

**PHASE 1 HIA REPORT, GAMAKOR AND NOODKAMP  
LOW COST HOUSING DEVELOPMENT, KEIMOE,  
NORTHERN CAPE**

PROPOSED FORMALISATION OF GAMAKOR AND NOODKAMP LOW COST HOUSING DEVELOPMENT ON PORTIONS 0 AND 128 OF FARM KOUSAS NO. 459, AND ERVEN 1470, 1474 AND 1480, KEIMOE, GORDONIA RD, KAI !GARIB LOCAL MUNICIPALITY, ZF MGCAWU DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.

**PREPARED FOR:**  
ENVIROAFRICA

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12 MARCH 2019

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For this project, Mr Engelbrecht was responsible for the field survey of the development footprint, identification of heritage resources, and recommendations. Ms Fivaz was responsible for research and report compilation. Desktop research completed by Sky-Lee Fairhurst.

**Declaration of independence:**

We, Jan Engelbrecht and Heidi Fivaz, partners of 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:**  
J.A.C. Engelbrecht & H. Fivaz  
UBIQUE Heritage Consultants

**Date:** 2019-03-12

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## EXECUTIVE SUMMARY

### Technical summary

Project description	
Project name	Gamakor and Noodkamp low cost housing development, Keimoes, Northern Cape.
Description	Proposed formalisation of Gamakor and Noodkamp low cost housing development on Portions 0 and 128 of Farm Kousas No. 459, and Erven 1470, 1474 and 1480, Keimoes.
Developer	
Kai !Garib Municipality	
Consultants	
Environmental	EnviroAfrica cc.
Heritage and archaeological	UBIQUE Heritage Consultants
Paleontological	Banzai Environmental
Property details	
Province	Northern Cape
District municipality	Z.F. Mgcawu
Local municipality	Kai !Garib
Topo-cadastral map	2820DB 1:50 000
Farm name	Kousas No. 459 Portion 0 and 128 Erven 1470, 1474 and 1480
Closest town	Keimoes
GPS Co-ordinates	28° 41' 52.60" S; 20° 56' 51.34" E.
Development footprint size	104 ha

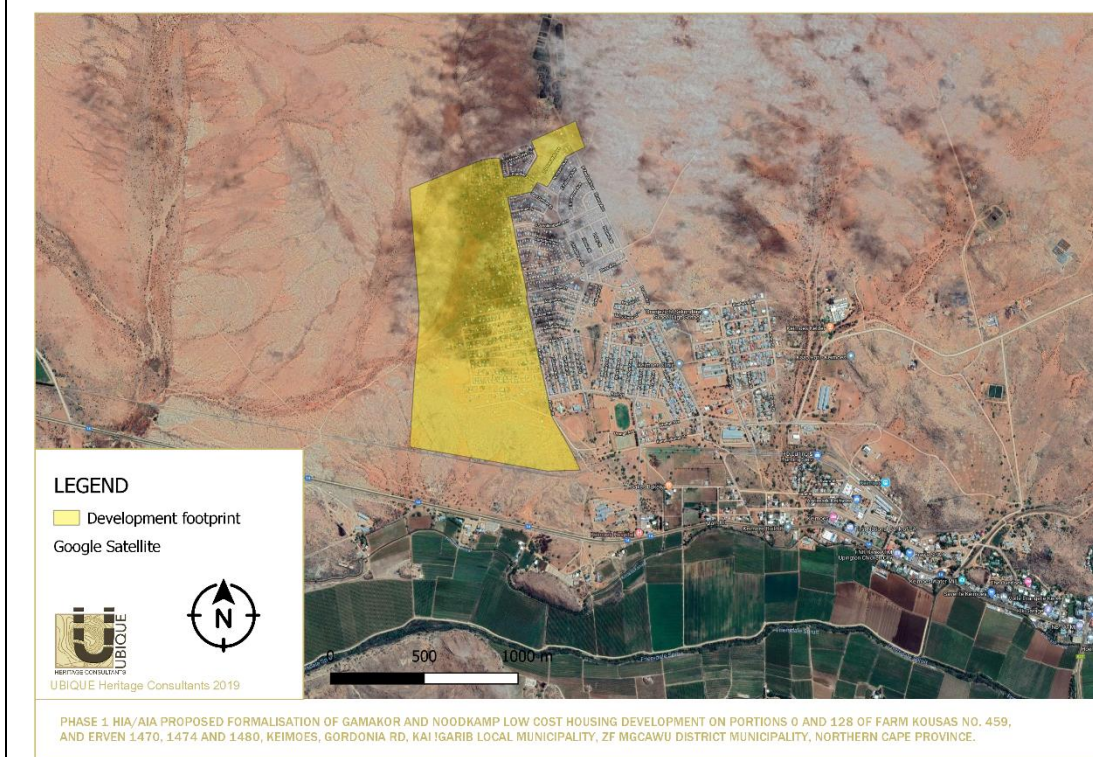


Figure 1 Project footprint, represented by yellow polygon, indicated on Google Earth Satellite Image.

## Project description

UBIQUE Heritage Consultants were appointed by EnviroAfrica cc. as independent heritage specialists in accordance with Section 38 of the NHRA and the National Environmental Management Act 107 of 1998 (NEMA), to conduct a cultural heritage assessment to determine the impact of the proposed formalisation and low cost housing development of Gamakor and Noodkamp on Portions 0 and 128 of Farm Kousas No. 459, and Erven 1470, 1474 and 1480, Keimoes, on any sites, features, or objects of cultural heritage significance. The site is located approximately 310 m north of the N14 Main Road, and on the western side of the town of Keimoes in the Kai !Garib Local Municipality, ZF Mgcawu District Municipality, Northern Cape.

## Findings and Impact on Heritage Resources

Description	Development Impact	Mitigation	Field rating/ Significance
<b>Archaeological</b>			
1. One incidence of lithics was recorded within the development footprint. This included four pieces of MSA/Early LSA debitage/flakes scattered ex situ in a heavily disturbed area. made from the highly utilised banded ironstone formation (BIF).	Nature	Neutral	No mitigation required.
	Extent	Low	
	Duration	Low	
	Intensity	Low	
	Potential of impact on irreplaceable resource	Low	
	Consequence	Low	
	Probability of impact	Low	
2. An isolated chunk was recorded outside the development footprint.	Nature	Neutral	No mitigation required.
	Extent	Low	
	Duration	Low	
	Intensity	Low	
	Potential of impact on irreplaceable resource	Low	
	Consequence	Low	
	Probability of impact	Low	
3. No formal or informal graves were identified.	Nature	N/A	No mitigation required.
	Extent	N/A	
	Duration	N/A	
	Intensity	N/A	
	Potential of impact on irreplaceable resource	N/A	
	Consequence	N/A	
	Probability of impact	N/A	
4. Area has zero palaeontological significance.	Nature	N/A	No mitigation required.
	Extent	N/A	
	Duration	N/A	
	Intensity	N/A	
	Potential of impact on irreplaceable resource	N/A	
	Consequence	N/A	
	Probability of impact	N/A	
<b>Paleontological</b>			
4. Area has zero palaeontological significance.	Nature	N/A	No mitigation required.
	Extent	N/A	
	Duration	N/A	
	Intensity	N/A	
	Potential of impact on irreplaceable resource	N/A	
	Consequence	N/A	
	Probability of impact	N/A	

## Recommendations

Based on the assessment of the potential impact of the development on the identified heritage, the following recommendations are made, taking into consideration any existing or potential sustainable social and economic benefits:

1. The lithic traces on the landscape of the study area are of low significance and the impact of the development on these resources are inconsequential. No other heritage was identified. Therefore, no further mitigation is required, and from a heritage point of view we recommend that the proposed development can continue.
2. Due to the zero palaeontological significance of the area, no further palaeontological heritage studies, ground truthing and/or specialist mitigation are required. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area as the igneous rocks underlying the site are not fossiliferous. It is therefore recommended that the project be exempt from a full Paleontological Impact Assessment (Butler 2019).
3. Although all possible care has been taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the assessment. If during construction, any possible discovery of finds such as stone tool scatters, artefacts, human remains, or fossils are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find. UBIQUE Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.

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## ABBREVIATIONS

AIA:	Archaeological Impact Assessment
ASAPA:	Association of South African Professional Archaeologists
BIA:	Basic Impact Assessment
CRM:	Cultural Resource Management
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessment*
EIA:	Early Iron Age*
EMP:	Environmental Management Plan
ESA:	Earlier Stone Age
GPS:	Global Positioning System
HIA:	Heritage Impact Assessment
LIA:	Late Iron Age
LSA:	Later Stone Age
MEC:	Member of the Executive Council
MIA:	Middle Iron Age
MPRDA:	Mineral and Petroleum Resources Development Act
MSA:	Middle Stone Age
NEMA:	National Environmental Management Act
NHRA:	National Heritage Resources Act
OWC:	Orange River Wine Cellars
PRHA:	Provincial Heritage Resource Agency
SADC:	Southern African Development Community
SAHRA:	South African Heritage Resources Agency

*\*Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations it must be read and interpreted in the context it is used.*

## GLOSSARY

- Archaeological: material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years (as defined and protected by the National Heritage Resources Act (NHRA) (Act No. 25 of 1999) including any area within 10 m of such representation;
  - wrecks, being any vessel or aircraft, or any part thereof, which were wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
  - features, structures and artefacts associated with military history, which are older than 75 years and the sites on which they are found.



Stone Age:	The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.
Earlier Stone Age:	>2 000 000 - >200 000 years ago
Middle Stone Age:	<300 000 - >20 000 years ago
Later Stone Age:	<40 000 - until the historical period
Iron Age:	(Early Farming Communities). Period covering the last 1800 years, when immigrant African farmer groups brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and herded cattle as well as sheep and goats. As they produced their own iron tools, archaeologists call this the Iron Age. Early Iron Age: AD 200 - AD 900 Middle Iron Age: AD 900 - AD 1300 Later Iron Age: AD 1300 - AD 1850
Historic:	Period of arrival of white settlers and colonial contact. AD 1500 to 1950
Historic building:	Structures 60 years and older.
Fossil:	Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.
Heritage:	That which is inherited and forms part of the National Estate (historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).
Heritage resources:	These mean any place or object of cultural significance, tangible or intangible.
Holocene:	The most recent geological period that commenced 10 000 years ago.
Palaeontology:	Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site that contains such fossilised remains or traces
Cumulative impacts:	“Cumulative Impact”, in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities.
Mitigation:	Anticipating and preventing negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.
A ‘place’:	a site, area or region;

- a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure;
- a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures;
- an open space, including a public square, street or park; and
- in relation to the management of a place, includes the immediate surroundings of a place.

‘Public monuments and memorials’: mean 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 proposed formalisation of Gamakor and Noodkamp low cost housing development on Portions 0 and 128 of Farm Kousas No. 459, and Erven 1470, 1474 and 1480, Keimoes, Gordonia Road, Kai !Garib Municipality, ZF Mgcawu District Municipality, Northern Cape. It includes activities listed in terms of the NEMA EIA Regulations 2014, and UBIQUE Heritage Consultants were appointed by EnviroAfrica cc as independent heritage specialists in accordance with the National Environmental Management Act 107 of 1998 (NEMA), and in compliance with Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA), to conduct a cultural heritage assessment (AIA/HIA) of the development area.

The aim of the assessment is to identify and report any heritage resources that may fall within the development footprint; 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 both 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 upon their aesthetic, architectural, historical, scientific, social, spiritual, linguistic, economic or technological values; their representation of a time or group; their rarity; and their sphere of influence.

The integrity and significance of heritage resources can be jeopardized by natural (e.g. erosion) and human (e.g. development) activities. 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 the management of 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 development, taking in account 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.

Although 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, it is important to note that some heritage sites may have been missed due to their subterranean nature, or due to dense vegetation cover. No subsurface investigation (i.e. excavations or sampling) were undertaken, since a permit from SAHRA 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 make an assessment as to the significance of the site (or material) in question.

## 2. TERMS OF REFERENCE

An HIA/ AIA must address the following key aspects:

- the identification and mapping of all heritage resources in the area affected;
- an assessment of the significance of such resources in terms of heritage assessment criteria set out in regulations;
- an assessment of the impact of the development on heritage resources;
- an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- plans for mitigation of any adverse effects during and after completion of the proposed development.

In addition, the HIA/AIA should comply with the requirements of NEMA, including providing the assumptions and limitations associated with the study; the details, qualifications and expertise of the person who prepared the report; and a statement of competency.

## 2.1. Statutory Requirements

### 2.1.1 General

The Constitution of the Republic of South Africa Act 108 of 1996 is the source of all legislation. Within the Constitution the Bill of Rights is fundamental, with the principle 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:

- co-ordinate and promote the management of heritage resources at 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 the protection and management of conservation-worthy places and areas by local authorities.

### 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 development:**

- 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 5000m<sup>2</sup> 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 re-zoning of a site exceeding 10 000m<sup>2</sup> in extent; or

- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

#### 2.1.4 Definitions of heritage resources

The NHRA defines a heritage resource as any place or object of cultural significance, i.e. of 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.

Furthermore, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of—

- its importance in the community, or pattern of South Africa's history;
- its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; and
- its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.

#### 2.1.5 Management of Graves and Burial Grounds

- **Graves younger than 60 years** are protected in terms of Section 2(1) of the Removal of Graves and Dead Bodies Ordinance 7 of 1925 as well as the Human Tissues Act 65 of 1983.
- **Graves older than 60 years, situated outside a formal cemetery administered by a local**

**Authority are** protected in terms of Section 36 of the NHRA as well as the Human Tissues Act of 1983. Accordingly, such graves are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of NHRA) is applicable to graves older than 60 years that are situated outside a formal cemetery administered by a local authority. Graves in the category located inside a formal cemetery administered by a local authority will also require the same authorisation as set out for graves younger than 60 years over and above SAHRA authorisation.

The **protocol for the management of graves older than 60 years situated outside a formal cemetery administered by a local authority** is detailed in Section 36 of the NHRA:

(3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

## 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 site of the proposed development. This entailed the scoping and scanning of historical texts/records as well as previous heritage studies and research around the study area.

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

#### 3.1.1 Literature review

A survey of literature was undertaken to obtain background information regarding the area. 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 have been performed within the wider vicinity of the study area. Sources consulted in this regard are indicated in the bibliography.

### 3.2 Field study

The 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 sites of archaeological, historical or cultural interest, was completed.

UBIQUE Heritage Consultants inspected the proposed development and surrounding areas on 5<sup>th</sup> and 6<sup>th</sup> of February 2019 and completed a controlled-exclusive, pre-planned, pedestrian survey. We conducted an inspection of the surface of the ground, wherever the surface was visible. This was done with no substantial attempt to clear brush, sand, deadfall, leaves or other material that may cover the surface and with no attempt 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), and Android Locus Maps application on Samsung Galaxy S9.



### 3.2.2 Recording significant areas

GPS points of identified significant areas were recorded with a handheld Garmin global positioning unit (Garmin eTrex 10) and Android Locus Maps application on Samsung Galaxy S9. Photographs were taken with a Nikon Coolpix 10-megapixel camera. Detailed fieldnotes were taken to describe observations. The layout of the area and plotted by GPS points, tracks and coordinates, were transferred to Google Earth and QGIS, and maps were created.

### 3.2.3 Determining significance

Levels of significance of the various types of heritage resources observed and recorded in the project area will be determined to the following criteria:

#### *Cultural significance:*

- Low                      A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium                Any site, structure or feature being regarded less important due to several factors, such as date and frequency. Likewise, any important object found out of context.
- High                    Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Likewise, any important object found within a specific context.

#### *Heritage significance:*

- Grade I                Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II               Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III              Other heritage resources of local importance and therefore worthy of Conservation

#### *Field ratings:*

- i.            National Grade I                      significance should be managed as part of the national estate
- ii.           Provincial Grade II                significance should be managed as part of the provincial estate
- iii.          Local Grade IIIA                      should be included in the heritage register and not be mitigated (high significance)
- iv.          Local Grade IIIB                      should be included in the heritage register and may be mitigated (high/ medium significance)

- |      |                             |   |
|------|-----------------------------|---|
| v.   | General protection A (IV A) | site should be mitigated before destruction (high/ medium significance)             |
| vi.  | General protection B (IV B) | site should be recorded before destruction (medium significance)                    |
| vii. | General protection C (IV C) | phase 1 is seen as sufficient recording and it may be demolished (low significance) |

*Heritage value, statement of significance:*

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

### 3.2.4 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, for example. 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 that are out of character with the heritage resource and its setting.

Beneficial and adverse impacts can be direct or indirect, as well as 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. 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 type of 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 in such a way that its significance and value are minimally affected.
	Medium	Where 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, (a combination of extent, duration, intensity, and the potential for impact on irreplaceable resources).	Low	A combination of any of the following: - Intensity, duration, extent and impact on irreplaceable resources are all 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 being rated medium or higher.

Criteria	Rating Scales	Notes
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.
	High	It is more than 75 % certain that the impact will occur, or it is definite that the impact 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.

### 3.3 Oral history

Where possible, people from local communities were interviewed to obtain information relating to the surveyed area.

### 3.4 Report

The results of the desktop research and field survey are compiled in this report. The identified heritage resources and anticipated and cumulative impacts that the development of the proposed project may have on the identified heritage resources will be presented objectively. Alternatives, should any significant sites be impacted adversely by the proposed project, are offered. All effort 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 to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

## 4. PROJECT OVERVIEW

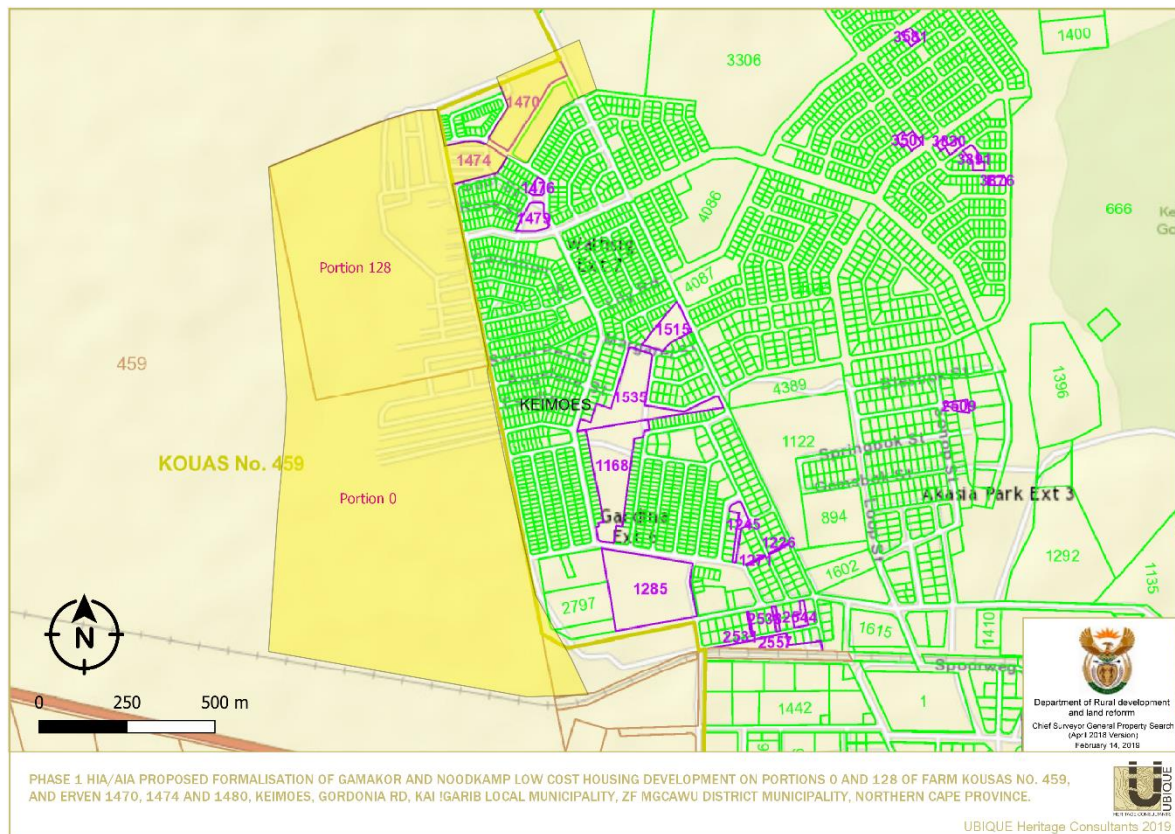
UBIQUE Heritage Consultants were appointed by EnviroAfrica cc. as independent heritage specialists in accordance with Section 38 of the NHRA and the National Environmental Management Act 107 of 1998 (NEMA), to conduct a cultural heritage assessment to determine the impact of the proposed formalisation and low cost housing development of Gamakor and Noodkamp on Portions 0 and 128 of Farm Kousas No. 459, and Erven 1470, 1474 and 1480, Keimoes, on any sites, features, or objects of cultural heritage significance. The site is located approximately 310 m north of the N14 Main Road, and on the western side of the town of Keimoes in the Kai !Garib Local Municipality, ZF Mgcawu District Municipality, Northern Cape.

The proposed project will entail the rezoning and the subdivision of 1500 Erven for low cost housing. The project includes the associated infrastructure such as water, electricity, sewage, and solid waste removal. The total residential area to be developed would be approximately 104 ha.

### 4.1 Technical information

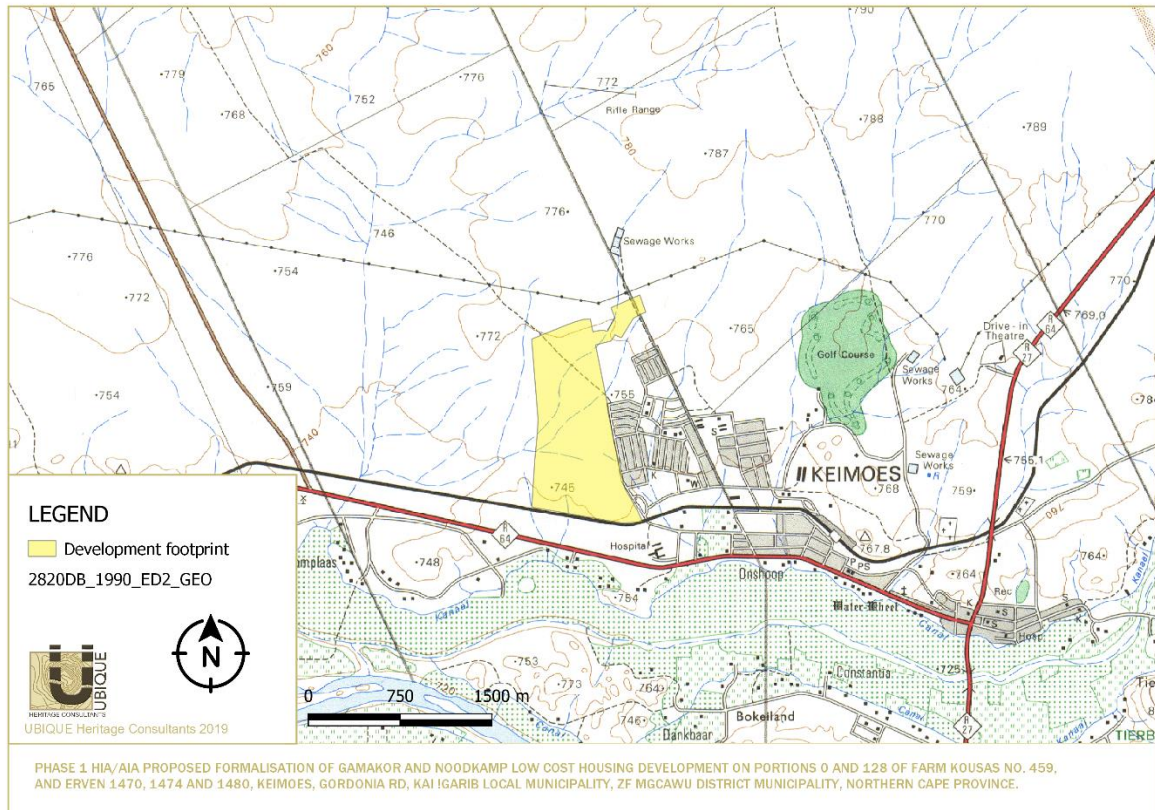
Project description	
Project name	Gamakor and Noodkamp low cost housing development, Keimoes, Northern Cape.
Description	Proposed formalisation of Gamakor and Noodkamp low cost housing development on Portions 0 and 128 of Farm Kousas No. 459, and Erven 1470, 1474 and 1480, Keimoes.
Developer	
Kai !Garib Municipality	
Contact information	Kai !Garib Municipality Tel: (+27)54 461 6700 Fax: (+27)54 467 6401
Development type	Civil: Housing Development (Low cost)
Land owner	
Contact information	See developer
Consultants	
Environmental	EnviroAfrica cc.
Heritage and archaeological	UBIQUE Heritage Consultants
Paleontological	Banzai Environmental
Property details	
Province	Northern Cape
District municipality	Z.F. Mgcawu
Local municipality	Kai !Garib
Topo-cadastral map	2820DB 1:50 000
Farm name	Kousas No. 459 Portion 0 and 128 Erven 1470, 1474 and 1480
Closest town	Keimoes
GPS Co-ordinates	28° 41' 52.60" S; 20° 56' 51.34" E.
Property size	104 ha
Development footprint size	104 ha

Land use	
Previous	Unknown
Current	Informal settlement
Re- zoning required	Yes
Sub-division of land	Yes
Development criteria in terms of Section 38(1) NHRA	
Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length.	Yes
Construction of bridge or similar structure exceeding 50m in length.	No
Construction exceeding 5000m <sup>2</sup> .	Yes
Development involving three or more existing erven or subdivisions.	Yes
Development involving three or more erven or divisions that have been consolidated within the past five years.	Yes
Rezoning of site exceeding 10 000m <sup>2</sup> .	Yes
Any other development category, public open space, squares, parks, recreation grounds.	Yes

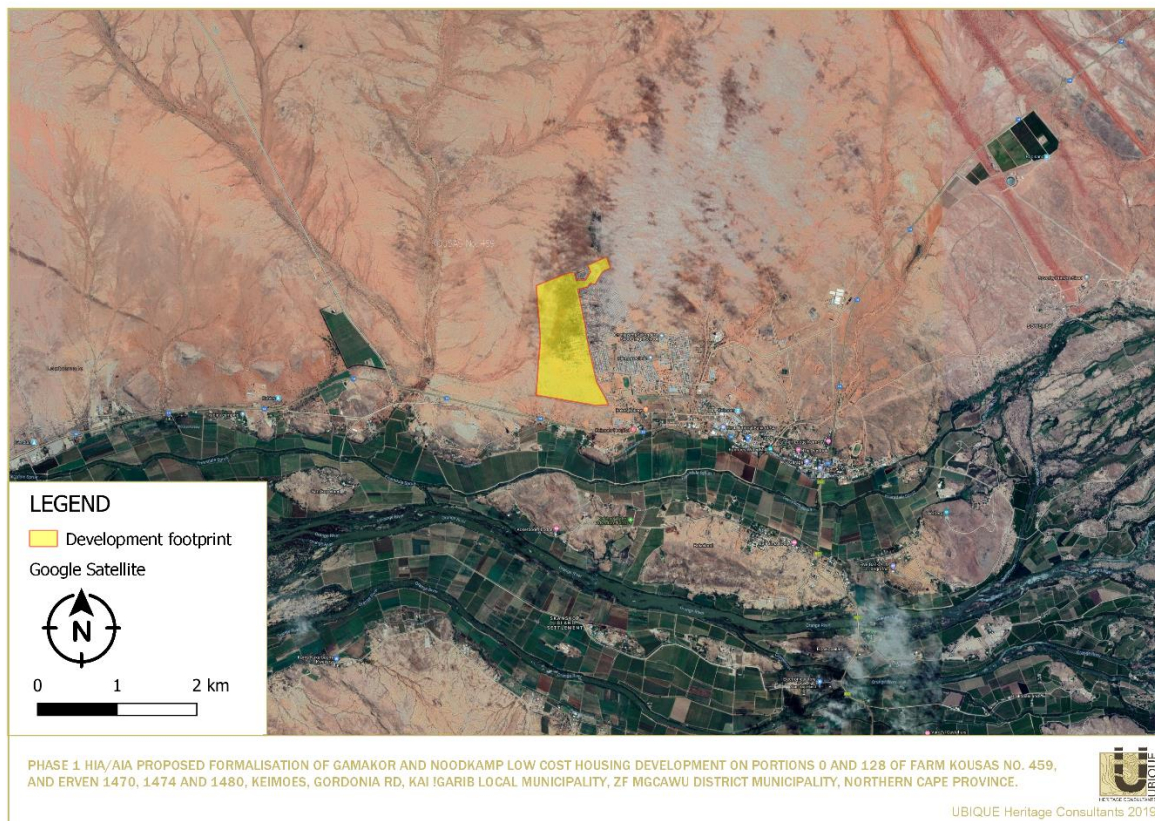


**Figure 2** Project footprint, represented by yellow polygon, indicated on Chief Surveyor General Property Search ArcGIS Web Map.

(<https://csg.esri-southafrica.com/portal/apps/webappviewer/index.html?id=34ec3dcf8d8642bb9ed7f795cbfe8faf>)



**Figure 3** Locality of proposed low-cost housing development on Farm Kousas No. 459, Portion 0 and 128, and Erven 1470, 1474, and 1480, Keimoes. 1:50 000 Topo-cadastral map WGS2820DB, Chief Surveyor General.



**Figure 4** Locality of proposed low-cost housing development on Farm Kousas No. 459, Portion 0 and 128, and Erven 1470, 1474, and 1480, Keimoes. Google Earth Satellite image.

## 4.2 Description of affected environment

The Kai !Garib Local Municipality falls predominantly within the Nama-Karoo biome (Mucina & Rutherford 2006), and most of the vegetation type in the study area is typical Bushmanland Arid Grassland. The landscape is characterised by extensive to irregular plains on a slightly sloping plateau sparsely vegetated by grassland dominated by white grasses (*Stipagrostis* species) characteristic of a semidesert 'steppe'. In places low shrubs of *Salsola* change the vegetation structure. In years of abundant rainfall rich displays of annual herbs can be expected (Mucina & Rutherford 2006). Vegetation observed in the study area include Basterskaapvygie (*Aizoon fruticosum*), Swarthaak (*Acacia mellifera*), Borseltjiegras (*Antheophora pubescens*), Soetpeulboom (*Prosopis glandulosa*), Driedoring (*Rhigozum trichotomum*), Aloes (*Aloe argenticauda*), Kameeldoring (*Acacia erioloba*), and Lemoendoring (*Parkinsonia Africana*). The soils of most of the area are freely drained red-yellow apedal soils (Mucina & Rutherford 2006). The study area consists of rocky *klipveld* with surface scatters of Quartz, Quartzite, Banded Ironstone Formation (BIF), and Sandstone and Calcrete deposits with visible Quartzite outcrops to the north of the site. Minor sand patches to the north and east of the site footprint. There is a slight slope across the site towards the south-west.

The town of Keimoes is situated to the north of the Gariep/Orange River, which is characterised by Lower Gariep Alluvial vegetation. The study area is situated north of an agricultural area that is part of intensive Irrigation Farming Community stretching from Groblershoop in the east up to Blouputs in the west. The Gariep/Orange River cuts through a great variety of Precambrian metamorphic rocks and is subjected to floods, especially in summer, as a result of high precipitation on the highveld. The soil of these areas is very fertile resulting in various grapes and other crops such as pecan nut- and citrus plantations being planted along the Gariep/Orange River (Mucina & Rutherford 2006).

The development site is located north of the N14, on the western side of the town of Keimoes. Towards the south, south-west, the site is bounded by a railway line, while to the north and east the informal settlement is located. At least two dry riverine are present on the project footprint, running from north-east to south-west. Moderate natural erosion occurs along the dry riverine. Approximately 80% of the entire footprint is disturbed by anthropogenic causes. The site has been greatly impacted upon by construction machinery and building activities associated with the informal settlement already present, and upcoming housing developments. There are at least three unlicensed and informal landfill sites/dumping areas.







Figure 5 Views of the affected development area.

## 5. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

### 5.1 Region

The Northern Cape is rich in archaeological sites and landscapes that reflect the complex South African heritage from the Stone Age to Colonial history.

#### 5.1.1 Stone Age

The Stone Age is the period in human history when lithic material was mainly used to produce tools (Coertze & Coertze 1996). In South Africa the Stone Age can be divided in three periods. It is, however, important 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:	>2 000 000 - >200 000 years ago
Middle Stone Age:	<300 000 - >20 000 years ago
Later Stone Age:	<40 000 - until the historical period.

Each of the sub-divisions is formed by a group of industries where the assemblages share attributes or common traditions (Lombard et al. 2012). Prominent sites that exemplify these periods in the Nama-Karoo Biome are Rooidam and Bundu Farm (Earlier Stone Age and Middle Stone Age), and Biesje Poort 2, Bokvasmaak 3, Melkboom 1, Vlermuisgat, and Jagtpan 7 (Later Stone Age) (Lombard et al. 2012).

Within the region, Stone Age sites and complexes have been, and are still being investigated in some detail. This includes, but are not limited to, the landscape near Kathu, where numerous Stone Age sites have been documented and excavated, representing the longest preserved lithostratigraphic and archaeological sequence of human occupation at the pan through the ESA, MSA, and LSA and with evidence for 500 000-year-old hafted stone points; ancient specularite working (and mining) on the eastern side of Postmasburg, Doornfontein; and associated Ceramic Later Stone Age material, and also the older transitional ESA/MSA Fauresmith sites at Lyly Feld, Demaneng, Mashwening, King, Rust & Vrede, Paling, Gloucester and Mount Huxley (Beaumont 2004; Beaumont 2013; Beaumont & Morris 1990; Beaumont & Vogel 2006; Morris 2005; Morris & Beaumont 2004; Porat et al. 2010; Thackeray et al. 1983; Walker et al. 2014; Wilkins et al. 2012).

Beaumont et al. (1995) commented that thousands of square kilometres of Bushmanland are covered by low-density lithic scatters. It is therefore not surprising that Stone Age sites and lithic scatters were identified by CRM practitioners between the Garona substation and the Gariiep/Orange River in numerous surveys conducted during the recent years. Scatters of MSA material have been recorded close to Griekwastad, Hotazel, Postmasburg and Kenhardt, Pofadder, Marydale, and in the Upington district (Dreyer 2006, 2012, 2014; Pelsler & Lombard 2013; PGS Heritage 2009, 2010; Webley 2013). MSA and LSA tools as well as rock engravings were also found at Putsonderwater, Beeshoek and Bruce (Morris 2005; Snyman 2000; Van Vollenhoven 2012b; Van Vollenhoven 2014).

Archaeological surveys have shown rocky outcrops and hills, drainage lines, riverbanks and confluences to be prime localities for archaeological finds and specifically Stone Age sites since these areas were utilized for base camps close to water and hunting ranges. If any such features occur in the study area, Stone Age manifestations can be anticipated (Lombard 2011).

### 5.1.2 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. Numerous heritage reports that provide a synthesis of the incursions of travellers, missionaries and the early European settlers have been captured on the SAHRIS database.

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. With the arrival of the Dutch settlers in the Cape in the mid-17<sup>th</sup> century, clashes between the Europeans and Khoi tribes in the Cape Peninsula 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 own 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 18<sup>th</sup> and 19<sup>th</sup> century roots back to the area around Groblershoop, Olifantshoek, the Langeberg (Majeng) and Korannaberg ranges in the western part of the region. After Britain annexed Bechuanaland in 1885, the land of the indigenous inhabitants was limited to a few reserves. In 1895, when British Bechuanaland was incorporated into the Cape Colony, the land inside the reserves remained the property of the Tswana and 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. More permanent large-scale settlement however only started in the late 1920s and the first farmsteads were possibly built during this period. The region remained sparsely populated until the advent of the 20<sup>th</sup> 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 very important 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).

## 5.2 Local

During 1778, Swedish-born traveller and explorer Hendrik Wikar, reached the middle and lower reaches of the Orange River after a long land journey that started in Cape Town. As a deserter from the service of the Dutch East India Company, Wikar spent several years within the area, and compiled a report of his experiences in exchange for a pardon (Ross 1975). He documented his encounters with Khoisan communities who called themselves the *Einiqua*, or *River People*. The *Einiqua* were divided into three “kraals”: the *Namnykoa* near the Augrabies Falls, the *Kaukoa* on islands west of Keimoes, and the *Aukokoa* of Kanoneiland and other islands to the east. Their kraals consisted of considerable amount of sheep and cattle, they collected plants, hunted game, and cultivated dagga but no other crops according to Wikar (Ross 1975). Amongst the pastoralist communities living on the islands were the *Anoe eis* people who Wikar characterised as “Bushman”. They possessed no domesticated stock, subsisted by fishing, game-trapping, hunting and the gathering of plant foods (Morris & Beaumont 1991). Colonel Robert Jacob Gordon who visited the area in 1779, however remarked that they were actually *Einiqua* (i.e. Khoi) who had “lost their cattle as a result of an argument with the *Namneiqua* village (Morris & Beaumont 1991).

Numerous HIA and AIA reports have been conducted between the Kakamas and Upington landscape. These reports include, but are not limited to, studies involving agricultural developments such as the construction of solar thermal plants and solar parks on/near farms at Olyvenhouts drift, Upington, and Keimoes (Dreyer 2006; Morris 2011), the construction of raisin drier facilities near Kanoneiland (Engelbrecht 2015), sand mining activities in the bed of the Donkerhoekspruit on Jannelsepan near Louisvale (Morris 2018), and road developments at Blaauwskop (Rossouw 2013).

Van Schalkwyk (2013) reported that the cultural landscape qualities of the larger region essentially consist of two components. First is a rural area in which human occupation is made up of a pre-colonial element (Stone Age), as well as a much later historical/colonial (farmer and industrial/mining) component. The second component is an urban landscape dating to the colonial period which is linked to the rural colonial landscape.

### 5.2.1 Stone Age

According to Kruger (2015) the landscape of this section of the Northern Cape seems to have been relatively sparsely populated by humans in the past, MSA and LSA scatters and quarries occur frequently in low lying areas on plains between dune straights and outcrops along the Orange River. Scatters of stone artefacts in and around the area between Kakamas and Upington have been recorded by, ACRM (2013; 2016(b)), Beaumont (2006; 2008), Dreyer (2006; 2013), Engelbrecht (2015), Kaplan (2008; 2012; 2013), Kruger (2015), Morris (2011; 2013; 2018), Orton et al

(2013), Rossouw (2013), Van Ryneveld (2007), Van Schalkwyk (2013; 2014), and Webley & Halkett (2014), amongst others. The majority of the documented lithics are predominately associated with the MSA, with a few attributed to the ESA and LSA. Most of the documented lithics have low archaeological significance as some of these lithic assemblages are of mixed age, occur on eroded surfaces, and lack in spatial context and integrity (ACRM 2012). Several stone artefacts were also affected by weathering such as gloss patina and riverine cortex gloss patina (Orton et al 2013).

Banded ironstone occurs on several sites throughout the Northern Cape and was a favoured raw material for making stone tools due to its superior flaking qualities (Morris 2012). ACRM (2013) stated that over 95% of the tools recorded, at Site 1 on Erf 666 (Site B), Keimoes, were made with banded ironstone, while the remainder is in indurated shale, quartzite, opaline and quartz. In the landscape surrounding the Keimoes Solar farm on Erf 666, Kaplan (2012) recorded a low-density surface scatter of MSA and LSA material, including several chunks, a weathered broken limestone flake, several burnished retouched and utilized flakes, a burnished core, and an unworked quartzite cobble/manuport on a large patch of stony ground. Stone artefact scatters were present on Site 1 on the farm Olyvenhouts Drift (Dreyer 2006) in the district of Upington. These included MSA points with convergent ends and flakes with faceted platforms made of quartzite, chalcedony and banded ironstone (Dreyer 2006).

Rossouw (2013) found occasional occurrences of lithics made from brown jasper present as isolated surface occurrences in Section A-B on the farm Blaauwskop 36. Rossouw (2013) speculated that these lithics can be attributed to the LSA. The lithics are represented by irregular flakes and chips, they also appear to be fresh with little sign of intentional faceting or formal preparation. Kruger (2015) identified and recorded scatters of MSA stone tools, such as blades, points, scrapers and one adze at Eenduin farm near Keimoes. Similar stone tools were also recorded by Engelbrecht (2015) at the Blaauwskop settlement, approximately 15 km north-east of Keimoes.

Near Lennertsville, approximately 10 km from the farm Kousas, and 18-20 km from Blaauwskop, Kaplan (2018) documented a large silcrete core, an LSA silcrete retouched flake and one quartzite flake was documented along with a number of flaked stone tools. Kaplan (2008) noted that certain flake tools have been utilized or retouched. Some of the other finds include flakes of various sizes, bladelets and blade tools (e.g. backed pieces and points), and fine punch struck flakes as well as small round cores. Kaplan (2008) also documented four convex scrapers, three side scrapers, an adze, a large ESA core and weathered, retouched MSA flakes. He stated most of the tools are LSA in character, possibly from the 'Wilton Complex' (Kaplan 2008).

Other traces left on the landscape by prehistoric people include grinding grooves in the bedrock exposures at Dyason's Klip, 16.1 km north-east of Keimoes (Morris 2013). There are about five grinding surfaces along with a small number of stone tools in the locale. Morris (2013) also recorded lower grindstones adjacent to localized bedrock exposure, with a surface scatter of LSA flakes.

To the west of the study area on agricultural lot 2371 Kakamas South Settlement, Morris (2017b) reports the unexpected occurrence of a rock gong on a rocky granite-gneiss outcrop. Rock gongs (or lithophones) are rocks that ring when struck and are characterised by beating marks that reflect ancient use (Morris 2017b). According to Morris (2017b), the find is significant as it is the first rock gong to be identified from this part of the Northern Cape and on granite-gneiss. Often found in association with rock art, they are a feature of the LSA, with alleged ritual connotations (Morris 2017b).

Another interesting prehistoric find in the greater vicinity is the discovery of two kite-like features 22km north of Keimoes (Van der Walt & Lombard 2018). The large funnel-shaped features of undetermined age were constructed and shaped by organising local dolerite stones, sometimes incorporating in-situ dolerite outcrops/boulders. Kites are widely accepted as being utilised as hunting traps (Holzer *et al.* 2010 in Van der Walt & Lombard 2018). The ethno-historical records documented various kinds of hunting traps used by San hunter-gatherers, but the use of these funnel-shaped stone features by Stone Age herding communities (who also hunted) cannot be conclusively discounted (Van der Walt & Lombard 2018).

Furthermore, Morris (2014; Morris & Beaumont 1991) hypothesizes that the archaeological footprint of substantial herder and short-term hunter-gatherer encampments along the floodplain of the Orange River, may have been disrupted and destroyed by intensive farming alongside the river since colonial settlement.

### 5.2.2 Historical period

Before the European influx, the region of interest was predominantly settled by the Khoi-San and Koranna people. The subsequent settlement of European farmers and *trekboers* took place during the 18<sup>th</sup> and 19<sup>th</sup> centuries up until the 20<sup>th</sup> century. Khoikhoi farmers/hunter gatherers, Bushmen, Nama and Griqua had also resided in this region (Engelbrecht 2015).

Keimoes translates from the Khoekhoe language as "large eye" or "big eye". This might refer to either the natural water fountain called Big Eye or Keimoes situated at the Roman Catholic Mission Station in the town, or to the vast views that can be seen from the Tierberg, a small mountain outside the town. A second account for the town's name, is said to originate from the Khoemana leader, Klaas Lucas, who in the 1860s named the place Keimoes or "mouse nest" in the Khoemana language, denoting to the colonies of mice living there (Raper *et al* 2014).

In 1882, the first 81 farms north of the Gariiep/Orange River between Groblershoop and the Augrabies Falls were allocated almost exclusively to *Basters* (a term referring to a group of people with mixed parentage, particularly white and Khoikhoi or slave and Khoikhoi, who were culturally European and who chose to move out of the Cape Colony to avoid social oppression) (Morris, 1992). During the late 19<sup>th</sup> century, more white people started moving to the Gordonia area and by the turn of the century, some 13 Afrikaner families had settled at Keimoes (De Beer 1992; Van der Walt 2015). The aftermath of the scorched earth policy of the South African War (Anglo-Boer War), resulted in many farmers moving to new areas, in search of greener pastures, and settlement next to the Gariiep/Orange River provided ample irrigation for one's crops. Farmers who could

afford it, bought land in Keimoes, while others who could not afford properties of their own became *bywoners* to other landowners, paying rent to live and work on the land, or they settled in Kakamas, a labour colony established to help uplift poor whites in the Gordonia area (Engelbrecht & Fivaz 2018; Van der Walt 2015). By 1910, Keimoes had its own hotel, prison, court and police service (De Beer, 1992). It attained municipal status in 1949, and in 1951, Keimoes opened its own power station and electricity replaced candlelight (De Beer 1992; Van der Walt 2015). In 1995 there were only three *Baster* landowner families remaining in the Keimoes area, namely the Jansen family, the Loxtons and the Spangenberg. The commercialisation of agricultural farming during the 20<sup>th</sup> century and the state's support for the capitalisation of white farmers in the area, probably contributed to many of the *Basters'* decision to sell their farms to emerging white farmers (Legassick 1996; Van der Walt 2015).

The development of canal systems played an important role in irrigating extensive vineyards and orchards within the region and the development of substantial agricultural initiatives within the area (Engelbrecht & Fivaz 2018). It has been central to the economic existence and development of Keimoes and surrounds since the 1880s. Dutch Reformed Church missionary Reverend C.H.W. Schröder and Special Magistrate for the Northern Border John H. Scott, are credited with formalising and extending the irrigation system. However, when Schröder first came to Upington in July 1883, there were already people in the area of Keimoes that used irrigation and planted fields. Moolman (1946) and Legassick (1996) mentions how the *Baster* farmers diverted river water to their gardens, albeit crudely. The historic water wheel at Keimoes, Main Street, was declared a provincial heritage site in 1978. The four historic water wheels situated along the Noordvoor, or northern furrow on Erven 103, 1057, 268 and 1467 Kakamas South Settlement, have also been designated as provincial heritage sites (<https://sahris.sahra.org.za/declaredsites>).



**Figure 6** Historic water wheel, a declared provincial heritage site in Keimoes.

The old Dutch Reformed Missionary churches at Keimoes and Upington also received provincial heritage site status in 1982 and 1990 (<https://sahris.sahra.org.za/declaredsites>).



Figure 7 Dutch Reformed Missionary Church, provincial heritage site in Keimoes.

De Jong (2010) classifies the cultural landscape along the Gariep/Orange River as predominantly historic farmland. The affected area consists of working (operating) irrigation and grazing farms located in a typical Lower Orange River environment. These farms display heritage features that typically occur in the district, such as their large size, irrigation furrows and pipelines, fences, tracks, farmsteads, and irrigated fields. Farmsteads are clustered close to rivers and main roads (De Jong 2010). According to De Jong (2010) this class of landscape is of relatively low heritage sensitivity because it can absorb adverse effects of new development through some mitigation. Very little artefacts and/or structures dating to the historical/colonial period have been recorded on sites in the vicinity of the study area.

On Webley and Halkett's (2014) survey for the proposed construction of a PV (Photovoltaic) facility on the remainder of the farm Dyason's Klip 454, they recorded the mud-brick ruins of a small possible shepherd's hut, along with the trenches and abandoned equipment from the 20<sup>th</sup> century mining for tungsten on the property. They concluded that these remains are of low significance (Webley & Halkett 2014). Furthermore, Morris (2013) recorded a collapsed structure, a kraal and a nearby ash-heap close to Dyason's Klip, which he suggests could have been a farm-workers' dwelling. He also noted that there was another collapsed structure, with a possible porch. This structure was more substantial than the first structure and yielded small quantities of glass, porcelain and metal, which most likely can be dated to the mid-20<sup>th</sup> century (Morris 2013).

It is important to note that the region was caught up in the Koranna War of 1879-1880 along with other military activity such as the rising of 'rebels' in the aftermath of the South African War (Anglo-Boer War) and an incursion of German troops in January - February 1915 (Morris 2018). It is believed that any military settlement, specifically those related to the Koranna Wars, would have been located closer to the Gariep/Orange River (Webley & Halkett 2014). A *voortrekker* memorial monument was recorded approximately 1 km from the Orange River Wine Cellars, Kanoneiland (Engelbrecht 2015). Dreyer (2006) recorded, at Olyvenhouts Drift, a heavily soldered food tin that resembled British rations from the South African War (Anglo-Boer War) (1899-1902), he states that this could suggest that a British camp was in the vicinity during the war, however, its context is unconfirmed and thus mere speculation (Dreyer 2006). Van der Walt (2015) noted the position of a historical monument located on the farm Geelkop, north-west of Keimoes, called the "Rebellion



Tree”, associated with the activities of the 1914 rebellion against the South African participation in the First World War.

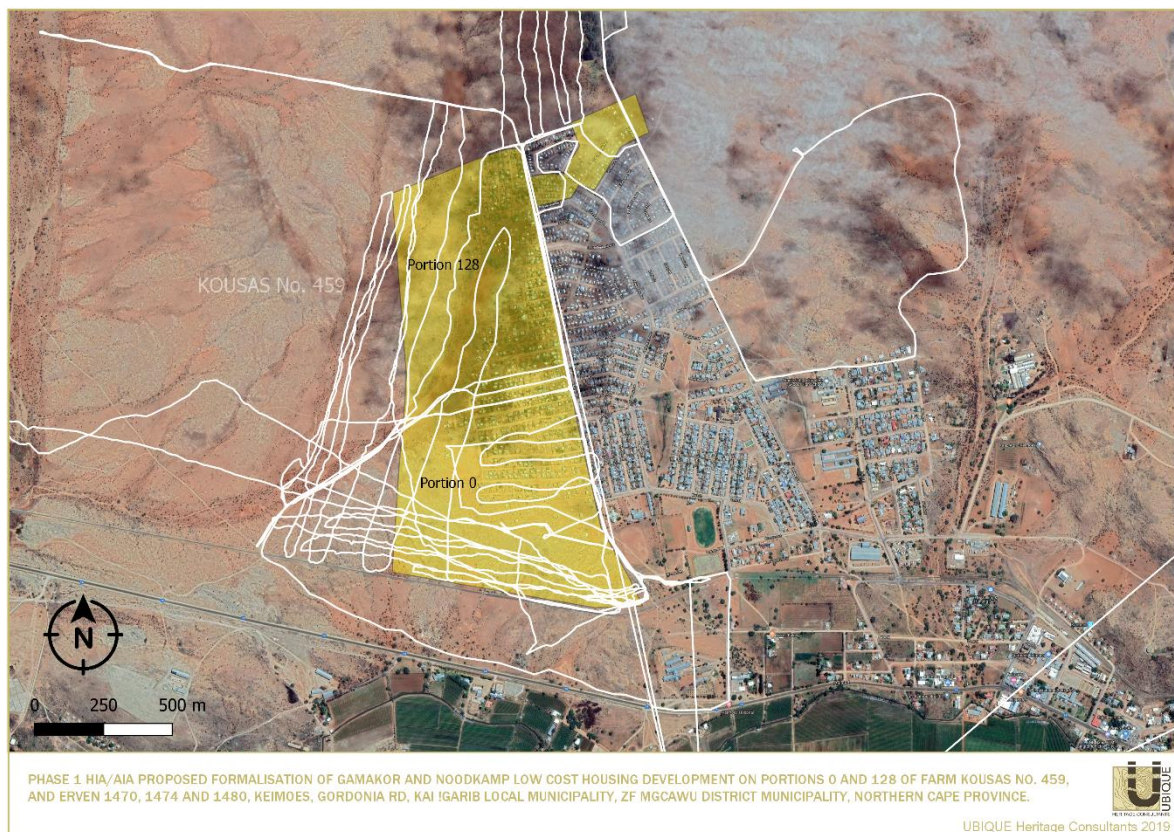
### 5.2.3 Oral history

No interviews with locals were conducted regarding the history of the area.

## 6. IDENTIFIED RESOURCES AND HERITAGE ASSESSMENT

### 6.1 Surveyed area

The area surveyed for the impact assessment was dictated by the Google Earth map of the development footprint provided by the client. The site was approached from the south-west and a pedestrian survey was conducted in transects of approximately 30 m. Developed areas were only scoped due to disturbances. Surrounding areas were surveyed via vehicle.



**Figure 8** Google Earth image showing survey track for housing development project, Portions 0 and 128 of Farm Kousas No. 459, and Erven 1470, 1474, and 1480, Keimoes.

## 6.2 Identified heritage resources

Description		Period	Location	Field rating/ Significance	
Stone Age					
1	Type lithic/s	Debris: Flakes and Chunks	MSA/ Early LSA	28° 42.234' S 20° 57.079' E	Field Rating IV C  Low significance
	Raw material	Banded ironstone formation			
	N in m <sup>2</sup> .	4 per m <sup>2</sup> in 20 m <sup>2</sup> area			
	Context	Surface scatter, out of context			
	Additional	4 pieces scattered close to disturbed area			
2	Type lithic/s	Debris: Chunk	MSA/ Early LSA	28° 42. 125' S 20° 56. 552' E	Field Rating IV C  Low significance
	Raw material	Banded ironstone formation			
	N in m <sup>2</sup> .	1 per m <sup>2</sup> in 20 m <sup>2</sup> area			
	Context	Surface scatter, out of context			
	Additional	1 piece, excluded from development footprint			
Historical					
	<b>No historical features were identified.</b>				N/A
Graves					
	Grave markers	<b>No graves were recorded.</b>			N/A
	Inscription				
	Orientation				
	Inscription				
	Orientation				

## 6.3 Discussion

### 6.3.1 Archaeological features

Two occurrences of lithics were recorded during the survey of the study area (Fig. 9 & Fig. 10). The first occurrence is in the south of the development footprint on Farm Kousas No. 459 Portion 0 and consist of four pieces of MSA/Early LSA debitage/flakes scattered ex situ in a heavily disturbed area. The second recorded find is an isolated chunk situated outside the development footprint. All the recorded lithics were made from the highly utilised banded ironstone formation, popular throughout the area (Morris 2012). The cultural material shows various degrees of weathering and may either be representative of the Early Later Stone Age, or a mere mixture of LSA and MSA artefacts (Lombard 2011). The identified archaeological materials are of low significance, as the archaeological sample is small and without context, and therefore of little scientific value.

These Stone Age heritage finds are given a 'General' Protection C (Field Rating IV C). This means these sites have been sufficiently recorded (in the Phase 1). It requires no further action.

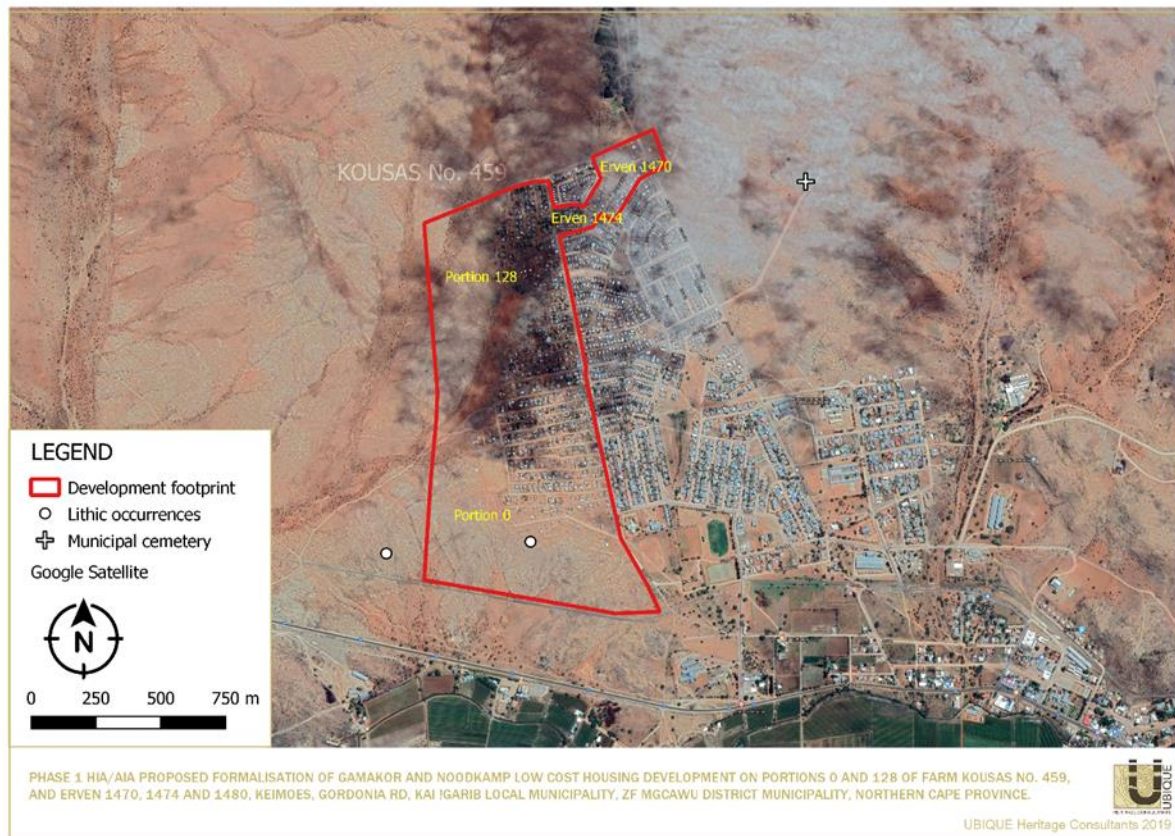


Figure 9 Lithic occurrences within, and near study area.

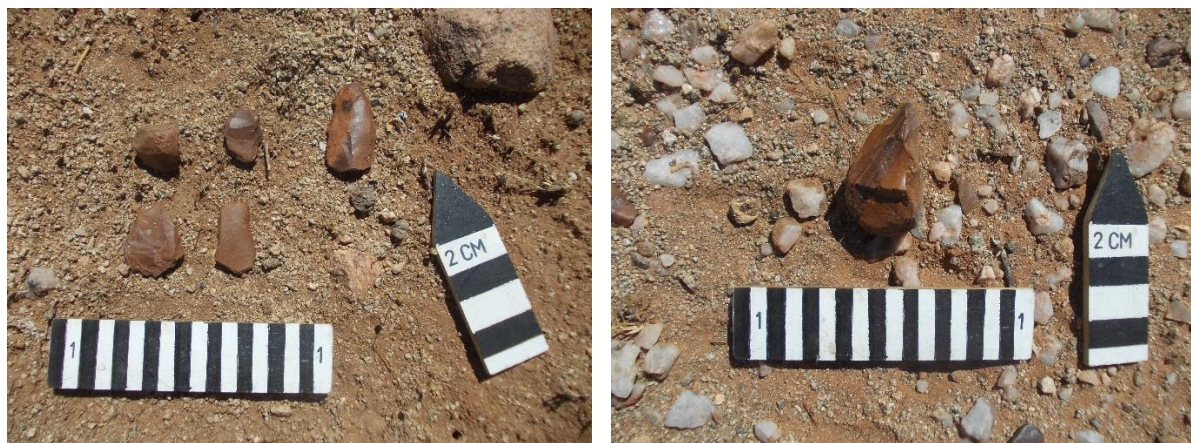


Figure 10 Lithics found within the development footprint and outside.

### 6.3.2 Historical features

No significant historical features were identified within the study area.

### 6.3.3 Graves

No formal or informal graves were identified in the study area. The local municipal cemetery lies well outside the development impact zone, to the north-east (Fig. 11).



**Figure 11** Local municipal cemetery.

### 6.3.4 Palaeontological resources

The proposed Gamakor and Noodkamp low-cost housing development is underlain by Precambrian metamorphic and igneous basement rocks of the Namaqua-Natal Metamorphic Province (not fossiliferous) and superficial Late Cenozoic deposits and (largely not fossiliferous), both of which has a low to very low palaeontological sensitivity. And thus, the impact of the development on the Fossil heritage is considered to be low (Butler 2019; Almond & Pether 2008). Elize Butler from Banzai Environmental proposes exemption from doing a full paleontological study for this project (see Appendix 1).

## 7. RECOMMENDATIONS

Based on the assessment of the potential impact of the development on the identified heritage, the following recommendations are made, taking into consideration any existing or potential sustainable social and economic benefits:

1. The lithic traces on the landscape of the study area are of low significance and the impact of the development on these resources are inconsequential. No other heritage was identified. Therefore, no further mitigation is required, and from a heritage point of view we recommend that the proposed development can continue.
2. Due to the zero palaeontological significance of the area, no further palaeontological heritage studies, ground truthing and/or specialist mitigation are required. It is

considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area as the igneous rocks underlying the site are not fossiliferous. It is therefore recommended that the project be exempt from a full Paleontological Impact Assessment (Butler 2019).

3. Although all possible care has been taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the assessment. If during construction, any possible discovery of finds such as stone tool scatters, artefacts, human remains, or fossils are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find. UBIQUE Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.

## 8. CONCLUSION

This HIA has identified no significant heritage resources on Portions 0 and 128 of Farm Kousas No. 459, and Erven 1470, 1474 and 1480, Keimoes, Kai !Garib Municipality, Mgcawu District Municipality, Northern Cape as set out in the report. In the development footprint are no archaeological, historical or cultural sites, or paleontological resources that will be impacted on negatively by the proposed development.

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**WEB**

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# APPENDIX A

RECOMMENDED EXEMPTION FROM FURTHER PALAEOLOGICAL STUDIES FOR PROPOSED FORMALISATION OF GAMAKOR AND NOODKAMP LOW COST HOUSING DEVELOPMENT, KEIMOE, GORDONIA RD, KAI !GARIB LOCAL MUNICIPALITY, ZF MGCWU DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.

**RECOMMENDED EXEMPTION FROM FURTHER PALAEOLOGICAL STUDIES FOR PROPOSED  
FORMALISATION OF GAMAKOR AND NOODKAMP LOW COST HOUSING DEVELOPMENT, KEIMOES, GORDONIA  
RD, KAI IGARIB LOCAL MUNICIPALITY, ZF MGCAWU DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE**

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## BACKGROUND

EnviroAfrica CC has been employed by Kai !Garib Municipality, ZF Mgcawu District Municipality, to undertake the NEMA [National Environmental Management Act, 1998 (Act no 107 of 1998 as amended in 2014)] for the Application for the Environmental Authorization Process for the proposed formalisation of Gamakor and Noodkamp low cost housing development. The proposed development is located on Portions 0 and 128 of Farm Kousas No. 459, and Erven 1470, 1474 and 1480 in Keimoes (Figure 1 -3)

This report is a **recommended exemption** from further Palaeontological studies as the proposed development site is underlain by Precambrian metamorphic and igneous basement rocks of the Namaqua-Natal Metamorphic Province as well as superficial Late Cenozoic deposits, both of which has a low to very low palaeontological sensitivity. And thus the impact of the development on the Fossil heritage is considered to be LOW.

## OUTLINE OF PROPOSED DEVELOPMENT

The application process consists of the following activities:

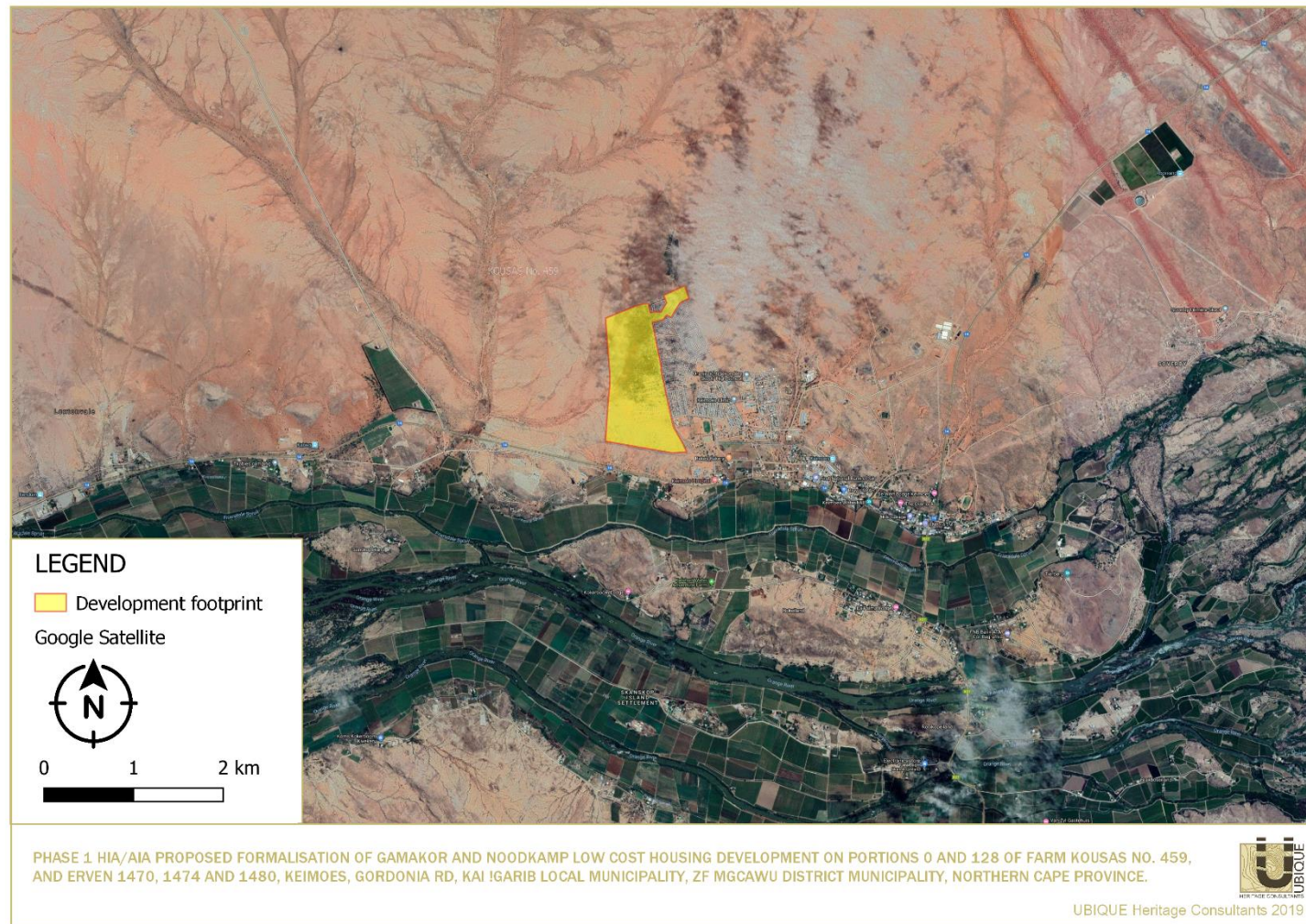
- The rezoning and subdivisions of 1500 Erven for low cost houses.
- The associated infrastructure include water, electricity, sewage, solid waste removal

## GEOGRAPHICAL LOCATION OF THE SITE

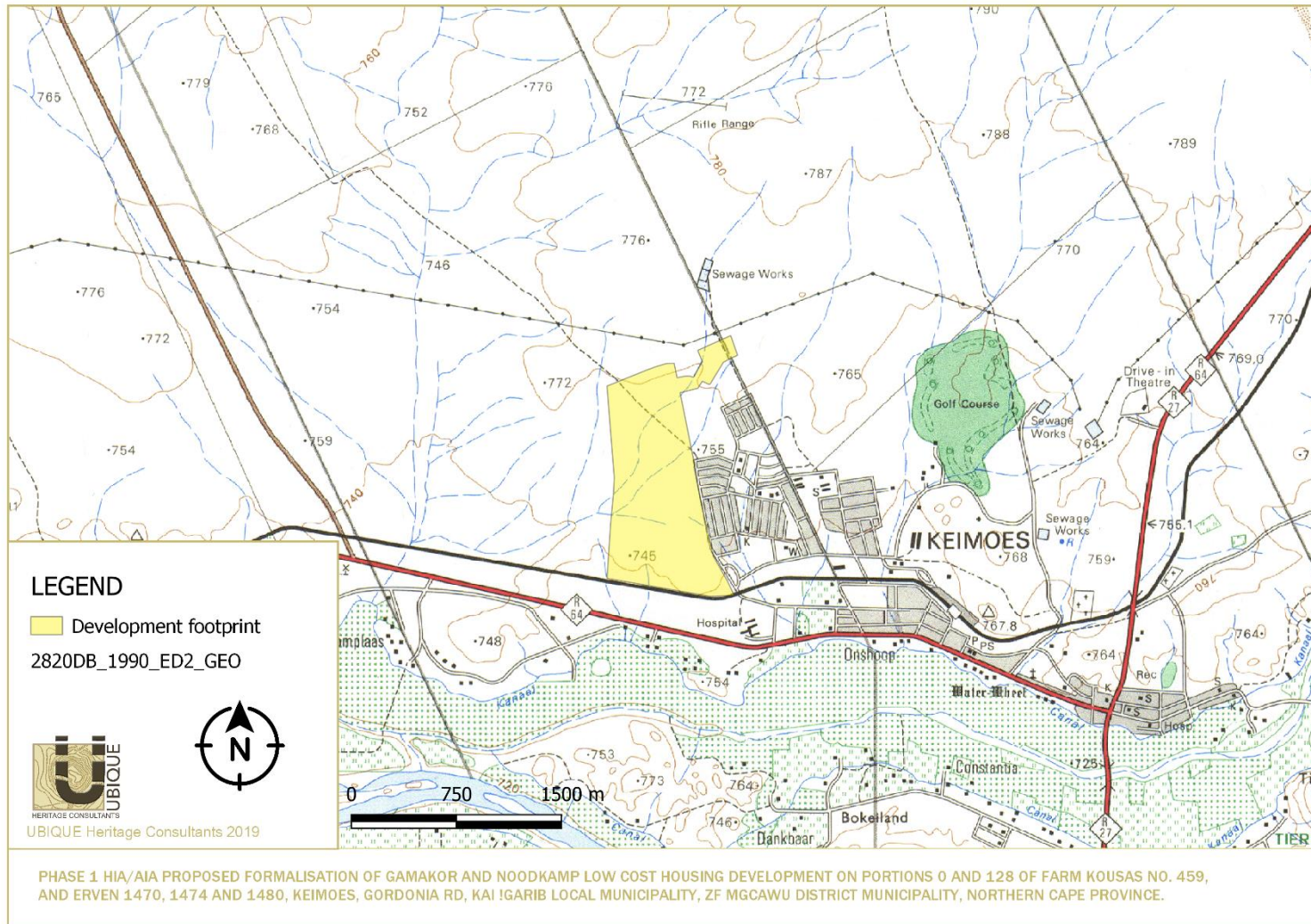
The proposed development will be 104 ha in extent and is situated on the western side of Keimoes.

The N14 National Road is approximately 310 m south of the proposed site.

- The development is located on topographical Map 2820 DB

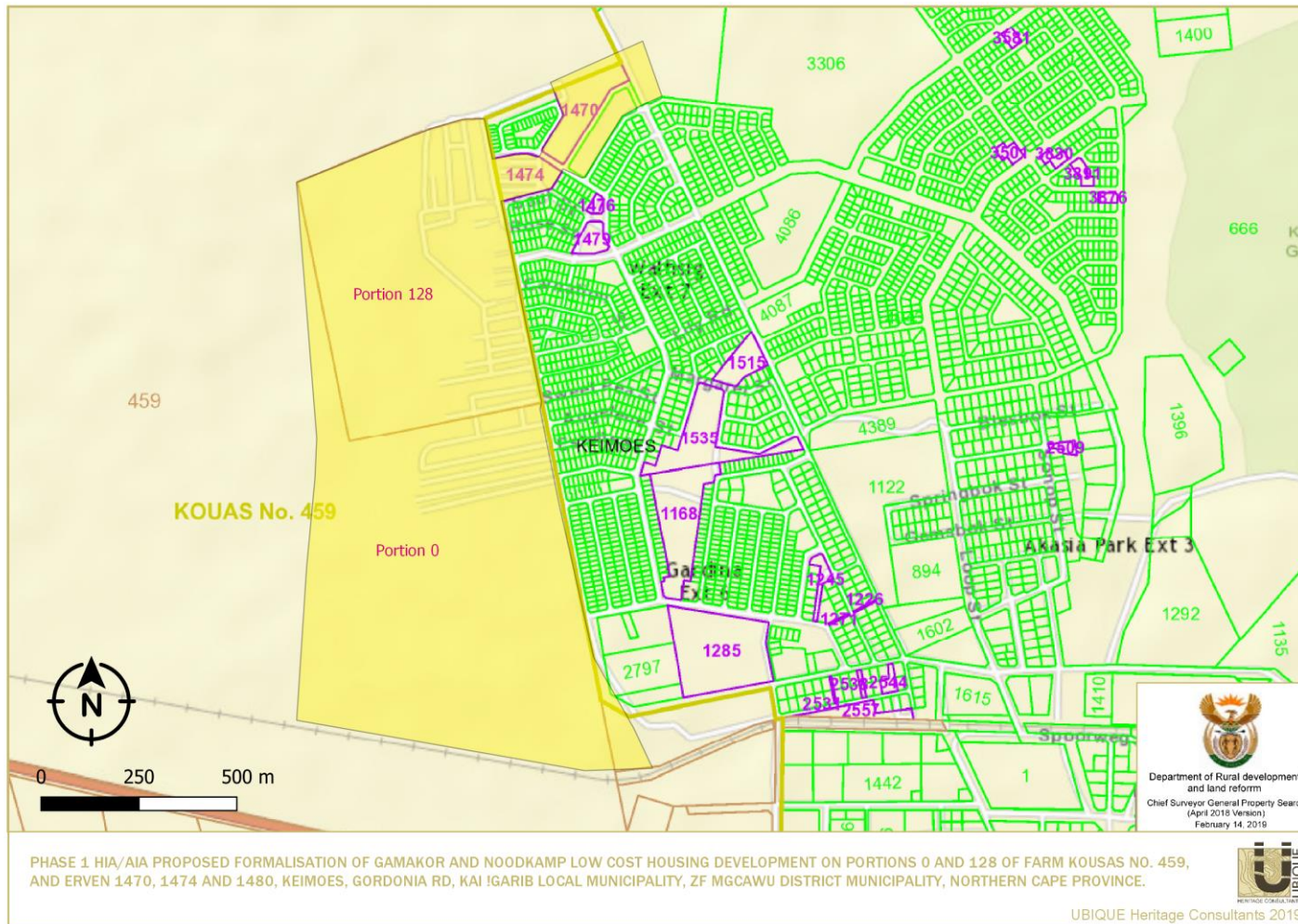


**Figure 1:** Google Earth Image of the proposed formalisation of Gamakor and Noodkamp low cost housing development, Keimoes, Gordonia Rd, Kai !Garib Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. The map provided by Ubique Heritage Consultants.



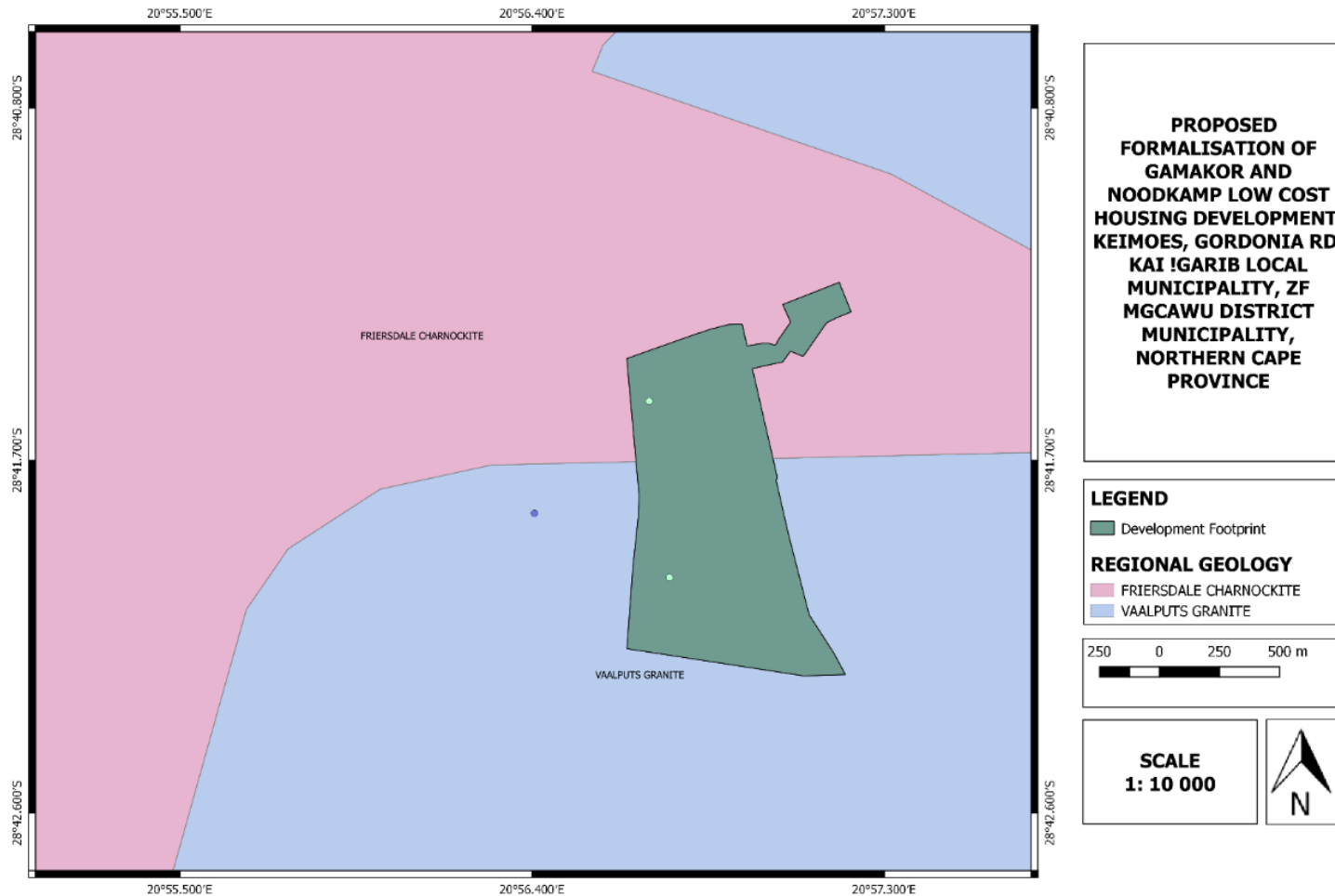
**Figure 2:** Topographical map of the proposed development footprint of Gamakor and Noodkamp low cost housing development, Keimoes, Gordonia Rd, Kai !Garib Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. The map provided by Ubiq Heritage Consultants.





**Figure 3:** Detailed layout of Gamakor and Noodkamp low cost housing development, Keimoies, Gordonia Rd, Kai !Garib Local Municipality, ZF Mgcauw District Municipality, Northern Cape Province. The map provided by Ubiqum Heritage Consultants.

GEOLOGICAL AND PALAEOANTHROPOLOGICAL HERITAGE



**Figure 4:** The surface geology of the proposed Gamakor and Noodkamp low cost housing development, Keimoes, Gordonia Rd, Kai !Garib Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province is underlain by the Vaalputs granite and Friersdale Charnockite of the Keimoes Suite as well as late Cenozoic superficial deposits . The map was drawn by QGIS Desktop 2.18.18.

The proposed Gamakor and Noodkamp low cost housing development is located west of Keimoes and just north of the Orange River. The area consists mostly of arid, hilly terrain north of the Orange River with small sporadic flowing streams, and alluvial islands, banks and basement rock outcrops associated with the Orange River. Bedrock exposure away from the river are typically high, while coarse, poorly-sorted alluvial and colluvial gravels are probably mantling the hill slopes and stream valleys.

The proposed low-cost housing development is underlain by Vaalputs Granite and Friersdale Charnockite of the Keimoes Suite (Figure 4), which is Precambrian metamorphic and igneous basement rocks of the Namaqua-Natal Metamorphic Province. Vaalputs granite consists of grey, well-foliated, medium-grained, locally porphyritic adamellitic granite with abundant xenoliths. The Friersdale Charnockite contain dark-weathering, fine-to medium-grained, inequigranular (locally porphyritic) charnockitic adamellite.

The Precambrian basement rocks within the study area are covered with a various other coarse to fine-grained **superficial deposits** namely.

- alluvium and calcrete hardpans of intermittently flowing streams.
- colluvium (slope deposits),
- rocky soils, down washed surface gravels,
- sheet wash.

These younger deposits may include patches of aeolian sands of the **Gordonia Formation (Kalahari Group;** and Quaternary to Recent in age).

#### **4. CONCLUSIONS & RECOMMENDATIONS**

The proposed Gamakor and Noodkamp low cost housing development is underlain by Precambrian metamorphic and igneous basement rocks of the Namaqua-Natal Metamorphic Province (unfossiliferous) and superficial Late Cenozoic deposits and (largely unfossiliferous), both of which has a low to very low palaeontological sensitivity. And thus, the impact of the development on the Fossil heritage is considered to be LOW.

**It is therefore recommended that exemption from further specialist palaeontological studies and mitigation be granted for this development.**

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