Phase I Heritage Impact Assessment including Palaeontological Desktop Assessment for a Mining Right Application on a Portion of the Remaining Extent of the Farm Groot Derm 10 and Portion 3 (Beauvallon) of the Farm Groot Derm 10) near Alexander Bay in the Ritchtersveld Local Municipality, Northern Cape

Prepared by

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Tuesday, 12 October 2021

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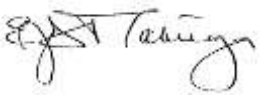
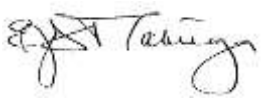
FIELD WORK & REPORT	E. Matenga		12 Oct 2021

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 remuneration for work performed in terms the National Heritage Resources Act (No 25 of 1999).



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EXECUTIVE SUMMARY

3. This heritage specialist report has been prepared in support of a mining right application on a Portion of the Remaining Extent of the Farm Groot Derm 10 and Portion 3 (Beauvallon) of the Farm Groot Derm 10 situated near Alexander Bay in the Ritchtersveld Local Municipality, Northern Cape.

4. A permit is sought for the mining of diamonds from alluvial gravel deposits on an old floodplain of the Orange River. The opencast mining method employed will result in the damage or destruction of heritage resources on the surface and below if they occur in the footprint of the mine.

5. The impact assessment is in fulfilment of Section 38(8) of the National Heritage Resources Act (No 25/1999) which requires screening for the possible occurrence of heritage resources that may be affected by the proposed activities. This procedure allows appropriate measures to be taken as mitigation.

6. *General observations*

   For thousands of years the area was occupied by hunter-gatherers and later semi-nomadic herders who subsisted on stone tool technologies. Scatters of stone tools were encountered on the ridges and saddles south of the Orange River floodplain. The observations comprised mainly flake waste with a few formal tools. It is possible that some artefacts are buried under the windblown desert sand. Stone Age communities were likely to have been active along the floodplain attracted by the perennial water in the Orange River. After many years of cultivation it is no longer possible to find any stone tools in a sealed context.

7. *Burial grounds*

   No burial grounds were reported on the farm.

8. *Cultural landscape associated with modern commercial farming*

Circular wheat fields sustained by pivot irrigation systems are recognised as a key element of a cultural landscape associated with modern commercial farming. These fields are common for a long stretch of the Vaal and Orange River floodplains. If mining was to take place in the fields, it will have no noticeable impact on such on this type of landscape given its large footprint.

9. *Ranking of Findings*

	RANKING	**SIGNIFICANCE**	**NO OF SITES**
1	High	National and Provincial heritage sites (Section 7 of NHRA). All burials including those protected under Section 36 of NHRA. They must be protected.	0
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. These may be protected at the recommendations of a heritage expert.	0
3	Medium B	Sites exhibiting archaeological characteristics of the area, but do not warrant further action after they have been documented.	6 (recordings of scatters of tools)
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	0
		TOTAL	**6**

10. Inventory of heritage sites

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
GDM01	28°30'48.30"S	16°38'11.20"E	MSA/LSA	On the base of a cluster of boulders on the crest of a ridge. Two fine-grained stones with flake surfaces. 1 flake.	Medium B	No further action
GDM02	28°30'51.10"S	16°38'19.40"E	MSA/LSA	A saddle of shallow valley between ridges. A flake and scraper.	Medium B	No further action
GDM03	28°31'7.95"S	16°38'20.50"E	MSA/LSA	On the foot of a ridge. 2 flakes	Medium B	No further action
GDM04	28°30'44.30"S	16°38'27.90"E	MSA/LSA	On a saddle or shallow valley between ridges. 1 quartzite flake.	Medium B	No further action
GDM05	28°30'56.80"S	16°38'52.80"E	MSA/LSA	On the crest of a ridge. 6 lithics – 2 flakes, 4 scrapers.	Medium B	No further action
GDM06	28°30'48.00"S	16°38'51.50"E	MSA/LSA	On the slope of a ridge. 2 scrapers.	Medium B	No further action

11. Conclusion and recommendations

In light of the findings in this report, the mining application can be approved. The study is mindful that some important discoveries might occur during the prospecting and mining phases. If this happens operations should be halted, and the provincial heritage resources authority or SAHRA notified in order for an investigation and evaluation of the finds to take place.

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

1. INTRODUCTION

This heritage specialist report has been prepared in support of a mining right application on a Portion of the Remaining Extent of the Farm Groot Derm 10 and Portion 3 (Beauvallon) of the Farm Groot Derm 10 situated near Alexander Bay in the Ritchtersveld Local Municipality, Northern Cape. A permit is sought for the mining of diamonds from alluvial gravel deposits on an old floodplain of the Orange River. The opencast mining method employed will result in the damage or destruction of heritage resources on the surface and below if they occur in the footprint of the mine. The impact assessment is in fulfilment of Section 38(8) of the National Heritage Resources Act (No 25/1999) which requires screening for the possible occurrence of heritage resources that may be affected by the proposed activities. This procedure allows appropriate measures to be taken as mitigation.

2. DESCRIPTION OF THE RECEIVING ENVIRONMENT

The farm Groot Derm is set against the south bank of the Orange River on the border of South Africa and Namibia. At this point the Orange River is near the end of its long journey west from the Lesotho highlands to the Atlantic coast a distance of only 20 km (Figures 1-2). An old floodplain averaging 1 km in breadth lies south of the river channel where the overlying silt cover is under pivot irrigation. This is in sharp contrast with the north bank on the Namibian side where the ground rises dramatically in a convex slope and is capped by a massive deposit of red desert sand. On the South African side beyond the floodplain there are rolling ridges partially covered by the shifting desert sands. From a vegetation perspective the area falls within the Namaqualand Sandveld Bioregion, and encompasses the southern extent of the Southern Namib Desert Bioregion.

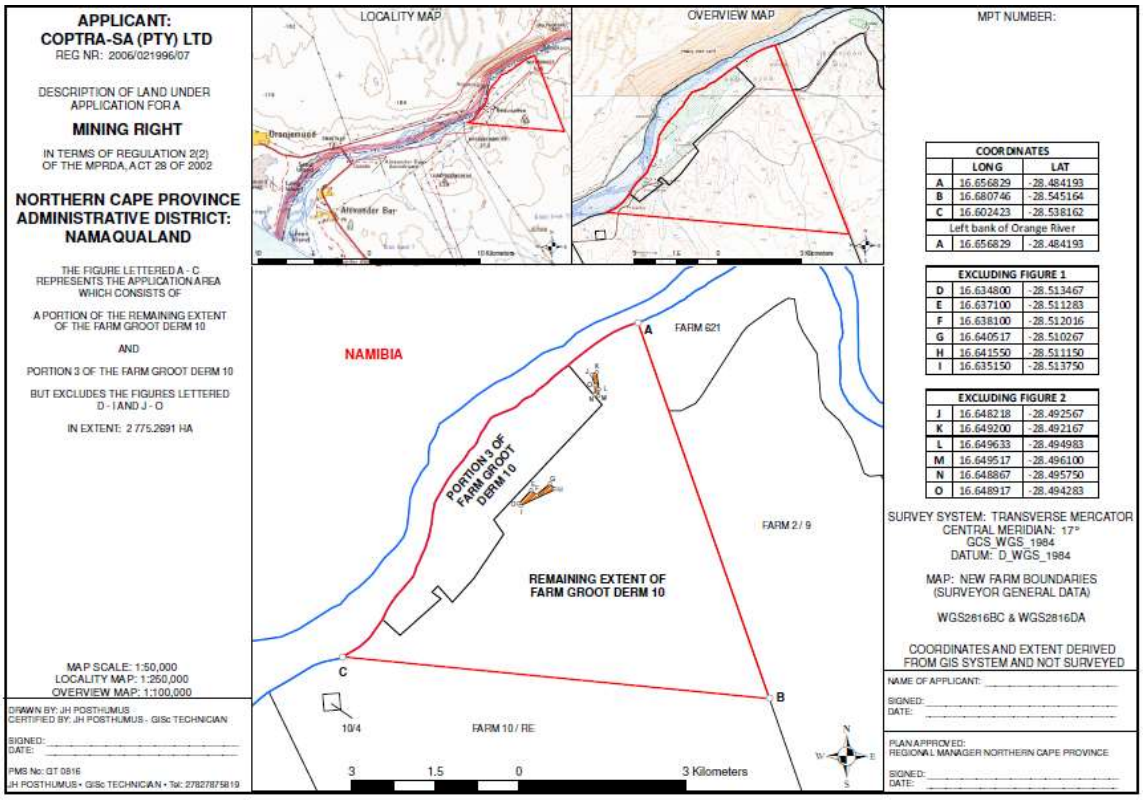

Figure 1: A standard map shows the location of the farm Groot Derm on the south bank of the Orange River

Figure 2: Google Earth map shows the farm Groot Derm on the south bank of the Orange River on the border of South Africa and Namibia

Figure 3: Beyond the Orange River floodplain there are rolling quartzite ridges partially covered by shifting red desert sands

Figure 4. View north from a ridge on the farm shows green wheat fields on the floodplain and in the background the sand-capped north bank of the Orange River in Namibia

Figure 5: On the old floodplain, close view of the wheat field and the sand-covered north bank of the Orange River in Namibia

3. LEGAL FRAMEWORK

This heritage impact assessment fulfils an onus on developers to safeguard heritage resources. This obligation is legislated with Sections 34, 35, 36 and 38 of the National Heritage Resources Act (No 25 of 1999) forming 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 m^2 in extent[1]; or

[1] Areal extent of the proposed development triggers the HIA.

(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 m^2 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.

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

The mine area lies between two places which are the subject of keen interest to researchers and the public, namely the Richtersveld Botanical and Cultural Landscape which was inscribed on the list of World Heritage sites in 2006, and the Namaqualand Coastline, which refers to the Atlantic coast from Alexander Bay in the north to Lambert's Bay in the south.

It is important to mention from the outset that the development will not impact the World Heritage Cultural Landscape since it is 30 km from its border at the closest point and 10 km from the protective buffer zone delimited around the World Heritage Site. Much has been written about the transhumant economy of Nama herders whose land form part of the World Heritage property (Townsend 2014, p5, EcoAfrica 2019). The tangible and intangible dimensions of this vibrant culture nurtured by the semiarid environment are unique elements which have been considered for the recognition of the Ritchtersveld as a cultural landscape of outstanding universal value. It needs to be stated however that the mine is on private land and as such the mining activities will not directly impact the Nama.

Although the study area is 20 km inland it is worth noting that the Namaqualand coastline is extremely rich in archaeological sites and is well researched. Stone Age people exploited marine shell fish and left behind shell middens and shell scatters along the coastline. Terrestrial animal bones and ostrich eggshells along with cultural materials like stone artefacts, pottery and ostrich eggshell beads have also been encountered. A large number of shell scatters and middens have been seen along

the bank of the Orange River stretching more than 2 km inland from its mouth (Smuts et al 2019, p74).

During a heritage impact study for the establishment of a photovoltaic power plant on Portion 10 (Arris) of the Farm Korridor Wes No 2, Portion 9 of the Farm Koridor Wes No 2 and Remainder of Farm Groot Derm Farm No 10, the heritage practitioner noted that "formal artefacts were not noted and the quartz tools were a-diagnostic in terms of assigning secure cultural affiliations. Only one archaeological site of medium significance was recorded: this was a spatially intact quartz scatter and an associated broken ostrich eggshell" (Townsend 2018, p15).

4.2. Ground survey

A ground survey was undertaken on 4 September 2021. It was observed that there is little that remains of the original surface on the Orange River floodplain which is presently under wheat irrigation and has been cultivated for a long time. Beyond the flood plain walking surveys were undertaken on the ridges and saddles. The vehicle had to keep within prepared tracks as there was a high chance of getting stuck in the sand. Maps of the track log are annexed to this report.

5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

5.1. Cultural Sequence Summary

It suffices to outline the cultural sequence in South Africa by way of a Table in order to provide a theoretical framework for the identification of features / structures and objects of archaeological, historical and cultural interest.

Table 1: Cultural sequence summary[2]

PERIOD	**EPOCH**	**ASSOCIATED CULTURAL GROUPS**	**TYPICAL MATERIAL EXPRESSIONS**
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominids: *Australopithecines* *Homo habilis*	Typically large stone tools such as hand axes, choppers and cleavers.

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

		Homo erectus	
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First *Homo sapiens* species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	*Homo sapiens* 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	19th Century	European settlers / farmers / missionaries/ industrialisation	Buildings, Missions, Mines, metals, glass, ceramics

5.2. From the Stone Age to the Present

Since the Early Stone Age tens of thousands of years ago the Karoo plains of Namakwaland have imposed harsh constraints on human settlement. But evidence abounds that people indeed lived in the Karoo demonstrating that in fact they had to a large extent overcome these constraints, chiefly the scarcity of water. Today the Richtersveld plains currently houses one of the last living examples of transhumant and semi-nomadic animal husbandry practised by the Nama. Over the last two thousand years nomadic and semi-nomadic Khoikhoi people, like the Great and Little Namaqua, made sustainable use of the land as sheep and goat herders, gradually displacing or assimilating the San population. Over this period, traditional management of the grazing and water ensured that they remained in balance with their environment as a result of which they could survive. Today the Nama are the last of the Khoi people that still demonstrate a degree of cultural continuity. They still practice the traditional pattern of alternate summer and winter grazing, the underlying

principle being that one had to let the ground rest to prevent overgrazing. Some still live in the unique and highly practical |*haru oms* (matjieshuise.

The |*haru oms* are constructed using reed mats and light canes/rods, materials that occur only in this region. The design makes it possible to disassemble the huts quickly, transport them and erect them again, an essential part of the mobile lifestyle of the Nama. The knowledge and skills needed to build the |*haru oms* have virtually died out outside of the Richtersveld. This important cultural characteristic of the semi-nomadism of the Nama is described as intangible. This includes legends and myths about the mountains, sink holes, fountains and the !Gariep (Orange) River. Other more tangible elements of the Richtersveld that could be seen as part of the pattern of transhumance and the cultural history of the area are the ancient graves, old herding posts (kraals), footpaths and wells. Collectively these can be seen as representative of a cultural landscape that is at least two thousand years old; older even if one considered the gatherer-hunter period.

The Khoisan are resilient communities who adapted to the marginal Karoo environment for thousands of years before the modern age of hydro-engineering. While the Khoisan managed to make the Karoo home for thousands of years, if leading a nomadic existence, the Iron Age farmers failed to do so considering the great risk to crop farming. It is not surprising that the Iron Age farmers confined themselves to the high rainfall belt along the east coast of South Africa. For thousands of years the environment, climate and seasons determined where and how people could live and survive. One had to live sustainably within the strictures of the environment, an ability which the Nama have retained up to today. They still migrate with their matjieshuise, livestock and families from the winter grazing on the mountains to the summer grazing in the low lying areas on a seasonal basis.

During the succeeding centuries of colonialism and, ultimately, apartheid, the Nama and other groups were placed under tremendous economic, social and cultural pressure. Poverty, the call of the cities, the impact of new architectures, new economic opportunities created by the mining industry, and general modernisation, have placed

pressure on the ongoing use of |*haru oms* and the survival of traditional pastoralism (EcoAfrica 2019).

Commercial farmers today have tamed the Karoo using modern technology and transportation system to ensure the supply of essential goods and services.

The above is an outline of the archaeological and historical context of the study area.

6. FINDINGS OF THE HERITAGE SURVEY

6.1. General observations

For thousands of years the area was occupied by hunter-gatherers and later semi-nomadic herders who subsisted on stone tool technologies. Scatters of stone tools were encountered on the ridges and saddles south of the Orange River floodplain (Table 2, see also Catalogue of Heritage Sites in Section 8). The observations comprised mainly flake waste with a few formal tools. It is possible that some artefacts are buried under the windblown desert sand. Stone Age communities were likely to have been very active along the floodplain attracted by the perennial water in the Orange River. After many years of cultivation however, it is no longer possible to find any stone tools in a sealed context.

6.2. Burial grounds

No burial grounds were reported on the farm.

6.3. Cultural landscape associated with modern commercial farming

Circular wheat fields sustained by pivot irrigation systems are recognised as a key element of a cultural landscape associated with modern commercial farming. These fields are common for a long stretch of the Vaal and Orange River floodplains. If mining was to take place in the fields, it will have no noticeable impact on this type of landscape given its large footprint.

5.1. Ranking of Findings

	RANKING	SIGNIFICANCE	NO OF SITES
1	High	National and Provincial heritage sites (Section 7 of NHRA). All burials including those protected under Section 36 of NHRA. They must be protected.	0
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. These may be protected at the recommendations of a heritage expert.	0
3	Medium B	Sites exhibiting archaeological characteristics of the area, but do not warrant further action after they have been documented.	6 (recordings of scatters of tools)
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	0
		TOTAL	**6**

Table 2. Inventory of heritage sites

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
GDM01	28°30'48.30"S	16°38'11.20"E	MSA/LSA	On the base of a cluster of boulders on the crest of a ridge. Two fine-grained stones with flake surfaces. 1 flake.	Medium B	No further action
GDM02	28°30'51.10"S	16°38'19.40"E	MSA/LSA	A saddle of shallow valley between ridges. A flake and scraper.	Medium B	No further action
GDM03	28°31'7.95"S	16°38'20.50"E	MSA/LSA	On the foot of a ridge. 2 flakes	Medium B	No further action
GDM04	28°30'44.30"S	16°38'27.90"E	MSA/LSA	On a saddle or shallow valley between ridges. 1 quartzite flake.	Medium B	No further action
GDM05	28°30'56.80"S	16°38'52.80"E	MSA/LSA	On the crest of a ridge. 6 lithics – 2 flakes, 4 scrapers.	Medium B	No further action
GDM06	28°30'48.00"S	16°38'51.50"E	MSA/LSA	On the slope of a ridge. 2 scrapers.	Medium B	No further action

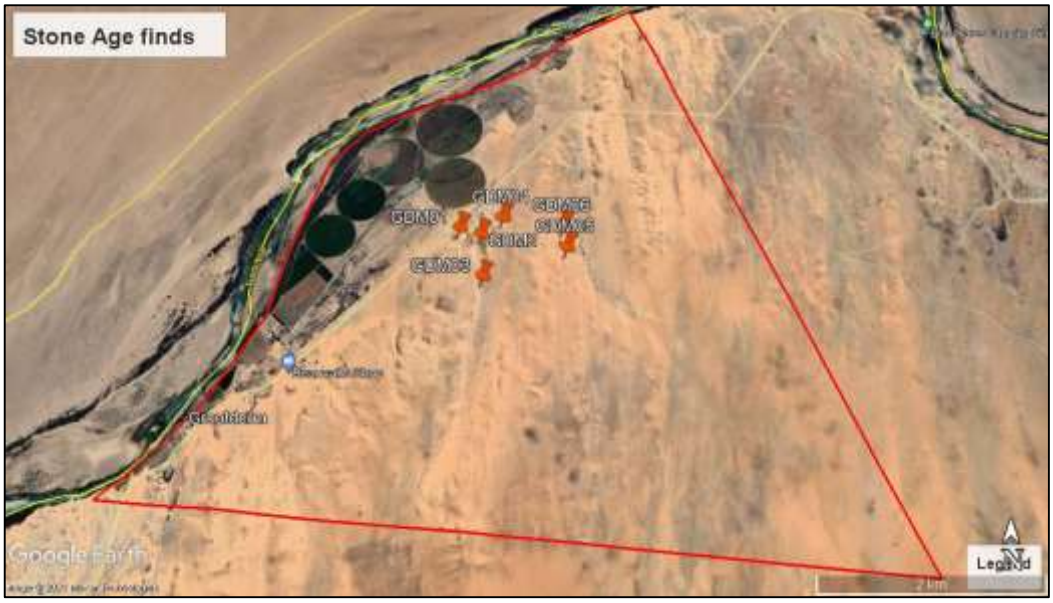

Figure 7: Google Earth map shows the location of Stone Age tools found during the survey

5.2. 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:

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

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

There are no Grade I or Grade II sites.

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

None of the sites recorded are worthy of protection.

(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

Mining in the Northern Cape is contributing significantly to the growth of the South African economy. It can provide stimulus for rapid socio-economic development in the Northern Cape Province in particular and the country as a whole. Mining is labour intensive and can contribute immensely to alleviate the current high levels of unemployment. General improvement in the quality of livelihoods in local communities and the country at large is expected.

(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

Stakeholder consultations were conducted within the scope of the broader environmental impact assessment. No objections have been raised concerning the impact of the mining on heritage resources.

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

An Environmental Control Officer will be trained to curate chance heritage finds.

(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.

5.3. 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	Prospecting for minerals (test pits, drilling); Mining Phase

Extent of Impact	Ground clearing and open cast mining 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

In light of the findings in this report, the mining application can be approved. The study is mindful that some important discoveries may occur during the prospecting and mining phases. If this happens operations should be halted, and the provincial heritage resources authority or SAHRA notified in order for an investigation and evaluation of the finds to take place.

8. CATALOGUE OF HERITAGE SITES

SITE NO	COORDINATES		PERIOD
GDM01	28°30'48.30"S	16°38'11.20"E	MSA/LSA

DESCRIPTION: On the base of a cluster of boulders on the crest of a ridge. Two fine-grained stones with flake surfaces. 1 flake.	
HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	**COORDINATES**		**PERIOD**
GDM02	28°30'51.10"S	16°38'19.40"E	MSA/LSA

DESCRIPTION: A saddle of shallow valley between ridges. A flake and scraper.	
HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
GDM03	28°31'7.95"S	16°38'20.50"E	MSA/LSA

DESCRIPTION: On the foot of a ridge. 2 flakes.	
HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
GDM04	28°30'44.30"S	16°38'27.90"E	MSA/LSA

DESCRIPTION: On a saddle or shallow valley between ridges. 1 quartzite flake.	
HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
GDM05	28°30'56.80"S	16°38'52.80"E	MSA/LSA

DESCRIPTION: On the crest of a ridge. 6 lithics – 2 flakes, 4 scrapers.	
HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
GDM06	28°30'48.00"S	16°38'51.50"E	MSA/LSA

DESCRIPTION: On the slope of a ridge. 2 scrapers.	
HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

9. 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".[3]

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.

[3] 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.

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 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.

10. REFERENCES

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Stephen Townsend

ANNEXURE I: MAPS OF THE TRACKLOG

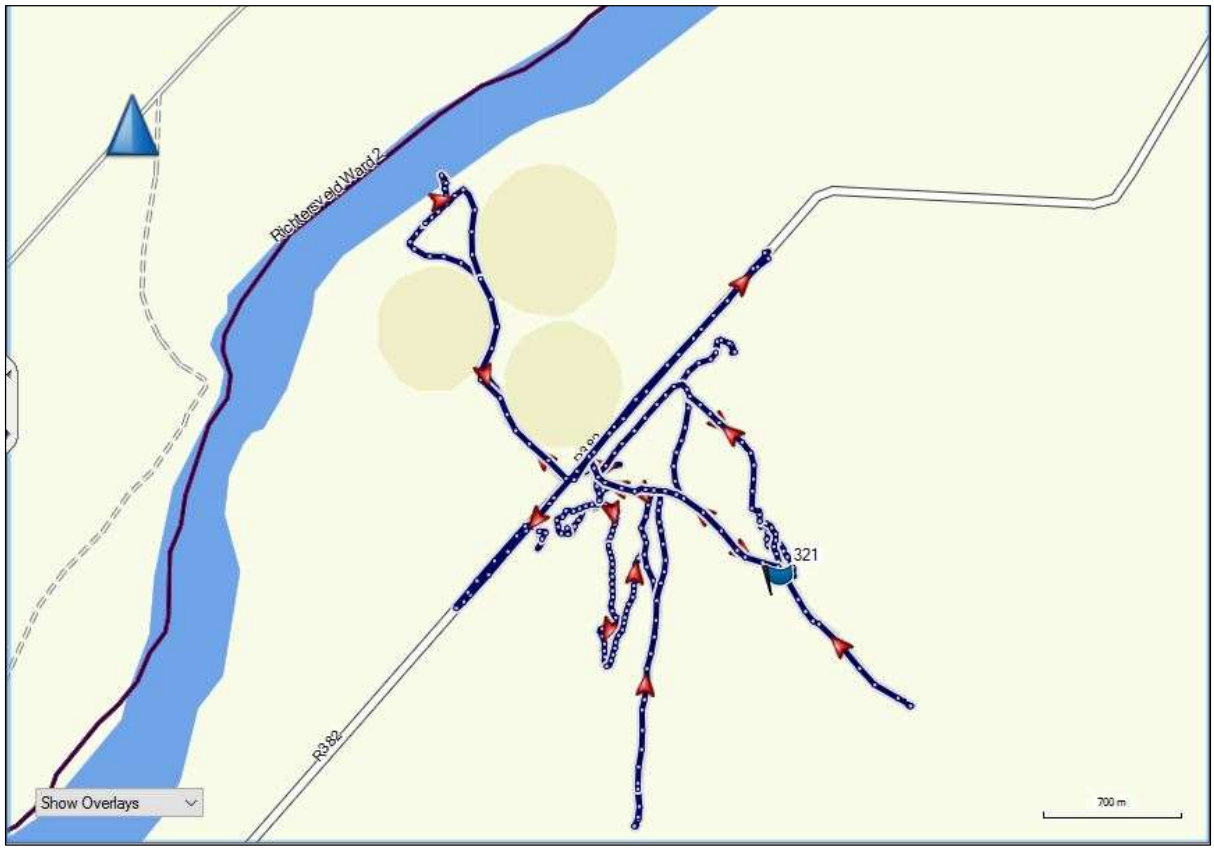

Figure i: Overview of the track log

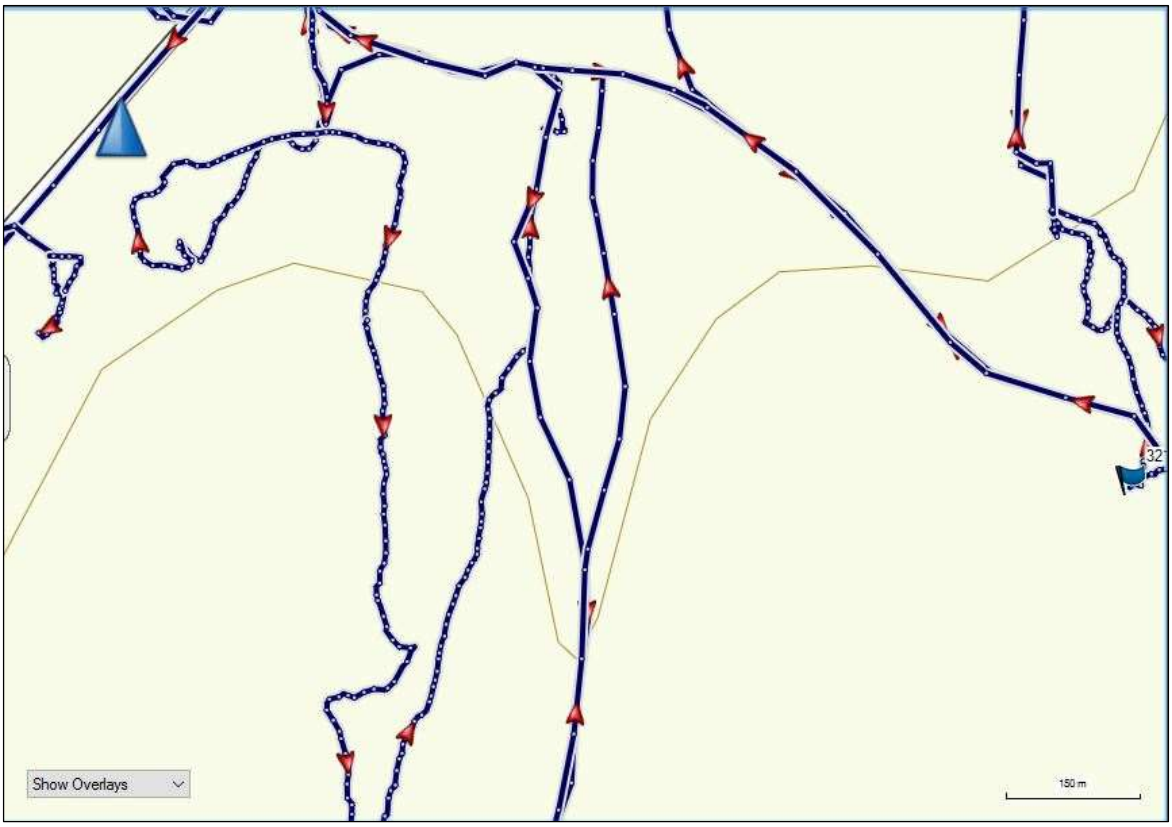

Figure ii: Map shows survey tracks on the ridges and saddles south of the flood plain

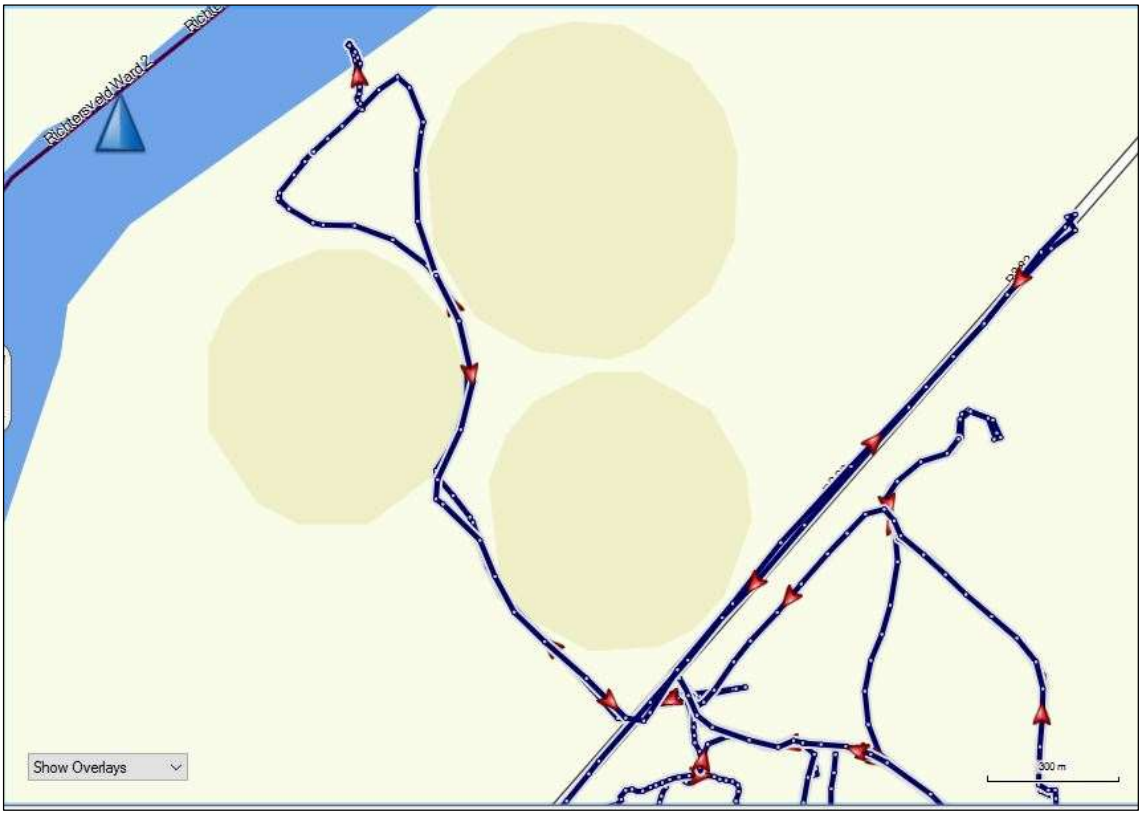

Figure iii: Map shows survey tracks on the flood plain and the bank of the Orange River