

**Phase 1 Heritage Impact Assessment & Palaeontological Desktop Assessment
for a Mining Permit Application on a Portion of the Remaining Extent of
Portion 8 (a Portion of Portion 3 - Rooidam) of the Farm Gemsbokbult 120 HE
near Kenhardt, within the Kai !Garib Local Municipality, Northern Cape**



Prepared by

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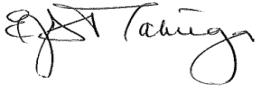
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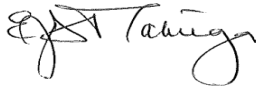
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	Name	Signature	Date
FIELD WORK & REPORT	E. Matenga		01 Aug 2022

DECLARATION OF INDEPENDENCE

AHSA Pty Ltd is an independent consultancy: I hereby declare that I have no interest, be it business, financial, personal or other vested interest in the undertaking of the proposed activity, other than fair remuneration for work performed, in terms the National Heritage Resources Act (No 25 of 1999).



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ABBREVIATIONS

CPF	Chance Finds Procedure
EIA	Environmental Impact Assessment
HIA	Heritage Impact Assessment
LSA	Late Stone Age
LIA	Later Iron Age
PHRA	Provincial Heritage Resources Authority
MSA	Middle Stone Age
NEMA	National Environmental Management Act.
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

EXECUTIVE SUMMARY

1. This report has been prepared in support of a mining permit application on a Portion of the Remaining Extent of Portion 8 (a Portion of Portion 3 - Rooidam) of the Farm Gemsbokbult 120 HE near Kenhardt, within the Kai !Garib Local municipality, Northern Cape Province.
2. The report complies with Section 38(8) of the National Heritage Resources Act (No 25/1999) which requires screening of the footprint of the development for the possible occurrence of heritage resources that may be impacted by the proposed activities, and on the basis of which appropriate mitigation measures will be prescribed. The report is based on ground survey undertaken on 2nd July 2022
3. *The Stone Age*
Stone Age material is widely distributed on the plains, ridges and valleys of the upper Karoo area north and south of the Orange-Vaal basin. The material occurs as background scatters comprising scrapers, blades, cores and flakes typologically dating to the Middle Stone Age/Late Stone Age period. In the present study no material dating to the Stone Age was found in the areas targeted for mining.
4. *Iron Age*
No sites or relics dating to the Iron Age were found.
5. *Commercial farming heritage*
There are no buildings or structures in the areas of the proposed aggregate mining.
6. *Burial Grounds*
No burial grounds were recorded.

7. *Categories and ranking of heritage sites*

	Grading	Description	No of Sites
1a	National	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources	0
1b		Burial Grounds and Graves. Public sensibilities about the sanctity of graves	0
2	Provincial	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 2 heritage resources	0
3A	Local	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 3A heritage resources	0
3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources	0
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources	0
		TOTAL	0

8. Farmers in the northern are increasingly diversifying their products to mitigate the increasing risk of droughts. Unpredictable weather patterns on an annual cycle and over long periods are increasingly becoming unpredictable due to climate change. Mining provides a fallback when livestock production is affected by incessant droughts. Farmers are venturing into mining on a small and large scale and the mixed economy is turning out to be more viable when compared to livestock farming alone.

9. Conclusion and recommendations

The mining project can be allowed to go ahead. If archaeological or other heritage relics deemed of high significance are found during the exploration phase, heritage authorities will be advised immediately and a heritage specialist will be called to attend.

1. INTRODUCTION

This report has been prepared in support of a mining permit application on a Portion of the Remaining Extent of Portion 8 (a Portion of Portion 3 - Rooidam) of the Farm Gemsbokbult 120 HE near Kenhardt, within the Kai !Garib Local municipality, Northern Cape Province (Figures 1-3). The report complies with Section 38(8) of the National Heritage Resources Act (No 25/1999) which requires screening of the footprint of the development for the possible occurrence of heritage resources that may be impacted by the proposed activities, and on the basis of which appropriate mitigation measures will be prescribed. The report is based on ground survey undertaken on 2nd July 2022.

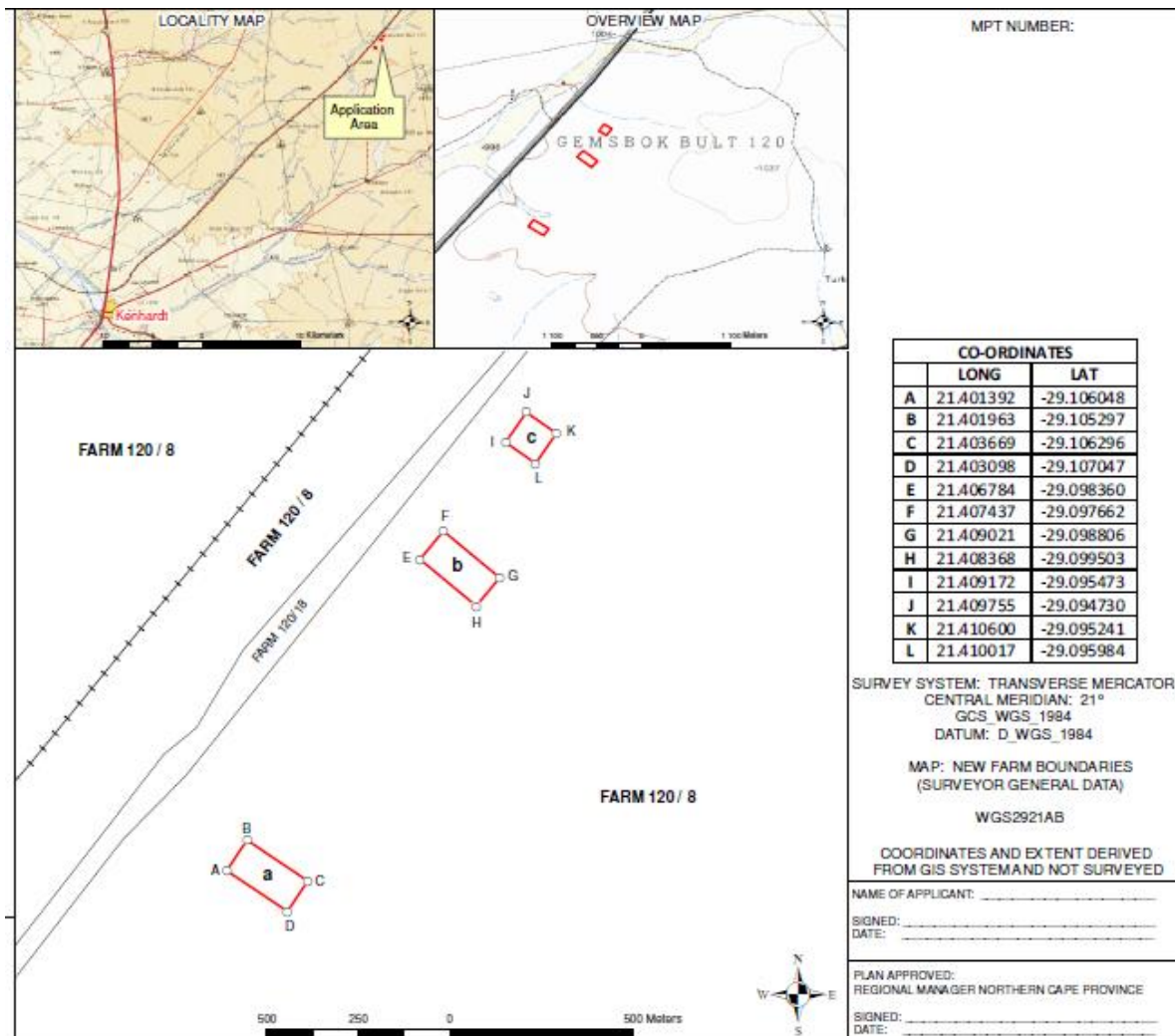


Figure 1: Locality map shows the application areas located over a distance of 1.5 km. A railway line is running on the west side (left)

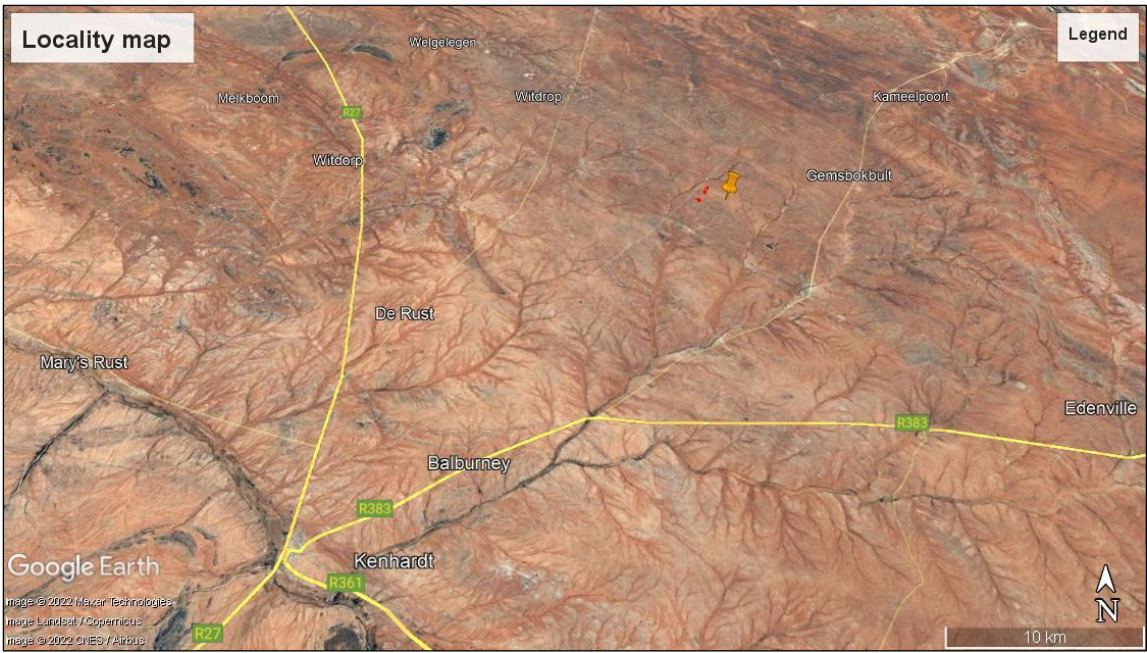


Figure 2: The locality projected on a Google Earth map



Figure 3: Close Google Earth overview of the target areas

Mining of construction aggregate is an earthmoving operation likely to result in the damage or destruction of heritage resources above or below the ground as it entails the following:

- Open excavations and trenches;
- Test pits;
- Drilling;

- Opening of temporary service roads; and
- Location of processing plant;
- Placement of topsoil discard;
- Establishment of permanent or semi-permanent office and storage facilities;
- Accommodation facilities for workers.

2. DESCRIPTION OF THE RECEIVING ENVIRONMENT

Three areas are targeted for aggregate on the farm Gemboksbult 120 HE 40 km northeast of Kenhardt. Kenhardt and its surrounds are situated on an open extensive Karoo plain with few prominent topographical features in the terrain. The geology consists of superficial sand-loamy soils which are derived from Kalahari sand. This is underlain by a horizon of calcrete which is occasionally exposed on the surface as lumps or degraded waste. The vast open karoo plain is occasionally interrupted by ephemeral streams and shallow depressions called pans which hold water during the rainy season and for a shorter period thereafter. Vegetation is sparse Karoo scrub and occasional *Acacia karoo* trees are found with increasing density along the channels with beds filled with sand (Figures 4-6).



Figure 4: The northern portion (c). This picture shows a flat terrain, superficial sands and calcrete waste. The grass cover was induced by good rains received in the last summer after a prolonged drought



Figure 5: In the middle portion (b) the terrain and vegetation characteristics remain the same



Figure 6. The southern portion (a), the terrain is flat, the top soil a sandy loam and gravel mixture

3. LEGAL FRAMEWORK

Developers have an onus to safeguard heritage resources. This is a legal obligation under Sections 34, 35, 36 and 38 of the National Heritage Resources Act (No 25 of 1999) which forms the legal framework in which this HIA report has been prepared.

3.1. Section 38 of National Heritage Resources Act on Heritage Impact Assessments

Section 38 of the NHRA states the nature and scale of development which triggers a HIA:

38. (1) *Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—*

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50 m in length;

(c) any development or other activity which will change the character of a site—

(i) exceeding 5 000 m² in extent¹; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m² in extent; or

(e) any other category of development provided for in the regulations by SAHRA or a provincial heritage resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

3.2. Definition of heritage (National Estate)

Section 3 lists a wide range of cultural phenomena which could be defined as heritage, or the *National Estate* (3(2)). Section 3(3) outlines criteria upon which heritage value is ascribed. This Section is useful as a field checklist for the identification of heritage resources.

¹ Areal extent of the proposed development triggers the HIA.

3.3. Protection of buildings and structures older than 60 years

Section 34 provides automatic protection for buildings and structures more than 60 years old until it can be proven that they do not have heritage value:

(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.

3.4. Protection of archaeological sites

Section 35 (4) of the NHRA prohibits the destruction of archaeological, palaeontological and meteorite sites:

No person may, without a permit issued by the responsible heritage resources authority—

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

3.5. Graves and burial grounds

Section 36 of the NHRA provides for the protection of certain graves and burial grounds.

Graves are generally classified under the following categories:

- Graves younger than 60 years;
- Graves older than 60 years, but younger than 100 years;
- Graves older than 100 years; and
- Graves of victims of conflict
- Graves of individuals of royal descent
- Graves that have been specified as important by the Ministers of Arts and Culture.

Further to the legal prescripts, we are mindful of the fact that graves and burial grounds are held sacred whether they are protected by the law or not.

3.6. The National Environmental Management Act

This Act states that a survey and evaluation of cultural resources must be done in areas where development projects that will affect the environment will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made. Environmental management is a much broader undertaking to cater for cultural and social needs of people. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

3.7. The Burra Charter on Conservation of Places of Cultural Significance

Generic principles and standards for the protection of heritage resources in South Africa are drawn from international charters and conventions. In particular South Africa has adopted the **ICOMOS Australia Charter for the Conservation of Places of Cultural Significance (the Burra Charter 1999)** as a benchmark for best practice in heritage management.

4. APPROACH AND METHODOLOGY

4.1. Literature study

A number of heritage impact studies have been undertaken in the broader area encompassing Kenhardt, Marydale and Copperton, and a few of the reports are cited here:

Pelser, A. J. 2011. *A report on an archaeological impact assessment (AIA) for the Proposed Solar Energy Plant on Klein Zwart Bast 188, Kenhardt District, Northern Cape.*

This study was undertaken for the establishment of the Aries Power Plant 70 km southwest of Kenhardt. A number of archaeological sites, features and objects were identified and recorded in the area, dating from the Early to the Later Stone Ages, as well as the historical period. Although some finds were more localized the whole area was covered by scatters of Stone Age artefacts (page 20).

Orton, J. 2014. *Heritage impact assessment for the proposed Gemsbok Solar PV1 facility, Kenhardt magisterial district, Northern Cape.*

The proposed development was for a solar energy field on the Remaining Extent of Portion 3 of Gemsbokbult 120, c 10 km to the southeast the study area. The material found was identified as background scatter of Stone Age artifacts and flakes considered of low significance (page 12-13).

Orton, J. 2019. *Heritage Impact Assessment: Scoping and Environmental Impact Assessment for the Proposed Development of the Skeerhok PV2 Solar Energy Facility on Gemsbokbult 120/9, Kenhardt Magisterial District, Northern Cape Province.*

The solar project area is situated 10 km to the south of the present study. Stone artefacts date to the ESA, MSA and LSA. Of important significance were LSA sites which were commonly seen along the margins of pans. Small rock outcrops were quarried as a source of stone material for making stone tools (page 14).

Orton, J. 2020. *Heritage Impact Assessment: Proposed Access Road on the Remainder and Portion 4 of the Farm Onder Rugzeer 168, Kenhardt Magisterial District, Northern Cape Province.*

The farm Onder Rugzeer lies 15 km north of Kenhardt. The survey revealed background scatters of stone artefacts to be present all over the study area. All are of low to very low cultural significance. No graves were seen and the chances of graves occurring were considered to be negligible (page 2).

Orton, J. 2018a. *Heritage Impact Assessment: Scoping and Environmental Impact Assessment for the Proposed Development of the Skeerhok PV1 Solar Energy Facility on Smutshoek 395/Remainder, Kenhardt Magisterial District, Northern Cape Province. Unpublished Report Prepared for CSIR – Environmental Management Services. Lakeside: ASHA Consulting (Pty) Ltd.*

The farm Smutshoek 395/Remainder lies 40 km north of Kenhardt. Scatters of artefacts were found. Of particular significance are artefacts located on the edge of a pan. In the report 1 rock art site is reported located 9 km south of the Farm Gemsbokbult (page 11).

Matenga, E. 2021. *Phase 1 Heritage Impact Assessment & Palaeontological Desktop Assessment for a Mine Prospecting Right Application on Portion 1, 2 & the Remaining Extent of the Farm Drieboom Leegte No 345; Portion 1, 2, 3 and the Remaining Extent of Farm Groot Zwart Bast No 189 and Portions 3, 5 & 8 of the Farm Jagt Kolk No 244 near Kenhardt Town, within the Kai !Garib Municipality, Northern Cape.*

The area is 90 km southwest of the farm Gemsbokbult. Background scatters of Stone Age material ranging from scrapers, blades, cores and flakes typologically dating to the Middle Stone Age/Late Stone Age period were recorded (page 5). A number buildings and structures were recorded on all the farms in the footprint of the prospecting right. Principal dwellings occupied by farm owners were of a superior architectural design. Three burial ground were recorded.

Matenga, E. 2022. *Phase 1 Heritage Desktop Impact Assessment & Palaeontological Desktop Assessment for a Mine Prospecting Right Application on the Remainder of Barst Vley 192 near Kenhardt Town, in the Kai !Garib Municipality, Northern Cape*

The farm Bast Vley is situated 90 km SW of Gemsbokbult. The report was based on a desktop assessment.

4.2. Field Work

A site visit was made of Saturday 2 July 2022 and a ground reconnaissance was undertaken by means of pedestrian surveys (See Figure 7 for a map of the survey track log).



5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

An outline of the cultural sequence in South Africa provides a theoretical framework for the identification of features / structures and objects of archaeological, historical and cultural interest. As summary of the reconstructed cultural sequence is given below:

5.1. Cultural sequence summary²

PERIOD	EPOCH	ASSOCIATED CULTURAL GROUPS	TYPICAL MATERIAL EXPRESSIONS
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominids: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.

² Adapted from Exigo Consultancy. 2015. Frances Baard District Municipality: Proposed Nkandla Extension 2 Township Establishment, Erf 258 Nkandla, Hartswater, Northern Cape Province.

Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period c300 – 900 AD (or earlier)	Holocene	Iron Age Farmers	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Later Iron Age 900ADff	Holocene	Iron Age Farmers, emergence of complex state systems	Typically distinct ceramics, evidence of long distance trade and contacts
(ii) Mapungubwe (K2)	1350AD		Metals including gold, long distance exchanges
(ii) Historical period	Tswana / Sotho, Nguni people	Iron Age Farmers	Stone walls Mfecance / Difaqane
(iii) Colonial period	19 th Century	European settlers / farmers / missionaries/ industrialisation	Buildings, Missions, Mines, metals, glass, ceramics

5.2. Appearance of hominids

South Africa has yielded a very good record of fossil hominids, proto-humans which appeared in South Africa more than 3 million years ago. Three famous sites in Gauteng, Limpopo and Northwest Provinces have been collectively named the Cradle of Humankind and inscribed as a serial UNESCO World Heritage Site.³ No hominid sites have been reported in the vicinity of the study area.

5.3. The Early Stone Age

The Early Stone Age may date back more than 2 million years. Much of the Karoo in the Northern Cape is covered by gravels from which ESA artefacts have been found. These artefacts are generally very well weathered and have been described as background scatters in that their distribution is conditioned more by geological actions than human actions (Orton 2013, p7). A good profile of the Stone Age in the Northern Cape has been reconstructed from many heritage impact assessments that have been conducted in recent years. Locales along and adjacent to the Orange – Vaal River systems have yielded evidence of great interest.⁴ Further north the Wonderwerk Cave has become a benchmark for the characterisation of the

³ Deacon, J. and N. Lancaster. 1986. *Later Quaternary Palaeo-environments of Southern Africa*. Oxford: Oxford University Press.

⁴ Morris, D. 2009. Phase 1 Archaeological Impact Assessment at Bucklands Settlement near Douglas, Northern Cape, p3.

Stone Age. Excavations reveal a long sequence of occupation spanning the Early (ESA), Middle (MSA) and Later Stone Ages.⁵

5.3.1. Middle Stone Age (MSA) [250 000 yrs – 30 000 yrs BP]

The Middle Stone Age (MSA), dates from 250 000 years to 40 000 years ago, marked by the introduction of a new tool kit which included prepared cores, parallel-sided blades and triangular points hafted to make spears. A number of field surveys have been carried out on the Ghaap Plateau and the Orange-Vaal River basin confirming significant hunter gatherer activity in the area from the MSA onwards.

5.3.2. Later Stone Age (LSA)[40 000 yrs to ca2000 yrs BP]

LSA technology is characterised by microlithic scrapers and segments made from very fine-grained rock. The ephemeral pans in the Northern Cape, also present in the locality of the present study hosted hunter gatherer communities as evidenced by a comparatively high density of LSA lithics found on the edges of these pans.

Rock art, in the form of engravings (petroglyphs), is widely known from the Karoo (Orton 2013, p10) with examples nearest to the study area on the farm Springbokoog 80 km to the south, Driekopseiland more than 200 km to the east), and the farm Katlani 236 (200 km to the east). Various subjects are depicted in both stylized and naturalistic motifs including humans and animals.

The upper Karoo region of the Northern Cape is now referred to as Bushmansland in recognition of the strong archaeological and historical footprint of hunter-gatherer communities identified to the San and the Khoikhoi, with a cultural distinction being made between the two as hunter-gatherers and hunter-gatherer pastoralists respectively.

5.4. The Iron Age Culture [ca. 2000 years BP]

The Iron Age culture supplanted the Stone Age at least 2000 years ago, associated with the earliest farming communities keeping domestic animals such as cattle, sheep, goat and

⁵ <http://www.southafrica.net/za/en/articles/entry/article-southafrica.net-the-wonderwerk-cave>.

chickens, and using several metals and pottery (Huffman 2007). The transition to the Iron Age appears to coincide with the spread of Bantu speakers from the north into Southern Africa. Around the beginning of the 2nd millennium, radical changes in the Iron Age culture occurred signifying the transition to the Later Iron Age. Subsequently the Iron Age people built stonewalled settlements present in a large swathe of territory straddling the Northern Cape, Northwest Province, Limpopo Province and the Free State. One such site Dithakong near Kuruman.

5.5. Early Contact with the Boers

In the early 19th century, a number of traders, hunters, explorers and missionaries transited the area. A few can be named here - PJ Truter's and William Somerville (arriving in 1801), Donovan, Burchell and Campbell, and James Read (arriving around 1870). Subsequently, a large number of Great Trek Boers from the Cape Colony and established commercial farms in the area. They came into contact with local people who included the Khoisan, Korana, Tswana and Griqua (Van der Walt 2012).

5.6. Brief history of Kenhardt

Kenhardt is a small Karoo town situated about 120 km southeast of Upington, the largest town in the area. It was founded in 1868 on the north bank of the Hartebees, a shallow river, with the riverbed filled with sand. Kenhardt became a municipality in 1909. The Kenhardt landscape is arid and one of the fascinating features are desert aloes (*Aloe karasbergensis Pillans*) which grow up to several metres with a rounded crown.

6. FINDINGS OF THE HERITAGE STUDY

6.1. The Stone Age

Stone Age material is widely distributed on the plains, ridges and valleys of the upper Karoo area north and south of the Orange-Vaal basin. The material occurs as background scatters comprising scrapers, blades, cores and flakes typologically dating to the Middle Stone Age/Late Stone Age period. In the present study no material dating to the Stone Age was found in the areas targeted for mining.

6.2. Iron Age

No sites or relics dating to the Iron Age were found.

6.3. Commercial farming heritage

There are no buildings or structures in the areas of the proposed sand mining.

6.4. Burial Grounds

No burial grounds were recorded.

6.5. Assessment of Impacts using the Heritage Impact Assessment Statutory Framework

Section 38 of the NHRA

Section 38 (Subsection 3) of the National Heritage Resources Act also provides a schedule of tasks to be undertaken in an HIA process:

Section 38(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

No heritage sites were found (see Table 1 below)

Table 1: Categories and ranking of heritage sites

	Grading	Description	No of Sites
1a	National	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources	0
1b		Burial Grounds and Graves. Public sensibilities about the sanctity of graves	0
2	Provincial	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 2 heritage resources	0
3A	Local	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 3A heritage resources	0

3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources	0
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources	0
		TOTAL	0

(a) The identification and mapping of all heritage resources in the area affected

No heritage resources were recorded.

(b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7

There are no Grade I or Grade II sites.

(c) An assessment of the impact of the development on such heritage resources

N/A

(i) 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

Farmers in the northern are increasingly diversifying their products to mitigate the increasing risk of droughts. Unpredictable weather patterns on an annual cycle and over long periods are increasingly becoming unpredictable due to climate change. Mining provides a fallback when livestock production is affected by incessant droughts. Farmers are venturing into mining on a small and large scale and the mixed economy is turning out to be more viable when compared to livestock farming alone.

(e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources

Public participation was done as part of the broader consultation for the environmental authorisation.

(f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives

A Chance Finds Procedure will be used to deal with any sites or objects found when operations start.

(g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.

In the event of discovery of heritage resources deemed of significance during exploration or mining, the Provincial Heritage Resources Authority or SAHRA will be informed immediately and an archaeologist or heritage expert called to attend.

6.6. Risk Assessment of the findings

EVALUATION CRITERIA	RISK ASSESSMENT
Description of potential impact	Negative impacts range from partial to total destruction of surface and under-surface movable/immovable relics.
Nature of Impact	Negative impacts can both be direct or indirect.
Legal Requirements	Sections 34, 35, 36, 38 of National Heritage Resources Act No. 25 (1999).
Stage/Phase	Mining Phase
Extent of Impact	Test pits, ground clearing and opencast excavations can result in damage and destruction of archaeological resources above and below the surface not seen during the survey.
Duration of Impact	Any accidental destruction of surface or subsurface relics is not reversible, but can be mitigated.
Intensity	Uncertain.
Probability of occurrence	Medium.
Confidence of assessment	High.
Level of significance of impacts before mitigation	Medium.

Mitigation measures	If archaeological or other heritage relics deemed of high significance are found during the exploration phase, heritage authorities will be advised immediately and a heritage specialist will be called to attend.
Level of significance of impacts after mitigation	Low.
Cumulative Impacts	None.
Comments or Discussion	None.

7. CONCLUSION AND RECOMMENDATIONS

The mining project can be allowed to go ahead. If archaeological or other heritage relics deemed of high significance are found during the exploration phase, heritage authorities will be advised immediately and a heritage specialist will be called to attend.

8. GLOSSARY

Archaeological material: remains older than 100 years, resulting from human activities left as evidence of their presence, which are in the form of structure, artefacts, food remains and other traces such as rock paintings or engravings, burials, fireplaces etc.

Artefact: Any movable object that has been used modified or manufactured by humans.

Catalogue: An inventory or register of artefacts and / or sites.

Conservation: All the processes of looking after a site or place including maintenance, preservation, restoration, reconstruction and adaptation.

Cultural Heritage Resources: refers to physical cultural properties such as archaeological sites, palaeontological sites, historic and prehistoric places, buildings, structures and material remains, cultural sites such as places of rituals, burial sites or graves and their associated materials, geological or natural features of cultural importance or scientific significance. These include intangible resources such as religious practices, ritual ceremonies, oral histories, memories, indigenous knowledge.

Cultural landscape: a stretch of land that reflects “the combined works of nature and man” and demonstrates “the evolution of human society and settlement over time, under the influence of the

physical constraints and / or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external".⁶

Cultural Resources Management (CRM): the conservation of cultural heritage resources, management and sustainable utilization for present and future generations.

Cultural Significance: is the aesthetic, historical, scientific and social value for past, present and future generations.

Early Iron Age: refers to cultural remains dating to the first millennium AD associated with the introduction of metallurgy and agriculture.

Early Stone Age: a long and broad period of stone tool cultures with chronology ranging from around 3 million years ago up to the transition to the Middle Stone Age around 250 000 years ago.

Excavation: a method in which archaeological materials are extracted from the ground, which involves systematic recovery of archaeological remains and their context by removing soil and any other material covering them.

Historic material: means remains resulting from human activities, which are younger than 100 years and no longer in use; that include artefacts, human remains and artificial features and structures.

Historical: means belonging to the past, but often specifically the more recent past, and often used to refer to the period beginning with the appearance of written texts.

Intangible heritage: something of cultural value that is not primarily expressed in material form e.g. rituals, knowledge systems, oral traditions or memories, transmitted between people and within communities.

In situ material: means material culture and surrounding deposits in their original location and context, for instance archaeological remains that have not been disturbed.

Later Iron Age: The period from the beginning of the 2nd millennium AD marked by the emergence of complex state society and long-distance trade contacts.

Late Stone Age: The period from ± 30 000 years ago up until the introduction of metals and farming technology around 2000 years ago, but overlapping with the Iron Age in many areas up until the historical period.

Middle Stone Age: a period of stone tool cultures with complex chronologies marked by a shift towards lighter, more mobile toolkit, following the Early Stone Age and preceding the Late Stone Age; the transition from the Early Stone Age was a long process rather than a specific event, and the Middle Stone Age is considered to have begun around 250 000 years ago, seeing the emergence of

⁶ This definition is taken from current terminology as listed on the World Heritage Convention website, URL: <http://whc.unesco.org/en/culturallandscape/#1> accessed 17 March 2016.

anatomically modern humans from about 150 000 years ago, and lasting until around 30 000 years ago.

Monuments: architectural works, buildings, sites, sculpture, elements, structures, inscriptions or cave dwellings of an archaeological nature, which are outstanding from the point of view of history, art and science.

Place: means site, area, building or other work, group of buildings or other works, together with pertinent contents, surroundings and historical and archaeological deposits.

Preservation: means the protecting and maintaining of the fabric of a place in its existing state and retarding deterioration or change, and may include stabilization where necessary.

Rock Art: various patterned practices of placing markings on rock surfaces, ranging in Southern Africa from engravings to finger paintings to brush-painted imagery.

Sherds: ceramic fragments.

Significance grading: Grading of sites or artefacts according to their historical, cultural or scientific value.

Site: a spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

Site Recording Template: a standard document format for site recording.

9. REFERENCES

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10. DETAILS OF SPECIALIST

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(ii) Academic qualifications

1990 - 1993: MPhil in Archaeology (Uppsala University, Sweden) with a published Thesis
2009 – 2011: PhD in Archaeology & Heritage (Uppsala University, Sweden) with a published Thesis
2002: Certificate in the Integrated Conservation of Territories and Landscapes of Heritage Value (ICCROM, Rome)

(iii) Professional experience

1988-1993: Curator of Archaeology, Museum of Human Sciences, Harare
1994-1997: Senior Curator / Conservator, Great Zimbabwe World Heritage Site
1997-2004: Director, Great Zimbabwe World Heritage Site
2005 – 2016: Heritage Management Consultant (associateship with various other specialists), South Africa
2016 – present. Director & Principal Researcher, AHSA Archaeological and Heritage Services Africa (Pty) Ltd

iv) Membership of professional bodies/associations

ASAPA – Association of Southern African Professional Archaeologists
ICOMOS – International Council of Monuments and Sites
WAC – World Archaeological Congress

(iv) **Heritage Impact Assessments &**

Edward Matenga has undertaken more than 100 heritage impact assessments and written as many fieldwork based reports. He has a footprint in the Northern Cape and Limpopo Provinces. Matenga has also been involved in the preparation of Heritage Management Plans otherwise known as Conservation Management Plans for sites. He has undertaken exhumations and relocations of graves and has gained considerable experience in handling community issues relating to the treatment of human remains. Over the last 2 decades UNESCO and its affiliated bodies (ICOMOS and ICCROM) sent Matenga on World Heritage advisory missions to Cameroon (2002), Kenya (2006), Mauritius (2007), Ghana (2008) and Ethiopia (2010).