
References pp 101-102

This is an abridged version of the report, containing:
 that could not be identified in the baseline study may well be encountered（the likelihood of this archaeological environment．Sites will have been salvaged prior to this，but sub－surface features


 positive impact in relation to the social aspect of the archaeological environment．The establishing a museum／information／resource centre is endorsed．Such a facility would have a
 suggestions，together with an estimation，for each activity／facility，of the overall significance of archaeological environment．Mitigation measures are recommended．These management Activities／facilities in the Construction Phase are assessed in detail in relation to the




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archaeologically significant and regionally important
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Baseline description 6ıəqsues 1 e
begins with a baseline description to discover what constitutes that archaeological environment




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peloeloid
operational and closure phases of mining.


Sensitivity to Mining
Conclusions
environmental impacts in relation to the archaeological environment is summarised in Table
97 on page 95 . footing, with tangible local outputs in terms of tourism and education. The significance of any possible museum/information/resource centre should have been placed on a sustainable significance of impact after mitigation, are summarised in Table 92 on page 91 . In this phase management suggestions, together with an estimation, for each activity/facility, of the overall remote, but in the event that they are, mitigation measures are recommended. In turn, these identified in the baseline study) being encountered at this late phase in the mine's life are archaeological environment. The likelihood of further sub-surface features (that could not be

Finally, activities/facilities in the Closure Phase are assessed in detail in relation to the
Impact Assessment: Closure Phase
summarised in Table 88 on page 86 The significance of environmental impacts in relation to the archaeological environment is this phase that any possible museum/information/resource centre would come into existence


Gamsberg Zinc Project - Environmental Impact Assessment
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eastern part of the Northem Cape Province. Their age and context is not well understood, but rock shelters in areas such as the Ghaap Escarpment, Kuruman Hills and Langeberg in the isolated boulders in the Karoo (sometimes along with rock engravings), and fairly commonly in these are to be found over a wide area in the western half of the interior of South Africa, on


2.1.2 Rock paintings at Aggeneys

Middle and Earlier Stone Ages.





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 lower than in areas in the Karoo and eastern Bushmanland, to the south east, and along the
 surface scatter of possible Middle Stone Age lithics is noted from a farm near Pofadder. An Three scoping reports for Eskom (Prinstoo 1998; Morris 1999a; 1999b) and one for Black
Mountain Mine (Morris 2000) describe Later Stone Age sites with and without pottery. A sparse 2.1.1 Late Holocene and earlier sites an indication of what to expect from an archaeological perspective at Gamsberg.






## Desktop study: archaeological background to the investigation

 resources in South Africa. measured against two sets of criteria that have been used in the management of archaeological by detailed field observations. These findings are evaluated by way of discussion, and are2. BASELINE DESCRIPTION OF PRE-MINING ENVIRONMENT Gamsberg Zinc Project - Environmental Impact Assessment


(Nienaber \& Raper 1977, 1980)


 reported that Swart Jim Dixon had said: "Gaams is die plek waar hulle die vleis

 literally means "Grasmond" or "Grasfontein". The grass in question is most likely to be "Igam", both meaning "grass", with "am" meaning "mouth" or "fountain", "IGâ-ams" thus pronounced with a click, where "Tha means "grass", and "aams" means "mouth".
Nienaber and Raper support this interpretation, referring to the Nama "Igâ-" and Kora similarly submitted that the origin of Gams or Gaams was in the word "Tha-aams" t'Kams, meaning "tufted grass" in the Nama dialect. A local farmer, A.J. van Jaarsveld, Gamsberg: In 1824 Thompson travelled through this area and noted the name as
Local place names may provide insight into the recent past of the area - notwithstanding
uncertainty and debate as to exact meanings.
2.1.4 Place names and their relevance to the investigation
Dunn's hippo engraving has not been relocated
that images of large mammals such as the hippopotamus may well have served as metaphors
for "rain animals". an abundance of food be assured." Current understandings of Later Stone Age rock art suggest water, was shown in this way on the engraving in order that "rain would necessarily follow... and nose" (1931:46). Dunn offers an explanation suggesting that the hippopotamus, associated with dragged across the dry veldt by several Bushman people by means of a rope attached to its
In 1872 the geologist E.J. Dunn travelled through the area (Robinson 1978). In his book, The
Bushman. Dunn recalled "near N'Ghaums [Gams], I saw an engraving of a hippopotamus being
2.1.3 Rock engravings in the area?
continent.
rather than with other groups regarded as the makers of finger paintings elsewhere in the sub they appear to be associated in this region with Khoisan of approximately the last millennium
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implications of these various points have yet to be explored
 south (1827:289). While fat-talled sheep lose their fat tails under drought conditions, there is
a thin-tailed breed of indigenous sheep known from the eastern side of the subcontinent (E.A. that they possessed a breed of sheep different from the fat-tailed variety that was usual further people will again be re-assembled" (Thompson 1827:284). Thompson interestingly observed soon as rain falls, the pastures at Pella will instantly spring up, and the scattered divisions of the flocks ...the nature of the country is such, that a people like the Namaquas must be nomadic...as
 and consequent failure of pasturage [at Pella], force them occasionally to disperse themselves As it happens, George Thompson camped at t'Kams (Gams), where the missionary Bartlett of associated with the people who attached these names to the landscape, i.e. Nama herders is possible that the most recent of the late Holocene archaeological sites with pottery could be the Nama language, and began to be fixed in colonial naming conventions by at least 1824. It One point of significance from the above discussion is that these names derive from words in





 at a spring near the confluence of three ravines. The Bushmen were wiped out and the uəuusng əut pedden pue popunouns yoilM selued eolut olul tids Kəut fooly aun deen and the livestock that they had stolen to the kloof, which is today known as Aggeneys marauding Bushmen and formed a commando which followed the spoor of the Bushmen






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development further out on the plain and adjacent to the main road.
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Areas on the northern and western slope of the Gamsberg and the adjacent plains were
examined (paragraphs 3.2 .2 .1 and 3.2 .2 .2 ), as were the northern and western rim of the
inselberg and its basin (paragraph 3.2 .2 .3 ).
2.2.2 Observations
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 potential were also examined. Sites located in the survey were plotted and described. Their attention being paid to features that could have been foci of past human activity. Areas of lower The field reconnaissance was focussed especially, but not exclusively, on areas most likely to
be disturbed by the project. The Gamsberg property was traversed on foot, with particular rather supplemented, the pattern that emerged at those other sites.

 A review of the literature, summarised above, and experience of other parts of the region
indicated the potential for finding sites at Gamsberg. Observations made on the property called
2.2.1 Methods

## Z" <br> Archaeological field survey

place between the Boers and Bushmen. The Bushmen scherms, made of stones, still remain
as well as the marks of the bullets on the rocks" (Robinson 1978:62). This could well refer to
the spring on the eastern side of Gamsberg.
 such circumstances, especially if they had lost their stock.



## 12

> On one portion of the northern ridge, there is a Middle Stone Age workshop site of major regional significance. It had been identified previously by Deacon (1995). This site was quarried, moreover, for the making of a landing strip on the top of Gamsberg, so that artefacts are now to be found along the length of the said landing strip. The in situ occurrence is estimated to extend over an area of $>150 \times 50 \mathrm{~m}$, and was revealed in a scraped section to have a depth of at least 100 mm in at least that part of the site. The significance of the site, which is clearly centred on a favoured raw material source, is discussed below (Figs. $1,2 \& 3$ ).
sites of some regional importance. One of them is on the inselberg's northern rim, and the
remainder are in the Gamsberg basin. These were plotted and described (Fig. 1): But significant finds were made at five locales on the inselberg, representing archaeological
energy run-off during heavier rains, were found to be largely devoid of artefacts.
 Much of the northern and western ridge of the Gamsberg was found to have extremely minimal associated mining activities and alternative activity sites in the basin. offices, detonator \& accessories magazine, on the Gamsberg rim, and the open pit and The focus of investigation was on the areas indicated for the possible EMV workshop and

## Gamsberg northern and western ridge and basin

 for very occasional and isolated flaked stone pieces. and slimes dam pump station was found to be essentially devoid of archaeological traces save probably representing part of a water flask cache. Pieces included a mouth fragment. The latter In paris of this western side of the Gamsberg, on the farm Bloemhoek, a low density of Later

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solated stone flakes. below the surface here either Gamsberg Zinc Project - Environmental Impact Assessment
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 quartz flake. The cave had been disturbed by previous mining-related activity. A small
 there might have been some evidence of use by hunter-gatherers of the Later Stone

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Further down in the basin, along the stream courses, are scatters of varying, generally
low density of both of Middle Stone Age and Acheulean material, sometimes mixed, as
may be expected in that setting (Figs. $1 \& 5$ ). These occurrences, designated for
convenience as "Site Cluster 4 ", were possibly the locales where people were living, or
practising subsistence-related activities - as opposed to the workshop sites which are
focussed on places where particular raw materials occur. Initial impressions suggested
that some of the Acheulean material next to stream courses could be different in
character from that noted at the workshop sites, but only detailed analyses can establish
whether or not this is the case.
Site Cluster 4, valley bottom
The significance of Sites 2 and 3 is discussed below
material on the slope. in a slight saddle, and down either side of it over a distance of $100-200 \mathrm{~m}$. There was At both Sites 2 and 3 the surface spread of knapped stone is strewn from a flattish area

## (Fig. 1 ) <br> site was located, this time centred on a slightly different quality of quartzite raw materia

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 respectively, and their observations shed some light on the local history of those times below). George Thompson and E.J. Dunn travelled through the area in 1824 and 1872 From the colonial frontier era, of the eighteenth to nineteenth centuries, no artefacts were found

## Colonial frontier traces

 conserved. Some of these sites have been recorded by way of photographs it considered critical in this assessment that such remains at Gamsherg necessarily be qualify as "archaeological in terms of the National Heritage Resources Act of 1999 , by virtue
of their young age. Those remains are therefore not protected by any existing legislation. No

 century mining-related activity, and include road-ways and a landing strip. (GZP:1:3). Remains of various structures in and around the inselberg are linked to late twentiet


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themselves (Trekboers or others such as the "Bastaards"), used the site subsequently.
 to colonial encroachment. An overprinting of porcelain fragments shows that either herders exploiting grazing away from the Orange River. The debris on the site could reflect an
accumulation from return visits by the latter people, perhaps in the last several centuries prior in a parched region-for hunter-gatherers and, more especially (in this instance), for herders These outcrops formed hollows where water collects, turning this into something of an oasis Valley side of the Black Mountain inselberg to the north west (Morris 2000). "Boat-shaped"
grinding grooves were noted at numerous points on granite outcrops at the Aggeneys site. analogous material was located on the sandy flanks of a non-perennial watercourse on the Koa quartz and flaked river pebbles. There was a fair quantity of ostrich eggshell fragments. Closely
 An important comparative observation was made at a
 Stone Age presence within the project area, it was so ephemeral as to leave minimal traces in


 material noted on Gamsberg). Moreover, fragments of ostrich eggshell from broken water flasks invariably have lithics made from exotic fine-grained river pebbles (no artefacts on this raw nodules. But known sites in the vicinity (documented at Aggeneys and Black Mountain) also



(MSA3) are not readily distinguishable on the basis of their artefacts alone (Volman 1981).

 of flake blades, unretouched points (Fig. 2), and minimal retouch as a whole. There is some
 generally higher biomas and intensity of human occupation (MSA2).
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 32000 B.P.).

> It has been suggested that "the relatively few [sites] that have beed discovered [in Bushmanland] appear to be largely confined to either the MSA3 or late MSA1 phases of that technocomplex" (Beaumont et al. $1995: 241$ ). Volman's (1984) scheme places the MSA1 in Oxygen-isotope Stage 6 (cold with warm oscillations, ending at 128000 B.P.), the MSA3 in Stage 5 a-3 (late Last Interglacial through Last Glacial, cold with warm oscillations, c 82000 to generally yielded only small samples (Morris \& Beaumont 1991; Smith 1995) uncommon in Bushmanland" (1995:241): and those that have been documented thus far have

 show a wider distribution


 favoured in Middle Stone Age times. The surrounding plains are strewn, predominantly, with appears to be certain is that the site was focussed on a form of raw material apparently the northern rim of the Gamsberg inselberg, is thus far a regionally exceptional feature. What


## Middle Stone Age traces

drought. At such times competiticn between groups over resources, and stress within already
marginalised forager society, must have intensified.

Current efforts to date a phase of the Acheulean characterised by Victoria West cores at Levallois technique yet further westwards. important light on this question, and for now at least extends the known distribution of the proto(Brain \& Mason 1955; Sampson 1974). The evidence from Gamsberg has the potential to shed









distribution of sites

 The Middle (and perhaps in some instances Lower) Pleistocene occupation of the region that
incidence of handaxes and $c$ zavers.

 separated out by abrasion state into a fresh component of Middle Stone Age with prepared Kolk, south west of Kenhardt, and Maans-Pannen, east of Gamoep could be



## regional significance

 very few known Acheulean sites in Bushmanland, and for this reason alone they are of high


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(See Table 3, paragraph 2.2.4.3 for characterisation of the Gamsberg sites in terms of Tables
1 and 2).




The second matrix (Table 2) is adapted from Whitelaw (1997), who developed an approach for
2.2.4.2 Assessing site value by attribute
(See Table 3, paragraph 2.2 .4 .3 for characterisation of the Gamsberg sites in terms of Tables
1 and 2 ).
potential, in the light of such variables, thus requires some interpretation. Generally, moreover the older a site the poorer the preservation. Estimation of


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workshop Sites 2 and 3 courses at the bottom of the Gamsberg basin (Site cluster 4 ). In the absence of more detailed
investigation, it was not clear how the Acheulean component, in particular, relates to the Earlier and Middle Stone Age material was noted in a low density scatter alongside the water
indications suggesting a Lower Pleistocene date of greater than 800000 years B.P. Gamsberg Zinc Project - Environmental Impact Assessment
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 Gamsberg Zinc Project－Environmental Impact Assessment
 into the equation, all the sites in themselves would score low for attributes 5 and 6 (although
imaginative display and interpretation could enhance their interest - the fascination of sites of
 Table 3 presents a combined summary indicating where the Gamsberg sites fall within these
two matrices, with comments having reference to site attributes. Attributes 5,6 and 7 from Table
$\varepsilon \downarrow て$

Estimating archaeological potential and significance at Gamsberg

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 Gamsberg Zinc Project - Environmental Impact Assessment


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|  | $11$ | 21 | 1. | 11 |  | （pequmıs！ <br> кие！̣ее ） <br> $\varepsilon ə \mathrm{~d} \kappa \perp 87$ | ¢ |
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| uo！̣eธ̂！̣səau！야 ŋəə！̣ns＇un！̣paw soluebio on <br>  pxajuos 」ood＇pasıadsic | $Z \perp$ | $\vdash \perp$ | 21 | 11 | （seopejd u！ұuәш！̣วร u！s．nooo） $\downarrow \partial d K \perp \varepsilon \forall$ | $\varepsilon \operatorname{ad} \times \perp \perp \downarrow$ | $\dagger$ |
| әus $\forall: 3 \exists$ ןeuoịbəı ares se jeṇuә！od yo easal чб！ solueb．o on киues ןеио！бәд पб！！ <br>  | $\varepsilon \perp$ |  | $\varepsilon \perp$ | $\varepsilon 1$ | （adols－umop дuәu！̣pas <br> u！anooo kew） <br> $\perp \partial \mathrm{d} \wedge \perp \varepsilon \forall$ | 己 ədイ＾ 117 | $\varepsilon$ |
|  <br>  soluebio oN Aques ןеио！̣әә 46！ <br>  | $\varepsilon \perp$ | $1 \perp$ | $\varepsilon \perp$ | $\varepsilon \perp$ | （ado｜s－umop fuәu！̣pas <br> u！anoวo Kew） <br> $\downarrow \partial \mathrm{d} \not \subset \perp \forall$ | て $2 \mathrm{~d} \times 117$ | 乙 |
|  <br>  soluebio on <br> রұıез ןeuo！ <br>  | $\varepsilon \perp$ | $1 \perp$ | $\varepsilon \perp$ | $\varepsilon \perp$ | （umouxun чonennunวoe ग！ч！！ 10 uldəด） <br>  | て adイ117 | $t$ |
| squemuos | $\dagger$ | $\varepsilon$ | $\tau$ | 1 |  |  | 21！S |
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Table 3．Gamsberg sites 1－5 characterised in terms of Tables 3 and 4.

 used to generate resources for education and tourism. the past of the region. This in turn should serve to promote heritage awareness and should be result from the recommended mitigation measures, but also by an enhanced understanding of would be balanced to some extent by, not only the detailed record and collections that would important that their in situ preservation can easily be characterised as non-negotiable. Their loss of the sites that would be destroyed. The sites in themselves are not considered to be so From an archaeological perspective the option to salvage is judged to be a reasonable and
acceptable measure in this instance, which would be capable of achieving a sufficient record conservation it is arguable that salvage of a site whose destruction becomes unavoidable is a form of Where I\&AP concerns call for conserving archaeological sites and protecting Khoisan heritage the mitigation measures and b) to destroy the sites in the course of mining

[^6]comprehensive information from the sites before mining commences. minimum mitigation measure would be the salvage of representative samples and recording of acted upon. Since archaeological sites would be destroyed through land transformation, a In the event of mining proceeding at Gamsberg, recommendations for mitigation should be

## Implication for Mining

[^7]silt jot pelse66ns si uols!nold bulum to seseud ənsop pue jeuonejedo vononasuon although the likelihood is low, that further archaeological material could come to light during sustaining impacts of high overall significance, as a result of land transformation. It is possible
 Sensitivity to Mining
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6. CONCLUSIONS AND RECOMMENDATIONS
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[^8]If permitted by the South African Heritage Resources Agency, it should be possible to achieve
the above salvage of sites in three fieldwork sessions (a sizable expected load of excavated
material would need to be transported to Kimberley for analysis and curation at the end of each
session), with breakdown of fieldwork tasks as follows (see also Table 98): 6.3.2 Programme for archaeological salvage

> Estimated time needed for field salvage: 3 days preserved there
> stratigraphy. A test trench is recommended to assess whether any cultural material is Site 5: Possible ephemeral LSA occupation in small cave - with possibility of Estimated time needed for field salvage: 5 days. of these accumulations relative to workshop sites on the sides of the Gamsberg basin. Gamsberg basin. A test trench(es) is recommended to recover and assess the nature Site cluster 4: Acheulean and MSA material in the stream courses in the bottom of the
Estimated time needed for field salvage: 12 days recommended to assess whether there is any depth of deposit containing artefacts on
the lower portions of the sites. systematic surface to record of the sites. At least two test trenches in each case are
recommended to assess whether there is any depth of deposit containing artefacts on


Estimated time needed for field salvage: 12 days amassed by way a relatively small excavation density is such that an assemblage of up to 30000 pieces artefacts could well be possible spatia' patterning. There was no evidence of organic preservation. Artefac recover a sample from the site which is sufficient to assess, at the least, typology and 아 иопеле Archaeological salvage of sites
at two further sites which the survey shows may be significant. The report additionally make
proposals concerning curation of the material recovered. representative samples recovered by archaeological excavation, and by way of test trenches


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 all notes, analyses and interpretations would also be archived there Museum, where requisite archaeological curatorial and archival standards are met. In that case,





| Stage 1 | Stage 2 | Stage 3 |  |
| :--- | :--- | :--- | :--- |
| Salvage of sites: Gamsberg <br> (See 6.3.1-6.3.2, page 97) | Analysis and curatorial <br> (See 6.3.3-6.4, pages 98-99) | Reports, outputs <br> (See 6.4, page 99) |  |
| Field <br> session <br> 1 |  |  | Analysis and description of <br> salvaged material, <br> Archaeology Lab, McGregor <br> Museum, Kimberley |

 commence in the field
individuals, preferably able to read and write, would be sufficient. Marking of artefacts could

A museum or similar facility could fulfill an important role for tourism and community
development in the region, both during the life of the mine and after. It is an area blessed with
a number of unsung attractions, such as the historic mission settlement and cathedral at Pella,
the stark and singular natural environment, and, not least, a history of human survival in a harsh
landscape, through many thousands of years, some of the details of which are only now coming
to light. having some bearing on the matter
Cape Museums legislation, and the accepted minimum standards for museums in South Africa, interested and affected parties is an issue that would need to be decided, with draft Northern and the project, the local community, museum authorities, tourism authorities and other It is anticipated that such a facility would require staff. The articulation between such a facility
(See GZP Scoping Report Volume 2 Appendix 3, Proceedings of Open Days: pages 20-21; 25) Permanent displays, which contain examples of the excavated material, and other relevant
objects and panels, could follow in due course if a museum or information facility is established. distribution locally.
and information sheets may be prepared on the archaeology of Gamsberg, for display and
s an interim measure, and in response to $1 \& A P$ concerns, temporary exhibits by way of posters
nature of the facility and to formulate plans for its establishment strongly endorses the idea), it is recommended that a Heritage Committee or equivalent If the Project deems formation of a museum/information/resource centre to be viable (this repor
6.4 A museum or resource centre for Gamsberg
one individual preferably with computer experience, to assist with curatorial aspects; both to be for analysis, marking and curation: one individual, who is literate, to complete the marking, and Gamsberg Zinc Project - Environmental Impact Assessment

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 Consultants



[^0]:    Gamsberg

[^1]:    

[^2]:    and slimes dam pump station

[^3]:    raw material source outcropping at that point (Figs. 1, 48.5 )
     first of these (Site 2) is an Acheulean (Earlier Stone Age) workshop site. Like the Middle
    

[^4]:    elsewhere the Aggeneys-Pofadder region. tone Ag Stone Age presence was to be found at Gamsberg, not least because late Holocene Later
    

[^5]:    (races; Middle Stone Age traces; and Earlier Stone Age traces Observations made at, and in connection, with Gamsberg are categorised by age and
    discussed under the headings: Most recent traces; Colonial frontier traces; Later Stone Age

[^6]:    A permit would be required from the South African Heritage Resources Agency a) to carry ou

[^7]:    protected.
    I\&AP concerns require that archaeological sites be conserved and Khoisan heritage be

[^8]:    Session 2 ( 12 days): Systematic collection and excavation at Sites 283
    

