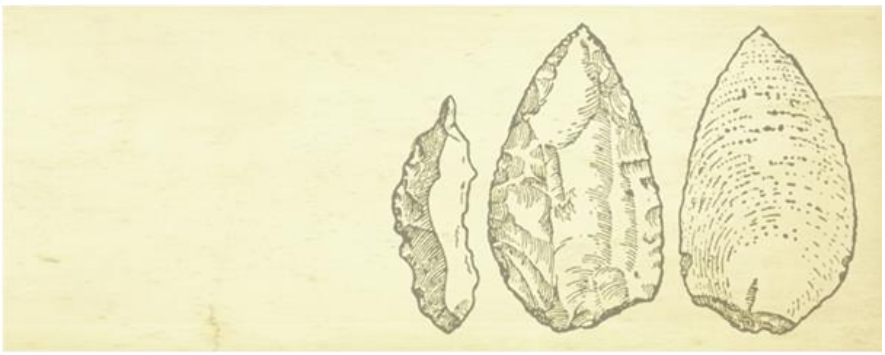


PHASE 1 HIA REPORT MOSALA HOUSE DINGLETON KUMBA/SISHEN GAMAGARA

ASSESSMENT OF SIGNIFICANCE OF THE "MOSALA HOUSE" SITUATED ON THE FARM GAMAGARA NO 541 PORTION 2/12, DINGLETON, KUMBA IRON ORE MINE, IN THE GAMAGARA LOCAL MUNICIPALITY, JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY, NORTHERN CAPE.

SAHRIS CaseID: 4320

PREPARED FOR:

KUMBA IRON ORE (SISHEN IRON ORE COMPANY (PTY) LTD)

AngloAmerican

PREPARED BY:

HEIDI FIVAZ

UBIQUE HERITAGE CONSULTANTS

Vendor Number: A08085

13 DECEMBER 2021

Web: www.ubiquecrm.com **Mail**: info@ubiquecrm.com

CSD Supplier Number MAAA0586123

Client: KUMBA IRON ORE (SISHEN IRON ORE COMPANY (PTY) LTD)

Contact Person: **Andrew Nkhoma**
E-mail: andrew.nkhoma@angloamerican.com
Johan Bloemhof
E-mail: johan.bloemhof@angloamerican.com

Heritage Consultant: **UBIQUE Heritage Consultants**
www.ubiquecrm.com
info@ubiquecrm.com

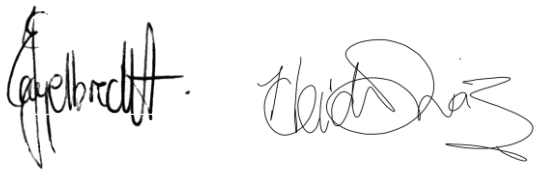
Contact Person: **Heidi Fivaz** (CRM archaeologist Field Director)
Member of the Association of Southern African Professional Archaeologists: Member number: 433
Email: heidi@ubiquecrm.com

Jan Engelbrecht (CRM archaeologist Field Supervisor)
Member of the Association of Southern African Professional Archaeologists: Member number: 297
Email: jan@ubiquecrm.com

Declaration of independence:

We, Heidi Fivaz and Jan Engelbrecht, archaeologists at UBIQUE Heritage Consultants, hereby confirm our independence as heritage specialists and declare that:

- we are suitably qualified and accredited to act as independent specialists in this application;
- we do not have any vested interests (either business, financial, personal or other) in the proposed development project other than remuneration for the heritage assessment and heritage management services performed;
- the work was conducted in an objective and ethical manner, in accordance with a professional code of conduct and within the framework of South African heritage legislation.



Signed: **Date: 2021-12-13**

J.A.C. Engelbrecht & H. Fivaz

UBIQUE Heritage Consultants

SUMMARY OF SPECIALIST EXPERTISE

HEIDI FIVAZ

CRM ARCHAEOLOGIST & OBJECT CONSERVATOR

Heidi Fivaz has been a part of UBIQUE Heritage Consultants since 2016 and took over ownership in 2018. She is responsible for project management, surveys, research and report compilation. She holds a B.Tech. Fine Arts degree (2000) from Tshwane University of Technology, a BA Culture and Arts Historical Studies degree (2012) from UNISA and received her BA (Hons) Archaeology in 2015 (UNISA). She has received extensive training in object conservation from the South African Institute of Object Conservation and specialises in glass and ceramics conservation. She is also a skilled artefact and archaeological illustrator. Ms Fivaz was awarded her MA in Archaeology (with distinction) in 2021 by the University of South Africa (UNISA), focusing on historical and industrial archaeology. She is a professional member of the Association of South African Archaeologists with CRM accreditation and has worked on numerous archaeological excavation and surveying projects over the past ten years.

JAN ENGELBRECHT

CRM ARCHAEOLOGIST

Jan Engelbrecht is accredited by the Cultural Resources Management section of the Association of Southern African Professional Archaeologists (ASAPA) to undertake Phase1 AIAs and HIAs in South Africa. He is also a member of the Association for Professional Archaeologists (ASAPA). Mr Engelbrecht holds an honours degree in archaeology (specialising in the history of early farmers in southern Africa (Iron Age) and Colonial period) from the University of South Africa. He has 12 years of experience in heritage management. He has worked on projects as diverse as the Zulti South HIA project of Richards Bay Minerals, research on the David Bruce heritage site at Ubombo in Kwa-Zulu Natal, and various archaeological excavations and historical projects. He has worked with many rural communities to establish integrated heritage and land use plans and speaks Zulu fluently. Mr Engelbrecht established Ubique Heritage Consultants in 2012. The company moved from KZN to the Northern Cape and is currently based at Askham in the Northern Cape within the Mier local municipality in the Kgalagadi region. He had a significant military career as an officer, whereafter he qualified as an Animal Health Technician at Technikon RSA and UNISA. He is currently studying for his MA Degree in Archaeology.

SKY-LEE FAIRHURST

ARCHAEOLOGIST

Sky-Lee Fairhurst has been informally part of UBIQUE Heritage Consultants since 2019. She is responsible for research and desktop studies. Miss Fairhurst obtained her BA in Archaeology and Biblical archaeology in 2016 and her BA Hons in Archaeology (*cum laude*) at the University of South Africa (UNISA) in 2018, focussing on research themes such as gender, households and Late Iron Age settlements. She is currently pursuing her interest in southern African agropastoral societies as an MA Archaeology student at the University of South Africa (UNISA). She is skilled at artefacts and archaeological illustrations. Over the past nine years, she has obtained considerable excavation experience and has worked on various sites, including Historical, Iron Age sites and Palaeontological.

EXECUTIVE SUMMARY

Project description

UBIQUE Heritage Consultants were appointed by KUMBA IRON ORE (SISHEN MINE) to assess the historical significance of the farmhouse, known as the "Mosala House", situated on the Farm Gamagara No 541 Portion 2/12, Dingleton, Kumba Iron Ore (Sishen) Mine, in the Gamagara Local Municipality, John Taolo Gaetsewe District Municipality, Northern Cape. The structure is earmarked for demolition. The project continues the Dingleton Resettlement Project, SAHRIS CaseID: 4320.

Findings and Impact on Heritage Resources

UBIQUE Heritage Consultants visited the site on 7th December 2021. The study area has been subject to various anthropogenic and animal disturbances. The property section where the house is located is currently used for small-scale livestock farming. The approximate 140m^2 structure is typical of the post-war early 20th-century farm buildings of the Northern Cape. The bungalow-type square house with pitched corrugated-iron roof and the pillared veranda was initially constructed with cement and stone foundation and vitrified mud bricks. The original structure's building style, technique, and material align with similar buildings dating from mid-1940 to the 1950s. However, additions were added to the back of the house with modern bricks and a flat corrugated-iron roof. The continued "renovations" to architectural features compromised the integrity and significance of the original structure.

The area around the structure has some old cement and stone foundations, but these have been broken down and stripped of re-usable building material. No other indication of significant historical, cultural material was observed. The majority of the cultural debris littered horizontally across the site post-dates the 1960s.

We found that the structure has no heritage, historical or cultural significance, apart from being ***older than 60 years****.*

Recommendations

According to the NHRA (National Heritage Resources Act of 1999), Section 34 states that:

- *34. (1) 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.*

Therefore the following conclusions apply:

1. The house is NCW (Not Conservation Worthy) and is awarded a field rating of IVC (the structure is deemed of low significance, and Phase 1 is considered sufficient recording of said structure, and it may be demolished).

2. Before the structure can be destroyed, an application for a demolition permit must be submitted to SAHRA (South African Heritage Authority). Notices from SAHRA state that permit applications related to sections 27, 32, 34, 35, and 36 will close on the 1st December 2021 and reopen on the 3rd January 2022. Therefore, any permit applications submitted to SAHRA from the 2nd December 2021 will be processed from the 4th January 2022.

3. The survey and heritage assessment focus on the house and immediate yard space, and the results from the field survey are reflected in the report and permit application. Full HIA/AIA/PIAs (AGES 2011; Fourie 2021; Miller 2020) have previously been conducted on the larger area in which the house is located. Therefore, we recommend that this project be exempt from further specialist studies, as no excavations will be part of the surface demolition methods of the structure.

4. Hidden or sub-surface sites may exist in the area, although doubtful. We recommend that if any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are uncovered during the site clearing and demolition phase, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. If unmarked human burials are discovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490) must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist or palaeontologist must be contracted as soon as possible to inspect the findings. If the newly unearthed heritage resources are of high significance, a Phase 2 rescue operation may be required with permits issued by SAHRA. UBIQUE Heritage Consultants and its personnel will not be held liable for such oversights or costs incurred as a result of such oversights.

TABLE OF CONTENTS

TABLE OF FIGURES

ABBREVIATIONS

AIA:	Archaeological Impact Assessment
ASAPA:	Association of South African Professional Archaeologists
CRM:	Cultural Resource Management
EIA:	Early Iron Age
EMP:	Environmental Management Plan
ESA:	Earlier Stone Age
GPS:	Global Positioning System
HIA:	Heritage Impact Assessment
HWC:	Heritage Western Cape
IA:	Iron Age
IMP:	Integrated Management Plan
LSA:	Later Stone Age
MIA:	Middle Iron Age
MSA:	Middle Stone Age
NBKB:	Ngwao-Boswa Jwa Kapa Bokone (Northern Cape PHRA)
NHRA:	National Heritage Resources Act
PHRA:	Provincial Heritage Resource Agency
SADC:	Southern African Development Community
SAHRA:	South African Heritage Resources Agency
SAHRIS:	South African Heritage Resources Information System

GLOSSARY

Archaeological:	Material remains resulting from human activity in a state of disuse, older than 100 years, including artefacts, human and hominid remains and artificial features and structures.
Historic building:	Structures 60 years and older.
Heritage:	That which is inherited and forms part of the National Estate (historic places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).
Heritage resources:	Valuable, finite, non-renewable and irreplaceable resources that provide evidence of the origins of South African society
Mitigation:	Anticipating and preventing adverse impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.
'Public monuments:	All monuments and memorials, erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government; or – which were paid for by public subscription, government funds, or a public-spirited or military organisation and are on land belonging to any private individual.
'Structures':	Any building, works, device or other facility made by people, and which are fixed to land, and include any fixtures, fittings and equipment associated therewith.

1. INTRODUCTION

1.1 Scope of study

The project involves the assessment of the historical significance of the farmhouse, known as the "Mosala House", situated on the Farm Gamagara No 541 Portion 2/12, Dingleton, Kumba Iron Ore (Sishen) Mine, in the Gamagara Local Municipality, John Taolo Gaetsewe District Municipality, Northern Cape. The structure is earmarked for demolition. The project is an extension of the Dingleton Resettlement Project, SAHRIS CaseID: 4320. UBIQUE Heritage Consultants were appointed by Kumba Iron Ore (Sishen Iron Ore Mine Pty Ltd) to inspect the structure in compliance with Section 34 of NHRA (National Heritage Resources Act 25 of 1999),

The assessment aims to assess the date and significance of the structure and identify and report any heritage resources that may be associated with the structure; to determine the impact of the proposed development on any sites, features, or objects of cultural heritage significance; to assess the significance of any identified resources; and to assist the developer in managing the documented heritage resources in an accountable manner, within the framework provided by the National Heritage Resources Act (Act 25 of 1999) (NHRA).

South Africa's heritage resources are rich and widely diverse, encompassing sites from all periods of human history. Resources may be tangible, such as buildings and archaeological artefacts, or intangible, such as landscapes and living heritage. Their significance is based on their aesthetic, architectural, historical, scientific, social, spiritual, linguistic, economic or technological values; their representation of a time or group; their rarity; and sphere of influence.

Natural (e.g. erosion) and human (e.g. development) activities can jeopardise the integrity and significance of heritage resources. In the case of human activities, a range of legislation exists to ensure the timeous and accurate identification and effective management of heritage resources for present and future generations.

The result of this investigation is presented within this heritage impact assessment report. It comprises the recording of heritage resources present/ absent and offers recommendations for managing these resources within the context of the proposed development.

Depending on SAHRA's acceptance of this report, the developer will receive permission to proceed with the proposed demolition, considering any proposed mitigation measures.

1.2 Assumptions and limitations

It is assumed that the description of the proposed project, as provided by the client, is accurate. Furthermore, it is assumed that the public consultation process undertaken as part of the Environmental Impact Assessment (EIA) is comprehensive and does not have to be repeated as part of the heritage impact assessment.

The significance of the sites, structures and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects. Cultural significance is site-specific and relates to the content and context of the site.

All possible care has been taken during the comprehensive field survey and intensive desktop study to identify sites of cultural importance within the development areas. However, it is essential to note that some heritage sites may have been missed due to their subterranean nature or dense vegetation cover. No subsurface investigation (i.e. excavations or sampling) was undertaken since a SAHRA permit is required for such activities. Therefore, should any heritage features and/or objects such as architectural features, stone tool scatters, artefacts, human remains, or fossils be uncovered or observed during construction, operations must be stopped, and a qualified archaeologist contacted for an assessment of the find. 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 the significance of the site (or material) in question.

2. TERMS OF REFERENCE

2.1 Statutory Requirements

2.1.1 General

The principle is that the environment should be protected for present and future generations by preventing pollution, promoting conservation and practising ecologically sustainable development. With regard to spatial planning and related legislation at national and provincial levels, the following legislation may be relevant:

- Physical Planning Act 125 of 1991
- Municipal Structures Act 117 of 1998
- Municipal Systems Act 32 of 2000
- Development Facilitation Act 67 of 1995 (DFA)

The identification, evaluation and management of heritage resources in South Africa are required and governed by the following legislation:

- National Environmental Management Act 107 of 1998 (NEMA)
- KwaZulu-Natal Heritage Act 4 of 2008 (KZNHA)
- National Heritage Resources Act 25 of 1999 (NHRA)
- Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA)

2.1.2 National Heritage Resources Act 25 of 1999

The NHRA established the South African Heritage Resources Agency (SAHRA) together with its Council to fulfil the following functions:

- coordinate and promote the management of heritage resources at the national level;
- set norms and maintain essential national standards for the management of heritage resources in the Republic and to protect heritage resources of national significance;
- control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries;
- enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources; and
- provide for local authorities' protection and management of conservation-worthy places and areas.

2.1.3 Heritage Impact Assessments/Archaeological Impact Assessments

Section 38(1) of the NHRA of 1999 requires **the responsible heritage resources authority to notify the person who intends to undertake a development that fulfils the following criteria to submit an impact assessment report if there is reason to believe that heritage resources will be affected by such event**:

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- the construction of a bridge or similar structure exceeding 50m in length;
- any development or other activity that will change the character of a site—
    - exceeding 5000m² in extent; or
    - involving three or more existing erven or subdivisions thereof; or
    - involving three or more erven or divisions thereof which have been consolidated within the past five years; or
    - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- the rezoning of a site exceeding 10 000m² in extent; or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

2.1.4 Structures older than 60 years

Section 34(1) of the NHRA of 1999 requires 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.**

(2)Within three months of the refusal of the provincial heritage resources authority to issue a permit, consideration must be given to the protection of the place concerned in terms of one of the formal designations provided for in Part 1 of this Chapter.

(3) The provincial heritage resources authority may at its discretion, by notice in the Provincial Gazette, make an exemption from the requirements of subsection (1) within a defined geographical area, or for certain defined categories of site within a defined geographical area, provided that it is satisfied that heritage resources falling into the defined area or category have been identified and are adequately provided for in terms of the provisions of Part 1 of this Chapter.

(4) Should the provincial heritage resources authority believe it to be necessary it may, following a three-month notice period published in the Provincial Gazette, withdraw or amend a notice under subsection (3).

3. STUDY APPROACH AND METHODOLOGY

3.1 Desktop study

The first step in the methodology was to conduct a desktop study of the heritage background of the area and the proposed development site. This entailed the scoping and scanning of historical texts/records as well as previous heritage studies and research around the study area.

The study area is contextualised by incorporating data from previous CRM reports in the area and an archival search. The objective of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves in the area.

No archaeological site data was available for the project area. A concise account of the archaeology and history of the broader study area was compiled (sources listed in the bibliography).

3.1.1 Literature review

A literature survey was undertaken to obtain background information regarding the area. Through researching the SAHRA APM Report Mapping Project records and the SAHRIS online database (http://www.sahra.org.za/sahris), it was determined that several other archaeological or historical studies had been performed within the broader vicinity of the study area. Sources consulted in this regard are indicated in the bibliography.

3.2 Field study

Phase 1 (AIA/HIA) requires the completion of a field study to establish and ensure the following:

3.2.1 Systematic survey

A systematic survey of the proposed project area to locate, identify, record, photograph, and describe archaeological, historical or cultural interest sites were completed.

UBIQUE Heritage Consultants inspected the house on the 7th December 2021 and completed a pedestrian survey of the surrounding yard. This was done with no substantial attempt to clear brush, sand, deadfall, leaves or other material that may cover the surface and with no effort to look beneath the surface beyond the inspection of rodent burrows, cut banks and other exposures fortuitously observed.

The survey was tracked with a handheld Garmin global positioning unit (Garmin eTrex 10).

3.2.2 Recording significant areas

GPS points of identified significant areas were recorded with a handheld Garmin global positioning unit (Garmin eTrex 10). Photographs were taken with a Canon IXUS 185 20-megapixel camera. Detailed field notes were taken to describe observations. The layout of the area and plotted GPS points, tracks and coordinates, were transferred to Google Earth, and QGIS and maps were created.

3.2.3 Definitions of heritage resources

The NHRA defines a heritage resource as any place or object of cultural significance, i.e., aesthetic, architectural, historical, scientific, social, spiritual, linguistic, or technological value or significance. These include, but are not limited to, the following wide range of places and objects:

- living heritage as defined in the National Heritage Council Act No 11 of 1999 (cultural tradition; oral history; performance; ritual; popular memory; skills and techniques; indigenous knowledge systems; and the holistic approach to nature, society and social relationships);
- Ecofacts (non-artefactual organic or environmental remains that may reveal aspects of past human activity; definition used in KwaZulu-Natal Heritage Act 2008);
- places, buildings, structures and equipment;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds;
- public monuments and memorials;
- sites of significance relating to the history of slavery in South Africa;
- movable objects, but excluding any object made by a living person; and
- battlefields.

3.3 Determining significance

Heritage resources are considered of value if the following criteria apply:

a.	It is important in the community or pattern of South Africa's history;
b.	It has uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
c.	It has the potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
d.	It is vital in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
e.	It exhibits particular aesthetic characteristics valued by a community or cultural group;
f.	It is essential in demonstrating a high degree of creative or technical achievement at a particular period;
g.	It has a strong or unique association with a particular community or cultural group for social, cultural or spiritual reasons;
h.	It has a strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
i.	It is of significance relating to the history of slavery in South Africa.

Levels of significance of the various types of heritage resources observed and recorded are determined by the following criteria:

CULTURAL & HERITAGE SIGNIFICANCE	
LOW	A cultural object found out of context, not part of a site or without any related feature/structure in its surroundings.
MEDIUM	Any site, structure or feature is regarded as less important due to several factors, such as date, frequency and uniqueness. Likewise, any important object found out of context.
HIGH	Any site, structure or feature is regarded as important because of its age or uniqueness. Graves are always categorised as of a high importance. Likewise, any important object found within a specific context.

Field Ratings or Gradings are assigned to indicate the level of protection required and who is responsible for national, provincial, or local protection.

FIELD RATINGS & GRADINGS	
National Grade I	Heritage resources with exceptional qualities to the extent that they are of national significance and should therefore be managed as part of the national estate.
Provincial Grade II	Heritage resources with qualities of provincial or regional importance, although they may form part of the national estate, should be managed as part of the provincial estate.
Local Grade IIIA	Heritage resources are of local importance and worthy of conservation. Therefore, it should be included in the heritage register and not be mitigated (high significance).
Local Grade IIIB	Heritage resources are of local importance and worthy of conservation. Therefore, it should be included in the heritage register and mitigated (high/ medium significance).
General Protection Grade IVA	The site/resource should be mitigated before destruction (high/ medium significance).
General protection Grade IVB	The site/resource should be recorded before destruction (medium significance).
General protection Grade IVC	Phase 1 is considered sufficient recording, and it may be demolished (low significance).

3.3.1 Assessment of development impacts

A heritage resource impact may be defined broadly as the net change, either beneficial or adverse, between the integrity of a heritage site with and without the proposed development. Beneficial impacts occur wherever a proposed development actively protects, preserves, or enhances a heritage resource by minimising natural site erosion or facilitating non-destructive public use. More commonly, development impacts are of an adverse nature and can include:

- destruction or alteration of all or part of a heritage site;
- isolation of a site from its natural setting; and / or
- introduction of physical, chemical or visual elements out of character with the heritage resource and its setting.

Beneficial and adverse impacts can be direct or indirect and cumulative, as implied by the examples. Although indirect impacts may be more difficult to foresee, assess and quantify, they must form part of the assessment process. Therefore, the following assessment criteria have been used to assess the impacts of the proposed development on possible identified heritage resources:

CRITERIA	RATING SCALES	NOTES
Nature	POSITIVE	An evaluation of the effect the construction, operation and management of the proposed development would have on the heritage resource.
	NEGATIVE	
	NEUTRAL	
Extent	LOW	Site-specific affects only the development footprint.
	MEDIUM	Local (limited to the site and its immediate surroundings, including the surrounding towns and settlements within a 10 km radius);
	HIGH	Regional (beyond a 10 km radius) to national.
Duration	LOW	0-4 years (i.e. duration of construction phase).
	MEDIUM	5-10 years.
	HIGH	More than 10 years to permanent.
Intensity	LOW	Where the impact affects the heritage resource so that its significance and value are minimally affected.
	MEDIUM	The heritage resource is altered, and its significance and value are measurably reduced.
	HIGH	Where the heritage resource is altered or destroyed to the extent that its significance and value cease to exist.
Potential for impact on irreplaceable resources	LOW	No irreplaceable resources will be impacted.
	MEDIUM	Resources that will be impacted can be replaced with effort.
	HIGH	There is no potential for replacing a particular vulnerable resource that will be impacted.
Consequence	LOW	A combination of any of the following: • Intensity, duration, extent and impact on irreplaceable resources are rated low. • Intensity is low, and up to two of the other criteria are rated medium. • - Intensity is medium, and all three other criteria are rated low.
	MEDIUM	Intensity is medium, and at least two of the other criteria are rated medium.
	HIGH	Intensity and impact on irreplaceable resources are rated high, with any combination of extent and duration. Intensity is rated high, with all the other criteria rated medium or higher.
Probability (the likelihood of the impact occurring)	LOW	It is highly unlikely or less than 50 % likely that an impact will occur.
	MEDIUM	It is between 50 and 70 % certain that the impact will occur.

CRITERIA	RATING SCALES	NOTES
	HIGH	It is more than 75 % certain that the impact will occur, or it is definite that it will occur.
Significance (all impacts including potential cumulative impacts)	LOW	Low consequence and low probability. Low consequence and medium probability. Low consequence and high probability.
	MEDIUM	Medium consequence and low probability. Medium consequence and medium probability. Medium consequence and high probability. High consequence and low probability.
	HIGH	High consequence and medium probability. High consequence and high probability.

3.4 Report

The desktop research and field survey results are compiled in this report. The identified heritage resources and anticipated direct, indirect, and cumulative impacts of the proposed project's development on the identified heritage resources will be presented objectively. Alternatives are offered if any significant sites are impacted adversely by the proposed project. All efforts will be made to ensure that all studies, assessments and results comply with the relevant legislation and the code of ethics and guidelines of the Association of South African Professional Archaeologists (ASAPA). The report aims to assist the developer in managing the documented heritage resources in a responsible manner and protecting, preserving, and developing them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

4. PROJECT OVERVIEW

UBIQUE Heritage Consultants were appointed by KUMBA IRON ORE (SISHEN MINE) to assess the historical significance of the farmhouse, known as the "Mosala House", situated on the Farm Gamagara No 541 Portion 2/12, Dingleton, Kumba Iron Ore (Sishen) Mine, in the Gamagara Local Municipality, John Taolo Gaetsewe District Municipality, Northern Cape. The structure is earmarked for demolition. The project continues the Dingleton Resettlement Project, SAHRIS CaseID: 4320.

The house falls within the blast buffer zone of the new mine expansion, creating a safety issue. According to the Sishen Mine's safety blasting procedures, the minimum clearance and evacuation distance is 1000 m. No person may stay or hide inside equipment, or a shelter in the blasting area whilst blasting occurs. To this end, the town of Dingleton was relocated to Kathu, and the buildings were demolished so that there would be no place unbeknownst to the safety officers someone could be hiding or living. The inhabitants of "Mosala House" are some of the last people from the blast buffer zone to be relocated. The house was not included in the original permit applications of 2014 (Becker 2014). However, the permit motivation did include a photo of the house; it lies beyond Dingleton's town plan.

UBIQUE Heritage Consultants assessed the house to determine its age, historical, and cultural significance and whether Section 34(1) of the NHRA would apply.

4.1 Technical information

PROJECT DESCRIPTION	
Project name	Phase 1 HIA Report Mosala House Dingleton Kumba/Sishen Gamagara
Description	Structure assessment as part of Dingleton Resettlement Project
DEVELOPER	
Kumba Iron Ore (Sishen Iron Ore Mine)	
Development type	Mining
LANDOWNER	
Kumba Iron Ore (Sishen Iron Ore Mine)	
CONSULTANTS	
Environmental	N/A
Heritage and archaeological	UBIQUE Heritage Consultants
Paleontological	N/A
PROPERTY DETAILS	
Province	Northern Cape
District municipality	John Taolo Gaetsewe
Local municipality	Gamagara

Topo-cadastral map	1:50 000 2722DD
Farm name	Gamagara No. 541 Portion 2/12
Closest town	Kathu
GPS Co-ordinates	S 27.80101; E 022.97898
PROPERTY SIZE	970.9642 ha
DEVELOPMENT FOOTPRINT SIZE	140 m²
LAND USE	
Previous	Small-scale livestock farming
Current	Mining Buffer Zone
Rezoning required	No
Sub-division of land	No

Figure 1 *Regional locality of the development footprint, indicated on Google Earth Satellite imagery.*

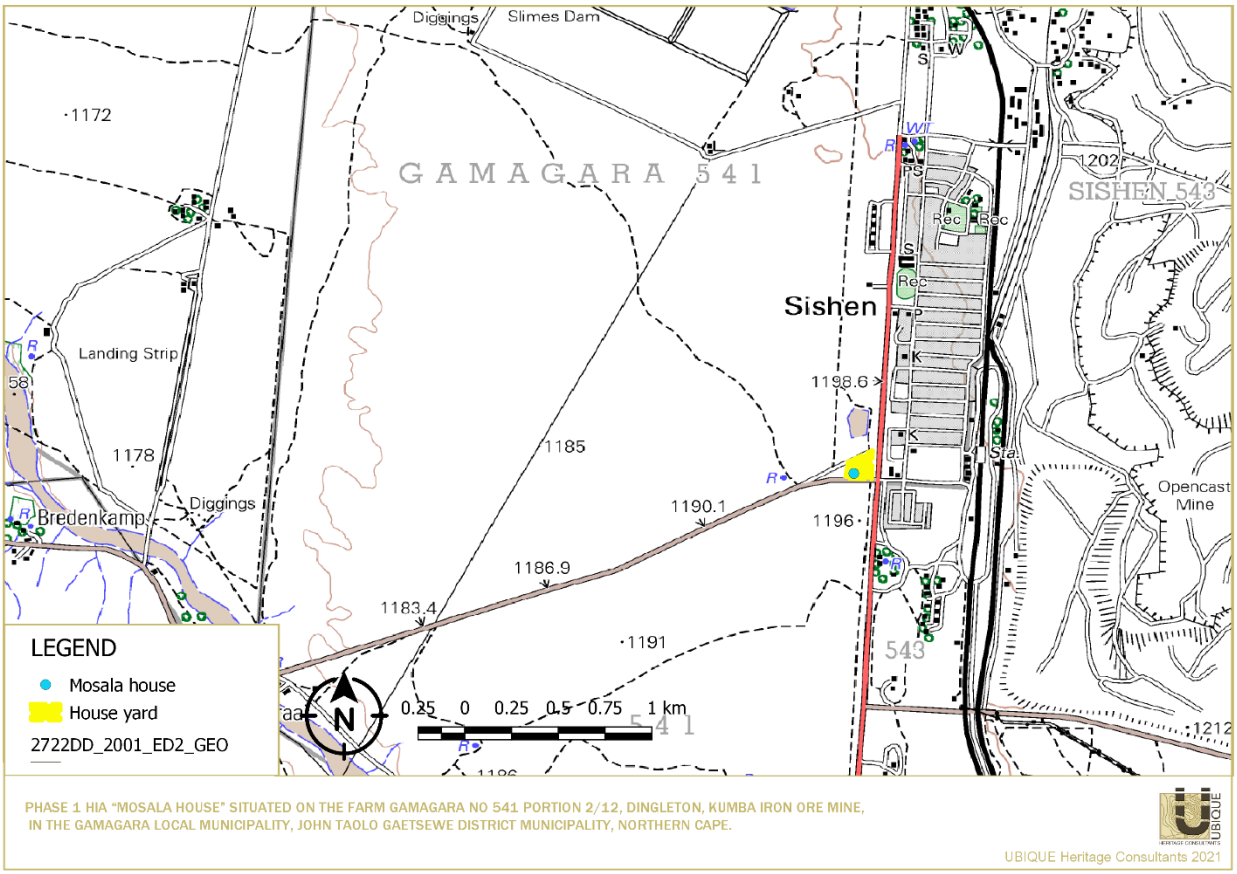


Figure 2 *Locality of the development footprint, indicated on 1: 50 000 2722DD map.*

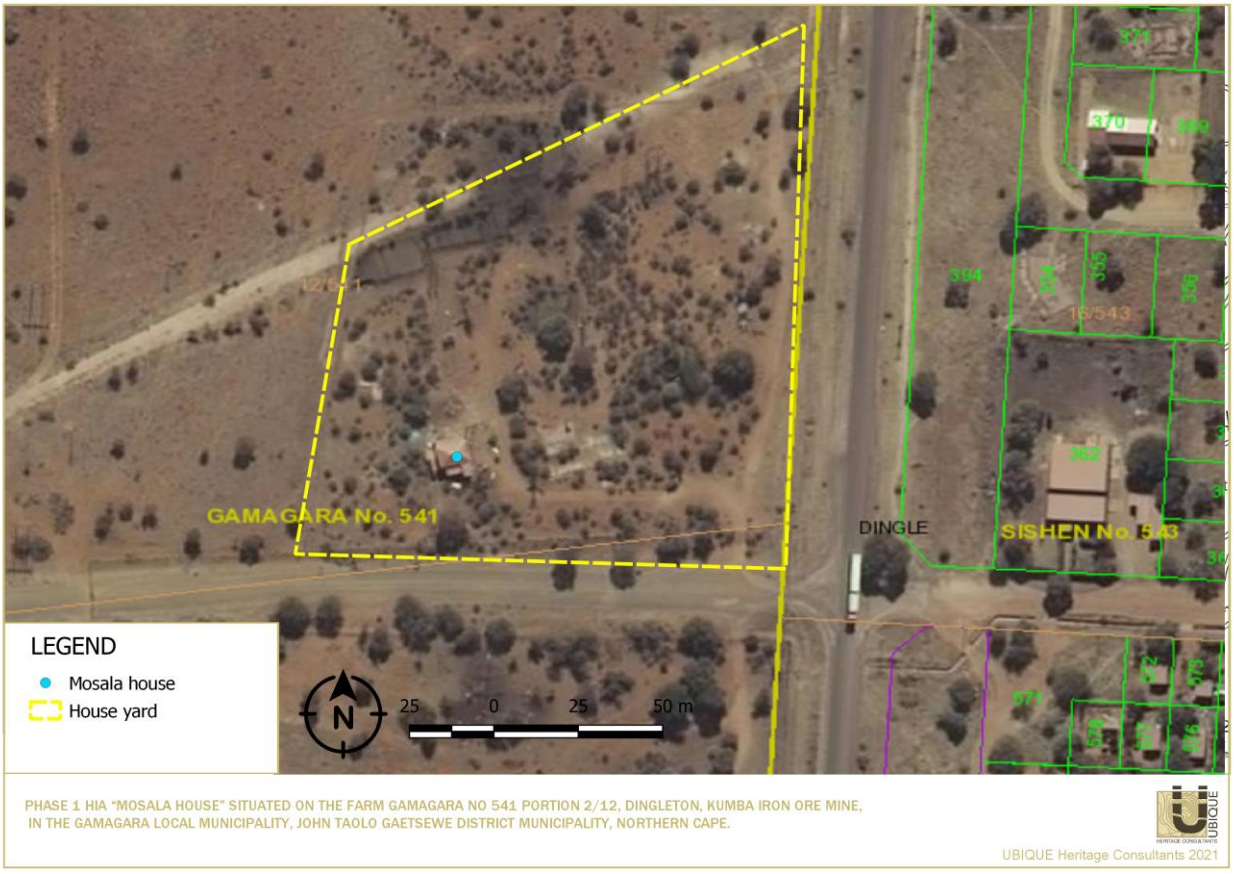


Figure 3 *The house and yard indicated on chief surveyor general map https://csggis.drdlr.gov.za/psv/*

5. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

5.1 Region: Northern Cape

South Africa has a long and varied history of human occupation (Deacon & Deacon 1999). This occupation has been dated to approximately 2mya (million years ago) (Mitchell 2002). Briefly, the archaeology of South Africa can be divided into three "major" periods, namely: the Stone Age, the Iron Age and the Historical period. In addition, various archaeological and historical sites have been identified and documented throughout South Africa, including the Northern Cape Province.

The Northern Cape region was sparsely populated until the 20th-century (De Jong 2010). Van Schalkwyk (2013) reported that the cultural landscape qualities of the larger region essentially consist of two components. First is a rural area where human occupation comprises a pre-colonial element (Stone Age) and a much later historical/colonial (farmer and industrial/mining) component. The second component is an urban landscape dating to the colonial period linked to the rural colonial landscape.

5.1.1 Stone Age

In southern Africa, the Stone Age can be divided into three periods. It is, however, critical to note that dates are relative and only provide a broad framework for interpretation. The division of the Stone Age, according to Lombard et al. (2012), is as follows:

- Earlier Stone Age (ESA): >2 000 000 - >200 000 years ago
- Middle Stone Age (MSA): <300 000 - >20 000 years ago
- Later Stone Age (LSA): <40 000 - until the historical period

In short, the Stone Age refers to humans that utilised stone as their technological marker. Each sub-division is formed by industries where the assemblages share attributes or common traditions (Lombard et al., 2012). The history of the Northern Cape is reflected in a rich archaeological landscape with a wealth of pre-colonial archaeological sites. These sites yield some of the richest Stone Age scatters (Beaumont & Morris 1990; Kruger 2018; Lombard et al. 2012; Morris & Beaumont 2004). Numerous sites have been identified and documented across the region. These sites have been dated to the Earlier, Middle and Later Stone Age. They are characterised by flakes produced from pebbles, cobbles and percussive tools, and objects created later during this period, such as large hand axes, cleavers and other bifacial tools (Klein 2000). The MSA is associated with small flakes, blades and points used for hunting activities and numerous other functions (Wurz 2013). The LSA is characterised by microlithic stone tools, scrapers and flakes (Binneman 1995; Lombard et al. 2012). The LSA is also associated with rock art. Numerous LSA rock art sites, mainly rock engravings and paintings, have been identified in the Northern Cape (Beaumont 2008c; Kruger 2018; Morris 1988). These sites are commonly found on slopes, hilltops, rocky outcrops and occasionally in riverbeds in the shelter of granite inselbergs (koppies) on red dunes, which provided clean sand for sleeping, or around the seasonal pans (Beaumont et al. 1995, Kruger 2015a and b, Kruger 2018).

5.1.2 Iron Age

The Iron Age (IA) is characterised by the use of metal (Coertze & Coertze 1996: 346). There is some controversy about the periods within the IA. Van der Ryst & Meyer (1999) have suggested that there are two phases within the IA, namely:

- Early Iron Age (EIA) 200 – 1000 A.D
- Late Iron Age (LIA) 1000 – 1850 A.D

However, Huffman (2007) suggests three periods within the Iron Age; his dates have been widely accepted in the IA field of archaeology. These periods are:

- Early Iron Age (EIA) 250 – 900 A.D
- Middle Iron Age (MIA) 900 – 1300 A.D
- Late Iron Age (LIA) 1300 – 1840 A.D

The South African Iron Age is generally characterised by farming communities that had domesticated animals, cultivated plants, manufactured and made use of ceramics and beads, smelted iron for weapons and manufactured tools (Hall 1987). Iron Age people were often mixed farmers/agropastoralists. These agropastoralists generally chose to live in areas with sufficient water for domestic use along with arable soil that could be cultivated with an iron hoe. Most Iron Age (IA) settlements built by agropastoralists were permanent settlements (with a few exceptions, of course), consisting of features such as houses, raised grain bins, storage pits, and animal kraals/byres. This contrasts with the temporary camps of pastoralists and hunter-gatherers (Huffman 2007). It is evident in the archaeological record that IA groups had migrated with their material culture (Huffman 2002).

Most of the IA groups in southern Africa preferred to occupy southern Africa's central and eastern parts from about 200 AD. The San and Khoi remained in the western and southern parts (Huffman 2007; Van Vollenhoven 2014). However, IA sites have been recorded in the northeastern part of the province, such as the extensive stonewalled settlements of the Thlaping capital Dithakong, approximately 40 km north of Kuruman (De Jong 2010). According to Kruger (2018), environmental factors that spread IA farming westwards from the 17th-century were limited to the areas east of the Langeberg Mountains. Nevertheless, there has been evidence of an IA presence in the Upington area in the 18th-century (Kruger 2018). In addition, LIA people briefly utilised the area close to the Orange River, mining copper, in the Northern Cape (Van Vollenhoven 2014).

5.1.3 Historical period

The historical period within the region coincides with the incursion of white traders, hunters, explorers, and missionaries into the interior of South Africa. Buildings and structures associated with the early missionaries, travellers, and traders such as PJ Truter's and William Somerville (arriving in 1801), Donovan, Burchell and Campbell, James Read (arriving around 1870), William Sanderson, John Ryan and John Ludwig's (De Jong 2010; Snyman 2000) arrival during the 19th

century, and the settlement of the first white farmers and towns, are still evident in the Northern Cape.

San hunter-gatherer groups utilised the landscape for thousands of years, and Khoi herders moved into South Africa with their cattle and sheep approximately 2000 years ago. However, the arrival of the Dutch settlers in the Cape Peninsula in the mid-17th century, clashes between the Europeans and Khoi tribes resulted in the Goringhaiqua and Goraxouqua migrating north towards the Gariep/Orange River in 1680. These tribes became collectively known as the Korannas, living as small tribal entities in their separate areas (Penn 2005).

According to Breutz (1953, 1954) and Van Warmelo (1935), several Batswana tribes, including the different Thlaping and Thlaro sections as well as other smaller groups, take their 18th and 19th-century roots back to the area around Groblershoop, Olifantshoek, the Langeberg (Majeng) and Korannaberg ranges in the western part of the region. However, after Britain annexed Bechuanaland in 1885, the land of the indigenous inhabitants was limited to a few reserves. Although in 1895, British Bechuanaland was incorporated into the Cape Colony, the land inside the reserves remained Tswana property. It could only be alienated with the consent of the British Secretary of State.

Because of its distance from the Cape Colony, this arid part of South Africa's interior was generally not colonised until relatively recent. According to history, the remote northern reaches of the Cape Colony were home to cattle rushers, gun-runners, river pirates and various manner of outlaws. Distribution of land to colonial farmers only occurred from the 1880s onwards when Government-owned land was surveyed, divided into farms, and transferred to farmers. However, more permanent large-scale settlements only started in the late 1920s, and the first farmsteads were possibly built during this period. As a result, the region remained sparsely populated until the advent of the 20th century (De Jong 2010, Penn 2005).

The region has been the backdrop to various incidents of conflict. The arrival of large numbers of Great Trek Boers from the Cape Colony to the borders of Bechuanaland and Griqualand West in 1836 caused conflict with many Tswana groups and the missionaries of the London Mission Society. The conflict between Boer and Tswana communities escalated in the 1860s and 1870s when the Korana and Griqua communities and the British government became involved. The Northern Cape was critical in the South African War (Anglo-Boer War) (1899-1902), and major battles took place within 120 km of Kimberley, including the battle of Magersfontein. Boer guerrilla forces roamed the entire Northern Cape region, and skirmishes between Boer and Brits were regular occurrences. Furthermore, many graves in the region tell the story of battles fought during the 1914 Rebellion (Hopkins 1978).

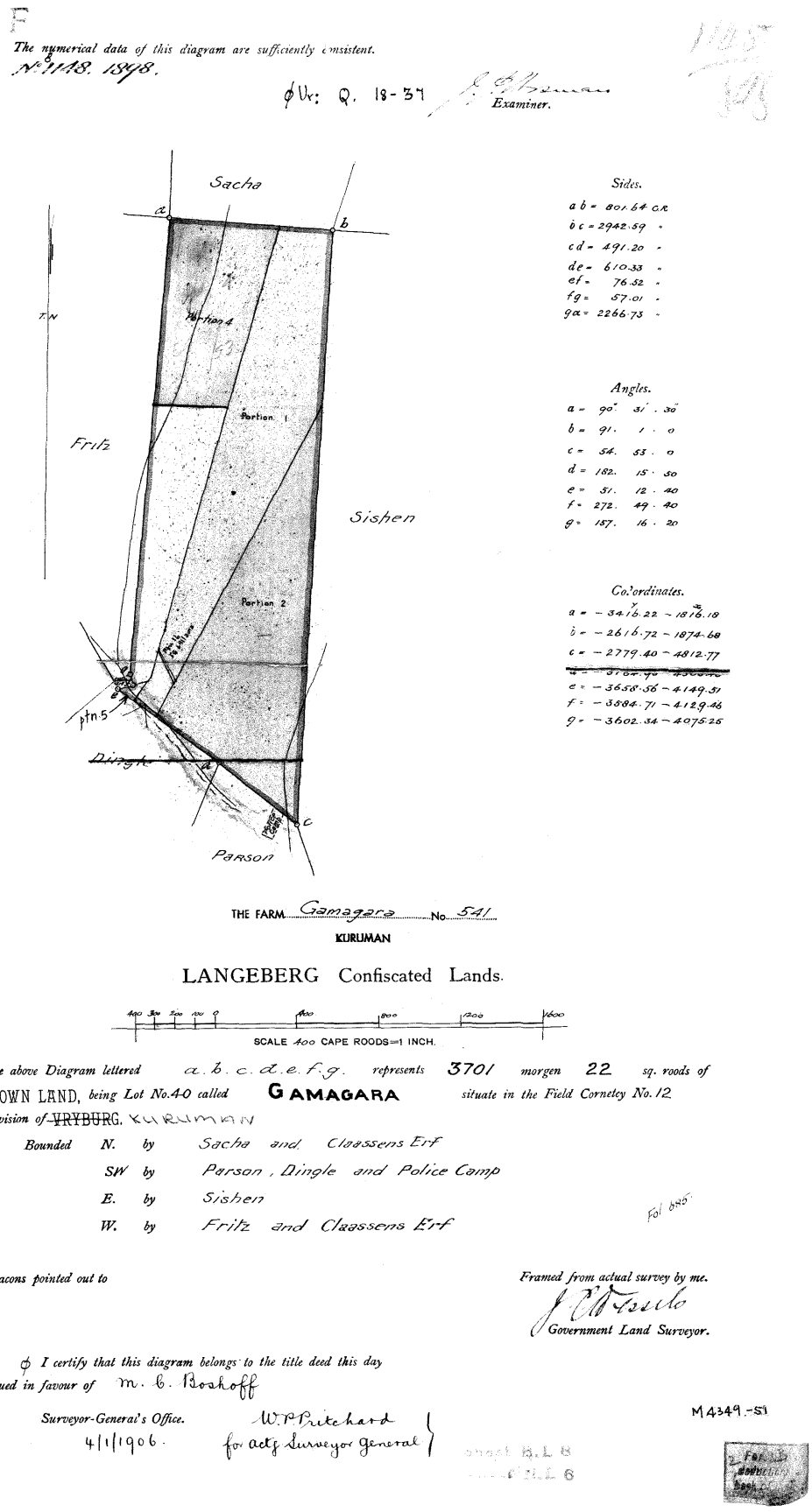


Figure 4 1898 Registration of the Farm Gamagara 541

5.2 Local: Sishen and Dingleton

Dingleton, initially known as Sishen, was built in the early 1950s by then state-owned mining company Iron and Steel Corporation (ISCOR), founded by the South African government in 1928, to house the mine's workers. The Sishen Iron Ore mining began in 1946 and grew to a large export project via a new railway line to Saldanha Bay. The mine started on the farm Sishen, but during the past seventy-five years, it expanded to include Kathu, Sacha, Simms, Gamagara, Doornvlei Sekgame, Bruce and Lylyveld (Wellmann 2021).

In the 1950s, the town of Sishen primarily housed white mine employees following the Apartheid laws of the time. ISCOR developed the town to include residences, recreational areas, shops, banks and garages. In addition, the railway station and houses for the railway workers developed. The white employees relocated to Kathu during the 1970s. Kathu is one of the youngest towns in South Africa, founded in 1974 and owes its existence to the Sishen Mine. However, the mine sold the uninhabited houses to the then Department of Local Management, Housing and Agriculture, who proclaimed it a 'Coloured township' on 24th June 1988, and dwellings were sold or rented to people of colour in the late 1980s. The town was renamed Dingleton in 1990 (Becker 2014; Wellmann 2021).

The Sishen Mine is the largest source of iron ore in South Africa and accounts for half of South Africa's iron ore reserves mineable to a depth of 30 metres (Becker 2014). In 1989, ISCOR became the first South African state-owned entity to privatise and list on the Johannesburg Stock Exchange. Today Sishen Iron Ore belongs to the AngloAmerican subsidiary Kumba Iron Ore (Wellmann 2021). With the growth and expansion of the mine, the imminent relocation of Dingleton became apparent. The process started in 2007 with a press release, gained momentum in 2014 when the first group of people was resettled and continued with the mediation process with the last inhabitants to move (Wellmann 2021).

5.3 Summary of Local Heritage Resources: Sishen and Dingleton

Numerous HIA/AIA Phase I and Phase 2 studies have been conducted in and around the greater Kathu area. Studies closer to the study area includes but is not limited to: AGES (2011); Beaumont (2000, 2004, 2005a, 2005b); Dreyer (2008); Forssman & Lotter (2017); Kaplan (2008); (Kruger 2012); Morris (2005, 2008); Van der Ryst & Küsel (2011, 2012); Van der Walt (2020). Studies on the Farm Gamagara 541 include AGES (2011); Miller (2020).

5.3.1 Stone Age

Predominantly the consulted HIA/AIA reports documented occurrences of low-density surface scatters of ESA, MSA and LSA stone tools, with higher densities in the presence of resources like water and raw material such as Banded Iron Stone (BIF), specularite and jaspilite (AGES 2011,

Kruger 2012). Beaumont (2004) recorded surface scatters of possible Acheulian lithics, and Dreyer (2007) noted extensive ESA sites in Kathu's vicinity. Beaumont (2005a, 2005b) and Morris (2008) recorded MSA stone tool scatters. Beaumont (2000) recorded surface LSA lithics unassociated with living sites. Stone tools were located on koppies, plains, and around pans (Morris 2005; Van der Ryst & Küsel 2011, 2012). AGES (2011) further reported mixed stone artefacts along the bank of the Ga-Mogara River.

5.3.1.1 Rock Art

No rock art sites were recorded within the aforementioned HIA/AIA reports. However, rock engravings formerly situated on the Farms, Bruce and Sishen, threatened by mining activities, were removed and conserved by the McGregor Museum (AGES 2011; Beaumont 2000).

5.3.2 Iron Age

Although no IA sites were recorded by the authors of the consulted HIA/AIA reports, Morris (2005) mentions 3 IA sites, Demaneng, Lylyveld and Kathu, previously documented close to the study area.

5.3.3 Historical/Colonial period

No historical sites were recorded in any of the consulted reports. However, UBIQUE Heritage Consultants personally observed a midden and scatters of late-19th-century cultural material to the southeast of the Farm Gamagara 541 Portion 2, on the Farm Sishen 543 Portion 24, close to the Ga-Mogara River.

5.3.4 Graves/Burials

Several graves were recorded in the larger area around the study area, but none nearby.

6. IDENTIFIED RESOURCES AND HERITAGE ASSESSMENT

6.1 Surveyed area

The area surveyed for the impact assessment, concentrated around the house and was dictated by the thickets of thorn trees and concentrations of scrap material in the yard space.

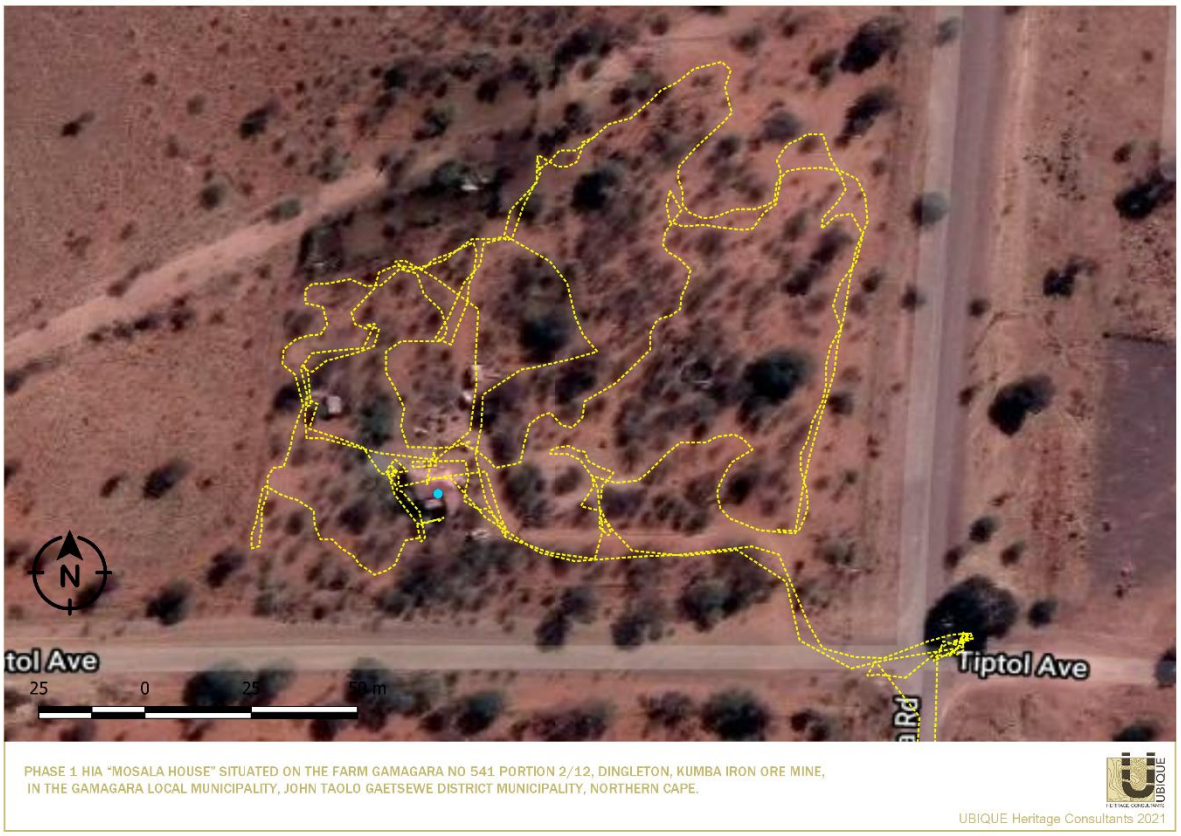


Figure 5 *Survey tracks across the development footprint.*

6.2 Description of the affected environment

The house under study is located within the Kathu Bushveld. The area is heavily disturbed by anthropogenic and animal movements and activities. There are some Camel thorn trees (*Acacia erioloba),* but the area is predominantly covered with thickets of blackthorn (*Acacia mellifera)*, and kriedoring (*Lycium hirsutum)*. Grass-cover is sparse. The yard space is fenced and cluttered with collected materials such as reclaimed wood, doorframes and bricks. Animal pens with some cows, sheep, goats and chickens have been built with fencing and recycled material. The area is only accessible through secured gates locked by mine security. The former town of Dingleton lies to the northeast and east of the house.

Figure 6 *Views of the house's environment*

6.3 Identified heritage resources

SITE RECORDED			
CRM Archaeologist(s)	Heidi Fivaz	Date(s)	2021-12-07

SITE ID					
Site Name	Mosala House	Erf No.	Portion 12	SAHRIS ID	
Street Address	Tiptol Avenue/ R325 Access via Gate 13, Khumba Mine		GPS Location	S 27.80101 E 022.97898	
Town	Dingleton/ Sishen		Farm Name	Gamagara No. 541 Portion 2	
Local Municipality	Gamagara		District Municipality	John Taolo Gaetsewe	
Province	Northern Cape		Topo-cadastral map	1: 50 000 2722DD	
Property size	970.9642 ha		Building/feature size	140 m²	

SITE USE								
Original	Residential			Current	Residential Small-scale farming			
Zoning	NA	Rezoned	YES	NO	Sub-Division	YES	NO	

SITE DESCRIPTION								
Date Built	1940s-1957	Over 60	YES	NO	Style	Simple Edwardian bungalow	Period	Post-War Modern
Description of Architectural Features	Small north-facing square house, pitched corrugated-iron roof. A cement veranda with five square pillars in front of the house, only part of the roof remaining, probably not the original roof. Stone and cement with large aggregate foundation with large vitrified mud bricks on the original structure. The windows are deep-seated with visible lintels: original wooden roof rafters and support beams in place. The metal-framed windows appear to date of construction, whereas the door has been replaced. There are alterations and an addition towards the back with modern bricks.							
Environmental Landscape	House is in the context of a small farmyard with livestock pens and chicken coops, made of fencing material and found/re-used objects. Thorn bushes and collections of building material surround the house. Animals have disturbed the soil with repeated movement within a small space. Modern cultural material and litter are distributed horizontally across the yard space, with concentrated dumping regularly burnt areas.							
Cultural Landscape	On the periphery of the old Dingleton settlement area.							
Condition	Cracks in the plaster, broken window panes, rusting and lifting corrugated-iron roof, and degraded wooden beams.							
Past Renovations, Alterations, Restorations	Alterations at the back of the house, pipes added and removed.			Identified Threats	Fire with the closeness of brush to the house. Imminent demolition.			

SITE SIGNIFICANCE										
Site Grading	NCW IVC	Significance Evaluation	NATIONAL			PROVINCIAL			LOCAL		
			Low	Medium	High	Low	Medium	High	Low	Medium	High

SITE SIGNIFICANCE IN TERMS OF THE NHRA					
(Mark applicable with X)	Exceptional	Very Significance	Significant	Some Significance	No Significance
Historical				X	
Rarity					X
Architectural Quality					X
Technological					X
Cultural					X
Social History					X
Environmental Context					X
Slave History					X

Figure 7 *Northern facade*

Figure 8 *Eastern facade*

Figure 9 *Eastern façade*

Figure 10 *Southern facade addition*

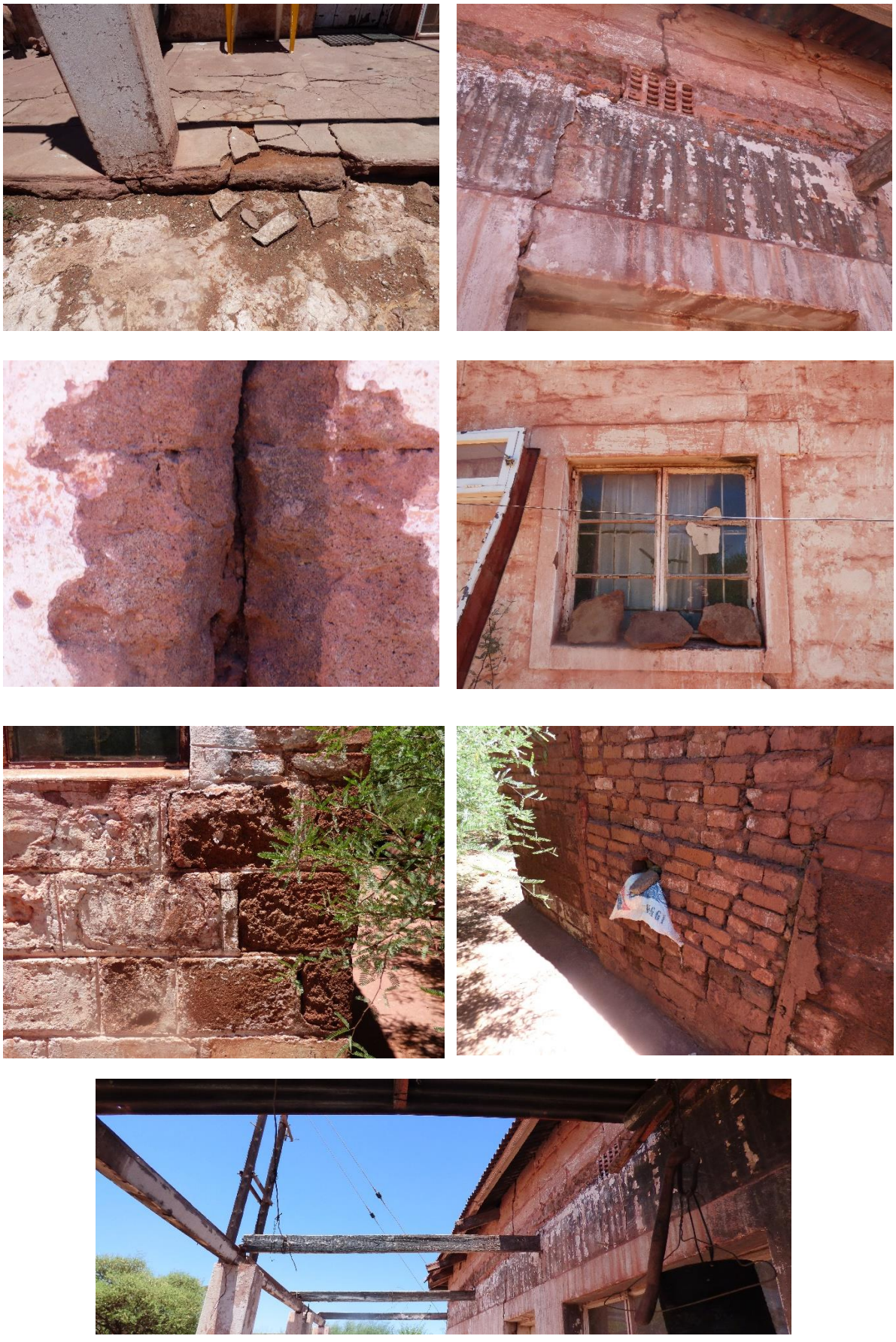


Figure 11 *Details of structure's features*

6.4 Discussion

The structure is a small north-facing square house with a pitched corrugated-iron roof. A cement veranda with five square pillars forms the front of the house. Only a part of the veranda roof remains, probably not the original roof. The h foundations are of stone and cement with large aggregate. The house is built with sizeable vitrified mud bricks on the original structure. The windows are deep-seated with visible lintels: original wooden roof rafters and support beams in place. The metal-framed windows date to the construction, whereas the door has been replaced. There are alterations and an addition towards the back with modern bricks. There is no historical, cultural material in the surrounding yard.

The house does not have any historical, cultural, or technological significance. However, aerial photographs (http://www.cdngiportal.co.za/cdngiportal/) dating to 1957 captured the structure during the flight in August. Therefore, the structure is definitively older than 60 years, triggering Section 34(1) of the NHRA 25 of 1999.

The house is NCW (Not Conservation Worthy) and is awarded a field rating of IVC (the structure is deemed of low significance, and Phase 1 is considered sufficient recording of said structure, and it may be demolished).

Figure 12 *Aerial photograph georeferenced in QGIS 3 shows the Mosala House within the digital polygon*

7. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

DESCRIPTION	DEVELOPMENT IMPACT		MITIGATION	FIELD RATING/ SIGNIFICANCE
Historical structure				
The Mosala House, situated on the Farm Gamagara 541 Portion 2/12 Dingleton	Nature	Neutral	No mitigation required.	Field Rating IV C Low significance
	Extent	Low		
	Duration	High		
	Intensity	High		
	Potential of impact on irreplaceable resource	High		
	Consequence	Low		
	Probability of impact	Low		
	Significance	Low		

The significance of the inspected structure is not conservation worthy, and therefore, the negative impact of demolition is negligible.

8. RECOMMENDATIONS

According to the NHRA (National Heritage Resources Act of 1999), Section 34 states that:

- *34. (1) 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.*

Therefore the following conclusions apply:

1. The house is NCW (Not Conservation Worthy) and is awarded a field rating of IVC (the structure is deemed of low significance, and Phase 1 is considered sufficient recording of said structure, and it may be demolished).

2. Before the structure can be destroyed, an application for a demolition permit must be submitted to SAHRA (South African Heritage Authority). Notices from SAHRA state that permit applications related to sections 27, 32, 34, 35, and 36 will close on 1st December 2021 and reopen on 3rd January 2022. Therefore, any permit applications submitted to SAHRA from 2nd December 2021 will be processed from 4th January 2022.

3. The survey and heritage assessment focus on the house and immediate yard space, and the results from the field survey are reflected in the report and permit application. Full HIA/AIA/PIAs (AGES 2011; Fourie 2021; Miller 2020) have previously been conducted on the larger area in which the house is located. Therefore, we recommend that this project be exempt from further specialist studies, as no excavations will be part of the surface demolition methods of the structure.

4. Hidden or sub-surface sites may exist in the area, although doubtful. We recommend that if any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are uncovered during the site clearing and demolition phase, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. If unmarked human burials are discovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490) must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist or palaeontologist must be contracted as soon as possible to inspect the findings. If the newly unearthed heritage resources are of high significance, a Phase 2 rescue operation may be required with permits issued by SAHRA. UBIQUE Heritage Consultants and its personnel will not be held liable for such oversights or costs incurred as a result of such oversights.

9. CONCLUSION

Although the farmhouse, known as the "Mosala House", situated on the Farm Gamagara No 541 Portion 2/12, Dingleton, Kumba Iron Ore (Sishen) Mine, in the Gamagara Local Municipality, John Taolo Gaetsewe District Municipality, Northern Cape, is older than 60 years it as no heritage significance. Accordingly, a permit application will be made for its demolition.

10. BIBLIOGRAPHY

AGES, 2011. Heritage Impact Assessment for the proposed Sishen Iron Ore Mine Complex: Mining Right Application: Phase 1. Unpublished Report.

Beaumont, P.B. 2000. Archaeological Impact Assessment: Archaeological Scoping Survey for the purpose of an EMPR for the Sishen Iron Ore Mine. An unpublished report by the McGregor Museum.

Beaumont, P.B. 2004. Heritage EIA of two areas at Sishen Iron Ore Mine. An unpublished report by the McGregor Museum.

Beaumont, P.B. 2005a. Heritage Impact Assessment of an area of the Sishen Iron Ore Mine that may be covered by the Vliegveldt waste dump. An unpublished report by the McGregor Museum.

Beaumont, P.B. 2005b. Heritage Impact Assessment for EMPR Amendment for crusher at Sishen Iron Ore Mine. An unpublished report by the McGregor Museum

Beaumont, P.B. 2008c. *Phase I Archaeological Impact Assessment Report on a Portion of the Farm 292 near Groblershoop, Karoo district Municipality, Northern Cape.* Unpublished report.

Beaumont, P.B., Smith, A.B. & Vogel, J.C. 1995. Before the Einiqua: the archaeology of the frontier zone. In Smith, A.B. (Ed.). *Einiqualand: Studies of the Orange River frontier*. University of Cape Town Press: Cape Town.

Beaumont, P.B. & Morris, D. 1990. *Guide to archaeological sites in the Northern Cape.* McGregor Museum: Kimberley.

Becker, E. 2014. Dingleton Resettlement Project Heritage Component: Motivation for Demolition of Historical Buildings. Unpublished report: Kumba Iron Ore (Sishen Mine).

Binneman, J. F. 1995. *Symbolic construction of communities during the Holocene Later Stone Age in the South–Eastern Cape.* Unpublished PhD thesis. Johannesburg: University of the Witwatersrand.

Broberg, G. 2016. In the Shadow of Thunberg and Sparrman Hendrik Jacob Wikar at the Cape. *Svenska Linnésällskapets årsskrift:* 53-70.

Coertze, P.J. & Coertze, R.D. 1996. *Verklarende vak woordeboek vir Antropologie en Argeologie*. R.D. Coertze: Pretoria.

De Jong, R.C. 2010. *Heritage impact assessment report: proposed manganese and iron ore mining right application in respect of the remainder of the farm Paling 434, Hay registration division, Northern Cape.* Unpublished report. Cultmatrix: Pretoria.

Deacon, H.J. & Deacon, J. 1999. *Human Beginnings in South Africa: Uncovering the secrets of the Stone Age.* David Phillips Publishers: Cape Town.

Dreyer, C. 2008b. First Phase Archaeological and Cultural Heritage Assessment of the proposed Bourke project, ballast site and crushing plant at Bruce Mine, Dingleton, near Kathu, Northern Cape. An unpublished report by Pr. Archaeologist/Heritage Specialist

Forssman, T., & Lotter, M. 2017. Phase 1 Heritage Impact Assessment proposed development of a new pollution control dam at Aldag, on the Remainder of the Farm Sishen 543, and the expansion of a currently planned pollution control dam on the Remainder of the Farm Lylyveld 545, Northern Cape. Unpublished Report: PGS Heritage.

Fourie, H. 2021. Palaeontological Impact Assessment: Desktop Study. Proposed Sishen Western Expansion Project (Expansion of the Western Waste Rock Dump 5 and Associated Infrastructure at Sishen Iron Ore Mine Gamagara Local Municipality, John Taolo Gaetsewe District Municipality, Northern Cape Province. Unpublished Report.

Hall, M. 1987. *The changing past: farmers, kings and traders in southern Africa. 200-1860*. Cape Town: David Philip.

Huffman, T. 2002. Regionality in the Iron Age: the case of the Sotho-Tswana. *Southern African Humanities,* 14: 1–22.

Huffman, T. 2007. *Handbook to the Iron Age*. Pietermaritzburg: University of Kwazulu-Natal Press.

Klein, R. G. 2000. The Earlier Stone Age of Southern Africa. *The South African Archaeological Bulletin*, 27(172): 107-122.

Kruger, N. 2012. Archaeological Impact Assessment (AIA) of demarcated surface areas on the Farms Gamagara 541, Onverwacht 540 (Fritz 540 Portion 1) and Nooitgedacht 469 (Woon 469), Sishen Iron Ore Mine, Kgalagadi District Municipality, Northern Cape Province. Unpublished report: AGES Pty Ltd.

Kruger, N. 2015a. *Proposed Photovoltaic power plant development on Portion 40 of the farm Eenduin, Kai Garib Local Municipality, Siyana District Municipality Northern Cape Province.* Unpublished report. Albebbaran SA (Pty) Ldt. Pretoria.

Kruger, N. 2015b. *Archaeological Impact Assessment (AIA) of a Demarcated surface portion on the Farm Avondale 410 for the proposed Avondale 1 Photovoltaic Power Plant & 132kV Power Lines development, //Khara Hais Local Municipality, ZF Mgcawu district Municipality, Northern Cape Province.* Unpublished report. Pretoria.

Kruger, N. 2018. *Archaeological Impact Assessment (AIA) for the Biesieputs Prospecting Project on a portion of the farm Biesieputs 67 in the ZF Mgcawu District Municipality, Northern Cape Province.* Unpublished report. Pretoria.

Lombard, M., Wadley, L., Deacon, J., Wurz, S., Parsons, I., Mohapi, M. Swart, J. & Mitchell, P. 2012. South African and Lesotho Stone Age sequence updated. *South African Archaeological Bulletin* 67: 123-144.

Miller, S. 2020. 1 st phase H.I.A. of a proposed extension and upgrading at Sishen Mine, also known as phase two of the Sishen Western Expansion Project that is located on portions of Gamagara and Doornvlei, Northern Cape.

Mitchell, P. 2002. *The archaeology of Southern Africa*. Cambridge: Cambridge University Press.

Morris, D. 1988. Engraved in Place and Time: A Review of Variability in the Rock Art of the Northern Cape and Karoo*. The South African Archaeological Bulletin,* 43(148): 109-120.

Morris, D. 2005. Report on a Phase 1 Archaeological Assessment of Proposed Mining Areas of the Farms Bruce, King, Mokaning and Parson, Between Postmasburg and Kathu, Northern Cape. An unpublished report by the McGregor Museum.

Morris, D. 2008. Archaeological and Heritage Phase 1 Impact Assessment for proposed upgrading of Sishen Mine diesel depot storage capacity at Kathu, Northern Cape. An unpublished report by the McGregor Museum.

Morris, D. & Beaumont, P. 2004. *Archaeology in the Northern Cape: Some key sites. SA3 Post-Conference Excursion,* 8-10 April 2004. McGregor Museum: Kimberley.

Van der Walt, J. 2020. Heritage Impact Assessment for the Proposed Vodacom Pty Ltd 22 kV Powerline in Dingleton, Gamagara Local Municipality, Northern Cape. Unpublished report: HCAC.

Van der Ryst, M.M. & Meyer, A. 1999. *Die Ystertydperk. Bergh, J.S. (red.). Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.* Pretoria: J.L. van Schaik.

Van der Ryst, MM & Küsel, SU. 2011. Specialist report on the Stone Age and other heritage resources at Kolomela, Postmasburg, Northern Cape. Commissioned by African Heritage Consultants.

Van der Ryst, MM and Küsel, SU. 2012. Phase 2 specialist study of affected Stone Age locality at site SA02, a demarcated surface area, on the farm Nooitgedacht 469 (Woon 469). Commissioned by Sishen Iron Ore Mine and AGES (Pty) Ltd.

Van Schalkwyk, J. 2013. *Cultural Heritage Impact Assessment for the proposed township development on a section of the farm Neilers Draft 34, Lennertsville, Kai !Garib Municipality, Northern Cape Province.* Unpublished report. Pretoria.

Van Vollenhoven, A. C. 2014. *A report on a cultural heritage impact assessment for the proposed exploration activities at the Jacomynspan Project, Northern Cape Province*. Unpublished report. Archaetnos: Groenkloof.

Wellmann, G. 2021. Legislation, Performance Standards and the Dingleton Resettlement. Unpublished conference paper. (https://conferences.iaia.org/2021/edited papers/979_Wellmann_Legislation%5EJ%20Performance%20Standards%20and.pdf)

Wurz, S., 2013. Technological trends in the Middle Stone Age of South Africa between MIS 7 and MIS 3. *Current Anthropology*, 54(S8): S305-S319.

WEB

http://www.cdngiportal.co.za/cdngiportal/ (Accessed 10/12/2021).

https://sahris.sahra.org.za/declaredsites (Accessed 09/12/2021).

https://sahris.sahra.org.za/allsitesfinder (Accessed 09/12/2021).