

Heritage Impact Assessment Report

*Proposed Low Income Housing Project Rietfontein, Remainder Farm No.
585, Gordonia Road, Groot Mier Municipality, Northern Cape.*

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Compiled for:

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Executive Summary

This report forms part of a Environmental Impact Assessment of the Remainder of Farm 585, Rietfontein, Gordonia Road, Groot Mier Municipality, Northern Cape.

The HIA report integrates two individual Archaeological Studies. The first was conducted by Pro-Active Archaeological Consultants on Site A and the second, by Ubique Heritage Consultants Pty (Ltd) (Engelbrecht 2013) on Site B.

The Mier Municipality intends to rezone the property to residential. The property is 1627.3752 ha in extent, although only 11.5 ha has been designated for development. 120 individual land units are planned, including associated infrastructure, public open spaces and a place of worship.

Heritage Resources

Site A

The site of the proposed Rietfontein residential development has archaeological remains spanning the Earlier Stone Age (ESA), Middle Stone Age (MSA) and the Later Stone Age (LSA). It is very rare to find all three stone tool technologies on one site. Five possible burials were also located on the property. It is unclear if these are recent or historical burials, and they bare further investigation. The burials are all located to the west of the gravel road traversing the property.

Seven ESA lithics were found, representing the Acheulian Technological period. All Acheulian pieces were made on sandstone. The MSA contributed the bulk of the findings. 77 flakes and various descriptions and 38 cores were photographed during the foot survey. Material included: sandstone, quartz, quartzite, jasper and chert. The LSA was not very well represented: only one flake (sandstone) and one core (quartzite) were found.

Site B

No significant archaeological remains and material were detected on the site, except for possible scattered stone tools in the proposed development site. Riverine beds were thoroughly surveyed to ensure if any archaeological material were exposed b y means of erosion. Places associated with archaeology have at least low heritage significance at the community specific and local levels for its cultural and historic values (Engelbrecht 2013).

Grading and Significance of Rietfontein

Site A

Lithics

The lithics found on the property rate as Generally Protected B. This site needs further recording before destruction. The range and number of stone tools found on the property suggest that the site has a generally Medium significance

Burials

The burials may have a high local significance and are awarded a field rating of Generally Protected A. The site should be mitigated before destruction.

Site B

Site be has a low significance and has been sufficiently recorded. No further archaeological actions are required.

ALTERNATIVES, MITIGATION & CONCLUSIONS

SITE A

Lithics

The stone tools or lithics found on the property need to be recorded and sampled in detail, prior to development. The recording of the lithics should assess the raw material, typology and dimensions of a sample of the property. It is recommendation that the site be mapped, documented, minimally sampled, and then destroyed (with a permit). Mitigation usually involves a requirement to collect sample of the cultural and other remains that will adequately allow characterization and relative dating of the site.

Burials

The burials need further investigation. Firstly, it needs to be determined if they are burials. Should they prove to be human burials, further mitigation is necessary. Three alternatives are suggested:

1. Protection of the graves from the impact of the development including possibly mitigation through fencing and avoidance of the area by the development. A

mini-management plan for maintenance of the graves must also be developed.

2. Relocation of the graves involving public participation and possibly further archival research,
3. or both.

SITE B

Recommended Mitigation

Enviroafrica has appointed a heritage practitioner and archaeologist to function as the heritage resource monitor to ensure that heritage resources are identified, assessed and managed timeously and appropriately.

Recommended Monitoring

The Enviroafrica heritage resource monitor will ensure that heritage resources are monitored, identified, assessed and managed timeously and appropriately, according to the minimum standards described in the Engelbrecht (2013) report.

The Mier Local Municipality should direct a staff member to undertake monitoring of the development area to identify any threats on heritage resources timeously and at their cost, but no less than once a month. We have provided a protocol for the management of heritage resources, including the identification, protection and recovery of heritage resources during the operation of the project. This protocol will be reviewed by Enviroafrica and the heritage resource monitor and refined and adapted over time.

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Glossary

'archaeological' means-

- (a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- (b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- (c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation; and features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found;

'cultural significance' means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance;

'palaeontological' means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace [sic];

'structure' means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith. Protected structures are those which are over 60 years old.

Acronyms

ASA: Archaeological Specialist Assessment

APM: Archaeology, Palaeontology and Meteorites

EIA: Environmental Impact Assessment

ESA: Earlier Stone Age (>200 000-2.5 Million years ago)

HIA: Heritage Impact Assessment

HWC: Heritage Western Cape

IAP: Interested and Affected Parties

LSA: Later Stone Age (<35 000 years)

MSA: Middle Stone Age (>30 000 years - <300 000 years ago)

NHRA: National Heritage Resources Act 25 of 1999

SAHRA: South African Heritage Resources Agency

1 . INTRODUCTION

This report forms part of a Environmental Impact Assessment of the Remainder of Farm 585, Rietfontein, Gordonia Road, Groot Mier Municipality, Northern Cape.

The HIA report integrates two individual Archaeological Studies. The first was conducted by Pro-Active Archaeological Consultants on Site A and the second, by Ubique Heritage Consultants Pty (Ltd) (Engelbrecht 2013) on Site B.

1.1 Project Description



The Mier Municipality intends to rezone the property to residential. The property is 1627.3752 ha in extent, although only 11.5 ha has been designated for development. 120 individual land units are planned, including associated infrastructure, public open spaces and a place of worship. Two sites have been chosen (Figures 1-2: Site A (to the south) and Site B (to the north)).

Table 1: Project Co-ordinates

Site A		
A	26°44'59.80"S	20° 1'1.12"E
B	26°44'57.59"S	20° 1'15.39"E
C	26°45'12.95"S	20° 1'11.30"E
D	26°45'13.09"S	20° 1'6.18"E
Site B		
E	26°44'6.87"S	20° 1'39.07"E
F	26°44'9.12"S	20° 1'44.32"E
G	26°44'15.94"S	20° 1'40.93"E
H	26°44'13.98"S	20° 1'35.98"E

Figure 1: Location of Site A & B, Rietfontein.

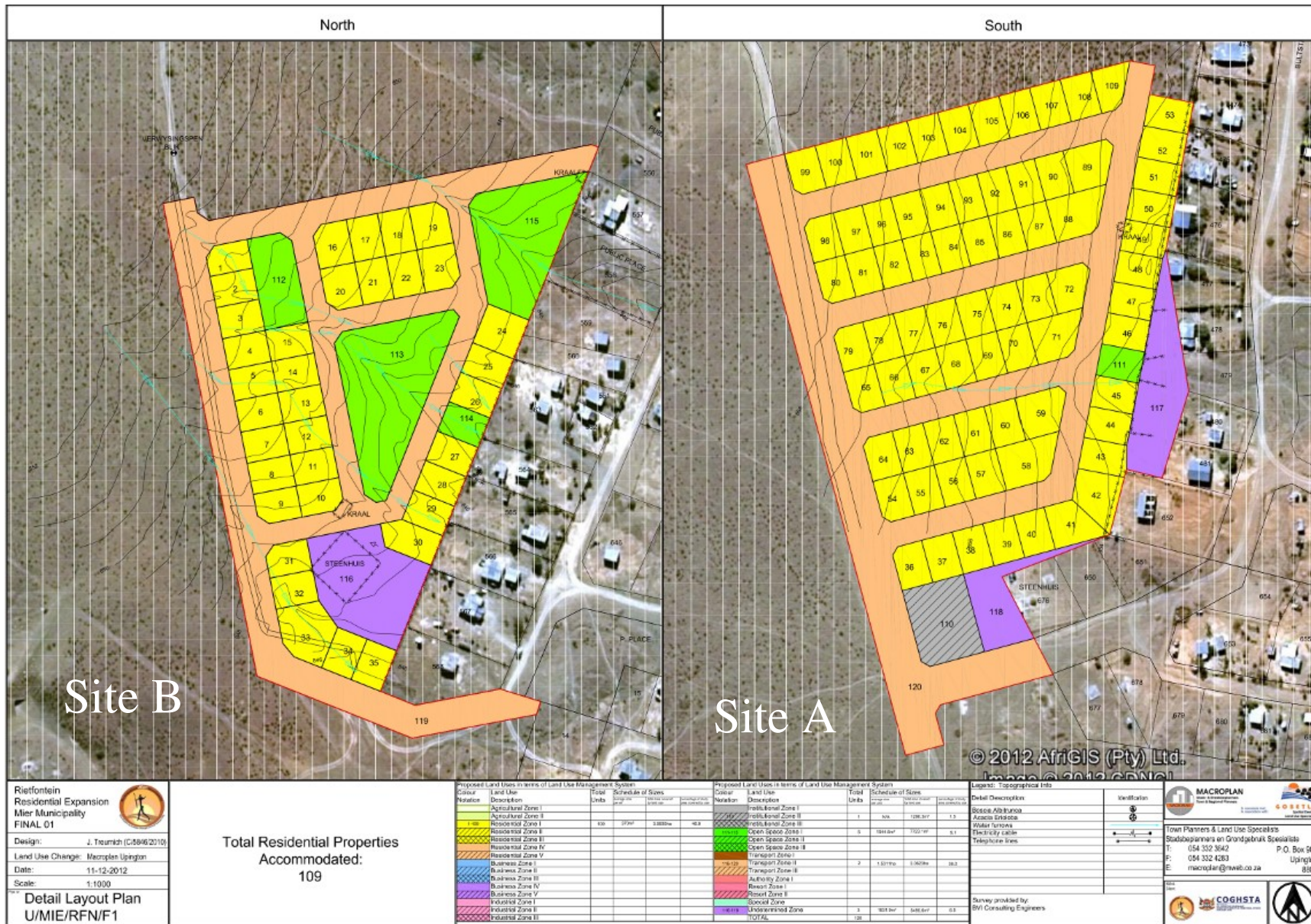


Figure 2: Rietfontein site A & B development maps

1.2 Stakeholders

Table 2: Stakeholders

	Developer & Landowner	Macroplan	Environmental Consultant	Heritage/ Archaeologists	Heritage/ Archaeologists
Name	Mier Municipality	Macroplan	EnviroAfrica	PAAC	Ubique Heritage Consultants
Contact Person	J Mienies	Len J Fourie	Bernard de Witt	Liezl van Pletzen-Vos	Jan Engelbrecht
Telephone	0545310928	0543323642	021 851 1616		054 5110074
Cell		0828211025	0824489991	083 2785 125	082 845 6276
Address	PO Box 178 Mier 8811	PO Box 987 Upington 8800	PO Box 5367 Helderberg 7135	PostNet Suite 168 Private Bag X15 Somerset West 7129	PO Box 51 Askham 8814
email	jmienies@gmail.com	macroplan@mweb.co.za	bernard@enviroafrica.co.za	liezl@paac.co.za	jangrensman@gmail.com

1.3 Relevant Legislation NHRA 1999 S38(3)

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

- (a) The identification and mapping of all heritage resources in the area affected;
- (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6 (2) or prescribed under section 7;
- (c) an assessment of the impact of the development on such heritage resources;
- (d) 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;
- (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;
- (f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- (a) plans for mitigation of any adverse effects during and after the completion of the proposed development.

2 . IDENTIFICATION AND MAPPING OF HERITAGE RESOURCES

Section 2 concentrates on the identification and mapping of all heritage resources in the area affected. Loosely defined, heritage is that which is inherited. The NHRA of 1999 has defined certain kinds of heritage as being worthy of protection, by either specific or general protection mechanisms. In South Africa, the law is directed towards the protection of human made heritage, although places and objects of scientific importance are covered. The NHRA (1999) also protects intangible heritage such as traditional activities, oral histories and places where significant events happened. Generally protected heritage includes:

- Cultural landscapes
- Buildings and structures (greater than 60 years of age)
- Archaeological sites (greater than 100 years of age)
- Palaeontological sites and specimens
- Shipwrecks and aircraft wrecks
- Graves and grave yards.

2.1 Desktop Study

A desk top study helps to identify what type of archaeological resources are likely to be found in the survey area. The scientific literature and previous archaeological and heritage survey conducted in the Mier area and the Northern Cape were consulted.

2.1.1 Earlier Stone Age

The ESA has been divided into two distinct stone tool cultures: the Oldowan Tradition and the Acheulian Tradition.

2.1.1.1 Oldowan

The Oldowan is represented by the earliest stone tools (from about 2 million years ago), simple core forms and unmodified flakes (Klien 2000). Geographically, the Oldowan is found in East Africa, and within South Africa, generally limited to the Sterkfontein region, though they are sometimes found with the Vaal-Orange River areas. ESA sites at Sterkfontein and Swartkrans, in the northeast of South Africa, across the Blaaubank Valley, provide the largest Plio-Pleistocene (earliest Pleistocene) archaeological assemblage and probably the oldest cultural material yet found in southern Africa (Mitchell 2002; Tattersall 2006). Almost all the artefacts from these sites are made

in quartz, with small amounts of chert and quartzite. Oldowan artefacts are associated with habilines at Sterkfontein and Swartkrans.

The stone technology of Oldowan assemblages is highly informal. Oldowan show the simplest forms of stone tool manufacture. The earliest manufactured implements consist principally of tiny stone flakes, some only 10 mm in size, chipped from small river cobbles which might also have been used as pounding tools once a few flakes had been removed. It took skill even so far back in human evolution as the original stone core had to be struck at exactly the right angle to detach usable flakes. Nonetheless the industry is simple and although resourceful, shows little retouch and no flaking to predetermined patterns resulting in little control over design (Mitchell 2002). In addition to hammerstones and manuports the assemblage comprises flakes and the cores from which these were struck. The flakes were mainly the end-product, and core tools often just by-products in the manufacturing. They may have been used for heavy butchery, wood-cutting or even projectiles. Both plant and animal residues are found on Oldowan tools.

2.1.1.2 Acheulian

The Acheulian has a more formal, standardised component, illustrated by hand axes and cleavers. This tradition is found across Africa, Western Asia and southern Europe (Deacon & Deacon 1999) and dates from between ± 1.4 million years ago to roughly 250 000 years ago. Mitchell (2002), describes hand axes as elongated, pear-shaped or triangular forms, terminating in a point. Cleavers are broader, with an axe-like cutting edge. Some informal flakes show evidence of retouch, similar to the MSA scraper. Formal tools may represent less than ten percent of artefacts found in the field (Deacon & Deacon 1999). Such finds generally occur in valley bottoms or wetlands.

Acheulian indicates a new level of complexity within the Early Stone Age (ESA). *Homo erectus* is the collective term used for some of the hominid fossils associated with the earliest stone tools. From as early as 1.4 million years ago in Africa, Acheulian (from the site of St Acheul in France) artefact assemblages showed cores and flakes and included shaped stone tools, bifaces, made to a pattern and style; large tools ranging from 100 to 200 mm or more (Deacon and Deacon 1999). This stone industry persisted over a period for more than a million years to 250 000 years ago in Africa.

Most bifaces, almond-shaped, are pointed and classified as handaxes and others have wide cutting ends and termed cleavers. Direct percussion and bipolar flaking (shaped on both sides to a regular shape), radial flaking that is, were understood; a precise template. This formal biface component of the Acheulian module make up for less than 10 per cent of the assemblages. The rest are less

standardised flakes and cores which may include edge damage showing that they were also utilized. Most bifaces show a lateral S-twist which indicate the technique of secondary flaking and probably the use of a wooden or bone hammer to remove the finishing flakes. A butchering function for these formal tools is preferred. The biface-makers appear to have favoured riverine camping sites. The valley of the Vaal River, branch of the Orange River, is rich in Acheulian sites (Butzer 1984). In Acheulian times there was a strong presence of people in the Vaal-Orange drainage basin and sites are associated with pans and springs, and some examples have been found at Wonderwerk Cave (Deacon & Deacon 1999, Beaumont & Vogel 2006) and Kathu Pan (Poert et al 2010). Most of the Acheulian sites in the Vaal basin date between 1 million and 500 000 years (Smith 1995).

The artefacts include a range of sizes of large bifaces including classic handaxes and cleavers and a number of very large flakes and the specially prepared cores [Victoria West Cores because they were first described from the Karoo town of that name] from which these large flakes were struck. Such cores were designed to produce flake blanks large enough to make bifaces. The technique of preparing the core for the removal of blanks of predetermined size and shape is generally known as the Levallois technique. The prepared core technique was an intergral part of the African Acheulian (Deacon and Deacon 1999).

2.1.2 Middle Stone Age

The Middle Stone Age (MSA) is sandwiched between the ESA and Later Stone Age (LSA) and dates from between 250 000 B.P. To about 20 000 years ago (Deacon & Deacon 1999, Mitchell 2002, Lombard et al 2012). The technology is characterised by the absence of hand axes and cleavers, the presence of prepared core techniques (e.g. Levallois technique). The stone flakes are generally triangular in shape with faceted striking platforms. Elongated blades and blade flakes are also common.

It is also common for these stone artefacts to be found between the surface and approximately 50 - 80cm below ground. Fossil bone may be associated with Middle Stone Age occurrences. These stone artefacts are usually observed in secondary context with no other associated archaeological material. Sampson on the other hand reported many open-air MSA sites which he assigned to the Orangian Industry (dating between 128 000 - 75 000 years old), Florisbad and Zeekoegat Industries dating between 64 000 and 32 000 years old. Relevant archaeological impact assessments conducted by the Albany Museum have recorded surface scatters of Middle Stone Age stone artefacts in the Cradock vicinity, (Binneman & Booth 2008) as well as Middelburg (Booth 2012) and Noupoot (Booth 2011).

The prepared-core technique, in which a stone nucleus was carefully worked until a single blow would detach an effectively finished implement, replaces the Acheulian Industry. The use of specific natural materials in the making of tools as the potential of the stone chosen or sought is recognised and utilized effectively. This fundamental change and shift in stone working are known as belonging to the Middle Stone Age (MSA) with regional variation (Deacon and Deacon 1999). The middle Stone Age (MSA) spans a period from 300 000 – 20 000 years and focuses on the emergence of modern humans by the change in technology, behaviour, physical appearance, art and symbolism (Beaumont and Morris 1990; Lombard et al. 2012). Surface scatters of these flake and blade industries occur widespread across southern Africa although rarely with any associated botanical and faunal remains. Typical MSA tool types were intended to be hafted, either as spear points or as components of compound tools. This development is marked in the Kalahari region by the evidence in this period for active hunting in Africa of medium and large-sized mammals, mainly Bovidae, the family of antelopes, buffaloes and related species. The technology of MSA stone work implies cognitive and behavioural advancements as the MSA began to predominate in Africa.

The emergence of *Homo Sapiens* which is the associated hominid of the MSA is clouded and complex in the period leading up to the 200 000 year period of the African hominid record and the ambiguous beginnings of the MSA. Near the southern tip of Africa, Klasies River Mouth cave hominids show a stronger picture; most of the Klasies hominids have MSA associations and date to around 100 000 years ago. In this period between 200 000 and 100 000 there existed in Africa a variety of hominids. It appears from material, from various site including Blombos on the south coast, middle stone age points, engraved ochre, pierced shell beads that MSA people were of modern cognition and abilities. In Africa then we have the earliest evidence of the modern human cognition in MSA context at 70 000 to 80 000 years ago.

2.1.3 Later Stone Age

These sites date from the last 20 000 years, but for the most part, to the last four thousand years or so. They will often be found close to water sources and may be out in the open, although by far the most common are to be found in caves and rock shelters (Deacon & Deacon 1999). San hunter/foragers inhabited the area up to 2000 years ago, when pastoralism was introduced to the Cape by the Khoenkhoen (Deacon & Deacon 1999). Evidence of ceramics and domesticated stock is often used as a marker for the arrival of pastoralists in a region. The 17 and 18th centuries saw the European colonial expansion. As colonial influence expanded and more land was settled, indigenous people were forced into economically less viable areas. The effects of diseases and

organised extermination led to the eventual dissolution of indigenous society as it had existed, and the survivors were reduced to servitude on European farms (Mitchell 2002, Parkington 1977, Sealy et al 2000).

The flake implements of the MSA were supplanted by the long slender blades of the Later Stone Age (LSA) from 20 000 years onwards. The Later Stone Age (LSA) spans a period from 40 000 years ago to the historical period (the last 500 years) to the last 100 years and is associated with the archaeology of San hunter-gatherers (Mitchell 2002). The majority of archaeological sites date from the past 10 000 years where San hunter-gatherers inhabited the landscape living in rock shelters and caves as well as on the open landscape, inland and along the coast. The open sites are difficult to locate because they are in the open veld. Caves and rock shelters, however, in most cases, provide a more substantial preservation record of pre-colonial human occupation (Deacon and Deacon 1999).

The Later Stone Age archaeology of the Northern Karoo is rich and varied (Beaumont et al. 1995). Various studies have shown that the general area has been relatively marginal regarding pre-colonial human settlement, but is in fact exceptionally rich in archaeological sites and rock art (Beaumont and Morris 1990). [Bifacial and tanged barbed arrow heads made on very fine-grained dark or black chalcedony are distributed over the southern two-thirds of the Free State, the Kimberly area in the west, Lesotho in the east and along the southern boundary of this area as far south as Britstown and Steynsburg (Humphreys 1969)]

Some 2 000 years ago Khoekhoen pastoralists entered into the Northern region of southern Africa and lived mainly in small settlements (Penn 1995; Beaumont et al. 1995). They were the first food producers in South Africa and introduced domesticated animals (sheep, goats and cattle) and ceramic vessels to southern Africa. Often, these archaeological sites are found close to the banks of large streams and rivers and along the coast (Dunn 1931). Large piles of freshwater mussel shell (called freshwater middens) usually mark the large stream and river sites and large piles of marine shellfish middens mark the coastal sites.

A complete archaeological research survey was conducted in the Agter Sneeu Berg region (northern side of the Sneeu Berg) in the central and upper Seacow River Area that covered an area of 734 square kilometres between Hanover, Richmond and Noupoot in the Northern Cape (Sampson 1985). Later Stone Age Lithics and rare Khoekhoe pottery sherds were uncovered during systematic surveys of the area (Sadr & Sampson 1999).

Several dense clusters of Smithfield settlement sites (division of the LSA) are concentrated among the lower dolerite hills and ridges in preference to planes. The Smithfield occurs in the Northern

Cape as late as the 14th century AD. Today the term Smithfield is only used for stone tool assemblages with backed bladelets and long end scrapers dating within the last 1000 years. Typical Smithfield assemblages, predominantly open sites, contain flaked lithics (most commonly of unpatinated blue-black hornfels), grinding and pounding equipment, bored stones, and sherds of a highly characteristic bowl form decorated with stamp-impressed motifs and date within the last 1000 years (Dunn 1931). Endscrapers dominate the flaked stone artefact, the only other formal tools being reamers, single platform cores recycled as trimming hammers, and rare convex scrapers commonly called thumbnail scrapers. [Almost 5000 Smithfield sites were recorded during the 1980s]. These sites may also be attributed to rock shelters that have been occupied. Waterholes or natural springs were attractive areas for settlement. Discarded stone artefacts, lithic manufacturing debris, bone refuse and hearths scattered throughout the stratified rock shelter's deposits, as well as the occasional potsherd in the later components, represent the enduring record of hunter-gatherer settlement occupation.

The Northern Cape is characterized by a general scarcity of cave sites and an abundance of inherently short-term open-air sites (Parson 2003) These assemblages, all of which are associated with ceramics, are described as belonging to either the Swartkop or the Doornfontein Industry, with the former thought to have been manufactured by hunters and the latter by herders (Beaumont & Morris 1990; Beaumont et al. 1995). Most of the open-air surface sites. Most of these sites consist of little more than a collection of stone artefacts and the question arises whether one can discriminate between hunters and herders on the basis of these lithic assemblages alone. Beaumont et al. (1995) state that the Swartkop Industry is characterized by a formal component almost identical to that of the preceding local Wilton Complex, namely the Springbokoog. All Swartkop sites occur close to pans, streambeds or other potential water sources, on low koppies or in deflation hollows (Beaumont et al. 1995). In contrast the contemporaneous Doornfontein Industry consists of mainly amorphous (shapeless) lithic artefacts, often manufactured on quartz and almost no formal tools (Beaumont et al. 1995). The implication is that the Wilton Complex gave direct rise to the Swartkop Industry at approximately 2000 years ago. Swartkop assemblages are described as having the following elements in common: they are characterized by cryptocrystalline silicates, contain high frequencies of blade flakes and backed blades and also associated with undecorated, grass-tempered ceramics (Beaumont & Vogel 1989).

The raw material used for artefact production of the LSA industries constitute four basic types: chert, quartz, quartzite and banded shale (Humphreys AJB and Thackeray AI 1983). The chert includes siliceous types such as chert, agate, chalcedony and jasper, which are essentially

fine-grained raw materials. Quartz is equally fine-grained but tends to be very brittle. The flake implements of the MSA were supplanted by the long slender blades of the Later Stone Age (LSA) from 20 000 years onwards. The traditional ways of life have not changed that much in a very long time (Deacon and Deacon 1999). Assemblages provisionally assigned to the Doornfontein Industry, are associated with groups of people practising some form of herding during most of the last 2000 years (Beaumont et al. 1995: 247–8). Doornfontein assemblages are generally described as including predominantly amorphous lithic flakes, with a formal lithic component.

2.1.4 Historical

The Middle Orange River—that part of the river between the Vaal confluence and the Augrabies Falls—contains numerous islands that were favoured by herding communities for the natural protection they provided against wild animals and stock thieves. This stretch of the river was, therefore, densely inhabited in pre- and proto-colonial times (Penn 1995; Smith and Metelerkamp 1995). Additionally, the resources of the river were shared by hunter-gatherers, while the area west of the Langeberg, (located to the east of Upington near the Orange River), was also occupied by Iron Age groups particularly the BaTlhaping, whose influence reached as far down the river as Upington (Morris 1992). By the early eighteenth century, the Khoekhoe and the San hunter-gatherers had reached a form of stability in the region.

As the colonial frontier moved relentlessly northwards during the eighteenth century, ‘Bastaards’ (persons of white/Khoe or white/slave parentage) and ‘Bastaard-Hottentots’ (persons of slave/Khoe parentage) gradually moved away towards Namaqualand and eventually also focussed on the Orange River as a sanctuary from colonial rule (Penn 1995: 48). The first loan farm next to the river was officially registered in 1751 (Penn 1995: 51). The relatively stable circumstances described along the Orange River became increasingly complicated in the second half of the eighteenth by an influx of newcomers wishing to avoid the colonial powers at the Cape. Trekboers (migrant farmers of colonial origin) had reached the Kalahari basin by 1780 (Penn 1995). This marked a period of northward colonial advance and accompanying social disruption in the Orange River area during the 18th century. Further disrupting factor in the area was the extremely violent behaviour of European big-game hunters and individuals searching for cattle (Penn 1995: 51–8). Such a state of contact and interaction would inevitably lead to sociocultural stress and transformation.

Radiocarbon dates indicate that specularite and red ochre mining at Blinkklipkop and Doornfontein near Postmansburg in the Northern Cape (Humphreys and Thackeray 1983) began some time before 1200 BP. The evidence from Blinkklipkop indicates that pottery appeared in the Postmasburg area

by this date (1200 BP). This is older than the previously suggested date of only 400 BP. The importance of Blinkklipkop in the context of the history of the Northern Cape is thus to provide evidence that domestic animals and pottery were present in the region by 1200 BP. It also serves to remind that historically in the last few hundred years in the Northern Cape involves a complex interaction of at least three different peoples in the region at the time of the arrival of Europeans in the eighteenth century

2.1.5 Previous research and AIAs

The survey area in the Kalaharian Ecozone, broadly known as the Kalahari Desert (Klein 1984) and riverine basin of the Molopo, is covered by a low density of lithic scatter (mainly quartzite and hornfel flakes, banded ironstone, with a dominance of irregular flakes). The surface survey indicates limited occupation; lithic surface finds with prepared cores, blades and points (marked retouch on scrapers) ascribable to the Middle Stone Age and moderately to heavily weathered Early Stone Age (handaxes, choppers and cleavers with a distinctive Acheulian phase (Beaumont and Morris 1990, Morris 2006; 2011).

2.1.5.1 Rietfontein and environs

North of the Orange River, south-west of the Kalahari Gemsbok National Park, is the Mier Settlement where the descendants of indigenous groups from de Tuin near Kenhardt who were denied land in Bushmanland by the government in mid-19th century crossed the Orange River and settled others of the same remnant groups settled further north at Rehoboth in Namibia (Smith 1995).

During the 1980s archaeological surveys were done in the region of Rietfontein (Smith 1995). The survey revealed a number of surface sites, most of them on dune surfaces. A concentration was noted on a dune above the town 8 km on the north-east road. All the flattened hollows on this dune had cultural material. One square metre sample was collected. Pottery sherds were present; 24 quartz flakes, 10 quartzite, 5 silcrete and 11 shale; cores 3 miscellaneous segments and chunks; and 1 lithic manuport. Around the dry pans in the area similar stone assemblages were located.

2.1.5.2 Rooipan

The dune on the northeast of Rooipan was one continuous low density occupation area with stone flakes, ostrich egg-shell and large grinding equipment. Other sites were located on the southeast side of Rooipan and the southeast side of Witpan.

2.1.5.3 Twee Rivieren

At Twee Rivieren, just south of the confluence of the Nossob and Auob Rivers and at the entrance to the Kalahari Gemsbok National Park, on a red dune north of the settlement a low density scatter of stone material of varied raw materials: quartz, quartzite (red), chalcedony, chert, as well as pottery and ostrich egg-shell fragments. On the dunes flanking the road south of Twee Rivieren, at 24 km from the gate, a limited surface scatter was found: quartz, hornfels, agate and quartzite flakes, pottery and ostrich egg-shell fragments. 25 km from the gate, a flattened zone with a limited scatter of similar artefacts occurs. 31 km from the gate, a large deflation zone with similar material can be found. Smith (1995) concludes that the clean sand dunes around the Gemsbok Park and the Mier settlements were obviously an attraction for hunters. They provided good sleeping places, well-drained during the infrequent rains, as well as high points for spotting game. The herders would have stayed mostly along the river. The riparian pastures provided year-round occupation.

2.2 Summary of heritage resources

2.2.1 Site A

The site of the proposed Rietfontein residential development has archaeological remains spanning the Earlier Stone Age (ESA), Middle Stone Age (MSA) and the Later Stone Age (LSA). It is very rare to find all three stone tool technologies on one site. Five possible burials were also located on the property. It is unclear if these are recent or historical burials, and they bare further investigation. The burials are all located to the west of the gravel road traversing the property.

Seven ESA lithics were found, representing the Acheulian Technological period. All Acheulian pieces were made on sandstone. The MSA contributed the bulk of the findings. 77 flakes and various descriptions and 38 cores were photographed during the foot survey. Material included: sandstone, quartz, quartzite, jasper and chert. The LSA was not very well represented: only one flake (sandstone) and one core (quartzite) were found.

2.2.2 Site B

No significant archaeological remains and material were detected on the site, except for possible scattered stone tools in the proposed development site. Riverine beds were thoroughly surveyed to ensure if any archaeological material were exposed by means of erosion. Places associated with archaeology have at least low heritage significance at the community specific and local levels for its cultural and historic values (Engelbrecht 2013).

There are no colonial/historical or pre-historical structures 60 years and older, neither are there any places or equipment of significance. It is likely that places, structures and equipment have a low heritage significance at the community specific, local and regional levels, at least for its historic values (Engelbrecht 2013).

3 . SIGNIFICANCE & GRADING

This section describes the significance of the heritage resources located on the property on terms of of the heritage assessment criteria set out in section 6(2) or prescribed under section 7 (grading);

3.1 Legislation – NHRA 1999 7(1)

7(1) SAHRA, in consultation with the Minister and the MEC of every province, must by regulation establish a system of grading of places and objects which form part of the national estate, and which distinguishes between at least the categories-

- a) Grade I: Heritage resources with qualities so exceptional that they are of special national significance;
- b) Grade II: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- c) Grade III: Other heritage resources worthy of conservation, and which prescribes heritage resources assessment criteria, consistent with the criteria set out in section 3(3), which must be used by a heritage resources authority or a local authority to assess the intrinsic, comparative and contextual significance of a heritage resource and the relative benefits and costs of its protection, so that the appropriate level of grading of the resource and the consequent responsibility for its management may be allocated in terms of section 8.

3.2 Legislation – S 3 (3) – Cultural Significance

A heritage resources authority may prescribe detailed heritage assessment criteria, consistent with the criteria set out in section 3 (3), for the assessment of Grade II and Grade III heritage resources in a province. (3) Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of-

- (a) its importance in the community, or pattern of South Africa's history;
- (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;

- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- (i) sites of significance relating to the history of slavery in South Africa.

3.3 NHRA 1999, Section 36: Burial grounds and graves

(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

(7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.

(b) The Minister must publish such lists as he or she approves in the Gazette.

(8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.

(9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the

capital of the Republic.

3.4 Grading and Significance of Rietfontein

3.4.1 Site A

3.4.1.1 Lithics

The lithics found on the property rate as Generally Protected B. This site needs further recording before destruction. The range and number of stone tools found on the property suggest that the site has a generally Medium significance

3.4.1.2 Burials

The burials may have a high local significance and are awarded a field rating of Generally Protected A. The site should be mitigated before destruction.

3.4.2 Site B

Site be has a low significance and has been sufficiently recorded. No further archaeological actions are required.

4 . DEVELOPMENT IMPACT ON HERITAGE RESOURCES

4.1 Site A

The development's impact on the archaeological resources will be medium to high. In particular mitigation of the possible burials is highly recommended.

4.2 Site B

The impact on all heritage resources located within the proposed development site at Rietfontein is rated as low and the proposed development will not have any impact on such resources (Engelbrecht 2013).

5 . DEVELOPMENT IMPACT ON SUSTAINABLE SOCIO-ECONOMIC BENEFITS

Unlike other areas of the Northern Cape, the Mier Municipal area, including Welkom, has not received the benefits of mining growth. The slow steady growth of the region is largely due to the

tourism sector. Whether due to natural increases or immigration to the area, the Mier Municipality has identified a need to establish more housing for the local population (Macroplan 2012).

6 . COMMUNITY CONSULTATION

Several I&AP's have been consulted. No responses have been obtained to date. The I&AP's include:

- Northern Cape Department of Agriculture and Land Reform
- Mier Local Municipality
- Siyanda District Municipality
- Department of Roads and Public Works
- Department of Water Affair Northern Cape
- Department of Cooperative Governance, Human Settlements and Traditional Affairs (NC).
- Die Gemsbok

7 . ALTERNATIVES, MITIGATION & CONCLUSIONS

7.1 Site A

7.1.1 Lithics

The stone tools or lithics found on the property need to be recorded and sampled in detail, prior to development. The recording of the lithics should assess the raw material, typology and dimensions of a sample of the property. It is recommendation that the site be mapped, documented, minimally sampled, and then destroyed (with a permit). Mitigation usually involves a requirement to collect sample of the cultural and other remains that will adequately allow characterization and relative dating of the site.

7.1.2 Burials

The burials need further investigation. Firstly, it needs to be determined if they are burials. Should they prove to be human burials, further mitigation is necessary. Three alternatives are suggested:

4. Protection of the graves from the impact of the development including possibly mitigation through fencing and avoidance of the area by the development. A mini-management plan for maintenance of the graves must also be developed.
5. Relocation of the graves involving public participation and possibly further archival

research,

6. or both.

7.2 SITE B

7.2.1 Recommended Mitigation

Enviroafrica has appointed a heritage practitioner and archaeologist to function as the heritage resource monitor to ensure that heritage resources are identified, assessed and managed timeously and appropriately.

7.2.2 Recommended Monitoring

The Enviroafrica heritage resource monitor will ensure that heritage resources are monitored, identified, assessed and managed timeously and appropriately, according to the minimum standards described in this report.

The Mier Local Municipality should direct a staff member to undertake monitoring of the development area to identify any threats on heritage resources timeously and at their cost, but no less than once a month. We have provided a protocol for the management of heritage resources, including the identification, protection and recovery of heritage resources during the operation of the project. This protocol will be reviewed by Enviroafrica and the heritage resource monitor and refined and adapted over time.

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APPENDIX A: ARCHAEOLOGICAL SPECIALIST REPORTS

9 . ARCHAEOLOGICAL STUDY

*Proposed Low Income Housing Project Rietfontein, Remainder Farm No.
585, Gordonia Road, Groot Mier Municipality, Northern Cape.*

April 2013

Compiled for:

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SAHRA Case ID: 1494



9.1 DESCRIPTION OF THE PROPERTY & METHODOLOGY

The the properties proposed for development on the Remainder of Farm 585, Rietfontein are located on the urban edge of the town of Rietfontein, Mier Municipality, Northern Cape. Site A is located directly to the west of the southern portion of the town (Figure 1). Site B is placed to the west of the northern section of Rietfontein. The town can be found on the 1:50 000 topographic maps (Figure 3) 2620 CA (Rietfontein) and CC (Hakskeenpan).

A three-person team from PAAC surveyed the terrain on 27 November 2012. The GPS track is illustrated in Figure 4. The terrain was sparsely vegetated (Figure 5), but was characterised by a rocky, stony surface (Figure 6). This made identifying stone tools challenging. Particular attention was given to water erosion channels as likely place to find lithics.

Three GPS handsets were used to record the track and mark points of interest and the location of archaeological resources. Digital cameras were used to take photographs of a representative sample of the lithics and other potential archaeological resources.

9.2 DESCRIPTION OF SITES IDENTIFIED

The stone tools, though generally isolated, can be described as being relatively evenly distributed across the property. Acheulian, MSA and LSA tools were located. Please refer to the map in Figure 4 for a more detailed overview of distribution.

9.3 DESCRIPTION OF THE ARTEFACTS, FAUNAL, BOTANICAL OR OTHER FINDS AND FEATURES

The site of the proposed Rietfontein residential development has archaeological remains spanning the Earlier Stone Age (ESA), Middle Stone Age (MSA) and the Later Stone Age (LSA). It is very rare to find all three stone tool technologies on one site.

Nine ESA lithics were found, representing the Acheulian Technological period (Figures 8- 13). All Achaean pieces were made on sandstone. The MSA contributed the bulk of the findings. 77 flakes and various descriptions and 38 cores were photographed during the foot survey (Figures 14-63). Material included sandstone, quartz, quartzite, jasper and chert. The LSA was not very well represented (Figures 64 & 65): only one flake (sandstone) and one core (quartzite) were found. Five upper grindstones were also located (Figures 66-67).

Table 3: MSA Finds

	Silcrete	Quartz	Quartzite	Jasper	Sandstone	Shale	Total
Flakes	6	4	53	3	21	1	88
Cores	2	2	15	2	9	0	30
Total	8	6	68	5	30	1	118

Table 4: Acheulian finds

Handaxe	4
Cleaver	2
Chunk	3

9.4 DESCRIPTION OF BURIAL GROUNDS AND GRAVES

Five possible burials were also located on the property (Figures 68 - 72). It is unclear if these are recent or historical burials, and they bare further investigation. The burials are all located to the west of the gravel road traversing the property (Figure 7). The graves consist of loosely packed rocks in a distinctive line, all orientated east/west.

9.4.1 NHRA, No 25, 1999: s 36 Burial grounds and graves

- (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.
- (2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.
- (3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—
 - (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
 - (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
 - (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- (4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction

or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

(7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.

(b) The Minister must publish such lists as he or she approves in the Gazette.

(8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in

terms of this section.

(9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-enter the remains of that person in a prominent place in the capital of the Republic.

9.5 FIELD RATING

While grading is ultimately the responsibility of the heritage resources authorities field rating is suggested below.

- a. National: This site is considered to be of Grade I significance and should be nominated as such.
- b. Provincial: This site is considered to be of Grade II significance and should be nominated as such.
- c. Local: this site is of Grade IIIA significance. Mitigation as part of the development process is not advised. The site should be retained as a heritage site (High significance).
- d. Local: this site is of Grade IIIB significance. It should be mitigated and (part) should be retained as a heritage site (High significance).
- e. Generally Protected A: this site should be mitigated before destruction (generally High/Medium significance).
- f. Generally Protected B: this site should be recorded before destruction (generally Medium significance).
- g. Generally Protected C: this site has been sufficiently recorded. It requires no further recording before destruction (generally Low significance).

9.5.1 Lithics

The lithics found on the property rate as Generally Protected B. This site needs further recording before destruction. The range and number of stone tools found on the property suggest that the site has a generally Medium significance

9.5.2 Burials

The burials may have a high local significance and are awarded a field rating of Generally Protected

A. The site should be mitigated before destruction.

9.6 STATEMENT OF SIGNIFICANCE

NHRA 1999, 3(3)

Table 5: Significance Criteria

Significance Criteria	Lithics	Burials
a. its importance in the community, or pattern of South Africa's history;	Medium.	High, possibly within the local community
b. its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;	High: It is rare to find all three Stone Ages represented at once site in the Northern Cape.	N/A
c. its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;	High: The site can contribute to the understanding of our prehistoric cultural heritage.	Unknown
d. its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;	Low: The Acheulian, Middle and Later Stone Age lithics demonstrate the characteristics of 2 Ma of cultural objects. Other sites, particularly closed, in situ ones will offer better examples	Unknown
e. its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;	N/A	Unknown
f. its importance in demonstrating a high degree of creative or technical achievement at a particular period;	Low: The Acheulian, Middle and Later Stone Age lithics demonstrate the characteristics of 2 Ma of cultural objects. Other sites, particularly closed, in situ ones will offer better examples	N/A
g. its strong or special association with a particular community or cultural group	N/A	Unknown

for social, cultural or spiritual reasons;		
h. Strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;	N/A	Unknown
i. Sites of Significance relating to the history of slavery in South Africa.	N/A	Unknown

9.7 RECOMMENDATIONS & CONCLUSIONS

9.7.1 Lithics

The stone tools or lithics found on the property need to be recorded and sampled in detail, prior to development. The recording of the lithics should assess the raw material, typology and dimensions of a sample of the property. It is recommended that the site be mapped, documented, minimally sampled, and then destroyed (with a permit). Mitigation usually involves a requirement to collect sample of the cultural and other remains that will adequately allow characterization and relative dating of the site.

9.7.2 Burials

The burials need further investigation. Firstly, it needs to be determined if they are burials. Should they prove to be human burials, further mitigation is necessary. Three alternatives are suggested:

7. Protection of the graves from the impact of the development including possibly mitigation through fencing and avoidance of the area by the development. A mini-management plan for maintenance of the graves must also be developed.
8. Relocation of the graves involving public participation and possibly further archival research,
9. or both.

9.8 FIGURES

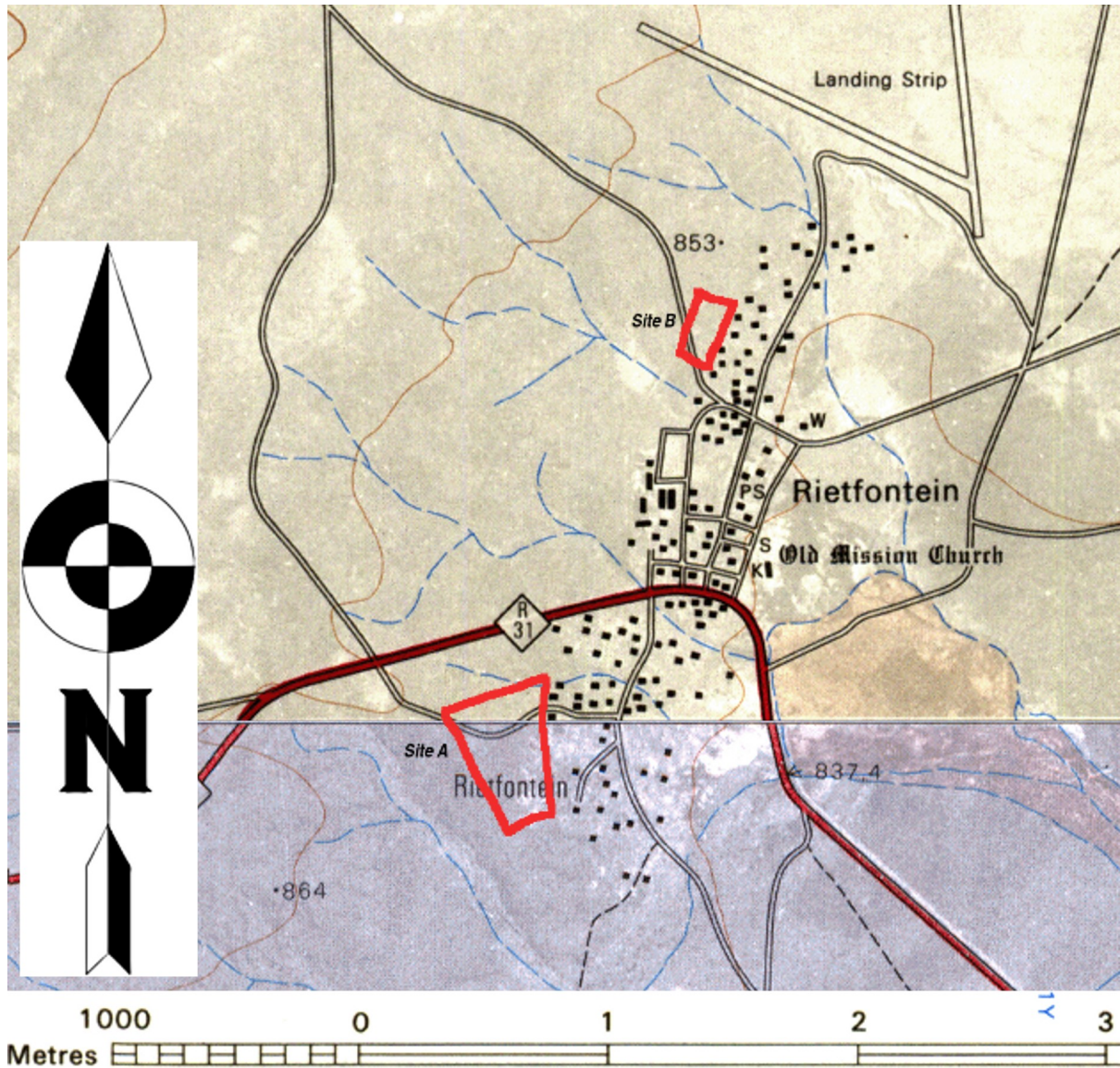


Figure 3: 1:50 000 topographic map, indicating the location of Sites A & B, Rietfontein.



Figure 4: GPS tracking of Site A



Figure 5: General view of Site A.



Figure 6: General view of Site A, showing rocky surface.

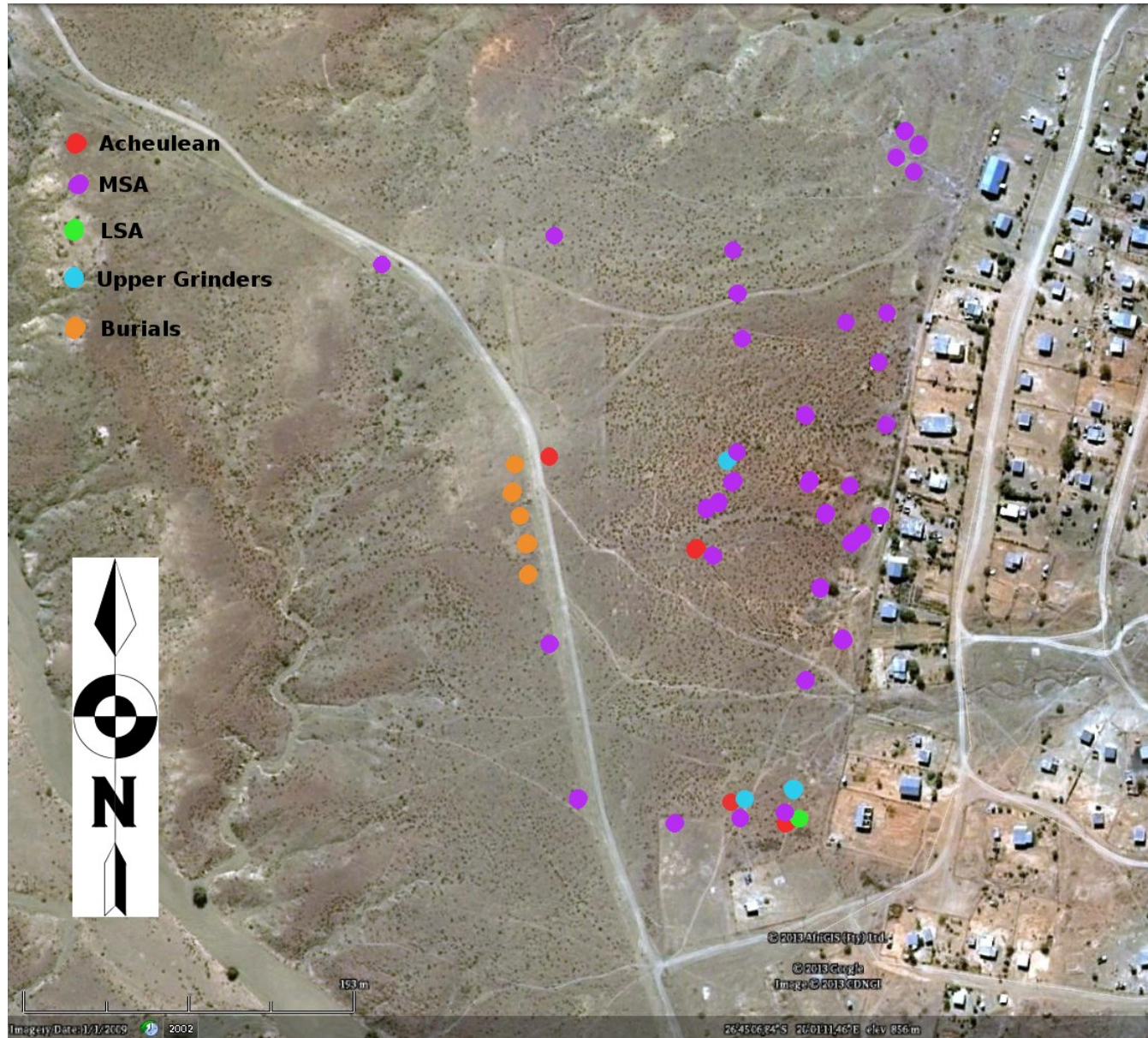


Figure 7: Location of Acheulean, MSA, LSA lithics and grindstones.



Figure 8: Archeulian Hand Axe and Cleaver (R) and two MSA flakes.



Figure 9: Archeulian Hand Axe and Chunk (R) and two MSA lithics.

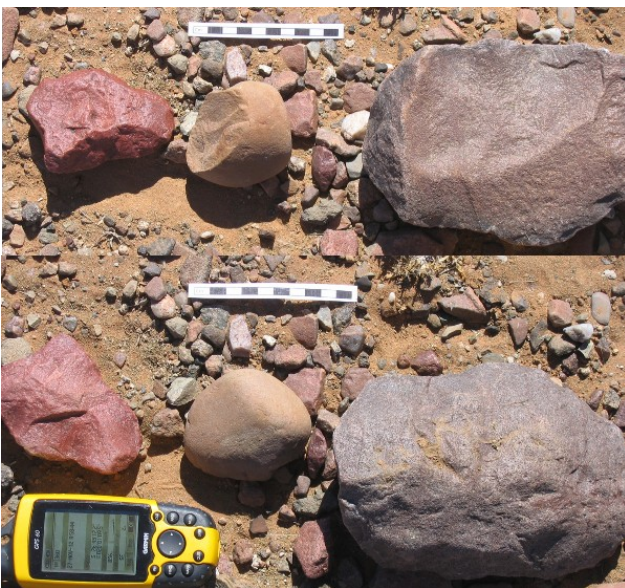


Figure 10: Archeulian Chunk (R), MSA jasper flake (L) and upper grindstone.

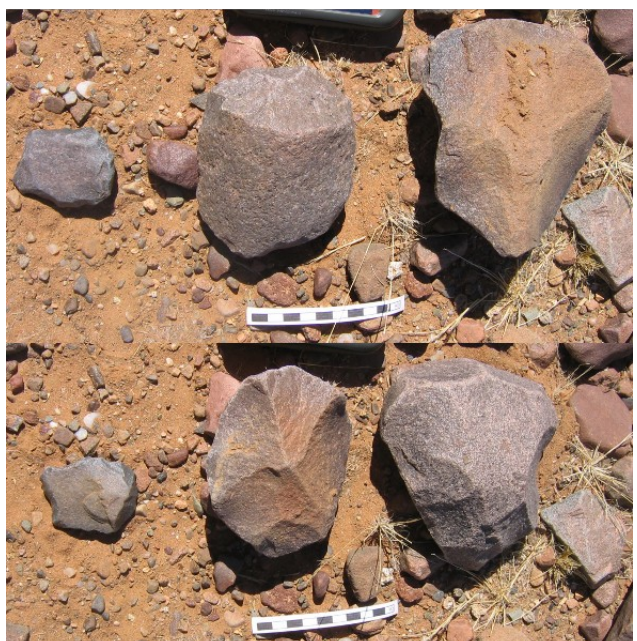


Figure 11: Archeulian Hand Axe (R), MSA core (M) and flake (L).



Figure 12: Acheulian Hand Axe



Figure 13: Acheulian Hand Axe (R), Chunk (second Left) and MSA lithics.



Figure 14: MSA lithics

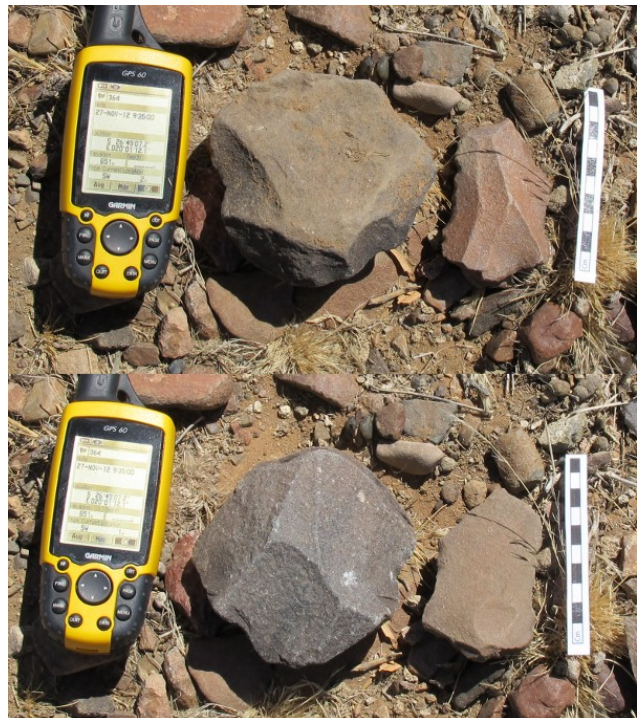


Figure 15: MSA core (L) and flake.



Figure 16: MSA core (L) and MSA flakes.



Figure 17: MSA cores



Figure 18: MSA cores



Figure 19: MSA quartzite flake.



Figure 20: MSA core (L) and flake.

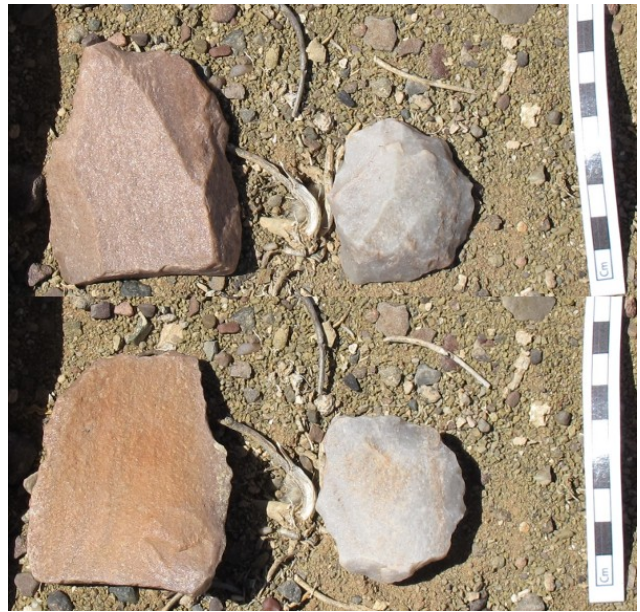


Figure 21: MSA flakes (quartz on right).



Figure 22: MSA flake.



Figure 23: MSA flake and core (R).



Figure 24: MSA flakes, flake on left is worked on Jasper.



Figure 25: MSA core



Figure 26: MSA flakes.



Figure 27: MSA flakes.



Figure 28: MSA flakes.



Figure 29: MSA flake.



Figure 30: MSA flakes



Figure 31: MSA quartzite core.



Figure 32: MSA core (L), and flakes.



Figure 33: MSA core (R) and flake.



Figure 34: MSA flakes



Figure 35: MSA flake



Figure 36: MSA flake



Figure 37: MSA flake



Figure 38: MSA core



Figure 39: MSA flake



Figure 40: MSA flake



Figure 41: MSA cores (top), and flake.

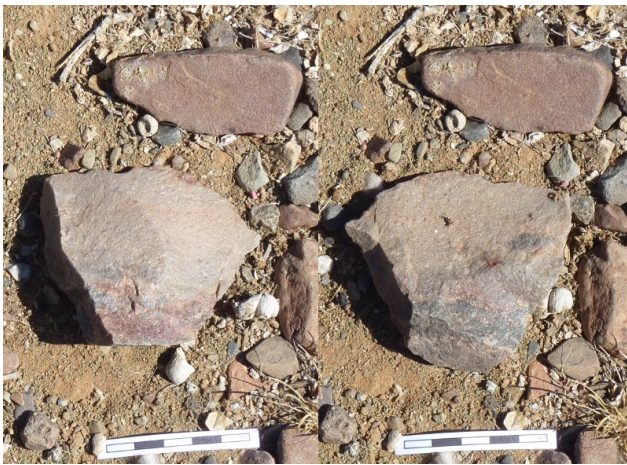


Figure 42: MSA flakes



Figure 43: MSA flakes



Figure 44: MSA cores

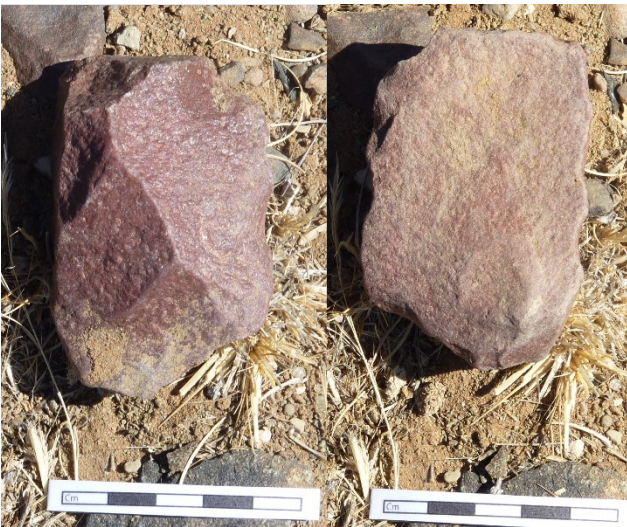


Figure 45: MSA flakes.



Figure 46: MSA flakes



Figure 47: MSA flake



Figure 48: MSA cores (L) and flake.



Figure 49: MSA quartz flake

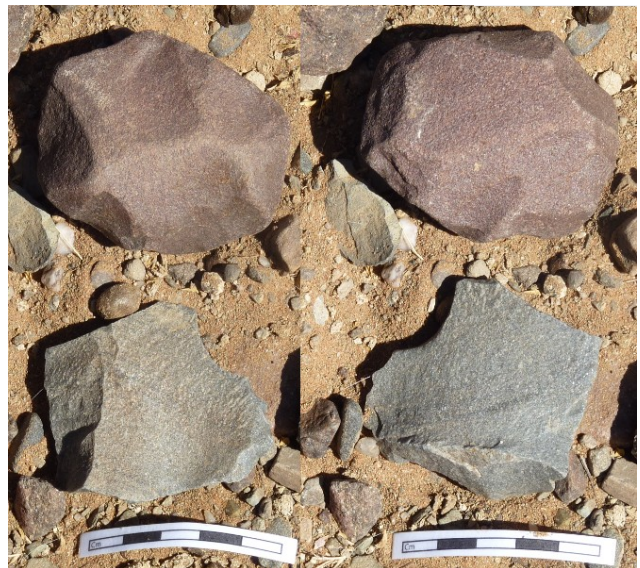


Figure 50: MSA core (top) and flake.



Figure 51: MSA flakes



Figure 52: MSA flakes



Figure 53: MSA quartzite core

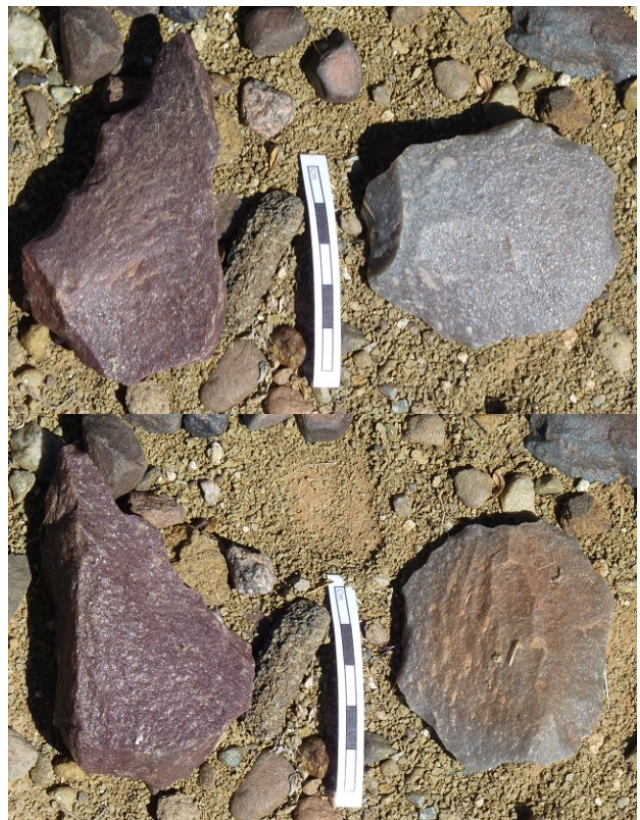


Figure 54: MSA flakes



Figure 55: MSA flakes



Figure 56: MSA flake



Figure 57: MSA flake



Figure 58: MSA flakes



Figure 59: MSA flake,



Figure 60: MSA quartzite cores (bottom L and R), MSA flakes.



Figure 61: MSA flake



Figure 62: MSA flake



Figure 63: MSA flake.



Figure 64: LSA core (R), upper grindstone (second from R), 2 MSA cores (L).



Figure 65: LSA core (R), MSA flake.



Figure 66: Upper grindstone (L), MSA cores.



Figure 67: Upper grindstone.

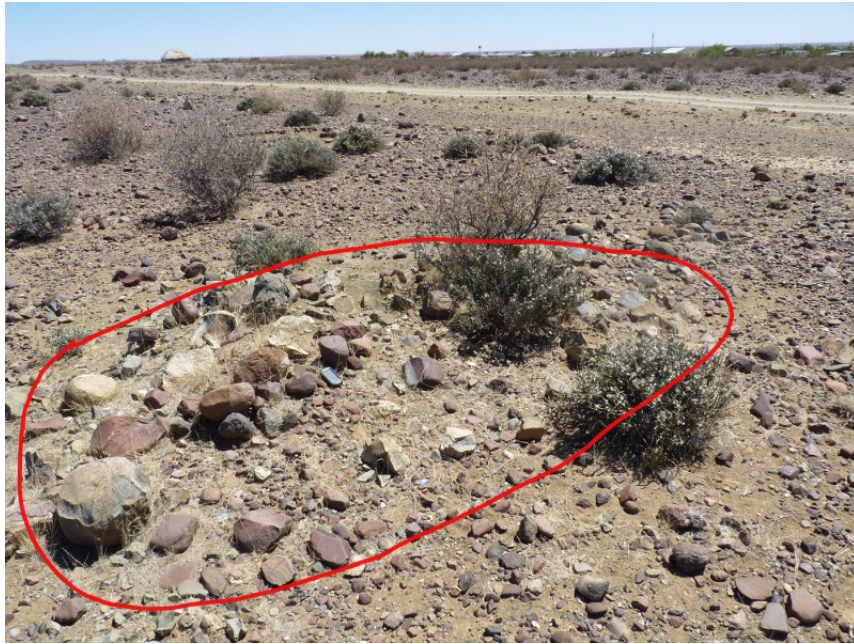


Figure 68: Burial 1



Figure 69: Burial 2.



Figure 70: Burial 3



Figure 71: Burial 4



Figure 72: Burial 5