study Area and Surroundings

A search of the SAHRIS database revealed that previous archaeological or heritage impact assessments had been undertaken within the study area. However, several such assessments have also been undertaken within the surroundings of the study area.

- HUFFMAN, T. N. 2000. Investigation at Pretorius Park, Krugersdorp. Prepared for Environmental Outsource. No sites, features or objects of a heritage nature or significance will be impacted.
- VAN DER WALT, J. & FOURIE, W. 2005. Heritage assessment of Portion of the proposed pipeline from Brandvlei to Krugersdorp on the farm Brandvlei 261 IQ, District Mogale City, Gauteng Province. Prepared for EnviroAfrik (Pty) Ltd. **Two cemeteries were identified.**
- VAN SCHALKWYK, J. 2007. Heritage survey of Portion 23 of the Farm Nooitgedacht 534jq, Krugersdorp Municipal District, Gauteng Province. Prepared for Bokamoso Landscape Architects. Three cemeteries and old farmhouse were identified.
- BIRKHOLTZ, P. 2008. Heritage Scoping Proposed second dwelling, Thorny Valley Estate 240 (Portion 240 a portion of portion 264) of the farm Honingklip 178- IQ, Mogale City, Gauteng Province. Prepared for Johan Fourie & Associates. No sites of heritage significance were found.
- FOURIE, W. 2008. Heritage Scoping report for the proposed development for Village x9 on Portions 205 and 206 of the farm Roodekrans 183 IQ, Krugersdorp, Gauteng Province. Prepared for Environmental Impact Management Services (Pty) Ltd. No sites of heritage significance were found.
- VAN SCHALKWYK, J. 2008. Heritage impact survey report for Janho Quarry, Driefontein 179iq, Krugersdorp Magisterial District, Gauteng Province. Prepared for Holgate, Meyer & Associates. No sites, features or artefacts of cultural significance were identified.
- PELSER, A. J. & VAN VOLLENHOVEN, A. C. 2011. A report on a heritage impact assessment for the proposed establishment of the Noordheuwel Extension 22 Township on Portion

138 of Paardeplaats 177 IQ Krugersdorp, Gauteng. Prepared for Mr.Rocky Warby. No sites, features or objects of a heritage nature or significance were found.

- VAN DER WALT, J. 2011. Heritage Scoping Report for the proposed bird hide and hiking trail, Maropeng Visitors Centre, Krugersdorp. Prepared for La Terra Earth Sciences (Pty) Ltd. No heritage resources will be adversely affected by the proposed development.
- FOURIE, W. 2015. The Rand en Dal Ext13 proposed development on Portion 29 of the Farm Paardeplaats 177 IQ, Krugersdorp, Mogale City District, Gauteng Province. Prepared for Singisa Environmental. During the heritage study, a total of 13 heritage sites were identified including ceremonial spaces, remains of mining and prospecting, a cemetery and the main farmstead with dwellings.
- MILLER, S. 2016. Farmyard On Portion 216 Of Paardekraal 177 IQ, Proteadal Extention 1. Mogale City/Krugersdorp, Gauteng Province. Prepared for Eco Assessments. A 1930's farmhouse was observed on the property.
- MLILO, T. 2018. Phase 1 archaeological and heritage impact assessment report for proposed Prospecting Right Application with bulk sampling on Portions 4,6&10 of the Farm Zuikerbosfontein 151 Iq and Portion 2,27-29,33,34,36,40-44 of the Farm Koesterfontein 45 Iq, Portion 2&3 of the Farm Migalsood 152 Iq, And Portion 2 Of The Farm Vaalbank 512 Iq situated in the Magisterial District of Krugersdorp In Gauteng Province. Prepared for Joan Construction and Projects (Pty) Ltd and Tau Industries (Pty) Ltd. No archaeological sites were observed.
- COETZEE, T. 2019. Phase 1 Archaeological Impact Assessment for The Isiko Malt Grain Milling Plant on Pt 7 of the Farm Reydal 165 IQ, Krugersdorp, Gauteng. Prepared for Eco Elementum (Pty) Ltd. Ruins were found in the project area dating to about 1944.

6. FIELDWORK FINDINGS

6.1. Introduction

Intensive field surveys of the study area were undertaken on foot by an experienced fieldwork team comprising one archaeologist (Chrene de Bruyn) from PGS. The fieldwork was aimed at locating and documenting sites falling within the study area. The fieldwork was undertaken on Wednesday, 18 March 2020.

The intensive fieldwork resulted in the identification of eight heritage sites. For the purposes of this project, these sites were numbered from LES-01 to LES-8, and comprise the following:

- LES-01 and LES-07: Old farm infrastructure;
- LES-02: Old black homesteads/structures
- LES-03: Old house
- LES-04: Abandoned brick stables
- **LES-05**: Old farm entrance gate
- LES-06 and LES-08: Contemporary structures/buildings

Site distribution maps depicting the respective positions of these eight archaeological and heritage sites appear on subsequent pages.

During the fieldwork, hand-held GPS devices were used to record tracklogs. These recorded track logs show the routes followed by the fieldwork team on site. The recorded tracklogs are also shown on maps depicted on the subsequent pages.



Figure 23 – QGIS map depicting the study area boundaries in green with the recorded tracklogs in blue.

6.2. Fieldwork Findings

6.2.1 LES-01

Site Coordinates:

S 26° 01'53.37" E 27°46'47.73"

Site Description:

An old stone ramp most likely used for the loading of cattle during the previous farming activities was found in the north-eastern section of the project area (Figure 24 to Figure 25). No other farming infrastructure was found near or around site LES-01. The ramp was overgrown with grass indicating that it has not been used for some time.

Site Extent:

The site is approximately 3m x 3.5m in extent.

Site Significance:

The site is provisionally rated as **not conservation worthy (NCW)** as it has **no research potential or is it of other cultural significance.**

Impact Assessment and Mitigation:



Figure 24 - View of the stone ramp as seen from the north.



Figure 25 - View of the stone ramp as seen from the west.

6.2.2. LES-02

Site Coordinates:

S 26° 02'01.04" E 27°46'47.36"

Site Description:

An old stone building was found in the south-eastern corner of the project area. The walls and roof of the building have collapsed (Figure 26 to Figure 28). The structure consists of rocks packed on top of each other to form walls, as well as openings for windows and doors. The site comprises possibly of the remains of a historic black homestead. The site was depicted as a farmstead-related structure on the 2627BB Roodepoort Topographic map dating to 1954. (Figure 29). As such the stone house may date to around 1954.

Past experience has shown that in some cases stillborn babies and young children were buried near such black homesteads. These stillborn babies and young children were frequently buried 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.

Site Extent:

The site is 5m x 5m in extent

Site Significance:

Structures older than 60 years are generally protected under Section 34 of the NHRA 25 of 1999. Although the old stone house is unique in terms of its vernacular and unique building materials, it has been abandoned and is in a dilapidated state.

Until such time that the presence of graves here 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. However, the presence of graves at the site has not yet been confirmed, with

only the risk for the presence of such unmarked and marked graves at the site currently identified. The site is of **Generally Protected B (GP. B)** or **Medium to High Significance**. This indicates that the site may not be impacted upon without prior mitigation.

Impact Assessment and Mitigation:

See Chapter 7 for impact assessment calculations and Chapter 8 for required mitigation measures.



Figure 26 - General view of LES-02



Figure 27 - View of the walls and opening for doors



Figure 28 - View of the thickness of some of the walls



Figure 29 - 2627BB Roodepoort Topographic map dating to 1954 indicating the presence of a structure near the location of LES-02

6.2.3. LES-03

Site Coordinates:

S 26° 01'59.50" E 27°46'43.46"

Site Description:

An old house with a corrugated iron roof was identified 120m west of LES-02 next to a dirt road. The roof of the house has collapsed, and the windows of the house have been broken (according to the landowner by some children who were playing in the area). According to the landowner, since 2000, the building was used for night security guards to stay in, but it is currently unoccupied (Figure 30 to Figure 32). On the 2627BB Roodepoort Topographic map dating to 1977, a structure is depicted at the location of LES-03 (Figure 34). As such the building is relatively dated to 1977.

On the 2627BB Roodepoort Topographic map dating to 1954, a hut is depicted close to the location of LES-03 (Figure 33). However, no structural remains or evidence of the hut was found during the survey.

Site Extent:

The site is 7m x 8m in extent.

Site Significance:

Form the architecture and information gathered from the Topographic map, the old house is dated to be younger than 60 years and it does not have any heritage significance. The site is provisionally rated as **NCW** as it has **no research potential or is it of other cultural significance**.

Impact Assessment and Mitigation:



Figure 30 – View of the south-east corner of LES-03.



Figure 31 – View of the south-west corner of LES-03.



Figure 32 - Broken windows of the house.



Figure 33 - 2627BB Roodepoort Topographic map dating to 1977 indicating the presence of a structure at the location of LES-03.



Figure 34 - 2627BB Roodepoort Topographic map dating to 1954 indicating the presence of a hut near the location of LES-03. No remains of the hut were found during the survey.

6.2.4. LES-04

Site Coordinates:

S 26° 01'57.56" E 27°46'41.44"

Site Description:

A brick stable was identified 70m west of LES-03. The architecture indicates that the stables are contemporary (Figure 35 to Figure 36).

A structure is indicated on 2627BB Roodepoort Topographic map dating to 2002 in the location of LES-04. As such the stables may date to around 2002 (Figure 37).

Site Extent:

The stables are 15m by 31m in extent.

Site Significance:

The stables are younger than 60 years and it does not have any heritage significance. The site is provisionally rated as **NCW** as it has **no research potential or is it of other cultural significance**.

Impact Assessment and Mitigation:



Figure 35 – View of the stables at LES-04.



Figure 36 - View of the south-western corner of the stables.



Figure 37 - 2627BB Roodepoort Topographic map dating to 2002 indicating the presence of structures near the location of sites LES-03 and LES-04.

6.2.5. LES-05

Site Coordinates:

S 26° 01'58.43"S E 27°46'39.68"E

Site Description:

The old entrance gate to the farm is located to the south-west of the stables (LES-04). It consists of a wall made of red brick (Figure 38 to Figure 39). The word 'Reef Training Centre' is written on it. According to the landowner, the farm previously belonged to the Phalaborwa Foundation. The Reef Training Centre' was used to train artisans and chefs.

Site Extent:

The wall is approximately 100m long.

Site Significance:

The old Farm entrance gate is contemporary and younger than 60 years. It does not have any heritage significance. The site is provisionally rated as **NCW** as it has **no research potential or is it of other cultural significance**.

Impact Assessment and Mitigation:



Figure 38 - View of the Old farm entrance gate at site LES-05.



Figure 39 - View of the trees next to the the Old farm entrance gate at LES-05.

6.2.6. LES-06

Site Coordinates:

S 26° 1'57.42" E 27°46'40.24"

Site Description:

Two smaller buildings were observed 30m west of the stables (LES-04). It is possible that the smaller buildings were used as offices or a reception area associated with the stables (Figure 40).

Site Extent:

The site is 12m x 5m in extent.

Site Significance:

The two smaller buildings are younger than 60 years and do not represent any unique features that should be preserved. Thus, they have no heritage significance. The site is provisionally rated as **NCW** as it has **no research potential or is it of other cultural significance**.

Impact Assessment and Mitigation:



Figure 40 - View of site LES-06.

6.2.7. LES-07

Site Coordinates:

S 26° 01'51.17" E 27°46'41.24"

Site Description:

A cattle water trough was observed in the north-western section of the project area (Figure 41). The trough is associated with previous farming activities.

Site Extent:

The cattle trough is 1m x 5m in extent.

Site Significance:

Although this trough is likely to be older than 60 years and generally protected under Section 34 of the NHRA 25 of 1999, it does not represent any unique features that should be preserved. Thus, the site is provisionally rated as **NCW** as it has **no research potential or of other cultural significance**.

Impact Assessment and Mitigation:



Figure 41 – View of the water trough at site LES-07.

6.2.8. LES-08

Site Coordinates:

S 26° 01'55.52" E 27°46'36.55"

Site Description:

A contemporary house was observed south-western corner of the project area. The house is contemporary and appears to be unoccupied (Figure 42 to Figure 43).

From the 2627BB Roodepoort Topographic map dating to 2007, no structure or building is indicated in the location of LES-06. However, a Google image from 2008 shows the presence of a house. As such it is possible that the house was constructed between 2007 and 2008 (Figure 44 to Figure 45).

Site Extent:

The site is 8m x 13m in extent.

Site Significance:

The house is younger than 60 years and it does not have any heritage significance. The site is provisionally rated as **NCW** as it has **no research potential or is it of other cultural significance**.

Impact Assessment and Mitigation:



Figure 42 – View of the house found at site LES-08.



Figure 43 - View of the north-western corner of the building at site LES-08.



Figure 44 - 2627BB Roodepoort Topographic map dating to 2007 indicating that there is not a structure near the location of LES-08.



Figure 45 - Google map dating to 2008 indicating a structure near the location of LES-08.
7. ASSESSMENT OF IMPACT OF PROPOSED DEVELOPMENT

7.1 Introduction

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

The following general observations will apply for this impact assessment:

- The impact assessment methodology utilised in this section is outlined and explained in more detail in **Section 3.2** of this report.
- Heritage sites with a Low Significance are not included in these impact risk assessment calculations. The reason for this is that sites of Low Significance will not require mitigation. See sites LES-01, LES-03, LES-04, LES-05, LES-06, LES-07 and LES-08.
- Site LES-02 was identified as a historic black homestead where the risk for unmarked graves exists. As a result, the impact assessment of this site will be handled separately from the impact assessment of the remaining sites.

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

7.2.1. Assessment of the Pre-Mitigation Impact for site LES-02

In this section, the unmitigated impact of the proposed development on the site will be assessed. This site comprises of a historic black homestead (LES-02) located within the proposed development footprint area.

While the structural remains of the homestead have little heritage significance, past experience has shown that in some cases unmarked stillborns, baby and toddler graves were buried in close proximity to such black homesteads. These stillborn, baby and toddler graves were frequently buried along the sides, or underneath, the parents' dwelling. This possible risk is included in the impact assessment calculations shown below.

It is expected that should the development proceed without any mitigation; this site will be destroyed.



IMPACT RISK = 2.4

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	Moderate	Regional	Permanent	Possible	Moderate
Destruction of Historic Black Homestead (LES- 02)	3	4	5	3	2.4

Table 11 - Assessment of Pre-Mitigation Impact on Sites LES-02

This calculation has revealed that the pre-mitigation impact risk of the proposed development for site LES-02 falls within Impact Class 3, which represents a Moderate Impact Risk. As a result, <u>mitigation</u> would be required (refer to Chapter 8).

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

7.3.1 Assessment of the Post-Mitigation Impact for site LES-02

In this section, the post-mitigation impact of the proposed development on this site will be assessed. This sits comprise of a historic black homestead located within the proposed development footprint areas. The risk exists for unmarked graves to be buried at these sites.

The required mitigation measures for this site is provided in **Chapter 8**.

The calculations undertaken below surmises that these mitigation measures have been undertaken successfully.



IMPACT RISK = 1.33

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	Medium	Local	Long-Term	Unlikely	Low
Destruction of Historic Black Homestead (LES- 02)	3	3	4	2	1.33

Table 12 - Assessment of Post-Mitigation Impact on sites LES-02

This calculation has revealed that the post-mitigation impact risk of the proposed development on this site falls within Impact Class 2, which represents a Low Impact Risk. This means that the successful completion of the proposed mitigation measures is expected to reduce the impact risk from a pre-mitigation level of Moderate to a post-mitigation level of Low.

8. REQUIRED MITIGATION MEASURES

8.1. Introduction

The impact assessment calculations undertaken in the previous chapter have revealed that mitigation measures would be required for all the site groups assessed. In this chapter, the required mitigation measures for these site groups will be outlined.

8.2. Required Mitigation Measures for Identified Heritage Sites

8.2.1. Required Mitigation Measures for Site LES-02

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 would 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 here.

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 mitigation would be required in terms of the possible risk for unmarked stillborn graves, however, the mitigation measures outlined in Outcome 3 would be required for the site's possible graves.

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 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.

The following measures would be required for site LES-02 if,

- The development does not fall within 25m of LES-02, no mitigation is required.
- However, the above-mentioned mitigation measures will be required if any impact occurs within the 25m buffer of the house.

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 and/or measured drawings. The end result would be a site layout plan.
- 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.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1. Introduction

PGS was appointed by Letamo Estate to undertake an AIA which will serve to inform the EIAs for the proposed development on Erf 30 of the Farm Honingklip 178IQ, Letamo Town, MCLM. The project will entail the subdivision and development (12x erven Residential 1, Special for access and access control, and 2x erven Private Open Space) on Erf 30, Letamo Town, Mogale City.

9.2. General Desktop Study

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

9.3. Fieldwork

Intensive field surveys of the study area were undertaken on foot by an archaeologist (Cherene de Bruyn) from PGS. The fieldwork was aimed at locating and documenting sites falling within the proposed development area and was undertaken on Wednesday, 18 March 2020.

The intensive fieldwork resulted in the identification of eight heritage sites. For the purposes of this project, the sites were numbered from LES-01 to LES-8, and comprise of the following:

- LES-01 and LES-07: Old farm infrastructure;
- LES-02: Old black homesteads/structures
- LES-03: Old house
- LES-04: Abandoned brick stables
- LES-05: Old farm entrance gate
- LES-06 and LES-08: Contemporary structures/buildings

9.4. Impact Assessment

All sites identified within the proposed study area were assessed to be fully impacted upon by the

proposed development in the sense that they will be destroyed. Both pre-mitigation and postmitigation impact assessments were undertaken. Please refer **Chapter 7** for the impact assessment calculations. A series of site-specific mitigation measures are outlined in **Chapter 8** of this report.

9.5. Conclusions

While the unmitigated impact of the proposed development is expected to result in Medium/High to Low negative impacts in terms of the identified heritage fabric of the study area, as the resources identified are considered to be not conservation worthy. 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

PREPARERS

This Heritage Impact Assessment was written by the following preparers:

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

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Historical Topographic Maps

All the historic topographical maps used in this report were obtained from the Directorate: National

Geo-spatial Information of the Department of Rural Development and Land Reform in Cape Town.

Google Earth

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

Appendix A

LEGISLATIVE REQUIREMENTS – TERMINOLOGY AND ASSESSMENT CRITERIA

General principles

In areas where there has not yet been a systematic survey to identify conservation worthy places, a permit is required to alter or demolish any structure older than 60 years. This will apply until a survey has been done and identified heritage resources are formally protected.

Archaeological and palaeontological sites, materials, and meteorites are the source of our understanding of the evolution of the earth, life on earth and the history of people. In terms of the heritage legislation, permits are required to damage, destroy, alter, or disturb them. Furthermore, individuals who already possess heritage material, are required to register it. The management of heritage resources is integrated with environmental resources and this means that, before development takes place, heritage resources are assessed and, if necessary, rescued.

In addition to the formal protection of culturally significant graves, all graves which are older than 60 years and are not located in a cemetery (such as ancestral graves in rural areas), are protected. The legislation also protects the interests of communities that have an interest in the graves: they should be consulted before any disturbance takes place. The graves of victims of conflict and those associated with the liberation struggle are to be identified, cared for, protected and memorials erected in their honour.

Anyone who intends to undertake a development must notify the heritage resources authority and, if there is a reason to believe that heritage resources will be affected, an impact assessment report must be compiled at the construction company's cost. Thus, the construction company will be able to proceed without uncertainty about whether work will have to be stopped if an archaeological or heritage resource is discovered.

According to the National Heritage Act (Act 25 of 1999 section 32), it is stated that:

An object or collection of objects, or a type of object or a list of objects, whether specific or generic, that is part of the national estate and the export of which SAHRA deems it necessary to control, may be declared a heritage object, including –

• Objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;

- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video or sound recordings, excluding those that are public records as defined in section 1 (xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996), or in a provincial law pertaining to records or archives; and
- any other prescribed category.

Under the National Heritage Resources Act (Act No. 25 of 1999), provisions are made that deal with and offer protection to, all historic and prehistoric cultural remains, including graves and human remains.

Graves and cemeteries

Graves younger than 60 years fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983) and are under the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning, or in some cases the MEC for Housing and Welfare. Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws, and by-laws must also be adhered to. In order to handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

Graves older than 60 years, but younger than 100 years, fall under Section 36 of Act 25 of 1999

(National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and are under the jurisdiction of the South African Heritage Resources Agency (SAHRA). The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in the category located inside a formal cemetery administrated by a local authority will also require the same authorisation as set out for graves younger than 60 years, over and above SAHRA authorisation.

If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws, and by-laws set by the cemetery authority must be adhered to.

Appendix B

CURRICULUM VITAE

PROFESSIONAL CURRICULUM

FOR POLKE DOUSSY BIRKHOLTZ

Name: Polke Doussy Birkholtz

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

Place of Tertiary Education & Dates Associated:

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

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

Qualifications:

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

Memberships:

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

Overview of Post Graduate Experience:

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

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

Total Years' Experience: 19 Years

Experience Related to the Scope of Work:

- Polke has worked as a <u>HERITAGE SPECIALIST / ARCHAEOLOGIST / HISTORIAN</u> on more than 300 projects, and acted as <u>PROJECT MANAGER</u> on almost all of these projects. His experience includes the following:
 - Development of New Sedimentation and Flocculation Tanks at Rand Water's Vereeniging Pumping Station, Vereeniging, Gauteng Province. Heritage Impact Assessment for *Greenline*.
 - EThekwini Northern Aqueduct Project, Durban, KwaZulu-Natal. Heritage Impact Assessment for *Strategic Environmental Focus*.
 - Johannesburg Union Observatory, Johannesburg, Gauteng Province. Heritage Inventory for *Holm Jordaan*.
 - Development at Rand Water's Vereeniging Pumping Station, Vereeniging, Gauteng Province. Heritage Impact Assessment for *Aurecon*.
 - Comet Ext. 8 Development, Boksburg, Gauteng Province. Phase 2 Heritage Impact Assessment for *Urban Dynamics*.
 - Randjesfontein Homestead, Midrand, Gauteng Province. Baseline Heritage Assessment with Nkosinathi Tomose for Johannesburg City Parks.
 - Rand Leases Ext. 13 Development, Roodepoort, Gauteng Province. Heritage Impact Assessment for *Marsh*.
 - Proposed Relocation of the Hillendale Heavy Minerals Plant (HHMP) from Hillendale to
 Fairbreeze, KwaZulu-Natal. Heritage Impact Assessment for *Goslar Environmental*.
 - Portion 80 of the farm Eikenhof 323 IQ, Johannesburg, Gauteng Province. Heritage Inventory for *Khare Incorporated*.
 - Comet Ext. 14 Development, Boksburg, Gauteng Province. Heritage Impact Assessment for *Marsh*.
 - Rand Steam Laundries, Johannesburg, Gauteng Province. Archival and Historical Study for *Impendulo* and *Imperial Properties*.
 - Mine Waste Solutions, near Klerksdorp, North West Province. Heritage Inventory for AngloGold Ashanti.

- Consolidated EIA and EMP for the Kroondal and Marikana Mining Right Areas, North West Province. Heritage Impact Assessment for *Aquarius Platinum*.
- Wilkoppies Shopping Mall, Klerksdorp, North West Province. Heritage Impact Assessment for *Center for Environmental Management*.
- Proposed Vosloorus Ext. 24, Vosloorus Ext. 41 and Vosloorus Ext. 43 Developments, Ekurhuleni District Municipality, Gauteng Province. Heritage Impact Assessment for Enkanyini Projects.
- Proposed Development of Portions 3, 6, 7 and 9 of the farm Olievenhoutbosch 389 JR,
 City of Tshwane Metropolitan Municipality, Gauteng Province. Heritage Impact
 Assessment for *Marsh*.
- Proposed Development of Lotus Gardens Ext. 18 to 27, City of Tshwane Metropolitan Municipality, Gauteng Province. Heritage Impact Assessment for *Pierre Joubert*.
- Proposed Development of the site of the old Vereeniging Hospital, Vereeniging, Gauteng
 Province. Heritage Scoping Assessment for *Lekwa*.
- Proposed Demolition of an Old Building, Kroonstad, Free State Province. Phase 2
 Heritage Impact Assessment for *De Beers Consolidated Mines*.
- Proposed Development at Westdene Dam, Johannesburg, Gauteng Province. Heritage
 Impact Assessment for *Newtown*.
- West End, Central Johannesburg, Gauteng Province. Phase 1 Heritage Impact Assessment for the *Johannesburg Land Company*.
- Kathu Supplier Park, Kathu, Northern Cape Province. Heritage Impact Assessment for *Synergistics*.
- Matlosana 132 kV Line and Substation, Stilfontein, North West Province. Heritage Impact Assessment for Anglo Saxon Group and Eskom.
- Marakele National Park, Thabazimbi, Limpopo Province. Cultural Resources Management Plan for *SANParks*.
- Cullinan Diamond Mine, Cullinan, Gauteng Province. Heritage Inventory for Petra Diamonds.
- Highveld Mushrooms Project, Pretoria, Gauteng Province. Heritage Impact Assessment for *Mills & Otten*.
- Development at the Reserve Bank Governor's Residence, Pretoria, Gauteng Province.
 Archaeological Excavations and Mitigation for the *South African Reserve Bank*.
- Proposed Stones & Stones Recycling Plant, Johannesburg, Gauteng Province. Heritage Scoping Report for *KV3*.

- South East Vertical Shaft Section of ERPM, Boksburg, Gauteng Province. Heritage Scoping Report for *East Rand Proprietary Mines*.
- Proposed Development of the Top Star Mine Dump, Johannesburg, Gauteng Province.
 Detailed Archival and Historical Study for *Matakoma*.
- Soshanguve Bulk Water Replacement Project, Soshanguve, Gauteng Province. Heritage
 Impact Assessment for *KWP*.
- Biodiversity, Conservation and Participatory Development Project, Swaziland. Archaeological Component for *Africon*.
- Camdeboo National Park, Graaff-Reinet, Eastern Cape Province. Cultural Resources Management Plan for SANParks.
- Main Place, Central Johannesburg, Gauteng Province. Phase 1 Heritage Impact Assessment for the *Johannesburg Land Company*.
- Modderfontein Mine, Springs, Gauteng Province. Detailed Archival and Historical Study for *Consolidated Modderfontein Mines*.
- Proposed New Head Office for the Department of Foreign Affairs, Pretoria, Gauteng
 Province. Heritage Impact Assessment for *Holm Jordaan Group*.
- Proposed Modification of the Lukasrand Tower, Pretoria, Gauteng Province. Heritage Assessment for IEPM.
- Proposed Road between the Noupoort CBD and Kwazamukolo, Northern Cape Province.
 Heritage Impact Assessment for *Gill & Associates*.
- Proposed Development at the Johannesburg Zoological Gardens, Johannesburg,
 Gauteng Province. Detailed Archival and Historical Study for *Matakoma*.

• Polke's KEY QUALIFICATIONS:

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

• Polke's INFORMATION TECHNOLOGY EXPERIENCE:

• MS Office – Word, Excel, & Powerpoint

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

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

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PD Birkholtz

<u>3 April 2020</u>

Date

PROFESSIONAL CURRICULUM FOR CHERENE DE BRUYN

Name:	Cherene de Bruyn
Profession:	Archaeologist
Date of Birth:	1991-03-01
Parent Firm:	PGS Heritage (Pty) Ltd
Position in Firm:	Archaeologist
Years with Firm:	3 Months
Years' experience:	2
Nationality:	South African
HDI Status:	White Female

EDUCATION:

Name of University or Institution	:	University of Pretoria
Degree obtained:	:	BA
Major subjects	:	Archaeology and Anthropology
Year	:	2010-2012
Name of University or Institution	:	University of Pretoria
Degree obtained	:	BA (Hons)
Major subjects	:	Archaeology
Year	:	2013
Name of University or Institution	:	University of Pretoria
Degree obtained	:	BSc (Hons)
Major subjects	:	Physical Anthropology
Year	:	2015
Name of University or Institution	:	University College London
Degree obtained	:	MA
Major subjects	:	Archaeology
Year	:	2016/2017

Professional Qualifications:

Association of Southern African Professional Archaeologists - Professional Member (#432) International Association for Impact Assessment South Africa - Member (#6082) Association of Southern African Professional Archaeologists - CRM Accreditation

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

Languages:

Afrikaans and English

KEY QUALIFICATIONS

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

Summary of Experience

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

Involvement with various Heritage Impact Assessments, within South Africa

• Heritage Impact Assessments for various projects

HERITAGE ASSESSMENT PROJECTS

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

- Piggery On Portion 46 Of The Farm Brakkefontien 416, Heritage Impact Assessment, Nelson Mandela Bay Municipality, Eastern Cape.
- Upgrade Of Road D4407 Between Hluvukani And Timbavati, Road D4409 At Welverdiend And Road D4416/2 Between Welverdiend And Road P194/1, Heritage Impact Assessment, Bohlabela Region, Mpumalanga Province.
- Rapid Land Release Programme for the Gauteng Department of Human Settlement: Rietfontein Site, Heritage Impact Assessment, Lenasia, Gauteng Province.
- Heritage Impact Assessment for the proposed piggery on Portion 46 of the Farm Brakkefontien 416, within the Nelson Mandela Bay Municipality, Eastern Cape Province.

- Heritage Impact Assessment for the the proposed Rapid Land Release Programme for the Gauteng Department of Human Settlement: Rietfontein Site, Gauteng Province.
- Heritage Impact Assessment for the proposed Prospecting Right Application on the Farm Reserve No 4 15823 And 7638/1, near St Lucia, within the jurisdiction of the Mfolozi Local Municipality in the King Cetshwayo District Municipality, KwaZulu-Natal Province.
- Heritage Public Participation report for the proposed alterations Of Erf 1/966 Rosettenville or 94 Main Street Rosettenville within the City Of Johannesburg Metropolitan Municipality, Gauteng Province.
- Heritage Impact Assessment for the proposed mining rights on the Farm Waterkloof 95 located between Griekwastad and Groblershoop in the Pixley Ka Seme District Municipality within the Northern Cape Province.
- Heritage Impact Assessment for the proposed East Coast Gas 400 Kv Power Lines, located in Richards Bay, within the Umhlathuze Local Municipality in the King Cetshwayo District Municipality in the Kwazulu-Natal Province.
- Heritage Impact Assessment for the amendment of an existing prospecting right and environmental authorization for Bothaville NE Ext A, situated in the Free State Province.
- Heritage Impact Assessment Study for the Proposed New Lambano Sub Acute Facility on Stand 5454, 5455, 5456,5457 and New Training Facility on Stands 5458 and 5460 in Kensington, Johannesburg.
- Heritage Impact Assessment for the Prospecting Right and Environmental Authorization Application for Ventersburg B situated in the Free State Province.
- Heritage Impact Assessment for the proposed prospecting rights application and environmental authorisation for the farm Three Sisters in Barberton, within the city of Mbombela Local District, Mpumalanga.
- Heritage Impact Assessment and Integrated Cultural Resources Management Study for The Proposed Mfolozi-Mbewu 765kv Transmission Line, Zululand And King Cetshwayo District Municipality, KwaZulu-Natal.
- Heritage Impact Assessment the prospecting right and environmental authorisation application for Vredefort West situated in the Free State Province.

GRAVE RELOCATION PROJECTS

Below, a selection of grave relocation projects involvement:

 Relocation Of Approximately 4 Stillborn Graves From Farm Wonderfontein 428 Js, Umsimbithi Mining (Pty) Ltd, Belfast, Chief Albert Luthuli Local Municipality, Mpumalanga Province.

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

EMPLOYMENT SUMMARY:

Positions Held

- 2020 to date: Archaeologist PGS Heritage
- 2019: Manager of the NGT ESHS Heritage Department NGT Holding
- 2018 2019: Archaeologist and Heritage Consultant NGT Holdings
- 2015-2016: Archaeological Contractor BA3G, University of Pretoria
- 2014 2015: DST-NRF Archaeological Intern, Forensic Anthropological Research Centre

I, Cherene de Bruyn, hereby confirm that the above information contained in my CV is true and correct.

Dereret

C. de Bruyn

<u>3 April 2020</u>

Date