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(AHSA) Archaeological and Heritage Services Africa (Pty) Ltd
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PHASE 1 HERITAGE IMPACT ASSESSMENT REQUESTED IN TERMS OF SECTION 38 OF THE NATIONAL HERITAGE RESOURCES ACT NO 25/1999 FOR THE PROPOSED MINE PROSPECTING ON REMAINING PORTION OF THE FARM JACOBSFONTEIN 503 (WERDA) NEAR POSTMASBURG IN THE NORTHERN CAPE PROVINCE

Prepared by

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Monday, 19 December 2016

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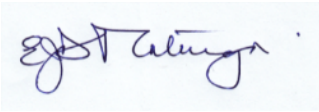
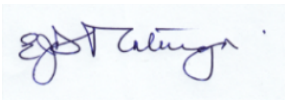
FIELD WORK AND REPORT:	E. Matenga		29/09/2016

DECLARATION OF INDEPENDENCE

AHSA 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).

DISCLAIMER

All possible care was taken to identify and document heritage resources during the survey in accordance with best practices in archaeology and heritage management. However it is always possible that some hidden or subterranean sites are overlooked during a survey. AHSA will not be held liable for such oversights and additional costs thereof.



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CONTENTS

EXECUTIVE SUMMARY

A Heritage Impact Assessment was conducted in terms of Section 38 of the National Heritage Resources Act (25 of 1999) in respect of the proposed prospecting and application for mining rights on the remaining portion of the farm Jacobsfontein 503 (also known as Werda) in the Z.T. Mgcawu District Municipality, Northern Cape:

The following is a summary of the findings of the study:

(i) Eight (7) Middle Stone / Late Stone Ages were recorded. They do not represent regular or high density activity areas to warrant protection.

(ii) There are mining holes /trenches and stabilising walls dating to the 19th century European pioneering period, part of which may be preserved as heritage.

(iii) The farmhouse is in a poor state to deserve to be protected as an example of early farmhouses. However it can be rehabilitated and incorporated into the stock of mine buildings.

(iv) There are graves numbering at least eight (8) located near the farmstead. All burials must be respected and protected.

(v) A section of the old wagon road from Kimberley to Postmasburg and Upington is visible in the north-eastern part of the farm. This might not need to be protected if the ideal place for its preservation is near the fountain on the nearby farm Jacobsfontein.

(vi) Looking at the superficial geology, there were no suitable places for the Stone Age painters. No Iron Ages Sites were found.

The sites have been ranked to show potential risks and the appropriate protection measures which must be taken:

	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.	1 (Burial ground)
2	Medium	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. These	1 (Mine hole / trenches & walls)
4	Low	Heritage sites which have been recorded and are deemed of minor importance.	9 (MSA/LSA, Pioneer period)
		TOTAL	11

Summary Inventory of Heritage Sites on the farm Werda

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING
1	28°27'56.08"S	23°25'47.68"E	MSA/LSA	Scrapers and a flakes based on chert found among stones and grit.	
2	28°27'51.38"S	23°25'40.80"E	Pioneers	Mining holes, trenches and walls. Walls either serving as ramps or stabilising revetments.	Significant
3	28°27'57.89"S	23°25'53.32"E	MSA/LSA	Stone flakes and a scraper based on chert found in dense grit.	
4	28°27'29.05"S	23°26'4.90"E	MSA/LSA	Core and scrapers based on chert	
5	28°26'25.31"S	23°26'45.61"E	MSA/LSA	2 scrapers based on chert found	
6	28°26'56.13"S	23°27'32.17"E	20th C	At least 8 graves of farmworkers dating to the 1960s and 1970s	Significant
7	28°27'1.36"S	23°27'45.68"E	20th C	Old Farmhouse with hipped roof and gabled garage	
8	28°26'58.45"S	23°27'33.88"E	20th C	A large midden mound with household waste including rusted metal / cans	
9	28°26'58.91"S	23°27'41.98"E	MSA/LSA	5 lithics found at the farmstead based on chert	
10	28°27'14.02"S	23°26'15.90"E	MSA/LSA	Flake and scrapers. Two based on chert.	
11	28°26'36.83"S	23°28'59.95"E	Pioneers	Visible section of the old wagon route from Kimberley to Postmasburg and Upington	

Recommendations

The mine prospecting can go ahead subject to the precautions stated above. In the event of discovery of other heritage resources during site preparation or the mining phase, the Provincial Heritage Resources Authority or SAHRA must be alerted immediately and an archaeologist or heritage expert called to attend.

ABBREVIATIONS

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
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

DEFINITIONS

Archaeological material: remains resulting from human activity left as evidence of their presence which, as proscribed by South African heritage legislation, are older than 100 years, which are in the form of artefacts, food remains and other traces such as rock paintings or engravings, burials, fireplaces and structures.

Artefact/Ecofact: 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/heritage place or landscape including maintenance, preservation, restoration, reconstruction and adaptation.

Cultural Heritage Resources: refers to physical cultural properties such as archaeological sites, palaeolontological sites, historic and prehistorical 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. This include intangible resources such religion practices, ritual ceremonies, oral histories, memories indigenous knowledge.

Cultural landscape: "the combined works of nature and man" and demonstrate "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".

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

Early Stone Age: Predominantly the Acheulean hand axe industry complex dating to + 1Myr yrs – 250 000 yrs. before present.

Early Iron Age: Refers cultural period of the first millennium AD associated with the introduction of metallurgy and agriculture in Eastern and Southern Africa

Later Iron Age: Refers to the period after 1000AD marked by increasing social and political complexity. Evidence of economic wealth through trade and livestock keeping especially cattle

Excavation: A method in which archaeological materials are extracted, involving systematic recovery of archaeological remains and their context by removing soil and any other material covering them.

Grave: a place of burial which include materials such as tombstone or other marker such as cross etc.

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

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

Historical archaeology: the study of material remains from both the remote and recent past in relationship to documentary history and the stratigraphy of the ground in which they are found; or archaeological investigation on sites of the historic period. In South Africa it refers to the immediate pre-colonial period, contact with European colonists and the modern industrial period.

***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 if complex state society and long-distance trade contacts.

Late Stone Age: The period from ± 30 000-yr. to the introduction of metals and farming technology

Middle Stone Age: Various stone using industries dating from ± 250 000 yr. - 30 000 yrs. ago

Monuments: architectural works, buildings, sites, sculpture, elements or structures of an archaeological nature, inscriptions, cave dwellings 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 protecting and maintaining the fabric of a place in its existing state and retarding deterioration or change, and may include stabilization where necessary.

Sherd: ceramic fragment.

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.

1. INTRODUCTION

A Heritage Impact Assessment was requested in terms of Section 38 of the National Heritage Resources Act (25 of 1999) in respect of the proposed prospecting and application for mining rights on the remainder of the farm Jacobsfontein 503 (known as Werda) in the Z.T. Mgcawu District Municipality, Northern Cape. The portion in question is commonly called Werda Farm (Fig 1).

1.1. Nature of Development

Prospecting for large scale mining operations is planned for several minerals including iron, manganese and diamonds. At the present time several mines are operated in the locality notably manganese outside Postmasburg, diamond and limestone at Finch Mine and Lime Acres respectively, both these in the vicinity of Werda Farm. Prospecting is generally a low impact activity, but nevertheless involves excavation of test pits and drilling. If the results will justify extraction of the minerals, most mines in the area are operated by opencast methods which at least entails:

- Large scale open excavations,
- Placement of mine plant,
- Road and Rail development and / or installation of conveyor belts, and
- Stockpiling (topsoil & discards)
- Waste management.

Heritage resources may be disturbed or destroyed as a result of such physical works. The requirement to protect heritage resources in light of such activities is enacted in Section 38 of the National Heritage Resources Act, which calls for Heritage Impact Assessments. This document is a preliminary identification and documentation of heritage resources on Werda Farm and suggests appropriate measures to protect them or mitigate potentially harmful impacts of the proposed development.

2. GEOGRAPHICAL SETTING

2.1. Physical setting

The farm Werda is an eastern portion of Plaas 503, also known as Jacobsfontein 503 located 40km east of Postmasburg (Fig 1). The terrain is generally flat to rolling plains interrupted by a north-south ridge stretching from Lime Acres / Finch Mine and running on the boundary between Werda and Jacobsfontein (Figs 2-3). On the ridge there are many exposures of sedimentation with horizontal strata including banded ironstone. This geology is associated with red-brown soils, a lot of stones and grit. Vegetation is medium density Karoo scrub dominated by a short hooked thorn (Afrikaans - *haakbos* - *Acacia mellifera* subsp. *detinens*) and Vaalbos a shrub endemic in this region (*Tarchonanthus camphoratus*).[1] An old wagon track used to pass through the farm linking Upington and Postmasburg to Kimberley. The track is still maintained as a gravel road offsetting east from the R385 road 10km out of Postmasburg leading to Papkuil. It stands as a historical reminder of the endeavours of pioneering settlers to develop the country.

On the farm Werda the key topographical features are a natural terrace below the ridge (east side) stretching about 300m, a shallow stream valley after which the ground rises gently and levels out into a vast plain (Figs 4-5). Vegetation is Karoo scrub dominated by *Acacia mellifera* subsp. *Detinens* and Vaalbos (*Tarchonanthus camphoratus*) (Afrikaans haakbos and Vaalbos respectively).

[1] Prof. Hugh Glen (Botanist), Pers. Com. 22 September 2015.

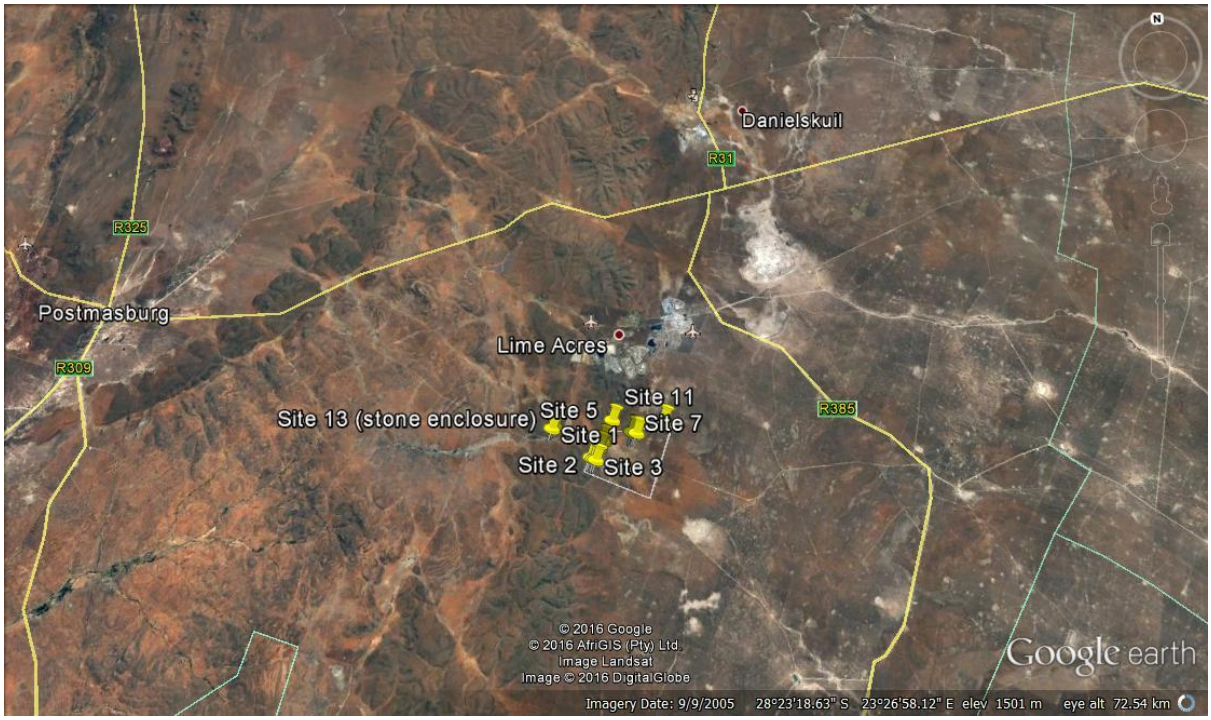


Fig. 1 Google-earth map of the area shows the location of the farm Werda.

Fig 2. View northwest of the northern section of the ironstone ridge nearer to Finch Mine and Lime Acres.

Fig 3. View west of the southern section of the ironstone ridge on Werda.

Fig 4. View of the lowland on Werda from the summit of the ironstone ridge shows a shallow stream valley in the middle ground and plain in the foreground

Fig 5. View of the eastern foot of the ridge in Werda Farm shows a terrace and below the ridge, descending again into a stream course (behind the camera)

Fig 6. Acacia scrub (*Acacia mellifera* subsp. *detinens*) and Vaalbos (*Tarchonanthus camphoratus*) on the eastern foot of the ridge.

2.2. Locational Reference

FARM	LATITUDE	LONGITUDE	NOTES
Werda	28°27'2.46"S	23°27'45.44"E	At Werda farmstead

3. LEGAL FRAMEWORK

3.1. The National Heritage Resources Act (25 of 1999)

As has been stated, the proposed prospecting requires a Heritage Impact Assessment as stipulated under Section 38 of the National Heritage Resources Act (No 25 1999). The terms and conditions of an HIA are stated as follows:

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 50m in length;
(c) any development or other activity which will change the character of a site—
(i) exceeding 5 000m² in extent; 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 regulations by SAHRA or a provincial heritage resources authority.

Other Sections of the **National Heritage Resources Act** (No. 25 of 1999) NHRA also apply:

Section 34 of the NHRA protects all structures and features older than 60 years (section 34).

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

Section 36 of the **NHRA** gives priority for the protection of Graves and Burial Grounds graves and burial grounds more than 60 years old, and graves and burial ground of victims of conflict.

3.2. International Principles on the Treatment of Human Remains

In practice heritage management advocates the protection and respect the sanctity of all graves regardless of their age. International principles are based on the same ethical considerations. Striking consensus with associated communities is vital and protection *in situ* is recommended as first option. The **World Archaeological Congress (WAC**) set international ethical standards for the treatment of human remains in 1989 at the WAC Inter-Congress in South Dakota (USA) which adopted the **Vermillion Accord on Human Remains** part of which advises:

1. *Respect for the mortal remains of the dead shall be accorded to all, irrespective of origin, race, religion, nationality, custom and tradition.*

2. *Respect for the wishes of the local community and of relatives or guardians of the dead shall be accorded whenever possible, reasonable and lawful.*

3. *Agreement on the disposition of fossil, skeletal, mummified and other remains shall be reached by negotiation on the basis of mutual respect for the legitimate concerns of communities for the proper disposition of their ancestors, as well as the legitimate concerns of science and education.*

4. APROACH AND METHODOLOGY

4.1. Literature Survey

Desktop research was undertaken to understand the cultural sequence and form a picture of heritage potential in the area. Searches were conducted in archives and libraries and internet. A number of reports have been generated through heritage

impact assessment studies in the area, which set both a theory base as well as influenced my approach to fieldwork. They were obtained on Internet.

4.2. Local Information

Local knowledge of the area regarding mining and the old wagon track is acknowledged in this report

4.3. Ground Survey

I visited the farm on 12 – 13 September 2016 and ground survey was conducted by walking and using a vehicle. Ground visibility was good along the farm tracks.

4.4. Fieldwork Challenges

High density of haakbos (*Acacia mellifera* subsp. *detinens*) on the ridge notorious for its stubborn hooks was a dampener often making it difficult to stray from opened track-ways (Fig 7).

Fig 7. Haakbos - *Acacia mellifera* subsp. *Detinens* in the foreground.

4.5. Significance Ranking

The sites have been ranked to show potential risks and the appropriate protection measures which must be taken:

	SIGNIFICANCE	RANKING
1	National and Provincial heritage sites (Section 7 of NHRA). All burials including those protected under Section 36 of NHRA. They must be protected.	High
2	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. These may be protected at the recommendations of a heritage expert.	Medium
4	Heritage sites which have been recorded and are deemed of minor importance.	Low

5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

An outline of the cultural sequence in South Africa provides general context for identification of heritage resources in the development area. The cultural sequence spans nearly 4.4 million, the major epochs of which are the appearance of Hominids, the Stone Age, Iron Age and Historical Period.

5.1. Appearance of Hominids

Hominid or proto-humans appeared in South Africa more than 3million years ago. Hominid sites and their fossil remains are largely confined to dolomite caves on the highveld in Gauteng, Limpopo and Northwest Provinces.[2] Hominid refers to primate species which are the immediate ancestors of man.

The Sterkfontein Caves lie far to the west of the development area. It is home to one of the better known hominid sites in Southern Africa, featuring the genus *Australopithecus africanus* and preserved in limestone caves. The nearest hominid site is Taung near Vryburg (300km to the north).This site is inscribed on the UNESCO World Heritage Site in a serial nomination with the Sterkfonteing (Krugersdorop) and Makapans Valley (Mokopane). The preservation of hominid remains is a function of geology and in the South African experience these are almost always found in association with limestone deposits.

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

5.2. The Stone Age

The Stone Age dates back more than 1.5 million years, and marks a more diagnostic appearance of the cultural sequence divided into three epochs, the Early, Middle and Late Stone Ages. Stone and bone implements manifest the technological development and typologies indicating chronological development. Material evidence occurs in caves, rock-shelters and on the edge of riverside and streams, and very rarely seen in open country.[3]

5.2.1. The Early Stone Age [1.4 million – 100 000 yrs BP]

The Early Stone Age marks the earliest appearance of stone artefacts about 1.4 million years ago. Such tools bore a consistent shape such as the pear-shaped handaxe, cleavers and core tools (Deacon & Deacon, 1999). These tools, which have been called Acheulian after a site in France, were probably used to butcher large animals such as elephants, rhinoceros and hippopotamus. Acheulian artefacts are usually found near sites where they were manufactured and thus in close proximity to the raw material or at butchering sites. The early hunters are classified as hominids or proto-humans, meaning that they had not evolved to the present human form.

Progressively a good profile of the Stone Age is emerging. According to the late Peter Beaumont an Early Stone Age Site was recently discovered at the farm Fullller near Olifantshoelk (Beaumont 2007). The area around Khathu is reportedly quite rich with Stone Age (Beaumont & Morris 1990, Beaumont & Vogel 2006).

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

The Middle Stone Age (MSA), which appeared 200 000 years ago, is marked by the introduction of a new tool kit which included prepared cores, parallel-sided blades

[3] http://archaeology.about/od/bterms/g/bordercave.htm

and triangular points hafted to make spears. By then humans had become skilful hunters, especially of large grazers such as wildebeest, hartebeest and eland. It is also believed that by then, humans had evolved significantly to become anatomically modern. Caves were used for shelter suggesting permanent or semi-permanent settlement. Furthermore there is archaeological evidence from some of the caves indicating that people had mastered the art of making fire. These were two remarkable steps in human cultural advancement.[4] The fossil site of Kathu pan yielded early Stone Age (Acheulian) hand axes) that were dated to nearly 100 000 years ago (Walker, Chazan & Morris 2013 cited in Mathoho 2015:20). Specularite mine works near Postmasburg, Doornfontein and Tsantsabane confounds theory on the antiquity of mining. Extraction might date back to the MSA (Beaumont & Boshier 1974)

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

By the beginning of the LSA, humans are classified as *Homo sapiens* which refer to the modern physical form and thinking capabilities. Several behavioural traits are exhibited, such as rock art and purposeful burials with ornaments, became a regular practice. The practitioners of rock art are definitely the ancestors of the San and sites abound in the whole of Southern Africa. LSA technology is characterised by microlithic scrapers and segments made from very fine-grained rock. Spear hunting continued, but LSA people also hunted small game with bows and poisoned arrows. Because of poor preservation, open sites become of less value compared to rock shelters.

Stone Age material of all periods has been reported in the farm Paling which lies southeast of Olifantshoek and northwest of Postmasburg. Rock engravings have also been reported in the same area at Beeshoek Mine and Paling Farm where core flakes, blades, segments and scrapers made out of silcrete, jasper and quartzite have been seen.[5] Rock paintings have been documented at Inglesby Farm neighbouring Gamayana 532, ca25km east of Makukukwe 522.[6]

[4] Deacon, J & H. Deacon. 1999. *Human Beginnings in South Africa*. Cape Town: David Philip.

[5] Dreyer, Corbus. 2014. First Phase Archaeological & Heritage Investigation of the Proposed Mine Prospecting at the Remaining Extent of the Farm Inglesby 580 near Olifantshoek, Northern Cape Province: pp7-8.

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

The Iron Age culture supplanted the Stone Age at least 2000 years ago, associated with the introduction of farming (peoples practiced agriculture and kept domestic animals such as cattle, sheep, goat and chicken amongst others) and use of several metals and pottery. There is however increasing evidence that sheep might have moved into the area much earlier than the Iron Age. A dominant school of thought has postulated a sudden synchronized appearance of these technologies in South Africa, and the whole region of Eastern and Southern Africa, perhaps suggesting a fairly rapid movement of people which has been traced to speakers of Bantu languages.[7] Pottery styles have been isolated identifying archaeological traditions within the broad Iron-using culture and geographical variations called *facies* reconstructed.[8] Coexistence and amalgamation pre-existing Stone Age communities certainly happened, the cultural encounters producing the hybrid people and languages found in the area today.

5.3.1. Early Iron Age

According to Huffman (2007) there were two streams of Early Iron Age (EIA) expansion converging in South Africa, one originating in eastern Africa which has been called the *Urewe-Kwale Tradition* (or the eastern stream) and another from the west, spreading through Zambia and Angola, which he termed the *Kalundu Tradition* (or western stream) (Fig 4).

De Jong, R. C. 2010. Heritage Impact Assessment Report: Proposed Manganese and Iron Ore Mining Right Application in Respect of the Remainder of the Farm Paling 434, Hay Registration Division, Northern Cape Province

[6] Dreyer, Corbus. 2014. Ibid: 11

[7] Phillipson, D. W. 2005. *African Archaeology*. Cambridge: University of Cambridge Press: 249.

[8] Evers, T. M. 1988. *Recognition of Groups in the Iron Age of Southern Africa*. Unpublished PhD Thesis, University of Witwatersrand. Huffman 2007. *A Handbook on the Iron Age*. Scottsville: UKZN Press

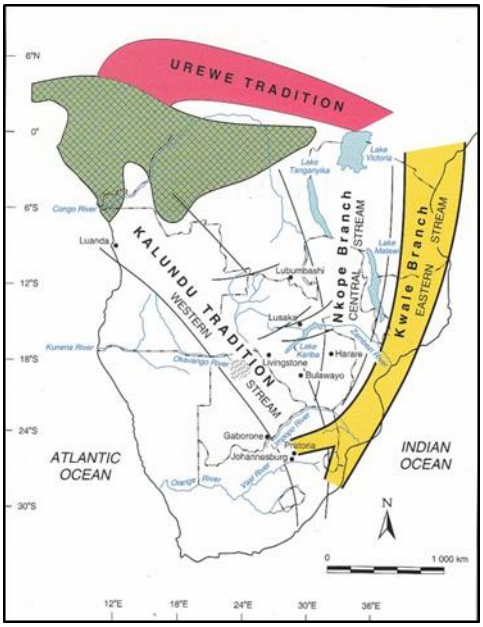


Fig 8. Spread of the Urewe and Kalundu Early Iron Age Traditions in Southern Africa (Huffman 2007: 122)

Existing theory shed little light on what was happening in the western parts of the country (the study area). Settlement preference for the relatively wetter woodlands to the east and eastern seaboard, compared to the arid west was a logical response to environmental opportunities and constraints (Fig 8). Perhaps we need now to postulate possible transhumant pastoralism / seasonal hunting camps in the western regions from the Stone Age through to the Iron Age in order to explain the long presence of Khoisan and Tswana communities in the area and their place in the transition to the Iron Age and the arrival of the British and the Afrikaners.

5.4. Historical Context

The study area is historically home to the various ethnic groups of Tswana stock - Tlokwa, Fokeng, Hlakwana and Phuting, Tlhaping, Tlaro, Griqua and Korana certainly descending from the Iron Age and probably some with Stone Age roots. The early 19th century was a political turning point characterised by increasingly uncertain security situation and internal displacement exacerbated by the arrival of Europeans in the area.

5.5. The European Contact Period

The London Missionary Society (LMS) established a mission station at Kuruman in 1817 in the prelude to colonial occupation. Europeans traders, hunters and explorers

followed on their tracks. The Great Trek brought in the Voortrekkers and a conflict situation began to unfold. One of the important triggers of European interest in the area was the discovery of diamonds at Kimberley in 1867. With increasing mining activity there, the British annexed Griqualand West in 1871, its northern boundary set 30km south of present day Olifantshoek.

In 1878 there was a revolt against the British in Griqualand West which spread beyond into the Oilfantshoek area. The British sent a force under Sir Charles Warren to put down the revolt,

Between 1881 and 1883 the Tlaro and Tlhaping mounted resistance against Boer encroachment. In the ensuing fights the Boers prevailed leading to the establishment of the Republics of Stellaland and Goosen. These state systems were however short-lived as the British annexed the two Republics and declared Bechuanaland (land of the Tswana) as a crown land. In 1895 Bechuanaland was incorporated into the Cape Colony. There is a number of conflict sites in the Langeberg area to the northwest (Beaunmont 2007).
The above is a framework for identifying heritage resources in the area.

6. FINDINGS OF THE HERITAGE SURVEY

6.1. The Stone Age

All the 8 localities examined have a low density of lithics and none crosses the threshold to concentrated and regular activity. In other words no Stone Age settlements were seen. A pattern emerges that the eastern base of the ridge was a source for tool making with many ad hoc workshop sites, none used on a regular or long-term basis. Chert was the raw material for making tools. Red jaspilite commonly occurs on the ridge and below; quartz is very rare. None of the stones examined appear to have been worked into tools.

I note that the locus of activity would have been the perennial fountain on Jocabsfontein (not located on Werda Farm) 2km to the northwest. Water is an important natural resource, and throughout the ages the fountain would have been a

focal point of sustainability. Looking at the superficial geology, there were no suitable places for Stone Age painters.

6.2. The Iron Age

No Iron Ages sites were found on the farm.

6.3. Pioneers and the Modern Period

The farmhouse on Werda is significant as an example of the architectural motifs common on commercial farms. But it is in a poor state in which rehabilitation might be expensive. It may be refurbished and incorporated into the mine housing stock or disposed of. The heritage sites of particular interest is the fountain, the stopover house and stone enclosure which are located on the neighbouring farm Jacobsfontein. The fountain might have a long history spanning the archaeological, historical and modern period sustaining successive human communities. It must be preserved both from an environmental and heritage perspective.

Located on the ridge are mining holes /trenches and walls of banded ironstone used as stabilising revetments or ramps. They date to the 19th century European Pioneering period[9], part of which may be preserved as heritage.

There are graves numbering at least eight (8) located near the farmstead. All burials must be respected and protected. A section of the old wagon road from Kimberley to Postmasburg and Upington is visible in the north-eastern part of the farm. This might not need to be protected if the ideal place for its preservation is near the fountain on the farm Jacobsfontein.

6.4. Ranking of Sites

	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.	1

[9] Mr Willem Kerneels. Pers. Com. (Farmworker).

2	Medium	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. These may be protected at the recommendations of a heritage expert.	1
4	Low	Heritage sites which have been recorded and are deemed of minor importance.	9
		TOTAL	11

6.5. Summary Inventory of Heritage Sites on the farm Werda

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING
1	28°27'56.08"S	23°25'47.68"E	MSA/LSA	Scrapers and a flakes based on chert found among stones and grit.	
2	28°27'51.38"S	23°25'40.80"E	Pioneers	Mining holes, trenches and walls. Walls either serving as ramps or stabilising revetments.	Significant
3	28°27'57.89"S	23°25'53.32"E	MSA/LSA	Stone flakes and a scraper based on chert found in dense grit.	
4	28°27'29.05"S	23°26'4.90"E	MSA/LSA	Core and scrapers based on chert	
5	28°26'25.31"S	23°26'45.61"E	MSA/LSA	2 scrapers based on chert found	
6	28°26'56.13"S	23°27'32.17"E	20th C	At least 8 graves of farmworkers dating to the 1960s and 1970s	Significant
7	28°27'1.36"S	23°27'45.68"E	20th C	Old Farmhouse with hipped roof and triple gabled garage	
8	28°26'58.45"S	23°27'33.88"E	20th C	A large midden mound with household waste incl. rusted metal	
9	28°26'58.91"S	23°27'41.98"E	MSA/LSA	5 lithics found at the farmstead based on chert	
10	28°27'14.02"S	23°26'15.90"E	MSA/LSA	Flake and scrapers. Two based on chert.	
11	28°26'36.83"S	23°28'59.95"E	Pioneers	Visible section of the old wagon route from Kimberley to Postmasburg and Upington	

6.5.1. Summary Inventory of Heritage Sites on the Farm Jacobsfontein 503

12	S 28˚ 26' 31.3"	E 023˚ 24' 04.4"	Pioneers	Old building with a hipped roof, and façade gabled wing to the left.	Significant
13	S 28˚ 26' 34.0"	E 023˚ 24' 05.3	Pioneers	Stone enclosure for penning draught animals on historic wagon route.	Significant
14	28°26'27.31"S	23°24'13.33"E	Pioneers	Historic fountain & stopover for wagon traffic from Kimberley to Postsmasburg /Upington.	Significant

6.6. Catalogue of Heritage Sites on the Farm Werda

No	COORDINATES	PERIOD
1	28°27'56.08"S, 23°25'47.68"E	MSA/LSA

DESCRIPTION

Southern perimeter of farm, natural terrace on the foot of the ridge. Acacia scrub (*Acacia mellifera* subsp. *detinens*) and Vaalbos (*Tarchonanthus camphoratus*). Scrapers and a flake based on chert found among stones and grit.

HERITAGE SIGNIFICANCE: Significant as evidence of tool manufacturing and use during the MSA/LSA

No	COORDINATES	PERIOD
2	28°27'51.38"S, 23°25'40.80"E	Pioneers

DESCRIPTION

Near the southern perimeter of farm. Site on the slope near the crest of the ridge. A complex of mining holes, trenches. Walls either serving as ramps or stabilising revetments, built from local material which appears to be predominantly banded ironstone.

HERITAGE SIGNIFICANCE: Significant as a footprint of mining during the pioneer years indicating methods used.

No	COORDINATES	PERIOD
3	28°27'57.89"S, 23°25'53.32"E	MSA/LSA

DESCRIPTION

Southern perimeter of farm. Eastern foot of the ridge. Stone flakes and a scraper based on chert found in dense grit.

HERITAGE SIGNIFICANCE: Significant as evidence of tool manufacture and use during the MSA/LSA

No	COORDINATES	PERIOD
4	28°27'29.05"S, 23°26'4.90"E	**MSA/LSA**

DESCRIPTION

A natural terrace below the ridge in the south central part of the farm.

Vegetation – Acacia scrub interspersed with Vaalbos. Core and 2 scrapers based on chert.

HERITAGE SIGNIFICANCE: Significant as evidence of tool manufacturing and use during the MSA/LSA.

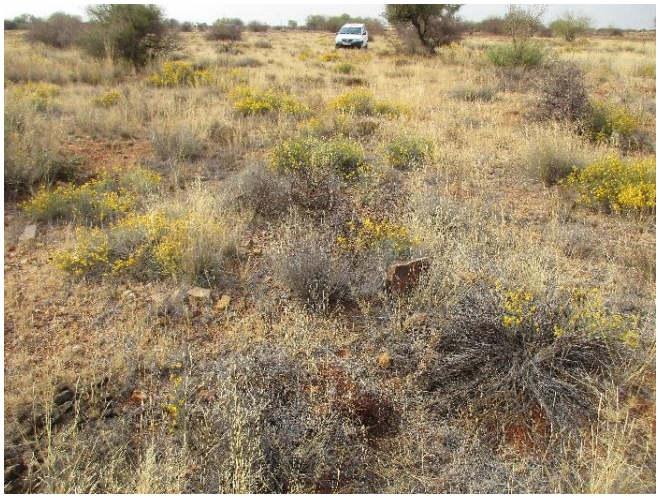
No	COORDINATES	PERIOD
5	28°26'25.31"S, 23°26'45.61"E	**MSA/LSA**

DESCRIPTION

Open area without trees. The area might have been under cultivation in the recent past. 2 scrapers based on chert found.

HERITAGE SIGGNIFICANCE: Significant as evidence of tool manufacturing and use during the MSA/LSA

No	COORDINATES	PERIOD
6	28°26'56.13"S, 23°27'32.17"E	20th C



At least 8 graves of farmworkers dating to the 1960s and 1970s. One grave identified as that of the young daughter of Martha and Manus Saullas. Mounds and stones barely visible as grave markers. Jaspilite placed next to headstones in two instances.

HERITAGE SIGNIFICANCE: Graves are regarded as sacred and protected regardless of their age.

No	COORDINATES	PERIOD
7	28°27'1.36"S, 23°27'45.68"E	Modern farming

DESCRIPTION

Farmstead: The main house is a square building plastered and painted white. It has a hipped corrugated iron roof beginning with a low pitch; the pitch is raised from the mid-section. The building is in a poor state. There is also gabled garage and other outbuildings not significant. The farmhouse is occupied by farmworkers and in a poor state.

HERITAGE SIGNFICANCE: The farmhouse is more than 60 years old, but in a poor state of maintenance.

No	COORDINATES	PERIOD
8	28°26'58.45"S23°27'33.88"E	20th C

DESCRIPTION

A large midden mound located west of the farmstead. Various waste material shows its age, the modern industrial period: rusted metal and cans.

HERITAGE SIGNIFICANCE: The midden is not significant, but might interest historical archaeologists.

No	COORDINATES	PERIOD
9	28°26'58.91"S, 23°27'41.98"E	MSA/LSA

DESCRIPTION

Five lithics found at the farmstead based on chert. The material might not be *in situ*, possibly brought there in the recent past.

HERITAGE SIGNFICANCE: Significant as evidence of tool manufacturing and use during the MSA/LSA

No	COORDINATES	PERIOD
10	28°27'14.02"S, 23°26'15.90"E	MSA/ LSA

DESCRIPTION

Flake and scrapers. Two based on chert.

HERITAGE SIGNIFICANCE: Significant as evidence of tool manufacturing and use during the MSA/LSA.

No	COORDINATES	PERIOD
11	28°26'36.83"S, 23°28'59.95"E	Pioneers

DESCRIPTION

Visible section of the old wagon route from Kimberley to Postmasburg and Upington passes over limestone bedrock on the north-eastern part of the farm.

HERITAGE SIGNIFICANCE: European Pioneering period.

6.7. Sites on the Farm Jacobsfontein 503[10]

No	COORDINATES	PERIOD
12	S 28˚ 26' 31.3″, E 023˚ 24' 04.4″	Pioneers

DESCRIPTION

An old building with a hipped roof, and façade gabled wing to the left (south). A veranda faces east. The northern end appears to be a later addition. The place was a stopover and watering site for horses on the wagon track from Postmasburg to Kimberley.[11]

HERITAGE SIGNIFICANCE

The building is architecturally and historically significant. The hipped roof is typical architectural design of late 19th century and early 20th century residential and commercial buildings. The place was a popular stopover for wagon traffic between from Kimberley to Postmasburg and Upington.

[10] Matenga, Edward. 2015. Heritage Impact Assessment Requested in Terms of Section 38 of the National Heritage Resources Act No 25/1999 for the Proposed Pine Prospecting on the Farm Plaas 503 near Postmasburg in the Northern Cape Province

[11] Johan J Oosthuizen (Jr), Pers Comm. 29 June 2015.

No	COORDINATES	PERIOD
	S 28˚ 26' 34.0″, E 023˚ 24' 05.3″	Pioneers

13 **DESCRIPTION**

Stony ground (banded ironstone) and scattered bushes. Square enclosure ca60m SE of the building (Site No 12). The enclosure was for penning horses / cattle stopping over on the Kimberley-Postmasburg wagon route.

HERITAGE SIGNIFICANCE

The stone enclosure is significant footprint of stopover and watering place on the historic wagon route from Kimberley Postmasburg abd Upington. It deserves to be protected.

No	COORDINATES	PERIOD
	28°26'27.31"S, 23°24'13.33"E	Pioneers

A historic fountain on the farm Jacobsfontein which used to be a watering place and stopover for wagon traffic from Kimberley to Postsmasburg and Upington.

HERITAGE SIGNIFICANCE: Focal point of the station on the historic wagon route from Kimberley to Postmasburg and Upington. Possibly the fountain had sustained previous community since the Stone Age and Iron Age.

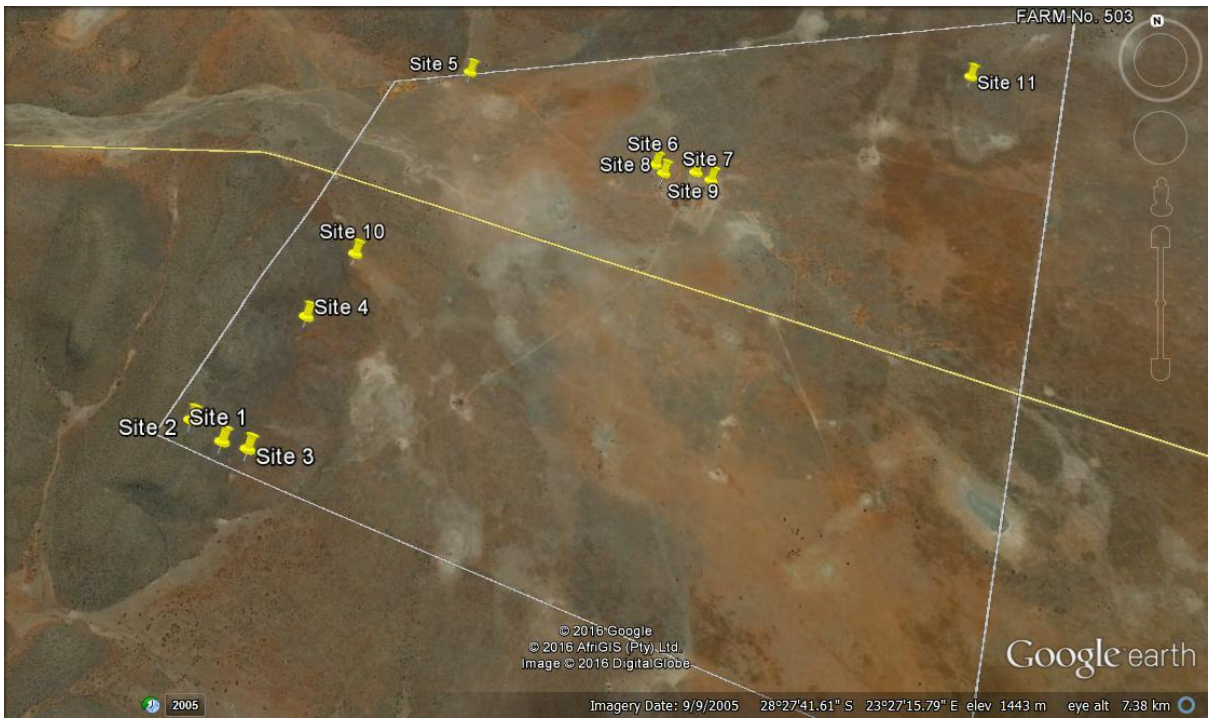


Fig 9. Google-earth map showing location of heritage sites on the farm Werda.

Fig 10. Sites located near the farmstead.

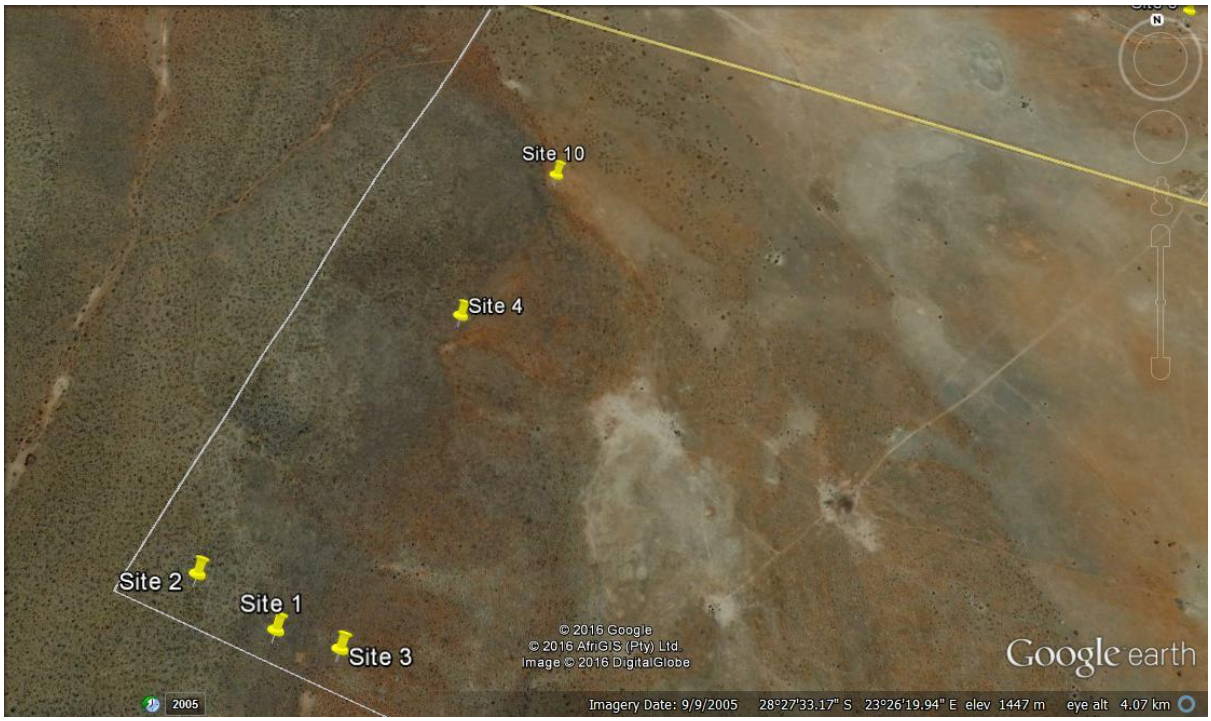


Fig 11. Sites located on the ridge and its base.

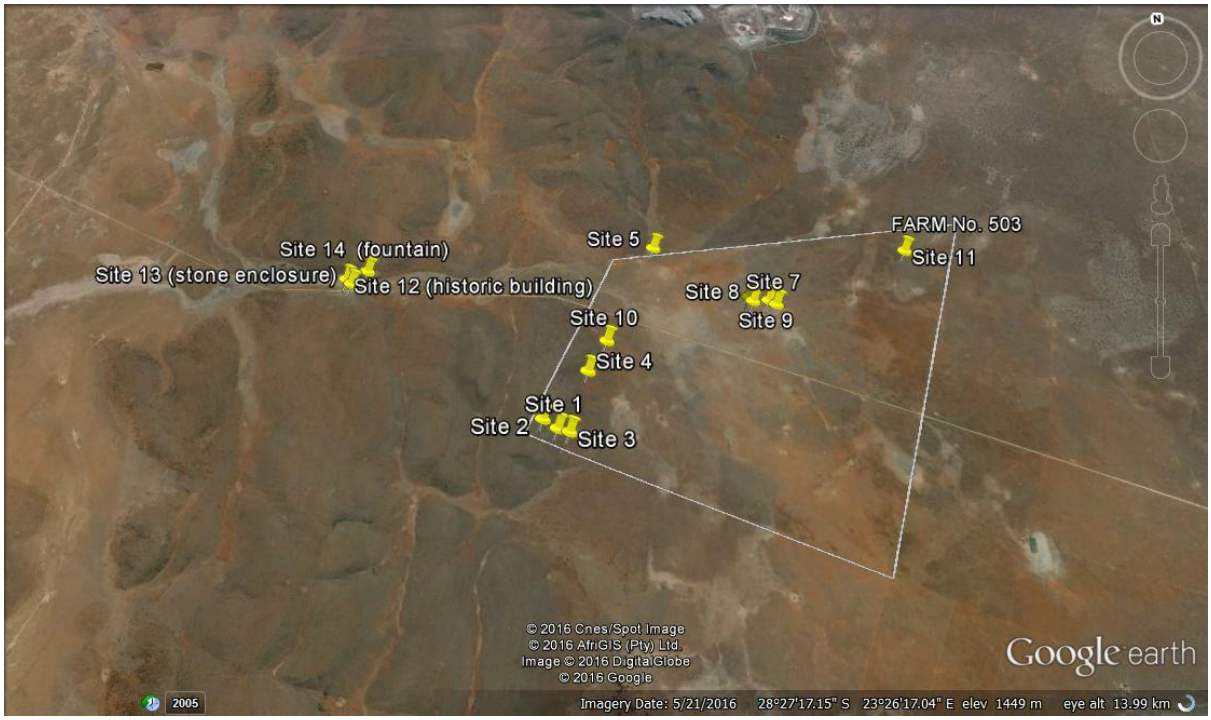


Fig 12. Location of all heritage sites on Werda and Jacobsfontein.

Fig 13. Location of heritage sites on Jacobsfontein.

6.8. Defining a Cultural Landscape

6.8.1. The Stone Age Landscape

Fossil cultural landscapes are difficult to reconstruct. The fountain on Jacobsfontein was obviously an important locus of activity with hunting grounds in the surrounds. Raw materials for tools were obtained on the ridge (Figs 14– 18).

Fig 14. The fountain on Jacobsfontein.

6.8.2. Modern Commercial Farming

The landscape on Werda is typical of commercial grazing pasture. Windmills are quite significant marking watering places for the animals.

Fig 15. The Farmstead on Werda.

Fig 16. Cattle grazing on Werda.

Fig 17. Sheep on Werda.

Fig 18. Horses on Werda.

6.9. Assessment of Value of the Cultural Landscape Relative to the Proposed Development.

From heritage perspective, cultural landscapes are important. However, the development proposal will rarely if ever result in wholesale destruction of extensive landscapes.

7. HERITAGE IMPACT ASSESSMENT AND RECOMMENDATIONS

7.1. Assessment of Impacts Using the Heritage Impact Assessment Statutory Framework

5.5.1. Section 3(3) of the NHRA

The following is an assessment of the value of the identified heritage resources in accordance with Section 3 of the NHRA which defines the National Estate.

(3)Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of—

	STATUTORY REFERENCE	OBSERVATIONS
(a)	Its importance in the community, or pattern of South Africa's history	None
(b)	Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage	None
(c)	Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	None
(d)	Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	None
(e)	Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group	None
(f)	Its importance in demonstrating a high degree of creative or technical achievement at a particular period	None
(g)	Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	The beginning of mining and modernisation of South Africa.
(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	None
(i)	Sites of significance relating to the history of slavery in South Africa.	None

5.5.2. 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

Eleven (11) sites 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

Sites have been ranked in 4 categories in terms of perceived value in case they are affected by the proposed mining operations. Only a portion of the 19th century footprint of early colonial mining is worthy of conservation.

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

The risk ranking is a definition of potential risks based on perceived value of the heritage and potential threats posed by the proposed development.

(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

Already the scale of operations point to great future potential of mineral wealth to provide stimulus for rapid socio-economic development in the Northern Cape Province. Mining is labour intensive and there is real prospect of employment relief in view of the current high rate of employment in the country. General

improvement in the quality of livelihoods in local communities and the country at large is expected.

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

N/A

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

In considering the location of plant infrastructure graves must be avoided; otherwise relocation will be necessary. Placement of rail/roads/conveyor belts must avoid the sensitive areas as identified in this survey.

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

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

7.2. 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)
Nature of Impact	Negative, both direct & indirect impacts.

Extent of Impact	Test pits, drilling and ground clearing has potential to damage 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	High.
Mitigation measures	Protect graves and part of the old pioneer mine. Should archaeological or other heritage relics be found during the construction phase, heritage authorities will be advised immediately and a heritage specialist will be called to attend. This is standard precaution in view of inherent limitations of archaeological fieldwork.
Level of significance of impacts after mitigation	Low.
Cumulative Impacts	None.
Comments or Discussion	None.

7.3. Recommendations

The mine prospecting can go ahead subject to the precautions state above. In the event of discovery of other heritage resources during site preparation and mining phase, the Provincial Heritage Resources Authority or SAHRA must be alerted immediately and an archaeologist or heritage expert called to attend.

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