Heritage Impact Assessment (including Palaeontological Desktop Assessment) for a Mining Right Application on Portion 2 (At Last) of Farm No 232 near Delportshoop, and Portion 2, 3, 4, 5 and 6 of the Farm De Bad 155 near Schmidtsdrif, Northern Cape Province

Prepared by

Edward Matenga (Ph.D. Archaeology & Heritage, MPhil, Archaeology; Uppsala/Sweden)

27 September 2022

(AHSA) Archaeological and Heritage Services Africa (Pty) Ltd

Reg. No. 2016/281687/07

P O Box 2702, The Reeds, 0157, Centurion, Pretoria

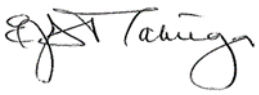
Email: e.matenga598@gmail.com.

Cell: +27 73 981 0637

Website: www.archaeologicalheritage.co.za

DOCUMENTS CONTROL

APPLICANT	ENVIRONMENTAL CONSULTANT
Renaissance Resources (Pty) Ltd	Wadala Mining and Consulting (Pty) Ltd

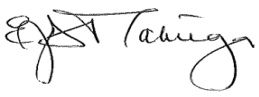
	Name	Signature	Date
FIELD WORK & REPORT	E. Matenga		27 Sep 2022

DECLARATION OF INDEPENDENCE

AHSA Pty Ltd is an independent consultancy: I hereby declare that I have no interest, be it business, financial, personal or other vested interest in the undertaking of the proposed activity, other than remuneration for work performed, in terms of 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.



_____

Full Name: Edward J. Matenga

Title / Position: Heritage Management Consultant

Qualifications: Ph.D. (Archaeology & Heritage, Uppsala University, Sweden), MPhil (Uppsala), Certificate in the Integrated Conservation of Territories and Landscapes of Heritage Value (ICCROM, Rome)

CONTENTS

EXECUTIVE SUMMARY

2. This report is Heritage Impact Assessment (HIA) prepared on behalf of Renaissance Recourses (Pty) Ltd in support of a Mining Right Application on Portion 2 (At Last) and Farm No 232 near Delportshoop, and Portion 2, 3, 4, 5 and 6 of the Farm De Bad 155 near Schmidtsdrif, Northern Cape Province. The two properties in this application are situated c 50 km apart.

3. <u>On the farm At Last</u>

4. *Stone Age*
   For thousands of years before modern times, the area was occupied by hunter-gatherers who subsisted on stone tool technologies. However, the ground survey on At Last yielded far fewer stone tools when compared to other studies in the locality.

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

6. *Burial grounds*
   No burial grounds were reported on the farm.

7. *Buildings*
   The principal dwelling house at the farmstead is a remarkable monument. It has a hipped roof and veranda on two sides. There are two chimneys. The façade represented by the two veranda sides has ornate finishes. The date of construction inscribed on the cornerstone is 1936. The building will not be affected by mining operations. There are other buildings at the farmstead which are not architecturally important.

8. <u>On the Farm De Bad</u>

9. *General Observations*
   It has been observed more than 60% of the farm De Bad is under cultivation, or has been cultivated in the recent past. No ancient relics such as stone tools can be expected to be

found in an undisturbed context. Stone tools were found outside the fields along the edge of the Vaal River.

10. Stone Age

The Stone Age finds include hand axes found in two instances and a cleaver. These tools suggest occupation by Early Stone Age communities more than 250 000 years BP.

11. Iron Age

A single potsherd was found a short distance from the edge of the Vaal River. Pottery in the Lower Vaal and Middle Orange Rivers has been associated with a possible transition to the Iron Age.

12. Burial grounds

The Farmer reported two places with graves on the property. The graves were not located during the survey. If the graves will be located in a mining area, a 100 m servitude must be reserved.

13. Heritage Sites on the Farms At Last and De Bad

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
FARM AT LAST						
ATL01	28°25'12.74"S	24°14'26.98"E	19th -20th century	The principal dwelling house at the farmstead has a hipped roof and veranda on two sides. There are two chimneys. The façade represented by the two veranda sides has ornate finishes. Date of construction inscribed on the cornerstone is 1936.	Local 3A	The building will not be affected
ATL02	28°24'52.90"S	24°14'9.06"E	MSA/LSA	On the veld above the floodplain, a cleaver, and a scraper.	Local 3C	No further action
ATL03	28°24'2.00"S	24°11'46.24"E	19th -20th century	Old buildings dating to the 19th century. A square cattle enclosure of drystone masonry measuring 30 m x 30 m. Calcrete blocks were used. Inside the enclosure at the NW corner, there is a square building measuring 5 m x 5m, which was likely to have been used for penning calves or sheep. An old building, which appears to have been a dwelling, built of calcrete blocks and mortar, measuring 60 m x 6 m. On the south wall, 4 square loopholes appear to have been for ventilation. A water tank built of clay farm bricks with cement plaster.	3A	A 50 m servitude is to be reserved around buildings
ATL04	28°25'12.20"S	28°25'12.20"S	MSA/LSA	On the veld above the floodplain. A blade 15 cm long blade.	3C	No further action
FARM DE BAD						

DBD01	28°49'55.10"S	24° 3'10.30"E	MSA/LSA	On the veld, but a short distance from the east bank of the Vaal River. 6 lithics: 2 blades, 4 scrapers.	Local 3C	No further action
DBD02	28°49'54.70"S	24° 3'6.80"E	MSA/LSA	On the veld, but a short distance from the east bank of the Vaal River. One potsherd.	Local 3C	No further action
DBD03	28°49'56.70"S	28°49'56.70"S	MSA/LSA	On the veld, but a short distance from the east bank of the Vaal River. 6 lithics: 2 blades, 4 scrapers.	Local 3C	No further action
DBD04	28°49'58.20"S	24° 3'8.00"E	MSA/LSA	On the veld, but a short distance from the east bank of the Vaal River. 5 lithics: 1 handaxe, 1 blade, 1 scraper, 1 flake.	Local 3C	No further action
DBD05	28°50'17.10"S	24° 1'51.14"E	MSA/LSA	On the edge of a stream flowing west into the Vaal River. 1 handaxe, 2 scrapers.	Local 3C	No further action
DBD06	28°49'31.30"S	24° 3'11.20"E	MSA/LSA	On the edge of a stream flowing west into the Vaal River. 1 cleaver, 4 scrapers.	Local 3C	No further action

14. Ranking of sites and Risk Assessment

	Grading	Description	No of Sites
1a	National	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources	
1b		Burial Grounds and Graves. Public sensibilities about the sanctity of graves	0
2	Provincial	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 2 heritage resources	0
3A	Local	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 3A heritage resources	2 (Buildings)
3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources	
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources	8
		TOTAL	10

15. Conclusion and recommendations

In light of the findings in this report, the Mining Right Application must be approved. The buildings recorded on the Farm At Last must be protected. The graves reported on the Farm De Bad must be protected. The study is mindful that some important discoveries during the excavations. If this happens operations should be halted, and the provincial heritage resources authority or SAHRA notified for an investigation and evaluation of the finds to take place.

ABBREVIATIONS

YCE	Years before our common era
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

1. INTRODUCTION

This report is Heritage Impact Assessment (HIA) prepared on behalf of Renaissance Recourses (Pty) Ltd in support of a Mining Right Application on Portion 2 (At Last) and Farm No 232 near Delportshoop, and Portion 2, 3, 4, 5 and 6 of the Farm De Bad 155 near Schmidtsdrif, Northern Cape Province. The two properties in this application are situated c 50 km apart. An HIA is prepared in compliance with Section 38(8) of the National Heritage Resources Act (No 25 of 1999), and the mitigation measures recommended in this report will be considered as part of f Environmental Impact Assessment.

1.1. Nature of proposed activities

Opencast mining for diamonds is planned on the above properties. This method of extraction has a high surface impact as it involves stripping of large areas and open excavations with potential destructive impacts on heritage resources. Other activities associated with the mining operations that have potentially detrimental impacts on heritage resources are:

- Placement of mine plant,
- Construction of buildings for offices/workers' accommodation;
- Opening of service roads and / or installation of conveyor belts;
- Stockpiling (topsoil, tailings and discards)
- Waste management (including slimes dam).

This report is a preliminary identification and documentation of heritage resources on the two properties in the application, and suggests appropriate measures to protect the heritage resources or to mitigate potentially harmful impacts of the proposed development on the heritage resources.

2. GEOGRAPHICAL SETTING

2.1. The Farm At Last

The farm At Las lies 3.6 km downstream of the confluence of the Vaal and Harts Rivers, 30 km northwest of Barkly West in the Dikgatlong Local Municipality, Northern Cape Province (Figures 1-2). The eastern boundary of the property is set against the Vaal River and the

western boundary is on the foot of the Ghaap Escarpment. The Ghaap Escarpment is a prominent landform that separates two land elevations, a high plain and a wide valley floor in which the Vaal River flows. It is a vast elevated plain rising from the Vaal-Orange River valleys in the southeast to an altitude of c. 1300 m AMSL straddling the Northwest and Northern Cape Provinces.

The escarpment consists of dolomite beds weathered into a series of terraces or steps. The plain below the escarpment is covered by calcrete gravels, and in many areas the calcrete is exposed as a hard pan. Dolomite bedrock is also exposed in some areas. The veld has scattered trees, predominantly blackthorn (Afrikaans - *haakbos* - *Acacia mellifera* subsp. *detinens*). The terrain dips again with a gentle slope into the Vaal River floodplain where circular fields under centre pivot irrigation (Figure 3-6).

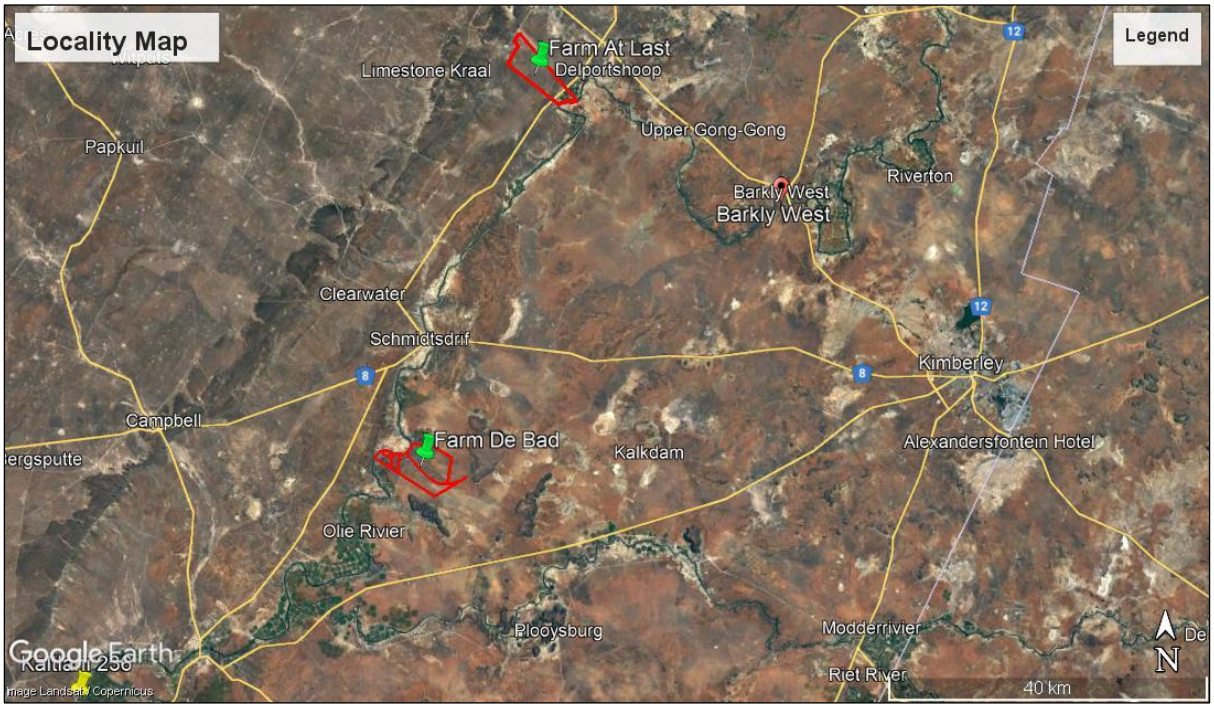


Figure 1: Google Earth map shows the location of the Farm At Last near Delportshoop, Northern Cape

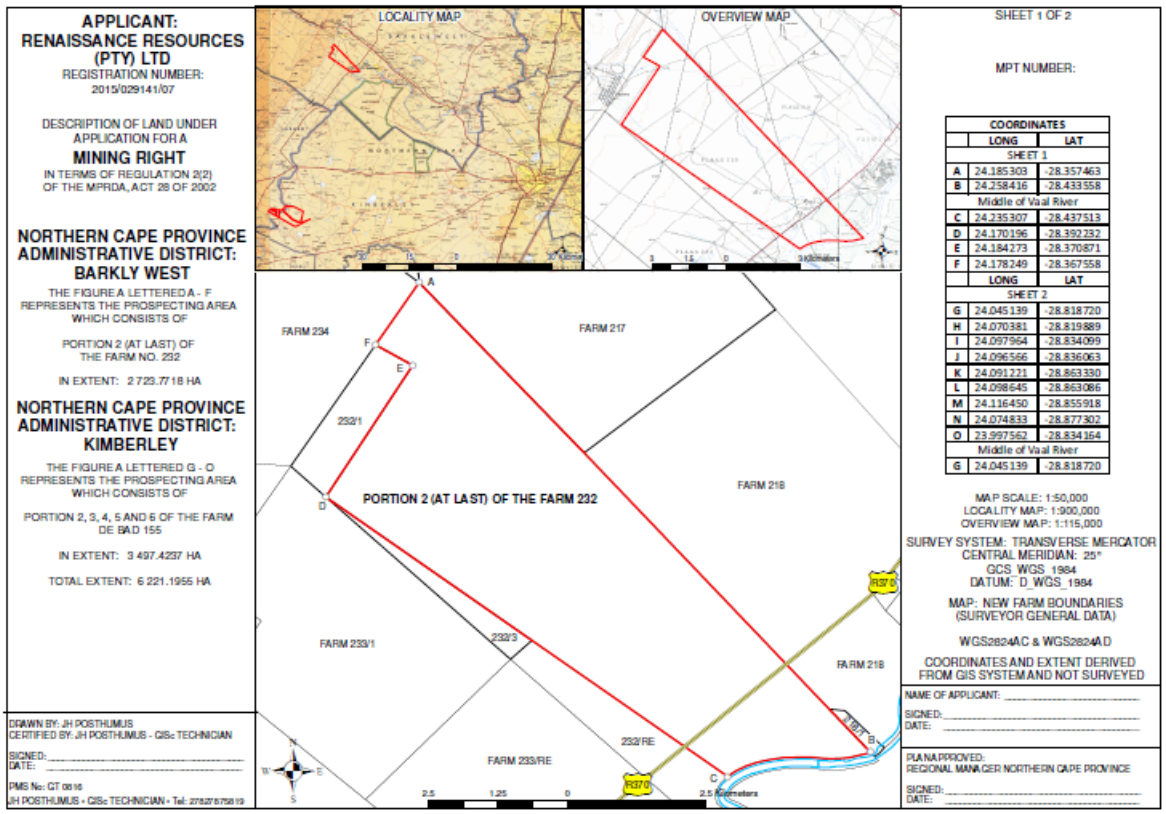


Figure 2: Maps show the locality of the Farm At Last and cadastral boundaries

Figure 3: Dolomite bedrock exposed as the ground rises from the Vaal River floodplain

Figure 4: View of the veld facing the Vaal River floodplain in the background.

Figure 4: The veld at the western end of the property with the Ghaap escarpment in the background.

Figure 5: Calcrete gravels and lumps found in the western part of the property

Figure 6: The Vaal River floodplain with irrigated circular fields

2.2. The Farm De Bad

The farm De Bad is set against the east bank of the Vaal River (GPS Coordinates 28°51'27.02"S, 24° 2'58.19"E, at the approximate centre of property) (Figures 7-8). Modern geographical landmarks of important reference in relation to the farm are Schmidtsdrif Village and the town Douglas. Both centres are situated on the Vaal River banks 16 km and 35 km upstream (north) and downstream (southwest) respectively, and Kimberley is a distance of 70 km to the east. The Section of the Vaal River from Warrenton to its confluence with the Orange River meanders. The Farm De Bad is a set against the concave side of one of the major loops on the river's course. The river flows in a wide plain which gives some clues about its old age. The alluvial material which flanks the present channel is evidence of a long process of erosion, deposition and shifting channels. Finer details worth mentioning are the fine sedimentary beds of weak, unhardened sandstone and the exposures of calcrete on the sides of incised streams that flow into the Vaal River (Figure 10). Further from the river, the situation changes as the calcrete horizon is covered by Kalahari Sands. A large area of the Farm is covered with sandy loam soils (sand and silt) which is under centre pivot irrigation. More than 60% of the farm is under cultivation or has been cultivated in the recent past (Figures 11 -13).

Vegetation along the edge of the river is dominated by Acacia scrub - *Senegalia mellifera*. On the veld beyond in pockets that have not been affected by farming, there are fine specimens of camel thorn trees (*Vachellia erioloba*) (Figure 9).

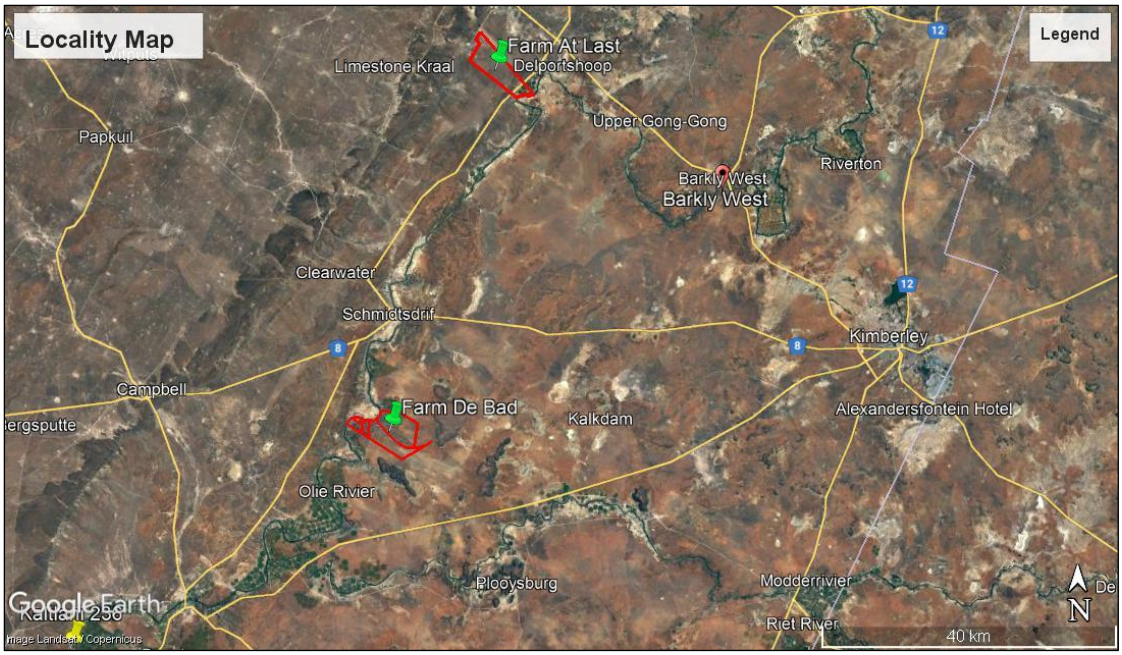


Figure 7: Google Earth map shows the location of the Farm De Bad south of Schmidtsdrif, Northern Cape

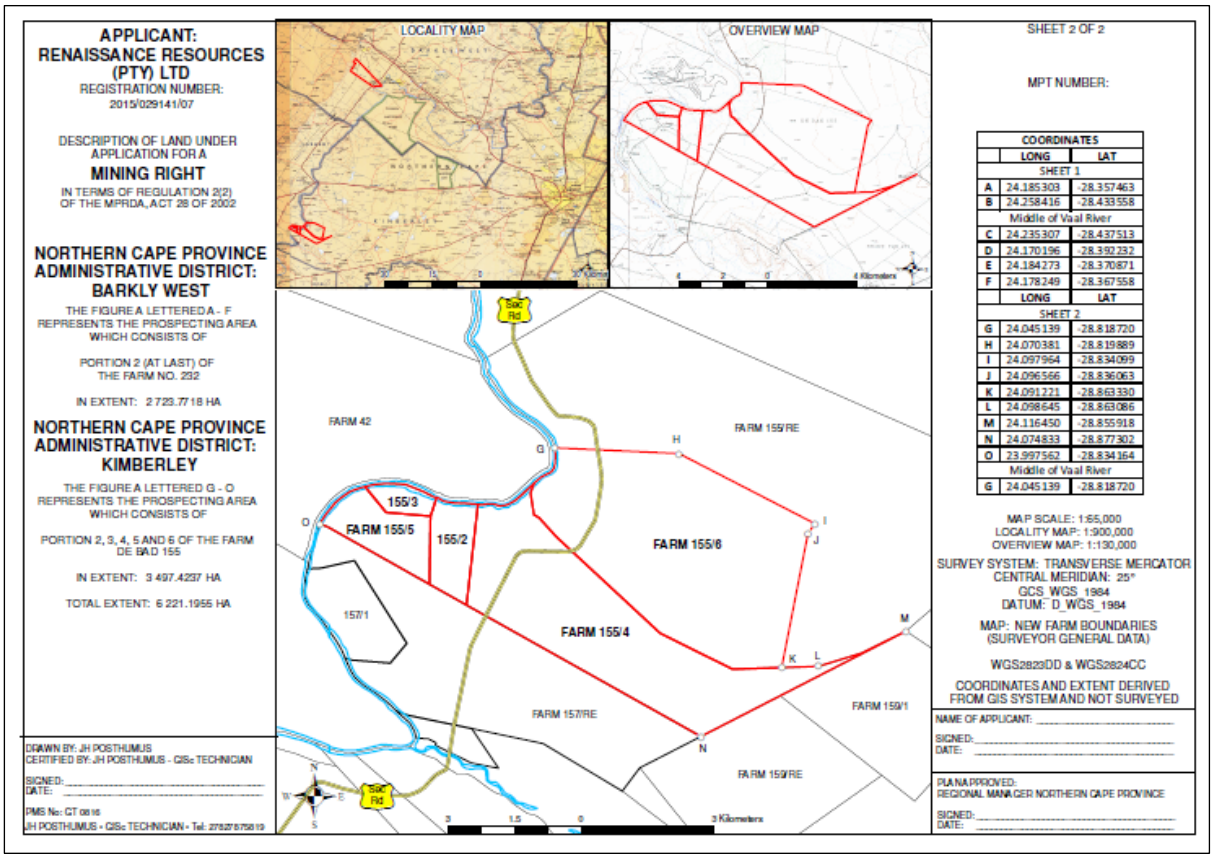


Figure 8: Maps show the locality of the Farm De Bad and cadastral boundaries

Figure 9: View of the terrain and vegetation near the banks of the Vaal River

Figure 10: Weathered sediments on the edge of a dry stream show thin beds of sandstone

Figure 11: Superficial Kalahari sands a large eastern portion of the farm

Figure 12: A large area of the Farm is covered with sandy loam soils (sand and silt) which is under centre pivot irrigation

Figure 13: This large open grassland in the eastern part of the farm was apparently under cultivation in the recent past

3. LEGAL FRAMEWORK

This heritage impact assessment fulfils an onus on developers to safeguard heritage resources. This obligation is legislated with Sections 34, 35, 36 and 38 of the National Heritage Resources Act (No 25 of 1999) forming the legal framework in which this HIA report has been prepared.

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

Section 38 of the NHRA states the nature and scale of development that triggers an HIA:

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

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

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

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

(i) exceeding 5 000 m^2 in extent[1]; or

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

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

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

(d) the re-zoning of a site exceeding 10 000 m^2 in extent; or

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

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

3.2. Definition of heritage (National Estate)

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

3.3. Protection of buildings and structures older than 60 years

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

(1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

3.4. Protection of archaeological sites

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

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

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

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

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

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

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

3.5. Graves and burial grounds

Section 36 of the NHRA provides for the protection of certain graves and burial grounds. Graves are generally classified under the following categories:

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

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

3.6. The National Environmental Management Act (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 to the cultural and social needs of people. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

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

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

4. APPROACHACH AND METHODOLOGY

4.1. Literature Survey

The purpose of a literature survey is to obtain background information to among other things determine the heritage potential of the area. Several reports have been generated through heritage impact assessment studies undertaken in the broader area, which has set both a theoretical premise as well as influence approaches to fieldwork. Some of the reports are available on SAHRIS, the information portal of SAHRA. Several properties in the locality have been surveyed by the author as shown n the map below (Figure 14).

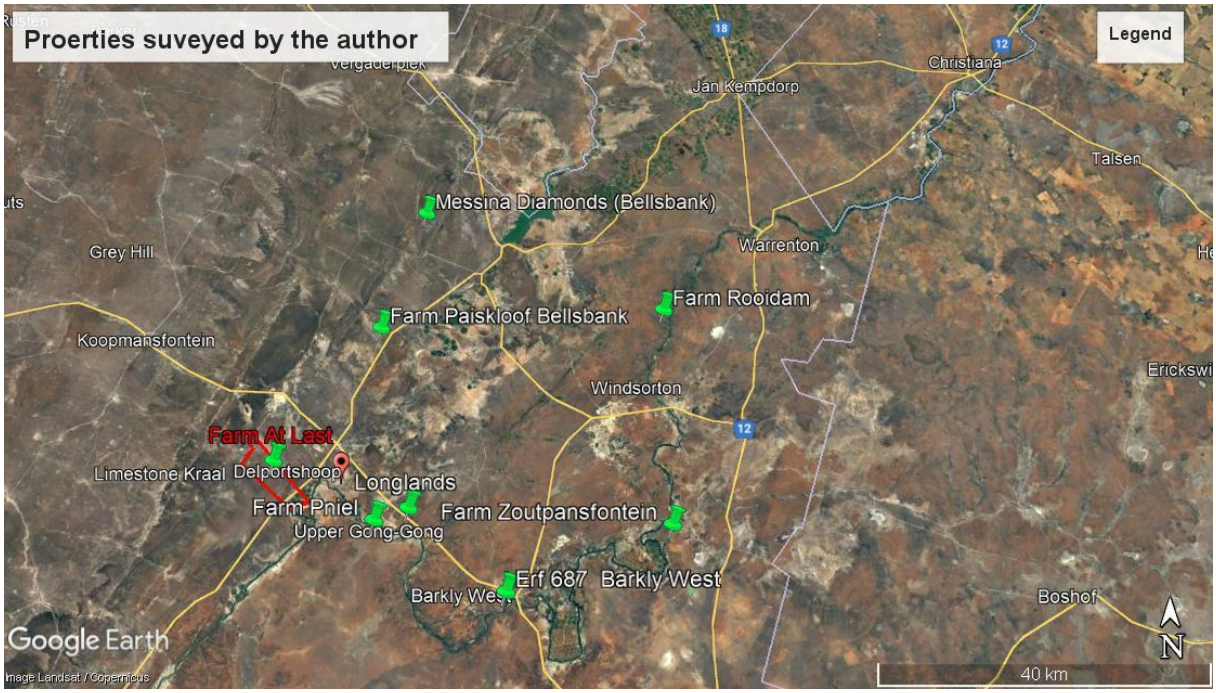


Figure 14: Heritage Impact Assessment that have been conducted by the author in the broader area

Matenga, E. 2018a. *Phase I Heritage Impact Assessment (including Palaeontological Assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for a 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.* The farm Longlands lies 7 km east of the farm At last. Over some time from the late 19th century miners scoured the alluvial deposits near the banks of the Vaal River searching for diamonds. Sparse occurrences of lithics were recorded.

Matenga, E. 2018b. *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 a Mining Right on Farm 85, Barkly West District, Northern Cape Province.* The surveyed area is 40 km NE of the farm At Last. Stone artefacts were widely distributed on the property.

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. The surveyed area is 40 km NE of the farm At Last. Scatters of stone artefacts were encountered indicating general occupation by Stone Age hunter gathers. No significant concentrations were encountered to suggest regular settlement or workshop sites.

Matenga, E. 2016. *Phase I Heritage Impact 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.* The surveyed area is 40 km NE of the farm At Last. Stone artefacts were encountered in low densities and none of the sites demonstrated concentrated or regular activity. Many mine claim pegs and an iron plaque standing in a concrete cube base were recorded as evidence of many small claims in the early pioneering years.

Matenga, E. 2021. *Phase I Heritage Impact Assessment (including a Palaeontological Desktop Assessment) for the Proposed 22kv Powerline from Portion 1 of the Farm Koppieskraal 140-GN near Koodoosbergdrift, to the Remainder of the Farm Zandheuvel 144-GN near Ritchie, under the Sol Plaatjie Municipality in the Northern Cape Province*. This area is 35 Km east of the Farm De Bad. No archaeological relics were recorded.

4.2. Ground Survey

A ground survey on 20th and 21st September 2022 was undertaken using a motor vehicle combined with random walking surveys varied with targeted surveys of areas seen as likely to yield material. Maps of the track log are given below (Figures 15 -16).

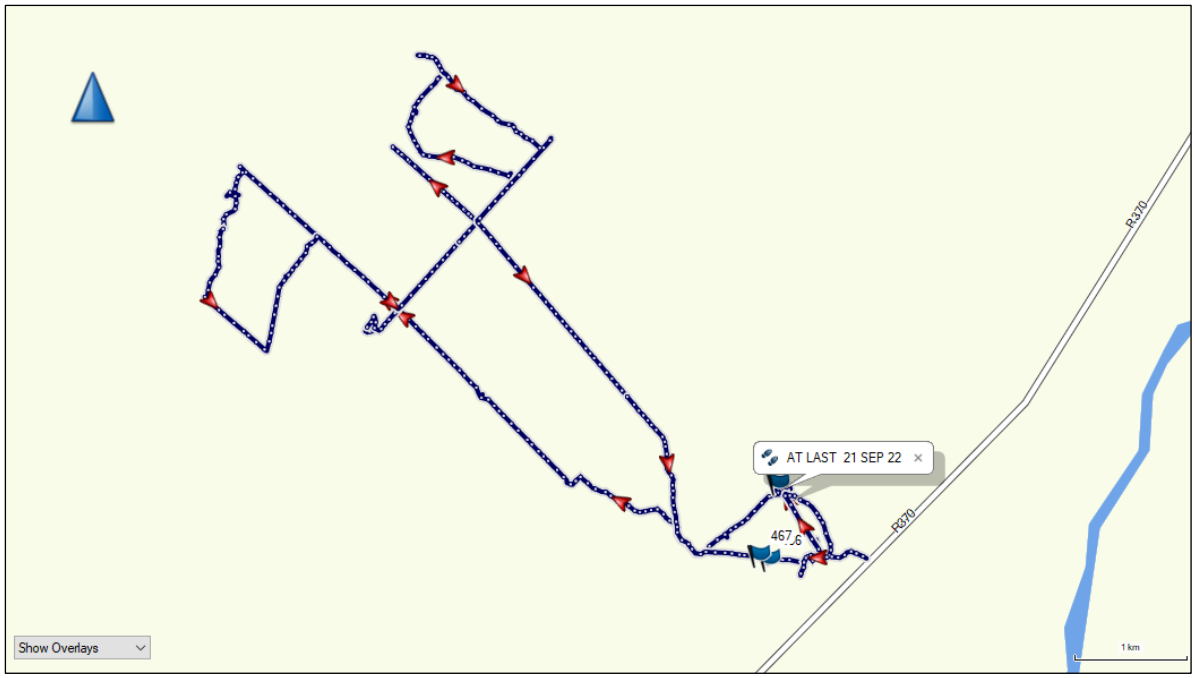


Figure 15: Track log of the survey on the Farm At Last

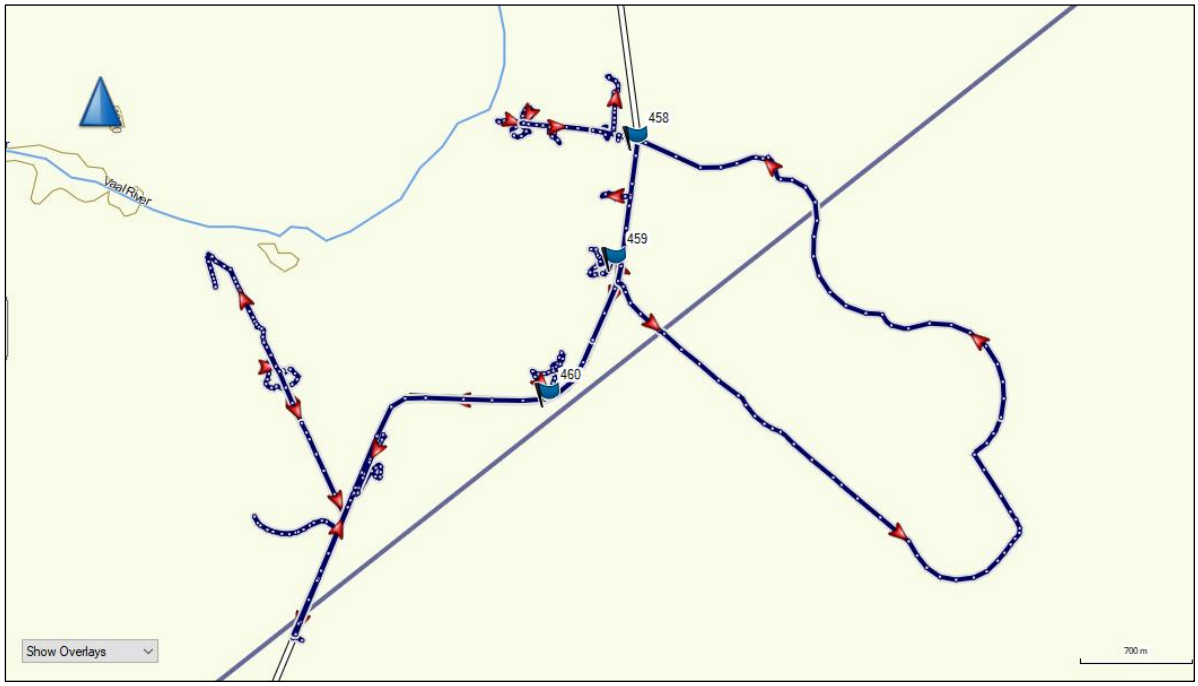


Figure 16: Track log of the survey on the Farm De Bad

5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

An outline of the cultural sequence in South Africa provides a general context for the 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, the Iron Age, and the Historical Period.

Table 1: Cultural sequence summary[2]

PERIOD	**EPOCH**	**ASSOCIATED CULTURAL GROUPS**	**TYPICAL MATERIAL EXPRESSIONS**
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominids: *Australopithecines* *Homo habilis* *Homo erectus*	Typically, large stone tools such as hand axes, choppers, and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First *Homo sapiens* species	Typically, smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	*Homo sapiens* including San people	Typically, small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period c300 – 900 AD (or earlier)	Holocene	Iron Age Farmers	Typically, distinct ceramics, bead ware, iron objects, grinding stones.
Later Iron Age 900ADff	Holocene	Iron Age Farmers, emergence of complex state systems	Typically, distinct ceramics, evidence of long distance trade and contacts
(ii) Mapungubwe (K2)	1350AD		Metals including gold, long distance exchanges
(ii) Historical period	Tswana / Sotho, Nguni people	Iron Age Farmers	Stone walls Mfecance / Difaqane
(iii) Colonial period	19th Century	European settlers / farmers / missionaries/ industrialisation	Buildings, Missions, Mines, metals, glass, ceramics

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

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.[3] Hominid refers to primate species which are the immediate ancestors of man. The nearest hominid site is Taung near Vryburg (100 km to the north). This site is inscribed on the UNESCO World Heritage Site in a serial nomination with the Sterkfontein (Krugersdorp) and Makapans Valley (Mokopane).

5.2. The Stone Age

The Stone Age dates back more than 2 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.

5.2.1. The Early Stone Age [2 million – 250 000 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 near 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.

A good profile of the Stone Age is emerging partly as a result of several Heritage Impact Assessments that have been conducted in the region in recent years. According to Vollenhoven Early Stone Age sites have been reported on the farm Drooge Veldt No 292 near Barkly West. Further afield to the east Stone Age finds at Wonderwork Cave near Kuruman and Khathu have been widely publicised.[4]

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

[4] van Vollenhoven, A.C. 2014. Heritage Scoping Report Related to the Eskom Kimberley strengthening phase 4 project between the Boundary and Ulco Substations in the Northern Cape province

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

The Middle Stone Age (MSA) appeared more than 200 000 years ago. It marks 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. 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

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

By the beginning of the LSA, humans had evolved into *Homo sapiens* which refers 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 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. Several LSA sites have been reported in the area in the area during heritage impact studies although most researchers are hesitant to draw a fine distinction between the MSA and LSA.[5] Both Rock paintings and engravings have been reported around Danielskuil ca 80 km to the northwest of the Delportshoop.[6] Ancient workings of specularite at Tsantsabane and Doornfontein near Postmasburg and Beeshoek respectively seem to indicate the technology and demand for minerals date back to the MSA, contrary to the notion that it started during the Iron Age.[7]

---

[5] Schalkwyk, J 2015. Heritage scoping assessment for the proposed Perseus-Kronos 765kv Transmission Power Line and Substations Upgrade, Northern Cape and Free State Provinces.

[6] Orton. J. 2015. Heritage Impact assessment for the Proposed 132 KV Olien-Karats Power Line at Lime Acres, Postmasburg Magisterial District, Northern Cape.

[7] Van Vollenhoven, A. C. 2014. Heritage Scoping Report Related to the Eskom Kimberley strengthening phase 4 project between the Boundary and Ulco Substations in the Northern Cape Province. Beaumont, P.B. & Boshier, A.K. 1974. Report on test excavations in a prehistoric pigment mine near Postmasburg, Northern Cape. S. *Afr. Archaeol. Bull.* 29, 41 - 59.

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 when people practiced agriculture and kept domestic animals such as cattle, sheep, goats, 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.

5.3.1. Early Iron Age

The Early Iron is generally associated with the population of the subcontinent by speakers of Bantu languages. A sudden appearance of metal and farming technologies in South Africa, and the whole region of Eastern and Southern Africa, is postulated. Pottery styles are used as spatial and chronological markers. Coexistence and amalgamation with pre-existing Stone Age communities certainly happened, the cultural encounters producing the hybrid people and languages found in the area today.

There are few if any sites attributed to the EIA in the western parts of the country. Settlement preference for the relatively wetter woodlands to the east and eastern seaboard, compared to the arid west appears to have been a logical response to environmental opportunities and constraints. There is a strong possibility that transhumant pastoralism / seasonal hunting camps existed in the western regions from the Stone Age through to the Iron Age, although there is little or no surviving physical evidence of these activities.

5.3.2. The Later Iron Age

The LIA is marked by the presence of extensive stonewalled settlements such as the Tlhaping capital at Dithakong near Kuruman.[8]

[8] De Jong 2010: 36

5.4. Historical Context

What is particularly remembered of the 19th century is the *Difaqane* or *Mfecane*, violent episodes characterised by war and displacements which affected the eastern seaboard as well as the high plateau. The Northern Cape was not spared; it was affected by the arrival of new groups from the north and east – the Tlokwa, Fokeng, Hlakwana, and Phuting tribal groups – historical ethnic groups of Tswana stock.[9]

5.5. The European Contact Period

As the Difaqane was playing out there were new arrivals in the area – the Griquas, the Korana, and white communities from the southwest. There was a steady stream of White traders, hunters, and missionaries from the Cape. PJ Truter and William Somerville reached the Tlhaping capital at Dithakong near Kuruman in 1801. Cowan, Donovan, Burchell, and Campbell travelled into the interior which prompted James Read to establish the London Mission Society station near Kuruman in 1817. After these initial contacts, the Boer Trek starting in 1836 brought in a large number of farmers with their stock. This put pressure on existing communities creating a conflict situation that the British tried to resolve through the Keate Arbitration, setting the border between the Boers and the Bechuanaland Protectorate in 1871. Meanwhile, another conflict had started over the ownership of diamond fields discovered in the area in 1867 pitting the Boers, Griquas and Korana. The British intervened again proclaiming their own territory, Griqualand West, over the diamond fields in 1871, which was eventually annexed to the Cape Colony in 1879. The discovery of diamonds at Kimberley in 1871 created the dramatic momentum for industrialisation and urbanisation. The area around Kimberley was an active theatre of the Anglo-Boer War with many skirmishes ultimately leading to a three months siege of Kimberley by the Boers in 1899-1900.

According to the owner of At Last, most of the farms in the area are set with a shorter side against the bank of the Vaal River for the obvious reason that everyone wanted to have direct access to water from the river. He said the early diggings brought the miners into

conflict with the farmers as the former disturbed pools in the Vaal River, vitals sources of water in the dry season.

Schmidtsdrift was established as a 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 Schmidtdrift, but later moved them to Platfontein near Kimberley (Kleinbooi, K. 2007).

5.6. 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.

Delportshoop town developed from a diamond-diggers' camp dating back to 1871. The public diggings were proclaimed in November 1871, a village management board was instituted in 1931, and municipal status was attained in 1970. The town was originally called "Thomas Hope", but later the name was changed to "Delport's Hope". The story was that the first diamond was found by a young man whose surname was Delport. The diamond diggers then changed it to Delport's Hope. Later the ''Hope'', became ''Hoop''.

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

6. FINDINGS OF THE HERITAGE SURVEY

6.1. On the farm At Last

6.1.1. Stone Age

For thousands of years before modern times, the area was occupied by hunter-gatherers who subsisted on stone tool technologies. However, the ground survey on At Last yielded far fewer stone tools when compared to other studies in the vicinity, for instance on Farm 84, Farm 85 and Farm 393 situated on the escarpment 50 km to the northeast (Matenga 2016, 2017, 2018b).

6.1.2. Iron Age

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

6.1.3. Burial grounds

No burial grounds were reported on the farm.

6.1.4. Buildings

The principal dwelling house at the farmstead is a remarkable monument. It has a hipped roof and veranda on two sides. There are two chimneys. The façade represented by the two veranda sides has ornate finishes. The date of construction inscribed on the cornerstone is

1936. The building will not be affected by mining operations. There are other buildings at the farmstead which are not architecturally important.

Figure 17: Google Earth map shows the location of heritage sites on the Farm At Last recorded during the ground survey

6.2. On the Farm De Bad

6.2.1. General observations

It has been observed more than 60% of the farm De Bad is under cultivation, or has been cultivated in the recent past. No ancient relics such as stone tools can be expected to be found in an undisturbed context. Stone tools were found outside the fields along the edge of the Vaal River.

6.2.2. Stone Age

The Stone Age finds include hand axes found in two instances and a cleaver. These tools suggest occupation by Early Stone Age communities more than 250 000 years BP.

6.2.3. Iron Age

A single potsherd was found a short distance from the edge of the Vaal River. Pottery in the Lower Vaal and Middle Orange Rivers has been associated with a possible transition to the Iron Age.

6.2.4. Burial grounds

The Farmer reported two places with graves on the property. The graves were not located during the survey. If the graves will be located in a mining area, a 100 m servitude must be reserved.

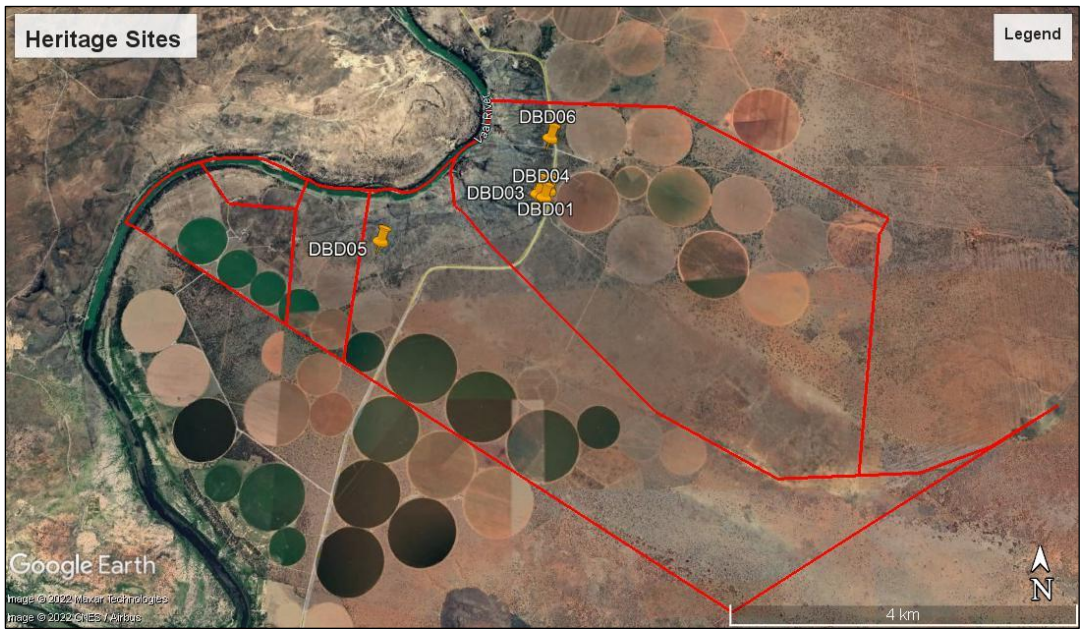


Figure 18: Google Earth map shows the location of heritage sites on the Farm De Bad recorded during the ground survey

Table 2: Heritage Sites on the Farms At Last and De Bad

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
FARM AT LAST						
ATL01	28°25'12.74"S	24°14'26.98"E	19th -20th century	The principal dwelling house at the farmstead has a hipped roof and veranda on two sides. There are two chimneys. The façades represented by the two veranda sides have ornate finishes. The date of construction inscribed on the cornerstone is 1936.	Local 3A	The building will not be affected
ATL02	28°24'52.90"S	24°14'9.06"E	MSA/LSA	On the veld above the floodplain, a cleaver, and a scraper.	Local 3C	No further action
ATL03	28°24'2.00"S	24°11'46.24"E	19th -20th century	Old buildings dating to the 19th century. A square cattle enclosure of drystone masonry measuring 30 m x 30 m. Calcrete blocks were used. Inside the enclosure at the NW corner, there is a square building measuring 5 m x 5m, which was likely to be used for penning calves or sheep. An old building, which appears to have been a dwelling, built of calcrete blocks and mortar, measuring 60 m x 6 m. On the south wall, 4 square loopholes appear to have been for ventilation. A water tank built of clay farm bricks with cement plaster.	3A	A 50 m servitude is to be reserved around buildings
ATL04	28°25'12.20"S	28°25'12.20"S	MSA/LSA	On the veld above the floodplain. A blade 15 cm long blade.	3C	No further action
FARM DE BAD						

DBD01	28°49'55.10"S	24° 3'10.30"E	MSA/LSA	On the veld, but a short distance from the east bank of the Vaal River. 6 lithics: 2 blades, 4 scrapers.	Local 3C	No further action
DBD02	28°49'54.70"S	24° 3'6.80"E	MSA/LSA	On the veld, but a short distance from the east bank of the Vaal River. One potsherd.	Local 3C	No further action
DBD03	28°49'56.70"S	28°49'56.70"S	MSA/LSA	On the veld, but a short distance from the east bank of the Vaal River. 6 lithics: 2 blades, 4 scrapers.	Local 3C	No further action
DBD04	28°49'58.20"S	24° 3'8.00"E	MSA/LSA	On the veld, but a short distance from the east bank of the Vaal River. 5 lithics: 1 handaxe, 1 blade, 1 scraper, 1 flake.	Local 3C	No further action
DBD05	28°50'17.10"S	24° 1'51.14"E	MSA/LSA	On the edge of a stream flowing west into the Vaal River. 1 handaxe, 2 scrapers.	Local 3C	No further action
DBD06	28°49'31.30"S	24° 3'11.20"E	MSA/LSA	On the edge of a stream flowing west into the Vaal River. 1 cleaver, 4 scrapers.	Local 3C	No further action

6.3. Ranking of sites and Risk Assessment

Table 3. The ranking system in the Table below relates to the national grading of heritage sites (adapted from Guidelines for involving Heritage Specialists in EIA processes by Winter S and & N. Baumann (2005, p19). It has been modified to give priority to graves and burial grounds which have been ranked as Grade 1b.

	Grading	Description	No of Sites
1a	National	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources	
1b		Burial Grounds and Graves. Public sensibilities about the sanctity of graves	0
2	Provincial	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 2 heritage resources	0
3A	Local	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 3A heritage resources	2 (Buildings)
3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources	
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources	8
		TOTAL	10

6.4. 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

Ten (10) sites were documented.

(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 farmhouse and stone structures on the Farm At last will be protected.

(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 will contribute significantly to the growth of the local economy at the national economy at large. Mining is labour intensive and can contribute immensely to alleviating the current high rate of employment. General improvement in the quality of livelihoods in local communities is expected.

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

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

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

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

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

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

6.5. Risk Assessment of the findings

EVALUATION CRITERIA	RISK ASSESSMENT
Description of the 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	Opencast Mining
Extent of Impact	Topsoil stripping and excavations can result in damage and destruction of archaeological resources above and below the surface not seen during the survey.
Duration of Impact	Any accidental destruction of surface or subsurface relics is not reversible, but can be mitigated.
Intensity	Uncertain.
Probability of occurrence	Medium.
Confidence of assessment	High.
Level of significance of impacts before mitigation	Medium.
Mitigation measures	If archaeological or other heritage relics deemed of high significance are found during the exploration phase, heritage authorities will be advised immediately and a heritage specialist will be called to attend.
Level of significance of impacts after mitigation	Low.
Cumulative Impacts	None.
Comments or Discussion	None.

7. CONCLUSION AND RECOMMENDATIONS

In light of the findings in this report, the Mining Right Application must be approved. The buildings recorded on the Farm At Last must be protected. The graves reported on the Farm De Bad must be protected. The study is mindful that some important discoveries during the excavations. If this happens operations should be halted, and the provincial heritage resources authority or SAHRA notified for an investigation and evaluation of the finds to take place.

8. CATALOGUE OF FINDINGS

8.1. Heritage Sites on the Farm At Last

SITE NO	COORDINATES		PERIOD
ATL01	28°25'12.74"S	24°14'26.98"E	19th -20th century

DESCRIPTION: The principal dwelling house at the farmstead has a hipped roof and veranda on two sides. There are two chimneys. The façade represented by the two veranda sides has ornate finishes. Date of construction inscribed on the cornerstone is 1936.

HERITAGE SIGNIFICANCE	An important example of a farmhouse
MITIGATION	100 m servitude to protect the grave.

SITE NO	COORDINATES		PERIOD
ATL02	28°24'52.90"S	24°14'9.06"E	MSA/LSA

DESCRIPTION: On the veld above the floodplain, a cleaver and a scraper.

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

SITE NO	COORDINATES		PERIOD
ATL03	28°24'2.00"S	24°11'46.24"E	19th -20th century

DESCRIPTION: Old buildings dating to the 19th century. A square cattle enclosure of drystone masonry measuring 30 m x 30 m. Calcrete blocks were used. Inside the enclosure at the NW corner, there is a square building measuring 5 m x 5m, which was likely to have been used for penning calves or sheep. An old building, which appears to have been a dwelling, built of calcrete blocks and mortar, measuring 60 m x 6 m. On the south wall, there are 4 square loopholes that appear to have been for ventilation. A water tank built of clay farm bricks with cement plaster.

HERITAGE SIGNIFICANCE	Important in the history of the development of commercial farming in South Africa.
MITIGATION	A 50 m radius must be reserved around the buildings

SITE NO	COORDINATES		PERIOD
ATL04	28°25'12.20"S	28°25'12.20"S	MSA/LSA

DESCRIPTION: On the veld above the floodplain. A blade 15 cm long blade.

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

8.2. Finds from the Farm De Bad

SITE NO	COORDINATES		PERIOD
DBD01	28°49'55.10"S	24° 3'10.30"E	MSA/LSA

DESCRIPTION: On the veld, but a short distance from the east bank of the Vaal River. 6 lithics: 2 blades, 4 scrapers.

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

SITE NO	COORDINATES		PERIOD
DBD02	28°49'54.70"S	24° 3'6.80"E	MSA/LSA

DESCRIPTION: On the veld, but a short distance from the east bank of the Vaal River. One potsherd.

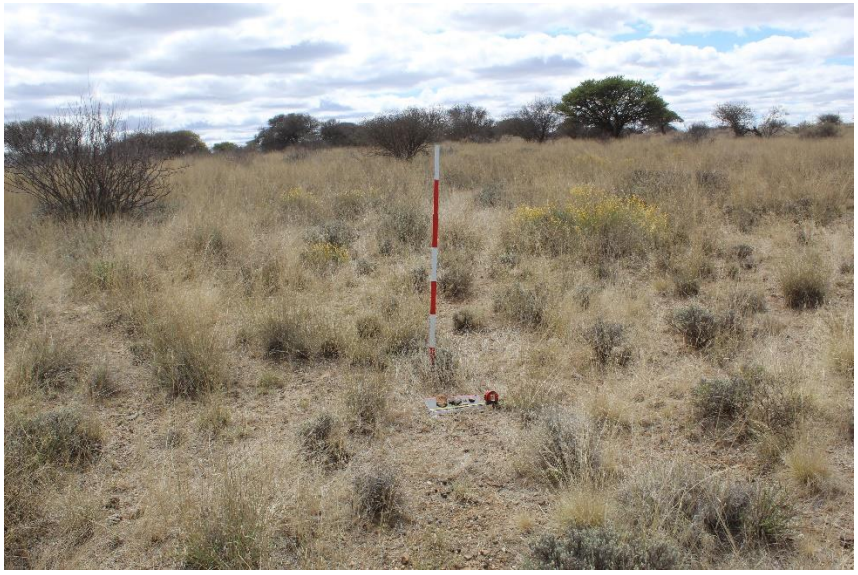
HERITAGE SIGNIFICANCE	Represents the transition to the Iron Age
MITIGATION	No further action required

SITE NO	COORDINATES		PERIOD
DBD03	28°49'56.70"S	28°49'56.70"S	MSA/LSA

DESCRIPTION: On the veld, but a short distance from the east bank of the Vaal River. 6 lithics: 2 blades, 4 scrapers.

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

SITE NO	COORDINATES		PERIOD
DBD04	28°49'58.20"S	24° 3'8.00"E	MSA/LSA



DESCRIPTION: On the veld, but a short distance from the east bank of the Vaal River. 5 lithics: 1 handaxe, 1 blade, 1 scraper, 1 flake.

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

SITE NO	COORDINATES		PERIOD
DBD05	28°50'17.10"S	24° 1'51.14"E	MSA/LSA

DESCRIPTION: On the edge of a stream flowing west into the Vaal River. 1 handaxe, 2 scrapers.

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

SITE NO	COORDINATES		PERIOD
DBD06	28°49'31.30"S	24° 3'11.20"E	MSA/LSA

DESCRIPTION: On the edge of a stream flowing west into the Vaal River. 1 cleaver, 4 scrapers.

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

5. GLOSSARY

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

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

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

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

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

Cultural landscape: a stretch of land that reflects "the combined works of nature and man" and demonstrates "the evolution of human society and settlement over time, under the influence of the physical constraints and / or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external".[10]

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

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

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

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

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

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

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

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

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

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

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

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

Middle Stone Age: a period of stone tool cultures with complex chronologies marked by a shift towards lighter, more mobile toolkit, following the Early Stone Age and preceding the Late Stone Age; the transition from the Early Stone Age was a long process rather than a specific event, and the Middle Stone Age is considered to have begun around 250 000 years ago, seeing the emergence of anatomically modern humans from about 150 000 years ago, and lasting until around 30 000 years ago.

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

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

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

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

Sherds: ceramic fragments.

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

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

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

9. REFERENCES

Beaumont, P.B. & Boshier, A.K. 1974. Report on test excavations in a prehistoric pigment mine near Postmasburg, Northern Cape. S. *Afr. Archaeol. Bull.* 29, 41 - 59.

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

Huffman, T. N. 2007. A Handbook of the Iron Age. Cape Town: UKZN Press

The National Heritage Resource Act (25 of 1999)

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

Matenga, E. 2021. Phase I Heritage Impact Assessment (including a Palaeontological Desktop Assessment) for the Proposed 22kv Powerline from Portion 1 of the Farm Koppieskraal 140-GN near Koodoosbergdrift, to the Remainder of the Farm Zandheuvel 144-GN near Ritchie, under the Sol Plaatjie Municipality in the Northern Cape Province

Matenga, E. 2018a. Phase I Heritage Impact Assessment (including Palaeontological Assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for a 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. 2018b. 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 a Mining Right on the Farm 85, 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. 2016. Phase I Heritage Impact 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.

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

Morris, D. 2005: Report on a Phase 1 Archaeological Impact Assessment of proposed mining areas on the farms Ploegfontein, Klipbankfontein, Welgevonden, Leeuwfontein, Wolhaarkop and Kapstevel, west of Postmasburg, Northern Cape.

Van Vollenhoven A.C. 2014. Heritage Scoping Report Related to the Eskom Kimberley strengthening phase 4 project between the Boundary and Ulco Substations in the Northern Cape Province**.**

Legislation

National Heritage Resources Act (No 25: 1999)