

**PHASE I HERITAGE IMPACT ASSESSMENT REQUESTED IN
TERMS OF SECTION 38 OF THE NATIONAL HERITAGE
RESOURCES ACT NO 25/1999 FOR THE PROPOSED
PROSPECTING AND MINING RIGHTS ON THE FARM
JAKHALSFONTEIN (PORTION 1 OF THE FARM SCHIMDTSDRIFT
248) NEAR SCHIMDTSDRIFT, NORTHERN CAPE**

Prepared by

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Thursday, 11 July 2019



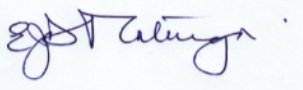
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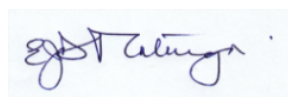
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DECLARATION OF INDEPENDENCE

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).

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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TABLE OF CONTENTS

DOCUMENTS CONTROL	2
ABBREVIATIONS	5
DEFINITIONS	6
EXECUTIVE SUMMARY	8
1. INTRODUCTION.....	17
3.3. The National Environmental Management Act (No 107/19998)	24
3.4. The Burra Charter	24
4. APPROACH AND METHODOLOGY.....	25
4.1. Literature Survey	25
4.2. Ground Survey.....	26
4.3. Significance Ranking	27
4.4. Limitations of the study.....	27
5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT	29
5.1. Cultural Sequence Summary.....	29
5.2. Appearance of hominids	29
5.3. The Early Stone Age (2 million to 250 000 years BP)	30
5.4. Middle Stone Age (MSA) [250 000 yrs – 30 000 yrs BP]	30
5.5. Later Stone Age (LSA)[40 000 yrs to ca2000 yrs BP]	31
5.6. Early Iron Age	31
5.7. The Later Iron Age	32
5.8. Historical context	32
5.9. Vaal River alluvial diamond diggings	33
6. FINDINGS OF THE SURVEY	34
6.1. The Stone Age.....	34
6.2. The Early Iron Age	34
6.3. The Later Iron Age	34
6.4. Early Commercial Farming	34
6.5. Burials	34
6.6. Occupation of the South Africa Defence Forces, 1968 to 1986.....	35
6.7. Danger sites	35
6.8. Ranking of Findings	41
6.9. Assessment of Impacts using the Heritage Impact Assessment Statutory Framework.....	42
6.10. Risk Assessment of the findings	45
7. RECOMMENDATIONS AND CONCLUSIONS	46

8. CATALOGUE OF HERITAGE SITES	47
9. REFERENCES	94
10. ACKNOWLEDGEMENTS	95

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
SADF	South African Defence Forces
SAHRA	South African Heritage Resources Agency

DEFINITIONS

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”.¹

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.

¹ 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.

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 \pm 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.

EXECUTIVE SUMMARY

1. This Heritage Impact Assessment (HIA) report has been prepared on behalf of Nyezi Holdings (Pty) Ltd in support of an application for a Prospecting and Mining Right on Portion 1 of the Farm Schmidtsdrift 248, Pixley Ka Seme District Municipality, in the Northern Cape Province. A ground survey was conducted over four days from 3 to 7 July 2019 for the documentation of archaeological and historical material that might occur on the property. The report is in compliance with Section 38 of the National Heritage Resources Act (No 25 of 1999) which requires that protection of heritage resources be considered where a proposed development is likely to result in the damage or destruction of heritage resources.

The heritage sensitivity of the property is summarised as follows:

2. The Stone Age

There are scatters of Stone Age material comprising scrapers, blades cores and flakes recorded at fourteen (14) sites dating from the Early Stone Age through the Middle Stone Age to the Late Stone Age. No concentrations of artefacts were observed. None of the sites found therefore warrant any further action.

3. The Early Iron Age

No sites dating to the Iron Age were found.

4. The Later Iron Age

No sites dating to the LIA were found.

5. Early Commercial Farming

Early commercial farmers constructed an earth embankment to create a reservoir. The dam was reinforced by stones packed on the side of the reservoir, which was breached in the middle section by the stream leaving

sections of walling on either side (JKF33). The structure is a landmark of efforts by the early farmers to trap water for livestock and domestic needs. Further investigations will be required if this area will be mined. In two places foundation remains of buildings representing farmsteads have been recorded (JKF19, JKF37). Further investigation must be undertaken if mining is to take place in these localities.

6. Burials

Settings of stones or cairns have been recorded in 3 instances (JKF04, JKF05 and JKF08) suggesting possible graves. Without a more detailed examination it was difficult to ascertain whether these cairns date back to a much earlier period or could be associated with the South African Defence Forces (SADF's) training activities on the property. Taking a precautionary approach, these sites must be fenced off and protected and further investigations recommended if the localities will be mined.

7. Occupation of the South Africa Defence Forces 1968 to 1990

Evidence abounds on the property of SADF's ordnance testing and training manoeuvres, particularly in the area south of the ridge. Of particular significance are curved (or horseshoe) walls located near the pass and on the summit of the ridge. The arcs face the hills (ridge) on the summit of which there are several similar walls. Overall the spatial layout is one of a double row of defensive walls one row on the summit and the on the base of the ridge. Several hand grenade components were seen. The Site must be protected as a landscape providing a rare insight into military training activities of the time. Possibly with collaboration from the Department of Defence and War Veterans, a commemorative plaque may be erected.

8. Danger sites

At Site JKF13 includes what appears to be an unexploded rifle grenade among other artefacts. At Site JKF10 the base of an exploded shell was found, but it could be ascertained if all the energy had been used up. The same observation was made for what appears to be a bombshell or grenade at Site JKF15. These

objects may pose a danger with the potential risk of injury or death. It is therefore recommended that bomb disposal experts are informed.

9. Inventory of heritage sites

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
JKF01	28°43'16.70"S	23°59'44.30"E	Modern	Flat area with acacia bushes. Brown soil with sparse calcrete stones. Lid of an explosive device, possibly hand grenade, iron fragment with signs of explosion fragmentation (several such objects found in the vicinity).	Low	No further action required
JKF02	28°43'15.60"S	23°59'45.50"E	Modern	Flat area with acacia bushes (including haakbos). Broken piece of horseshoe.	Low	No further action required
JKF03	28°44'3.60"S	23°59'35.80"E	MSA/LSA, Modern	Flat area with scattered acacia bushes. Metal fragment bears signs of explosion disintegration. Inscription: BT/021. Stone age flake tool.	Medium	No further action required
JKF04	28°44'2.30"S	23°59'34.60"E	Modern?	Flat area, red-brown soils. Oval setting of stones 1m x 0.80m with headstone placed at the eastern end. Possible burial.	High	Protection or further investigation if the area will be mined.
JKF05	28°44'0.20"S	23°59'36.50"E	Modern	Flat area, red-brown soils. Scattered bushes. Suspicious pile of stones with headstone placed at the north-eastern end. Possible burial.	High	Protection or further investigation if the area will be mined.
JKF06	28°44'7.70"S	23°59'43.80"E	MSA/LSA	Open flat area, red-brown soils with scattered stones. Flake tool and a polished stone	Medium	No further action required
JKF07	28°44'6.60"S	23°59'40.30"E	MSA/LSA, Modern	Open flat area, red-brown soils. Flake tool. Rectangular setting of stones (10m NS x 7m EW) possibly the foundation of a building or boundary of activity area.	Medium	No further action required

JKF08	28°43'57.40"S	23°59'17.10"E	Modern?	Flat area with acacia bushes including haakbos. Oval pile of stones (2.5m long x 1.80m wide) oriented NS may be a burial.	High	Protection or further investigation if the area will be mined.
JKF09	28°43'54.40"S	23°59'17.30"E	Modern	Flat area, fairly dense acacia bush. Aluminium canister with signs of explosion damage.	Low	No further action required
JKF10	28°43'56.70"S	23°59'16.70"E	Modern	Flat area, dense acacia bush. Base of exploded shell.	Danger	Bomb disposal authorities to be advised.
JKF11	28°43'52.90"S	23°59'13.40"E	Modern	Flat area with acacia bushes including haakbos. Two aluminium pipes, possible remnants of explosive devices. (Several such objects found in the southern part of the property).	Low	No further action required
JKF12	28°43'49.40"S	23°59'16.20"E	Modern	The Grenade Site. Open flat area with acacia bushes. Many hand grenades components found some with inscriptions: FUZ GREN NO 14.	Low	No further action required
JKF13	28°42'43.90"S	23°59'30.90"E	Modern	Open flat area on the southern base of the ridge. Several artefacts found including an unexploded Rifle Grenade blue in colour. Inscriptions: GREN RFL PRAC M791A1 92 BS. Rusted firing belt	Danger	Bomb disposal authorities to be advised
JKF14	28°42'43.90"S	23°59'28.80"E	Modern	Flat area on the southern base of the ridge. Square steel tube with bullet holes; it appears to have been used for marksmanship training. Metal sheet with bullet holes.	Low	No further action required
JKF15	28°42'37.40"S	23°59'14.10"E	Modern	Southern base of the ridge. Several shells of used explosive devices. Scatter of bullet lead ends shows that the southern slope of the hill was a shooting range.	Low	Bomb disposal authorities to be advised
JKF16	28°42'32.20"S	23°59'21.50"E	MSA/LSA	Near the base of the ridge. 4 lithics – scraper and flakes.	Medium	No further action required

JKF17	28°42'34.10"S	23°59'24.80"E	Modern	Flat area, sandy loam soil, vaalbos (<i>Tarchonanthus camphoratus</i>). Component of a rifle or rocket-propelled grenade	Low	No further action required
JKF18	28°42'37.10"S	23°59'30.30"E	Modern	Flat area with bushes, possible shell impact depressions noticed	Low	No further action required
JKF19	28°42'57.30"S	23°59'48.30"E	Modern	Spread of calcrete stones in a low lying area south of the ridge on the edge of a dry stream bed. Old abandoned homestead: Portion of wall of main house stands, foundations of a shed, water reservoir.	Medium	No further action required
JKF20	28°42'2.80"S	23°59'33.70"E	MSA/LSA	A kloof or pass across the ridge through which a seasonal stream passes. Stones and grit. Jaspilite flake tool.	Medium	No further action required
JKF21	28°42'2.20"S	23°59'32.30"E	MSA/LSA	A kloof or pass across the ridge through which a seasonal stream passes. Stones and grit. 3 lithics – flakes and core	Medium	No further action required
JKF22	28°41'27.00"S	23°57'34.20"E	MSA/LSA	On the plateau above the ridge, calcrete stones and hardpan. Acacia bushes including haakbos. 2 lithics.	Medium	No further action required
JKF23	28°41'30.00"S	23°57'35.20"E	ESA	On the plateau above the ridge, calcrete stones overlying hardpan. Handaxe	Medium	No further action required
JKF24	28°41'32.70"S	23°57'34.20"E	Modern	On the plateau above the ridge. Calcrete stones overlying hardpan. 2 lithics – flake and scraper	Medium	No further action required
JKF25	28°41'41.70"S	23°57'41.70"E	MSA/LSA	On the plateau above the ridge. Exposures of calcrete hardpan. Sparse bushes. 6 lithics including dolomites.	Medium	No further action required
JKF26	28°41'36.20"S	23°57'51.30"E	MSA/LSA	On the plateau above the ridge. 3 lithics – sandstone flakes.	Medium	No further action required
JKF27	28°41'25.80"S	23°58'5.00"E	MSA/LSA	On the plateau above the ridge. Calcretic gravel overlying hardpan. 5 lithics – flakes includes green flint (chert)	Medium	No further action required

JKF28	28°41'5.40"S	23°57'54.40"E	Modern	On the plateau above the ridge. Calcretic gravel and exposures of hardpan. Scattered acacia trees. 5 lithics include a sharp edged dolerite tool, flakes/scrapers including one of chert.	Medium	No further action required
JKF29	28°41'4.06"S	23°57'51.49"E	Modern	On the plateau above the ridge. Calcretic gravel and exposures of hardpan. Double row of calcrete stones. Possible marking the course of an exposed water pipe, which was running for 500m from a reservoir foundation remains of which are located close to the boundary fence in the next property.	Medium	No further action required
JKF30	28°41'6.20"S	23°57'43.20"E	MSA/LSA	On the plateau above the ridge. 3 lithics include a scraper and flakes.	Medium	No further action required
JKF31	28°42'37.70"S	23°58'21.10"E	MSA/LSA	On the ridge overlooking the plain below it. Dolomitic hardpan, Sparse acacia bush. 4 lithics – flakes.	Medium	No further action required
JKF32	28°42'50.40"S	23°58'14.10"E	Modern	On the ridge overlooking the plain below it. Dolomitic hardpan, Sparse acacia bush. Bullet lead head.	Low	No further action required
JKF33	28°41'51.10"S	23°59'15.50"E	Modern	Old dam (breached) across the stream trending ESE across the ridge. A stonewall reinforced earth embankment.	Medium	Further investigations required if this area will be mined.
JKF34	28°43'7.10"S	23°59'53.10"E	Modern	Open area, sparse vegetation. Parallel lines of stones appear to mark an old access road.	Low	No further action required
JKF35	28°44'9.60"S	23°59'37.71"E	Modern	Calcrete-surfaced roads of which four are in a parallel formation. They appear to have been used in training with motorized equipment.	Low	No further action required

JKF36	28°41'59.40"S	23°59'26.80"E	Modern	Located on the ridge on the western side of the pass. Below the summit of the ridge there are 6 horseshoe or arced walls with cement binder, the open side is facing the ridge. In this arc there is a square or horseshoe setting of stones (2m x 2m). On the summit of the ridge (10 m height above the walls and 50m apart) there are more short walls. Overall the spatial layout is one of a double row of defensive walls one row on the summit and the other on the base of the ridge. Hand grenade components.	High	The landscape must be preserved as a landmark of military activities on the farm
JKF37	28°41'45.30"S	23°58'59.80"E	Modern	Located on the plateau near the pass. Foundation and floor remains of a square building possibly a farmhouse.	Medium	Further investigations required if this area will be mined.
JKF38	28°42'45.30"S	23°57'49.20"E	MSA/LSA	A rise or hillock on the plateau above the ridge. Near a trigonometric beacon. 2 lithics- flake tools.	Medium	No further action required
JKF39	28°42'47.33"S	23°57'47.93"E	Modern	A rise or hillock on the plateau above the ridge. A trigonometric beacon		No action required, located in the neighbouring property.

10. Ranking of Findings

	RANKING	SIGNIFICANCE	No of sites
0	Danger	Sites with heritage resources as well as war material which might pose a danger (injury or death)	3
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.	4
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. Footprint of early modern mining. These may be protected at the recommendations of a heritage expert.	0
3	Medium B	Sites exhibiting archaeological characteristics of the area, unless otherwise recommended no further action is warranted after they have been documented.	21
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	11
		TOTAL	39

11. Recommendations and conclusions

Three (3) have potentially dangerous objects (JKF10, JKF13, JKF15); these must be investigated by bomb experts. Three (3) sites flagged as possible graves (JKF04, JKF05, JKF08) must be protected; one site with stone walls (1) is rated as of high value and worth protecting (JKF36); and three (3) sites are considered of medium value but worth protecting (JKF33, JKF37).

In the event of discovery of other heritage resources in future phases of the project, the Provincial Heritage Resources Authority or SAHRA must be alerted immediately and an archaeologist or heritage expert called to attend.

1. INTRODUCTION

This Heritage Impact Assessment (HIA) report has been prepared on behalf of Nyezi Holdings (Pty) Ltd in support of an application for a Prospecting and Mining Right on Portion 1 of the Farm Schmidtsdrift 248, Pixley Ka Seme District Municipality, in the Northern Cape Province. A ground survey was conducted over four days from 3 to 7 July 2019 for the documentation of archaeological and historical material that might occur on the property. The report complies with Section 38 of the National Heritage Resources Act (No 25 of 1999) which requires that mitigation measures be considered where a proposed development is likely to result in the disturbance or destruction of heritage resources.

1.1. Nature of development and expected impacts

The applicant intends to mine alluvial diamonds in an ancient wide plain bordering on the Vaal on its north side and operation will extend over a ridge or mini-escarpment to a plateau on the same property – Portion 1 of the Farm Schmidtsdrift 248. Over a period spanning millions of years the Vaal River has flown over a wide plain with water channels shifting and in the process depositing gravels mixed with sand. It has been posited that the diamonds in the gravels were eroded from kimberlite pipes found in many places on the plains of the Highveld and deposited along the course of the river.

Prospecting and opencast mining may entail the following activities:

- Excavations and trenching
- Test pits
- Drilling
- Excavation of open quarries to extract the mineral
- Opening of permanent/temporary service roads
- Location of processing plant
- Establishment of temporary or permanent residential quarters

The proposed activities may result in the disturbance or destruction of heritage resources where they exist. For this reason a HIA is conducted which profiles the

archaeological and palaeontological resources present as a basis for prescribing appropriate mitigation measures.

2. LOCATION AND PHYSICAL SETTING

The property is located on the north-western outskirts of Schmidtsdrift 6 km west of the present course of the Vaal River. Schmidtsdrift Village is located 70km west of Kimberley and c. 40km downstream of the confluence of the Vaal and Harts River (28°43'35.43"S, 24° 3'6.00") (Figure 1). The key geomorphological feature is the Vaal River (known in seSotho as 'Lekwa'). This perennial river meanders across the semi-arid southern plains from its sources on the western foot of the Drakensberg Mountains, only 240km from the Indian Ocean. It flows west some 1 120km to its confluence with the Orange River, which continues another 1 350km to the Atlantic Ocean. The river has been a strategic lifeline for communities living in these semi-arid parts of the highveld from Stone Age times and it continues to hold that vital importance as a precious source of water. Vegetation, which is predominated by acacia is largely well preserved. There is a significant presence of the *haakbos* (*Acacia mellifera subsp. Detinens*) both on the lower plain and the plateau above the ridge (Figure 2). The southern part of the property bordering on the N8 high features red-brown soils in some areas a thin Kalahari sand overlay can be seen. These area as a calcrete gravel admixture and occasionally red-brown stones are seen. Mid-distance from the southern limits of the property as we move north towards the ridge roughly running parallel with the Vaal River, there are significant exposures of calcrete gravel and hardpan (Figure 3), which gives way to light brown soils approaching the base of the ridge.

The ridge or mini-escarpment is a prominent geomorphological feature of successive beds of dolomite (Figure 4). The ground rises 30 m to a plateau. The eastern part of the plateau has exposures of calcrete while the western part closer to the ridges shows dolomite stones and hardpan (Figure 5). Going further west and beyond the property the ground rises again across another escarpment and on a larger scale such is the relationship between Orange- Vaal valley and the extensive Ghaap Plateau to its north.



Figure 1: Google-Earth map shows the location of Portion 1 of the Farm Schmidtsdrift 248 (Jakhalsfontein) west of the Vaal River.



Figure 2: View northwest from the plain towards the ridge shows flat terrain and acacia bushes.



Figure 3: Calcretic gravel and hardpan in the middle area of the plain below the ridge.



Figure 4: The ridge is a sedimentary landform with successive beds of dolomite.



Figure 5: Dolomitic hardpan in the western part of the plateau occupying the northern part of the farm.

3. LEGAL FRAMEWORK

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

The proposed prospecting requires a Heritage Impact Assessment as stipulated under Section 38 of the National Heritage Resources Act (No 25 1999). 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, power line, 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 of relevant application are:

Section 34 of the NHRA for provisional protection of all structures and features older than 60 years.

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 and Policies

In practice heritage management advocates protection and respect the sanctity of all graves regardless of their age. International principles are based on the same ethical considerations. The the **Vermillion Accord on Human Remains** adopted by the **World Archaeological Congress (WAC)** at the WAC Inter-Congress in South Dakota (USA) urges “*respect for the mortal remains of the dead shall be accorded to all, irrespective of origin, race, religion, nationality, custom and tradition.*”

3.3. The National Environmental Management Act (No 107/1998)

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.

3.4. The Burra Charter

Some generic principles and standards for the protection of heritage resources are drawn from international charters and conventions, in particular the **Australia Charter for the Conservation of Places of Cultural Significance (the Burra Charter 1999)**, which South Africa has adopted.

4. APPROACH AND METHODOLOGY

4.1. Literature Survey

The purpose of a literature survey is to provide background information on the as it relates to geography, the cultural sequence and known heritage potential of the area. A number of reports generated through heritage impact assessment studies in the area were available as reference material. I have carried out a number of surveys in the broader area to the north and south Schmidtsdrift:

Matenga, E. 2017: *Phase I Heritage Impact Assessment Requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for a Mining right on Vaalbos Island on the Vaal River near Longlands, Barkly West District, Northern Cape Province.*

Matenga, E. 2018. *Phase I Heritage Impact Assessment (including Palaeontological Assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for Mining Permit and Related Infrastructural Activities on a Piece of the Farm Longlands 350 Situated in the Magisterial District of Barkly West, Northern Cape Province*

Matenga, E. 2018. *Phase I Heritage Impact Assessment (including palaeontological assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for the proposed mine prospecting on the Remainder of the Farm Schimdtsdrift 248, Pixley Ka Seme District Municipality, Northern Cape Province* (Among the findings were potsherds possibly dating to the Later Iron Age).

All these studies have revealed a significant footprint of hunter-gatherer foraging dating from the Early Stone through the Middle Stone Age to the Late Stone Age evidence by scatters of stone tools (scrapers, cores, blades and flakes).

Other specialists have also worked in the area, viz:

Coetzee, F. P. 2011. *Cultural Heritage Survey of the Proposed Schmidtsdrift Renewable PV Project on the Farm Schmidtsdrift 248/0000, Northern Cape.* Scatters of stone tools were found. A possible grave was recorded.

The present study is a supplement to a study on the same property conducted by **Prof David Morris & Mr Jani Louw (2018):** *Heritage Impact Assessment for the proposed diamond (alluvial and general) mining at Jakhalsfontein near Schmidtsdrift, Northern Cape.* (Case-ID 13238). The findings and recommendations of this study are considered, while the current study has sought to extend the ground coverage of the survey and to provide a more definitive statement on the heritage potential of the area. In this way further light is shed on what mitigation measures are to be undertaken. In particular we have confirmed the footprint of the South African army's ordnance test and training manoeuvres.

On a more general note, the studies cited above and many not mentioned here have recorded occurrences of sites dating from Early Stone Age (ESA) through the Middle Stone Age (MSA) to the Late Stone Age (LSA), with a majority falling under the MSA/LSA periods. Generally finds occur as scatters of scrapers, blades and cores while concentrated finds evidencing manufacturing sites or settlements are rare.

4.2. Ground Survey

Data was collected by means of walking surveys, largely random, but also targeting spots seen as likely to yield material.

4.3. Significance Ranking

Heritage sites have been ranked to show potential risks relative to their cultural significance.

	RANKING	SIGNIFICANCE	No of sites
0	Danger	Sites with heritage resources as well as war material which might pose a danger (injury or death)	
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.	
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. Footprint of early modern mining. These may be protected at the recommendations of a heritage expert.	
3	Medium B	Sites exhibiting archaeological characteristics of the area, unless otherwise recommended no further action is warranted after they have been documented.	
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	
		TOTAL	

4.4. Limitations of the study

Entry to the farm Jakhalsfontein is granted with a disclaimer concerning the potential risk of injury or death that might arise from stepping on explosive munitions. As it turned out, suspicious objects were recorded in three places. Current social conditions in Schmidtsdrift and surrounds did not permit public participation at the grassroots level. The general social mood is unsettled because of expectations of service delivery which the public contend have not been fulfilled.



Figure 6: Danger warning sign of the possibility of unused monition

5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

5.1. Cultural Sequence Summary

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.
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	Nguni / Sotho/Venda people	Iron Age Farmers	Mfecance / Difaqane
(iii) Colonial period	19 th Century	European settlers / farmers / missionaries/ industrialisation	Buildings, Missions, Mines, metals, glass, ceramics

5.2. Appearance of hominids

Early hominids were proto-humans which have been recorded in South Africa dating to 3 million years ago. The hominid site nearest to the study area is Taung near Vryburg (140km to the northeast). This is a UNESCO World Heritage Site proclaimed together with the Sterkfontein Caves (Krugersdorp) and Makapans Valley (Mokopane) in a serial nomination. No hominid sites have been reported along the Vaal River.

5.3. The Early Stone Age (2 million to 250 000 years BP)

The Stone Age dates back more than 2 million years representing a more explicit beginning of the cultural sequence divided into three epochs, the Early, Middle and Late Stone Ages. These early people made stone and bone implements. Material evidence is found in caves, rock-shelters and on river sides and edges of streams, and very rarely seen in open country. Such tools bore a consistent shape such as the pear-shaped handaxe, cleavers and core tools.² These tool industries have been called Oldowan and Acheulian and 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 kill sites. Early hunters are classified as hominids meaning that they had not evolved to the present human form. Progressively a good profile of the Stone Age in the Northern Cape Province has been constructed from many heritage impact assessments that have been conducted in recent years. Early (ESA) and Middle Stone Age (MSA) lithics occur over most of area with a more recent find of Later Stone Age (LSA) occupations.³ In the current study an ESA handaxe has been found on the property (Site JKF 21). The Wonderwerk Cave has become a benchmark for the characterisation of the Stone Age. Excavations reveal a long sequence of occupation spanning the Early (ESA), Middle (MSA) and Later Stone Ages.⁴

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

The Middle Stone Age (MSA), appeared 250 000 years ago and is marked by the introduction of a new tool kit which included prepared cores, parallel-sided blades and triangular points hafted to make spears. By then humans had become skilful hunters, especially of large grazers such as wildebeest, hartebeest and eland. By humans had evolved significantly to become anatomically modern. Caves were used for shelter suggesting permanent or semi-permanent settlement. There is archaeological evidence from some of the caves indicating the making of fire.⁵

² Deacon, H.J. & Deacon, J. 1999. Human Beginnings in South Africa: Uncovering the Secrets of the Stone Age. Cape Town: David Philip.

³ Schalkwyk, J. 2015. Heritage Scoping Assessment for the Proposed Perseus-Kronos 765KV Transmission Power Line and Substations Upgrade, Northern Cape and Free State Provinces, p6.

⁴ Humphreys, A.J.B. & Thackeray, A.I. 1983. Ghaap and Gariiep. Later Stone Age Studies in the Northern Cape. Cape Town: South African Archaeological Society Monograph Series 2.

⁵ Deacon, J & H. Deacon. 1999. Human Beginnings in South Africa. Cape Town: David Philip.

A number of field surveys have been carried in the broader area confirming significant hunter gatherer activity from the MSA onwards.

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

By the beginning of the LSA, humans had evolved to *Homo sapiens* which refer to the modern physical form and thinking capabilities. Several behavioural traits are noticed, such as rock art and purposeful burials with ornaments, became a regular practice. 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. Practitioners of rock art were ancestors of the San and sites abound in the whole of Southern Africa. Wildebeest Kuil Rock Art Centre is a rock engraving site now with an interpretation centre on land owned by the !Xun and Khwe San situated c. 60 km to the southeast from the study area along the R31 road from Kimberley to Barkly West. The site was first known to the public in modern times by the renowned 19th century researcher, George William Stow.⁶ A number of rock engravings have been reported in the vicinity of Lime Acres and Danielskuil (c. 75km northwest) including recent art ascribed to the Griquas and Khoikhoi.⁷

5.6. Early Iron Age

The Iron Age was a gradual spread or expansion of settlement of different groups of speakers of Bantu languages over a period that could have spanned more than 2 millennia. These communities indigenous to the continent brought with them domestic animals, crops, pottery and metal technology. However there are few if any sites attributed to the EIA in the western parts of the country.⁸ Most Iron Age settlements are concentrated in the eastern part of the country. The woodland zone was preferred for settlement, but there is strong possibility that transhumant pastoralism was practiced and seasonal hunting camps were established in the inhospitable western regions of the country.

⁶ Wildebeest Kuil Rock Art Centre, at: <http://www.kimberley.co.za/city/wildebeest-kuil-rock-art-centre/> (Consulted 3 May 2017).

⁷ Collins, S. 1973. Rock-engravings of the Danielskuil Townlands. *South African Archaeological Bulletin* 109-110: 49-57.; Eastwood, E.B. & Smith, B.W. 2005.

⁸ Phillipson, D. W. 2005. *African Archaeology*. Cambridge: University of Cambridge Press.

There is however increasing evidence that sheep and probably cattle as well might have moved into the area much earlier than the Iron Age.⁹

5.7. The Later Iron Age

The LIA is marked by the presence of extensive stonewalled settlements such as the Tlhaping capital at Dithakong near Kuruman.¹⁰

5.8. Historical context

The study area is historically home to the Tlhaping segment of the Tswana, who descended from the Iron Age people and probably from as far back as the Stone Age. The early 19th century was a political turning point with an increasingly uncertain security situation and internal displacements. The first of these episodes was the Difaqane characterised by inter-tribal raids.

The history of the area is not complete without mention of the historical footprint of the Griqua people. Historically their cradle was in the northeastern Cape Colony and they were predominantly of Khoi-Khoi stock with an infusion through marriage of other groups in the area from the 1st century. Adam Kok 1 is considered the founding leader. He moved his people north from the Cape Colony out of the expanding colonial frontier. His successor, Andries Waterboer settled with his people in what became Griqualand West and therein comes the historical connection between the Tlhaping and the Griquas. The Griqua established a town called Klaarwater and subsequently renamed Griquatown. Meanwhile white hunters, traders and missionaries also entered the area. A little later the Afrikaners arrived bringing their stock as part of a mass exodus from the Cape called the Great Trek. The discovery of diamonds at Kimberley sparked the “rush”. The area which became known as Griqualand West was subsequently incorporated into the Cape Colony in the 1880s.¹¹

⁹ 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

¹⁰ De Jong 2010: De Jong, R.C. 2010. Heritage impact assessment report: proposed manganese and iron ore mining right application in respect of the remainder of the farm Paling 434, Hay Registration Division, Northern Cape. Unpublished report prepared for Kai Batla Minerals Industry Consultants. Pretoria: Cultmatrix, p 36.

¹¹ De Jong, R.C. 2010. Heritage impact assessment report: proposed manganese and iron ore mining right application in respect of the remainder of the farm Paling 434, Hay Registration Division, Northern Cape. Unpublished report prepared for Kai Batla Minerals Industry Consultants. Pretoria: Cultmatrix.

5.9. Vaal River alluvial diamond diggings

The mining of alluvial diamonds in the Vaal River Valley started in 1869 carried out by a party of prospectors from Natal organised by the British Army. As they continued the search for the gemstones along the valley they struck good finds at Klipdrift (Barkly West). These finds sparked South Africa's first diamond rush. Following the news men began to flock from Britain and elsewhere to the new diggings. By April 1871 c. 5000 men had swarmed the Vaal, Modder, and Orange Rivers. The alluvial stones from the region proved to be of high quality. The miners staked claims while the local Griqua chiefs and the Boer Republics of the Transvaal and Orange Free State also joined in the fray. Ownership rights were initially given to local chiefs and Boer Trekkers. But the diggers proclaimed the Klip Drift Republic on 30th July 1870 with Stafford Parker as its elected president. In 1872, the British annexed the diamond fields and proclaimed Griqualand West as a crown state. It was subsequently incorporated into the Cape Colony in 1880. The majority of the prospectors abandoned the various Vaal River claims in the wake of richer finds at Kimberley in 1871. Mining of the river gravels has been going on sparking sporadic rushes over the last nearly one and half centuries.¹²

Schmidtsdrift was established as ford across the Vaal River linking Kimberley to Griquatown. The area around Schmidtsdrift was declared Crown Trust Land in 1827 reserved for the BaTlhaping and Griqua people. The communities vacated the land in 1968 under the policies of the government of the day and it was designated state land and given to the South African Defence Forces (SADF) for the establishment of a military base. At the end of the war in Namibia and the withdrawal of South African troops, the training facility was decommissioned, and the government resettled members of the 31 Battalion consisting of elements of the !Xun (also known as Vasekele) and Khwe (known also as Mbarakwengo) Bushman (San) at Schmidtsdrift, but later moved them to Platfontein near Kimberley.¹³

The above forms the archaeological and historical context for the identification of heritage resources in the study area.

¹² The Barkly West & Vaal River Diggings. Found at: <http://www.on-the-rand.co.uk/Diamond%20Grounds/Barkly%20West.htm>

¹³ Kleinbooi, K. 2007. Community Land Claim. University of the Western Cape.

6. FINDINGS OF THE SURVEY

The heritage sensitivity of the property is summarised as follows:

6.1. The Stone Age

There are scatters of Stone Age material comprising scrapers, blades cores and flakes recorded at fourteen (14) places dating from the Early Stone Age through the Middle Stone Age to the Late Stone Age. No concentrations of artefacts were observed. The distribution pattern seems to indicate general hunter-gatherer activity in the area over time. None of the sites found therefore warrant any further action.

6.2. The Early Iron Age

No sites dating to the Iron Age were found.

6.3. The Later Iron Age

No sites dating to the LIA were found.

6.4. Early Commercial Farming

The seasonal stream which trends south cutting across the ridge is a major drainage feature on the property. The early commercial farmers constructed an earth embankment to create a reservoir. The dam was reinforced by stones packed on the side of the reservoir, but has now been breached in the middle section leaving sections of walling on either side (JKF33). The structure is a landmark of efforts by early farmers to trap water for livestock and domestic needs. Further investigations will be required if this area will be mined. In two places, foundation remains of buildings representing farmsteads have been recorded (JKF19, JKF37). Further investigation must be undertaken if mining is to take place in these localities.

6.5. Burials

Settings of stones or piles (which may be called cairns) have been recorded in 3 instances (JKF04, JKF05 and JKF08) suggesting possible graves. Without a more detailed examination it was difficult to ascertain whether these cairns date back to a much earlier period or could be associated with the SADF training activities on the

property. Taking a precautionary approach, these sites must be fenced off and protected and further investigations conducted if the localities will be mined.

6.6. Occupation of the South Africa Defence Forces, 1968 to 1986

Evidence abounds on the property of the South African Defence Forces' ordnance testing and training manoeuvres, particularly in the area south of the ridge. Of particular significance are curved (or horseshoe) walls located near the pass and on the summit of the ridge. These are short walls built of local available stones with a cement binder 9m long and 1.2 m wide. 6 were counted. The arcs face the hills (ridge) on the summit of which there are several similar walls. In these semi-enclosures there are square or horseshoe settings of stones. Overall the spatial layout is one of a double row of defensive walls one row on the summit and the other on the base of the ridge. The Site must be protected as a landscape providing a rare insight into military training activities of the time. Perhaps with cooperation and assistance of the Department of Defence and War Veterans, a commemorative plaque may be erected.

6.7. Danger sites

Three sites (JKF10, JKF13 and JKF15) were recorded as having artefacts connected with the SADF training programmes on the property. In this respect they are heritage sites. However at Site JKF13 included what appears to be an unexploded rifle grenade among other artefacts. At Site JKF10 the base of an exploded shell was found, but it was not certain if all the energy has been used up. The same observation was made for what appears to be a bombshell or grenade at Site JKF15. These objects may pose a danger with the potential risk of injury or death. It is therefore recommended that bomb disposal experts are informed.

Table 1: Inventory of heritage sites

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
JKF01	28°43'16.70"S	23°59'44.30"E	Modern	Flat area with acacia bushes. Brown soil with sparse calcrete stones. Lid of an explosive device, possibly hand grenade, iron fragment with signs of explosion fragmentation (several such objects found in the vicinity).	Low	No further action required
JKF02	28°43'15.60"S	23°59'45.50"E	Modern	Flat area with acacia bushes (including haakboos). Broken piece of horseshoe.	Low	No further action required
JKF03	28°44'3.60"S	23°59'35.80"E	MSA/LSA, Modern	Flat area with scattered acacia bushes. Metal fragment bears signs of explosion disintegration. Inscription: BT/021. Stone age flake tool.	Medium	No further action required
JKF04	28°44'2.30"S	23°59'34.60"E	Modern?	Flat area, red-brown soils. Oval setting of stones 1m x 0.80m with headstone placed at the eastern end. Possible burial.	High	Protection or further investigation if the area will be mined.
JKF05	28°44'0.20"S	23°59'36.50"E	Modern	Flat area, red-brown soils. Scattered bushes. Suspicious pile of stones with headstone placed at the north-eastern end. Possible burial.	High	Protection or further investigation if the area will be mined.
JKF06	28°44'7.70"S	23°59'43.80"E	MSA/LSA	Open flat area, red-brown soils with scattered stones. Flake tool and a polished stone	Medium	No further action required
JKF07	28°44'6.60"S	23°59'40.30"E	MSA/LSA, Modern	Open flat area, red-brown soils. Flake tool. Rectangular setting of stones (10m NS x 7m EW) possibly the foundation of a building or boundary of activity area.	Medium	No further action required
JKF08	28°43'57.40"S	23°59'17.10"E	Modern?	Flat area with acacia bushes including haakbos. Oval pile of stones (2.5m long x 1.80m wide) oriented NS may be a burial.	High	Protection or further investigation if the area will be mined.

JKF09	28°43'54.40"S	23°59'17.30"E	Modern	Flat area, fairly dense acacia bush. Aluminium canister with signs of explosion damage.	Low	No further action required
JKF10	28°43'56.70"S	23°59'16.70"E	Modern	Flat area, dense acacia bush. Base of exploded shell.	Danger	Bomb disposal authorities to be advised.
JKF11	28°43'52.90"S	23°59'13.40"E	Modern	Flat area with acacia bushes including haakbos. Two aluminium pipes, possible remnants of explosive devices. (Several such objects found in the southern part of the property).	Low	No further action required
JKF12	28°43'49.40"S	23°59'16.20"E	Modern	The Grenade Site. Open flat area with acacia bushes. Many hand grenades components found some with inscriptions: FUZ GREN NO 14.	Low	No further action required
JKF13	28°42'43.90"S	23°59'30.90"E	Modern	Open flat area on the southern base of the ridge. Several artefacts found including an unexploded Rifle Grenade blue in colour. Inscriptions: GREN RFL PRAC M791A1 92 BS. Rusted firing belt	Danger	Bomb disposal authorities to be advised
JKF14	28°42'43.90"S	23°59'28.80"E	Modern	Flat area on the southern base of the ridge. Square steel tube with bullet holes; it appears to have been used for marksmanship training. Metal sheet with bullet holes.	Low	No further action required
JKF15	28°42'37.40"S	23°59'14.10"E	Modern	Southern base of the ridge. Several shells of used explosive devices. Scatter of bullet lead ends shows that the southern slope of the hill was a shooting range.	Low	Bomb disposal authorities to be advised
JKF16	28°42'32.20"S	23°59'21.50"E	MSA/LSA	Near the base of the ridge. 4 lithics – scraper and flakes.	Medium	No further action required
JKF17	28°42'34.10"S	23°59'24.80"E	Modern	Flat area, sandy loam soil, vaalbos (<i>Tarchonanthus camphoratus</i>). Component of a rifle or rocket-propelled grenade	Low	No further action required
JKF18	28°42'37.10"S	23°59'30.30"E	Modern	Flat area with bushes, possible shell impact depressions noticed	Low	No further action required

JKF19	28°42'57.30"S	23°59'48.30"E	Modern	Spread of calcrete stones in a low lying area south of the ridge on the edge of a dry stream bed. Old abandoned homestead: Portion of wall of main house stands, foundations of a shed, water reservoir.	Medium	No further action required
JKF20	28°42'2.80"S	23°59'33.70"E	MSA/LSA	A kloof or pass across the ridge through which a seasonal stream passes. Stones and grit. Jaspilite flake tool.	Medium	No further action required
JKF21	28°42'2.20"S	23°59'32.30"E	MSA/LSA	A kloof or pass across the ridge through which a seasonal stream passes. Stones and grit. 3 lithics – flakes and core	Medium	No further action required
JKF22	28°41'27.00"S	23°57'34.20"E	MSA/LSA	On the plateau above the ridge, calcrete stones and hardpan. Acacia bushes including haakbos. 2 lithics.	Medium	No further action required
JKF23	28°41'30.00"S	23°57'35.20"E	ESA	On the plateau above the ridge, calcrete stones overlying hardpan. Handaxe	Medium	No further action required
JKF24	28°41'32.70"S	23°57'34.20"E	Modern	On the plateau above the ridge. Calcrete stones overlying hardpan. 2 lithics – flake and scraper	Medium	No further action required
JKF25	28°41'41.70"S	23°57'41.70"E	MSA/LSA	On the plateau above the ridge. Exposures of calcrete hardpan. Sparse bushes. 6 lithics including dolomites.	Medium	No further action required
JKF26	28°41'36.20"S	23°57'51.30"E	MSA/LSA	On the plateau above the ridge. 3 lithics – sandstone flakes.	Medium	No further action required
JKF27	28°41'25.80"S	23°58'5.00"E	MSA/LSA	On the plateau above the ridge. Calcretic gravel overlying hardpan. 5 lithics – flakes includes green flint (chert)	Medium	No further action required
JKF28	28°41'5.40"S	23°57'54.40"E	Modern	On the plateau above the ridge. Calcretic gravel and exposures of hardpan. Scattered acacia trees. 5 lithics include a sharp edged dolerite tool, flakes/scrapers including one of chert.	Medium	No further action required

JKF29	28°41'4.06"S	23°57'51.49"E	Modern	On the plateau above the ridge. Calcretic gravel and exposures of hardpan. Double row of calcrete stones. Possible marking the course of an exposed water pipe, which was running for 500m from a reservoir foundation remains of which are located close to the boundary fence in the next property.	Medium	No further action required
JKF30	28°41'6.20"S	23°57'43.20"E	MSA/LSA	On the plateau above the ridge. 3 lithics include a scraper and flakes.	Medium	No further action required
JKF31	28°42'37.70"S	23°58'21.10"E	MSA/LSA	On the ridge overlooking the plain below it. Dolomitic hardpan, Sparse acacia bush. 4 lithics – flakes.	Medium	No further action required
JKF32	28°42'50.40"S	23°58'14.10"E	Modern	On the ridge overlooking the plain below it. Dolomitic hardpan, Sparse acacia bush. Bullet lead head.	Low	No further action required
JKF33	28°41'51.10"S	23°59'15.50"E	Modern	Old dam (breached) across the stream trending ESE across the ridge. A stonewall reinforced earth embankment.	Medium	Further investigations required if this area will be mined.
JKF34	28°43'7.10"S	23°59'53.10"E	Modern	Open area, sparse vegetation. Parallel lines of stones appear to mark an old access road.	Low	No further action required
JKF35	28°44'9.60"S	23°59'37.71"E	Modern	Calcrete-surfaced roads of which four are in a parallel formation. They appear to have been used in training with motorized equipment.	Low	No further action required

JKF36	28°41'59.40"S	23°59'26.80"E	Modern	Located on the ridge on the western side of the pass. Below the summit of the ridge there are 6 horseshoe or arced walls with cement binder, the open side is facing the ridge. In this arc there is a square or horseshoe setting of stones (2m x 2m). On the summit of the ridge (10 m height above the walls and 50m apart) there are more short walls. Overall the spatial layout is one of a double row of defensive walls one row on the summit of the ridge and the other below. Hand grenade components.	High	The landscape must be preserved as a landmark of military activities on the farm
JKF37	28°41'45.30"S	23°58'59.80"E	Modern	Located on the plateau near the pass. Foundation and floor remains of a square building possibly a farmhouse.	Medium	Further investigations required if this area will be mined.
JKF38	28°42'45.30"S	23°57'49.20"E	MSA/LSA	A rise or hillock on the plateau above the ridge. Near a trigonometric beacon. 2 lithics- flake tools.	Medium	No further action required
JKF39	28°42'47.33"S	23°57'47.93"E	Modern	A rise or hillock on the plateau above the ridge. A trigonometric beacon		No action required, located in the neighbouring property.

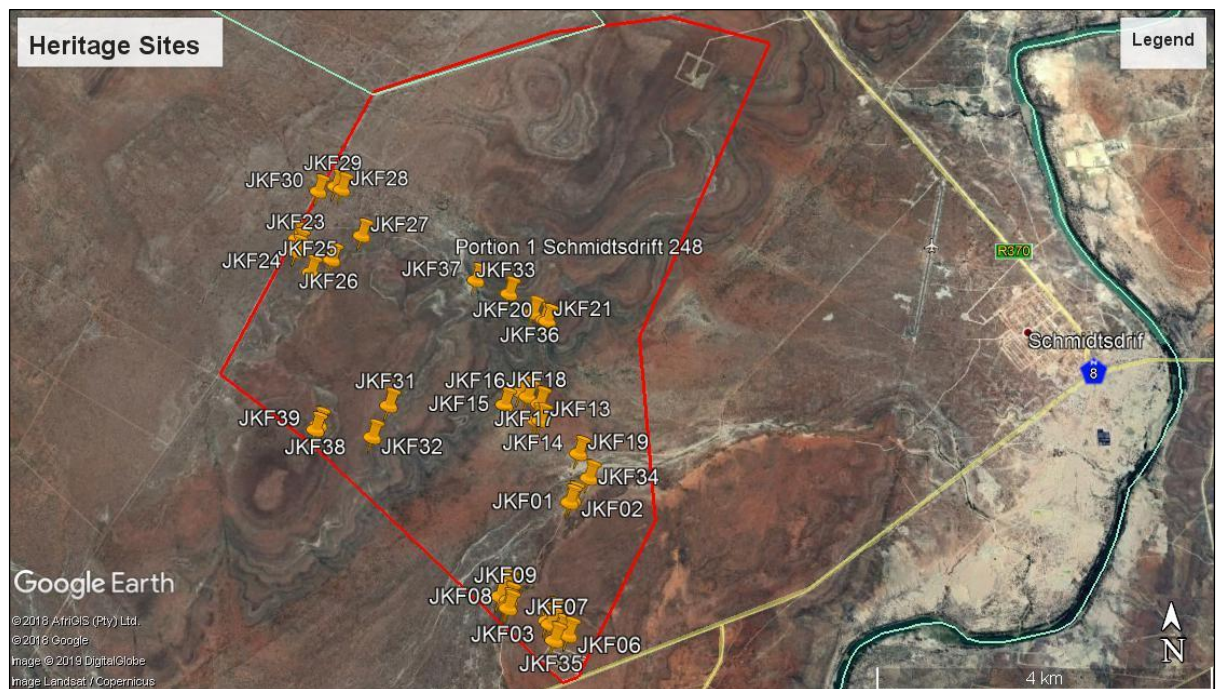


Figure 7: Location of heritage sites.

6.8. Ranking of Findings

	RANKING	SIGNIFICANCE	No of sites
0	Danger	Sites with heritage resources as well as war material which might pose a danger (injury or death)	3
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.	4
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. Footprint of early modern mining. These may be protected at the recommendations of a heritage expert.	0
3	Medium B	Sites exhibiting archaeological characteristics of the area, unless otherwise recommended no further action is warranted after they have been documented.	21
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	11
		TOTAL	39

6.9. 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

Thirty-nine sites (39) sites were recorded of which three (3) had potentially dangerous objects (JKF10, JKF13, JKF15) and must be investigated; three (3) were possible graves (JKF04, JKF05, JKF08) and must be protected; one (1) was rated a site of high value and worth protecting (JKF36); and three (3) sites were considered of medium value and worth protecting (JKF19, JKF33, JKF37). The remainder of the sites were of either of medium or low value and no further action was considered necessary.

(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

The risk ranking is a definition of potential risks based on perceived value of the heritage and potential threats posed by the proposed development. As mentioned above Six (6) sites must be protected. Three (3) sites with potential dangerous objects must be investigated.

(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 is an important lever of economic development for the South African economy. The mineral wealth 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 rate of unemployment. 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

Prevailing social conditions did not permit public participation at the grassroots level. The general public mood is unsettled because of expectations of service delivery which they contend have not been fulfilled. King Adam Kok V, the paramount authority of the Griqua expressed support of the project in a signed consent form. Mr Leonard Steenkamp is a member of the Community Property Association in Schmidtsdrift. He expressed support for the project in a signed consent form. The consent forms are appended to this report together attendance registers of meeting with these public officials. A public notice was mounted at the entrance gate to the property (Fig 8a-b). A public notice has been published in the Diamond Field Advertiser (DFA) in Kimberley.



Figures 8a-b. Public Notice mounted at the entrance gate to the Farm Jakhalsfontein inviting people to comment on heritage resources.

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

Site JKF36 will be protected. Sites JKF04, JKF05, JKF08, JKF33 and JKF37 will require further investigations if mining is to take place in their immediate localities.

(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.

6.10. 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	Test pits, excavations and ground clearing, opencast 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	High.
Mitigation measures	Protect the sites that have been flagged. If archaeological or other heritage relics are 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. RECOMMENDATIONS AND CONCLUSIONS

Three (3) were potentially dangerous objects/munitions (JKF10, JKF13, JKF15) were found must be investigated; three (3) sites flagged as possible graves (JKF04, JKF05, JKF08) must be protected; one site with stone walls (1) rated is rated of high value and worth protecting (JKF36); and three (3) sites were considered of medium value but worth protecting (JKF33, JKF37).

In the event of discovery of other heritage resources in future phases of the project, the Provincial Heritage Resources Authority or SAHRA must be alerted immediately and an archaeologist or heritage expert called to attend.

8. CATALOGUE OF HERITAGE SITES

SITE NO	COORDINATES		PERIOD
JKF01	28°43'16.70"S	23°59'44.30"E	Modern
 <p data-bbox="204 1639 1278 1776">DESCRIPTION: Flat area with acacia bushes. Brown soil with sparse calcrete stones. Lid of an explosive device, possibly hand grenade, iron fragment with signs of explosion fragmentation (several such objects found in the vicinity).</p>			
HERITAGE SIGNIFICANCE			Evidence of military training activities
MITIGATION			No further action required

SITE NO	COORDINATES		PERIOD
JKF02	28°43'15.60"S	23°59'45.50"E	Modern



DESCRIPTION: Flat area with acacia bushes (including haakboos). Broken piece of horseshoe.

HERITAGE SIGNIFICANCE	Evidence of military training activities
MITIGATION	No action required.

SITE NO	COORDINATES		PERIOD
JKF03	28°44'3.60"S	23°59'35.80"E	MSA/Modern





DESCRIPTION: Flat area with scattered acacia bushes. Metal fragment bears signs of explosion disintegration. Inscription: BT/021. Stone age flake tool.


HERITAGE SIGNIFICANCE	Evidence of hunter gather activity in the MSA/LSA and military training activities
MITIGATION	No further action required

SITE NO	COORDINATES		PERIOD
JKF04	28°44'2.30"S	23°59'34.60"E	Modern?



DESCRIPTION: Flat area, red-brown soils. Oval setting of stones 1m x 0.80m with headstone placed at the eastern end. Possible burial.

HERITAGE SIGNIFICANCE	Must be protected under Section 36 of NHRA
MITIGATION	Protection or further investigation if the area will be mined.

SITE NO	COORDINATES		PERIOD
JKF05	28°44'0.20"S	23°59'36.50"E	Modern?
			
<p>DESCRIPTION: Flat area, red-brown soils. Scattered bushes. Suspicious pile of stones with headstone placed at the north-eastern end. Possible burial.</p>			
HERITAGE SIGNIFICANCE		Must be protected under Section 36 of NHRA	
MITIGATION		Protection further investigation if the area will be mined	

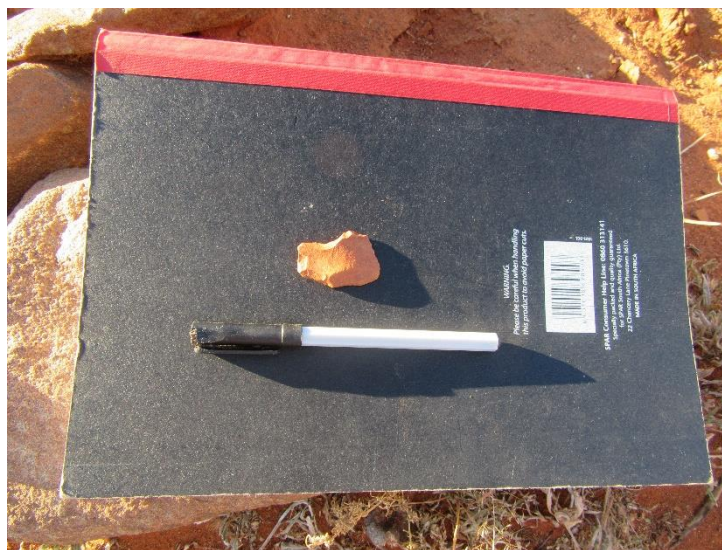
SITE NO	COORDINATES		PERIOD
JKF06	28°44'7.70"S	23°59'43.80"E	MSA/LSA



DESCRIPTION: Open flat area, red-brown soils with scattered stones. Flake tool and a polished stone

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activity in the MSA/LSA
MITIGATION	No further action required


SITE NO	COORDINATES		PERIOD
JKF07	28°44'6.60"S	23°59'40.30"E	MSA/Modern



DESCRIPTION: Open flat area, red-brown soils. Flake tool. Rectangular setting of stones (10m NS x 7m EW) possibly the foundation of a building or boundary of activity area.

HERITAGE SIGNIFICANCE	Possible association with military training activities.
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MITIGATION	No further action required
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SITE NO	COORDINATES		PERIOD
JKF08	28°43'57.40"S	23°59'17.10"E	Modern?
			
<p>DESCRIPTION: Flat area with acacia bushes including haakbos. Oval pile of stones (2.5m long x 1.80m wide) oriented NS may be a burial.</p>			
HERITAGE SIGNIFICANCE		Must be protected under Section 36 of NHRA	
MITIGATION		Protection or to be further investigated if the area will be mined	

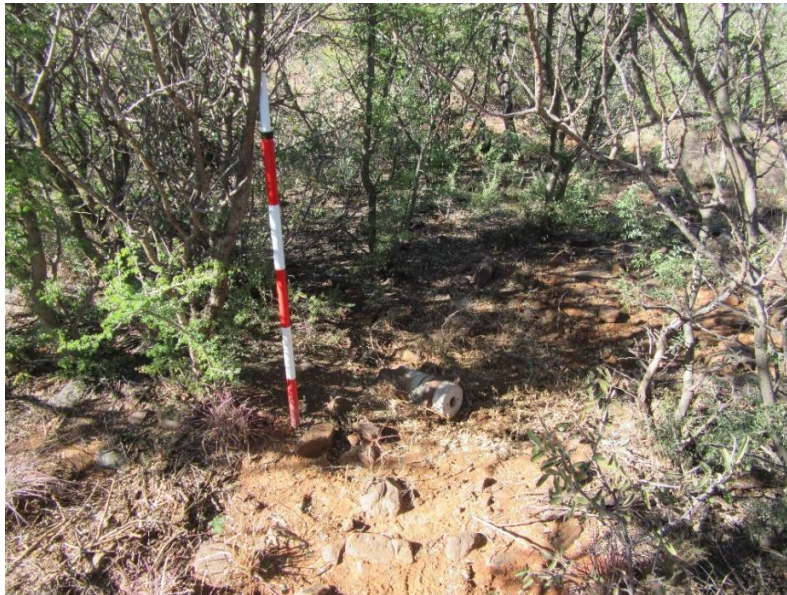
SITE NO	COORDINATES		PERIOD
JKF09	28°43'54.40"S	23°59'17.30"E	Modern



DESCRIPTION: Flat area, fairly dense acacia bush. Aluminium canister with signs of explosion damage.

HERITAGE SIGNIFICANCE	Evidence of military training activities
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF10	28°43'56.70"S	23°59'16.70"E	Modern

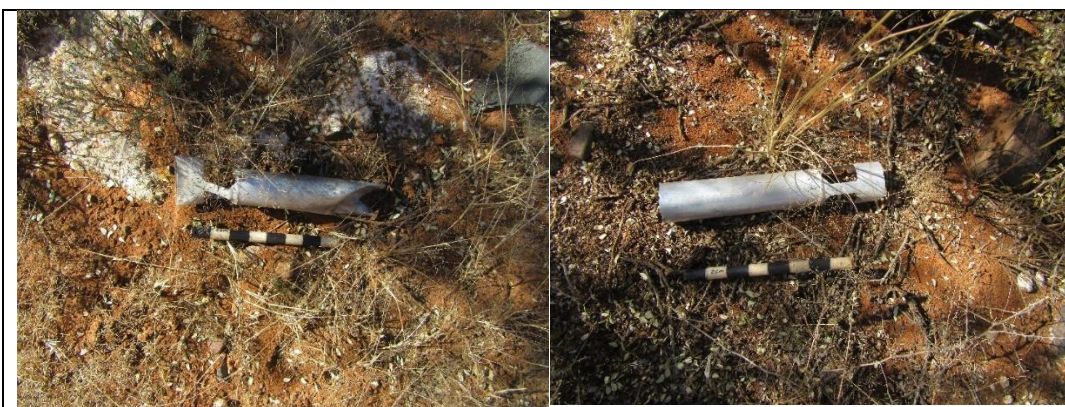


DESCRIPTION: Flat area, dense acacia bush. Base of exploded shell.

HERITAGE SIGNIFICANCE	Evidence of military training activities
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MITIGATION	To be reported to bomb disposal experts
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SITE NO	COORDINATES		PERIOD
JKF11	28°43'52.90"S	23°59'13.40"E	Modern



DESCRIPTION: Flat area with acacia bushes including *haakbos*. Two aluminium pipes, possible remnants of explosive devices. (Several such objects found in the southern part of the property).

HERITAGE SIGNIFICANCE

Evidence of military training activities

MITIGATION

No further action required

SITE	COORDINATES		PERIOD
JKF12	28°43'49.40"S	23°59'16.20"E	Modern



DESCRIPTION: The Grenade Site. Open flat area with acacia bushes. Many hand grenades components found some with inscriptions: FUZ GREN NO 14.

HERITAGE SIGNIFICANCE

Evidence of military training activities

MITIGATION

SITE NO	COORDINATES		PERIOD
JKF13	28°42'43.90"S	23°59'30.90"E	Modern

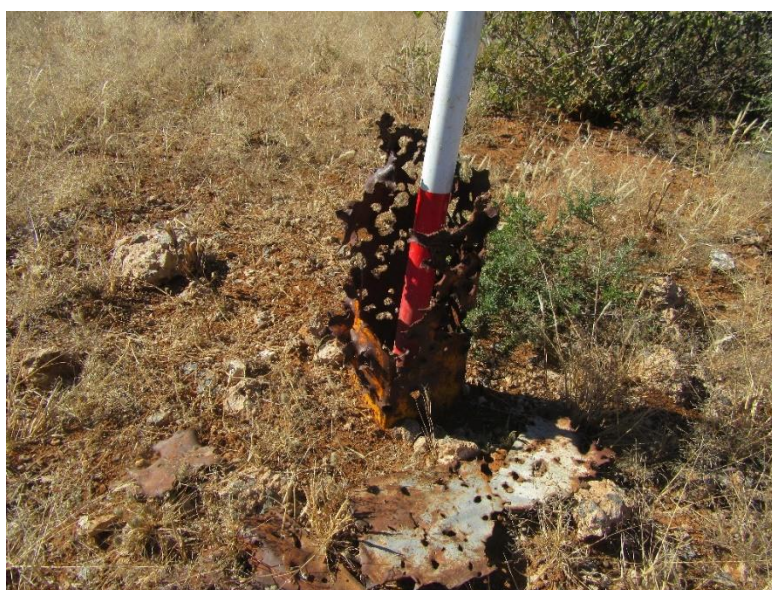




DESCRIPTION: Open flat area on the southern base of the ridge. Several artefacts found including an unexploded Rifle Grenade blue in colour. Inscriptions: GREN RFL PRAC M791A1 92 BS. Rusted firing belt.

HERITAGE SIGNIFICANCE	Evidence of military training activities
MITIGATION	Bomb disposal authorities to be advised.

SITE NO	COORDINATES		PERIOD
JKF14	28°42'43.90"S	23°59'28.80"E	Modern



DESCRIPTION: Flat area on the southern base of the ridge. Square steel tube with bullet holes; it appears to have been used for marksmanship training. Metal sheet with bullet holes.

HERITAGE SIGNIFICANCE	Evidence of military training activities
MITIGATION	No further action required

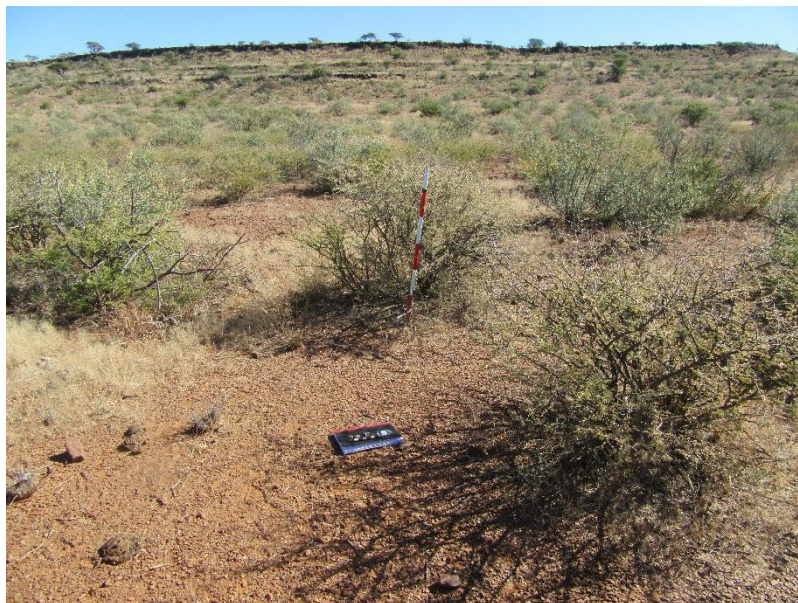
SITE NO	COORDINATES		PERIOD
JKF15	28°42'37.40"S	23°59'14.10"E	Modern



DESCRIPTION: Southern base of the ridge. Several shells of used explosive devices. Scatter of bullet lead ends shows that the southern slope of the hill was a shooting range.

HERITAGE SIGNIFICANCE	Evidence of military training activities
MITIGATION	Bomb disposal experts to be advised.

SITE NO	COORDINATES		PERIOD
JKF16	28°42'32.20"S	23°59'21.50"E	MSA/LSA



DESCRIPTION: Near the base of the ridge. 4 lithics – scraper and flakes.


HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF17	28°42'34.10"S	23°59'24.80"E	Modern



DESCRIPTION: Flat area, sandy loam soil, *vaalbos* (*Tarchonanthus camphoratus*).
Component of a rifle or rocket-propelled grenade

HERITAGE SIGNIFICANCE	Evidence of military training activities
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF18	28°42'37.10"S	23°59'30.30"E	Modern
			
<p>DESCRIPTION: Flat area with bushes, possible shell impact depressions noticed.</p>			
HERITAGE SIGNIFICANCE		Evidence of hunter-gatherer activities during the MSA/LSA	
MITIGATION		No further action required	

SITE NO	COORDINATES		PERIOD
JKF19	28°42'57.30"S	23°59'48.30"E	Modern





DESCRIPTION: Spread of calcrete stones in a low lying area south of the ridge on the edge of a dry stream bed. Old abandoned homestead: Portion of wall of main house stands, foundations of a shed, water reservoir.

HERITAGE SIGNIFICANCE

Association with early commercial farming

MITIGATION

Further investigation necessary if buildings will be affected.

SITE NO	COORDINATES		PERIOD
JKF20	28°42'2.80"S	23°59'33.70"E	MSA/LSA



DESCRIPTION: A kloof or pass across the ridge through which a seasonal stream passes. Stones and grit. Jaspilite flake tool.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF21	28°42'2.20"S	23°59'32.30"E	MSA/LSA



DESCRIPTION: A kloof or pass across the ridge through which a seasonal stream passes. Stones and grit. 3 lithics – flakes and core

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF 22	28°41'27.00"S	23°57'34.20"E	MSA/LSA



DESCRIPTION: On the plateau above the ridge, calcrete stones and hardpan. Acacia bushes including *haakbos*. 2 lithics.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required

SITE NO	COORDINATES		PERIOD
JKF23	28°41'30.00"S	23°57'35.20"E	ESA



DESCRIPTION: On the plateau above the ridge, calcrete stones overlying hardpan.
Handaxe

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF24	28°41'32.70"S	23°57'34.20"E	MSA/LSA



DESCRIPTION: On the plateau above the ridge. Calcrete stones overlying hardpan. 2 lithics – flake and scraper.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF25	28°41'41.70"S	23°57'41.70"E	MSA/LSA



DESCRIPTION: On the plateau above the ridge. Exposures of calcrete hardpan. Sparse bushes. 6 lithics including dolomites.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required

SITE NO	COORDINATES		PERIOD
JKF26	28°41'36.20"S	23°57'51.30"E	MSA/LSA



DESCRIPTION: On the plateau above the ridge. 3 lithics – sandstone flakes.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF27	28°41'25.80"S	23°58'5.00"E	MSA/LSA



DESCRIPTION: On the plateau above the ridge. Calcretic gravel overlying hardpan. 5 lithics – flakes includes green flint (chert)

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF28	28°41'5.40"S	23°57'54.40"E	MSA/LSA



DESCRIPTION: On the plateau above the ridge. Calcretic gravel and exposures of hardpan. Scattered acacia trees. 5 lithics include a sharp edged dolerite tool, flakes/scrapers including one of chert.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
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MITIGATION	No further action required.
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SITE NO	COORDINATES		PERIOD
JKF29	28°41'4.06"S	23°57'51.49"E	Modern



DESCRIPTION: On the plateau above the ridge. Calcretic gravel and exposures of hardpan. Double row of calcrete stones. Possible marking the course of an exposed water pipe, which was running for 500m from a reservoir foundation remains of which are located close to the boundary fence in the next property.

HERITAGE SIGNIFICANCE	Early commercial farming period.
MITIGATION	A short section of the double wall may be preserved.

SITE NO	COORDINATES		PERIOD
JKF30	28°41'6.20"S	23°57'43.20"E	MSA/LSA



DESCRIPTION: On the plateau above the ridge. 3 lithics include a scraper and flakes.

HERITAGE SIGNIFICANCE

Evidence of hunter-gatherer activities during the MSA/LSA

MITIGATION

No further action required.

SITE NO	COORDINATES		PERIOD
JKF31	28°42'37.70"S	23°58'21.10"E	MSA/LSA



DESCRIPTION: On the ridge overlooking the plain below it. Dolomitic hardpan, Sparse acacia bush. 4 lithics – flakes.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF32	28°42'50.40"S	23°58'14.10"E	Modern



DESCRIPTION: On the ridge overlooking the plain below it. Dolomitic hardpan, Sparse acacia bush. Bullet lead head.

HERITAGE SIGNIFICANCE

Possibly evidence of game hunting.

MITIGATION

No further action required.


SITE NO	COORDINATES		PERIOD
JKF33	28°41'51.10"S	23°59'15.50"E	Modern



DESCRIPTION: Old dam (breached) across the stream trending ESE across the ridge. A stonewall reinforced earth embankment.

HERITAGE SIGNIFICANCE	Early commercial farming period.
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MITIGATION	Further investigations required if this area will be mined.
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SITE NO	COORDINATES		PERIOD
JKF34	28°43'7.10"S	23°59'53.10"E	Modern
			
<p>DESCRIPTION: Open area, sparse vegetation. Parallel lines of stones appear to mark an old access road.</p>			
HERITAGE SIGNIFICANCE		Early commercial farming period.	
MITIGATION		No further action required	

SITE NO	COORDINATES		PERIOD
JKF35	28°44'9.60"S	23°59'37.71"E	Modern





DESCRIPTION: Calcrete-surfaced roads of which four are in a parallel formation. They appear to have been used in training with motorized equipment.

HERITAGE SIGNIFICANCE	Evidence of military training activities
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
JKF36	28°41'59.40"S	23°59'26.80"E	Modern







DESCRIPTION: Located on the ridge on the western side of the pass. Below the summit of the ridge there are 6 horseshoe or arced walls with cement binder, the open side is facing the ridge. In this arc there is a square or horseshoe setting of stones (2m x 2m). On the summit of the ridge (10 m height above the walls and 50m apart) there are more short walls. Overall the spatial layout is one of a double row of defensive walls one row on the summit of the ridge and the other below. Hand grenade components.

HERITAGE SIGNIFICANCE	Evidence of military training activities
MITIGATION	The landscape must be preserved as a landmark of military activities on the farm

SITE NO	COORDINATES		PERIOD
JKF37	28°41'45.30"S	23°58'59.80"E	Modern





DESCRIPTION: Located on the plateau near the pass. Foundation and floor remains of a square building possibly a farmhouse.

HERITAGE SIGNIFICANCE	Evidence of early commercial farming
MITIGATION	Further investigations required if this area will be mined.

SITE NO	COORDINATES		PERIOD
JKF38	28°42'45.30"S	23°57'49.20"E	MSA/LSA



DESCRIPTION: A rise or hillock on the plateau above the ridge. Near a trigonometric beacon. 2 lithics- flake tools.

HERITAGE SIGNIFICANCE

MITIGATION

SITE NO	COORDINATES		PERIOD
JKF39	28°42'47.33"S	23°57'47.93"E	Modern



DESCRIPTION: A rise or hillock on the plateau above the ridge. A trigonometric beacon

HERITAGE SIGNIFICANCE	A landmark of old cadastral / land survey.
MITIGATION	No action required, located in the neighbouring property.

9. REFERENCES

- Collins, S. 1973.** Rock-engravings of the Danielskuil Townlands. South African Archaeological Bulletin 109-110: 49-57.; Eastwood, E.B. & Smith, B.W. 2005.
- Coetzee, F. P. 2011.** Cultural Heritage Survey of the Proposed Schmidtsdrift Renewable PV Project on the Farm Schmidtsdrift 248/0000, Northern Cape.
- Deacon, H.J. & Deacon, J. 1999.** Human Beginnings in South Africa: Uncovering the Secrets of the Stone Age. Cape Town: David Philip.
- 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. Cultmatrix.
- Dreyer, C. 2016.** Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farm Winter's Rush (Longlands 350), Barkly West, Northern Cape.
- 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.
- Government of South Africa. 1999.** The National Heritage Resource Act (25 of 1999).
- Huffman, T. N. 2007.** A Handbook of the Iron Age. Cape Town: UKZN Press
- Humphreys, A.J.B. & Thackeray, A.I. 1983.** Ghaap and Gariep. Later Stone Age Studies in the Northern Cape. Cape Town: South African Archaeological Society Monograph Series 2.
- Kleinbooi, K. 2007.** Community Land Claim. University of the Western Cape.
- Matenga, E. 2017:** Phase I Heritage Impact Assessment Requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for a Mining right on Vaalbos Island on the Vaal River near Longlands, Barkly West District, Northern Cape Province.
- Matenga, E. 2016.** Phase I Heritage Impact Assessment (including Palaeontological Assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for the Proposed Mine Prospecting on a Portion of the Remaining Extent of the Farm 84 & Portion of farm 393, Barkly West District, Northern Cape Province.

Matenga, E. 2017. Phase I Heritage Impact Assessment (including Palaeontological Assessment) requested in terms of section 38 of the National Heritage Resources Act No 25/1999 for the Proposed Mine Prospecting on a Portion of Farm 393, Barkly West District, Northern Cape Province.

Matenga, E. 2018. Phase I Heritage Impact Assessment (including Palaeontological Assessment) requested in terms of Section 38 of the National Heritage Resources Act no 25/1999 for the proposed mine prospecting and application for mining rights on the Farm 85, Barkly West District, Northern Cape province.

Matenga, E. 2018. Phase I Heritage Impact Assessment (including palaeontological assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for the proposed mine prospecting on the Remainder of the Farm Schimtdsdrift 248, Pixley Ka Seme District Municipality, Northern Cape Province

Phillipson, D. W. 2005. African Archaeology. Cambridge: University of Cambridge Press.

Schalkwyk, J. 2015. Heritage Scoping Assessment for the Proposed Perseus-Kronos 765KV Transmission Power Line and Substations Upgrade, Northern Cape and Free State Provinces.

Websites

The Barkly West & Vaal River Diggings. Found at: <http://www.on-the-rand.co.uk/Diamond%20Grounds/Barkly%20West.htm> Consulted October 2017.

10.ACKNOWLEDGEMENTS

King Adam Kok V, Paramount King of the Griqua, Campbell, Northern Cape.

Mr Leonard Steenkemp, Member of the Community Property Association, Schmidtsdrift.

Mr Joseph Esel, Griqua Headman, Campbell, Northern Cape.