

AN ASSESSMENT OF THE IMPACTS ON HERITAGE RESOURCES OF PROPOSED MINING ON THE FARM KAROETJIES KOP, VREDENDAL DISTRICT

Prepared for

Metago Environmental Engineers (Pty) Ltd.

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Prepared by

Dave Halkett

Archaeology Contracts Office

Department of Archaeology
University of Cape Town
Private Bag
Rondebosch
7701

Phone (021) 650 2357
Fax (021) 650 2352
Email DJH@beattie.uct.ac.za

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1. INTRODUCTION

1.1 Background

The farm Karoetjies Kop, located on the Namaqualand coast approximately 60 km north of the mouth of the Olifants River, is shown on Figure 1. The land is owned by De Beers and forms one of a chain of farms along the coast that contain diamondiferous deposits within old beaches and river channels.

Four beaches on the farm have been identified for mining in the near future, and the assessment of the impacts on heritage resources has been requested as part of the IEM process.

1.2 The Brief

- Examine the four proposed mining areas;
- Examine the area for the proposed processing plant;
- Examine existing tracks to be upgraded and utilised as haul and link roads;
- Examine the Peddies se Kop farm complex that will be used as accommodation;
- Prepare a report describing the findings and suggesting mitigation measures.

2. METHOD

A surveyed plan at a scale of 1:20 000 was supplied by Metago. This plan showed the proposed mining areas and other features that were to be investigated. The information was transposed onto the relevant 1:10 000 orthophotos of the coast to enable location of the areas more easily on the ground. The areas as indicated vary between 400 – 600 meters in length and approximately 100 meters in width (these demarcate the mining area and an approximate 20% additional area for impact around the mined zone). These areas were examined on foot and the positions of heritage sites were recorded utilising a hand held Garmin III+ GPS (using WGS84). The estimated position error is indicated on the device as between 4 - 6 meters but realistically is more likely to be in the region of 8 meters, enabling navigation back to within close visual range of the original site (selective availability was removed on May 1st 2000). Site locations as plotted on the orthophotos are relatively accurate indications of location made on the ground independent from the GPS and are therefore more likely to be useful in determining whether a site will lie in an area of direct impact. The proposed location for the processing plant was also examined on foot. Test pits were dug where it was believed that sub-surface archaeological deposits were present.

The main track that runs parallel to the coast was utilised to access all the mining areas during the study. It was inspected for the presence of heritage material from the vehicle while moving between the various areas . Smaller tracks within and around the mining areas were also inspected in this way, as was the proposed link road between the mining areas and the accommodation at Peddie Se Kop.

The housing complex at Peddie Se Kop was also examined. A number of buildings are present and some assessment was made of their likely age and conservation worthiness. The werf was also inspected for the presence of older material.

3. OBSERVATIONS

The whole farm and areas inspected are shown on Figure 1. The mining areas and other features, and heritage sites that were located, are shown in more detail on extracts from the orthophotos in Figure 2. The farm complex is only shown on the 1:50 000 extract. The two orthophoto extracts are not continuous and portions of the coast between the two have been excluded for convenience. We do not have precise boundaries for mining areas and so cannot say if some of the sites located close to the proposed areas will be directly impacted.

The significance rating assigned to the sites is based on a number of observations. These observations for pre-colonial material include:

- the degree of existing disturbance (the greater the disturbance, the lower the rating);
- the presence or absence of certain classes of artefacts or food remains (the more classes present, the higher the rating);
- the density of the artefactual material (the greater the density, the higher the rating);
- the presence or absence of stratification (multiple layers of occupation receive a higher rating).

For the built environment include:

- age - based on architectural style, type of building materials, joinery etc. (the older the building, the higher the rating);
- state of preservation (good preservation can mean a higher rating depending on other factors);
- uniqueness (the rarer a building, the higher the rating);
- context (the more undisturbed the context, the higher the rating).

3.1 KKP 1 31°10.558'S 17°46.848E

The site lies adjacent to the initial outcrop of the rocky point at the northern end of the sandy beach formed in the embayment at the mouth of Ratelgat se Holte. It comprises a surface shell scatter of moderate density with a diameter of approximately 50m.

Shell species: *Patella granatina* and *granularis* (predominant), and *Patella argenvillei*, *Choromytilus meridionalis* and *Burnupena sp.*

Artefactual material: Small amounts of Ostrich eggshell fragments, quartz flakes.

Significance: Medium – low;

There are no indications that this site was used for occupation. This conclusion is based on the low frequencies of artefactual material. The significance of the site is rather in the possible dating information that can be gained from the shell material and by making a record of the exploited species. The site could be removed following mitigation;

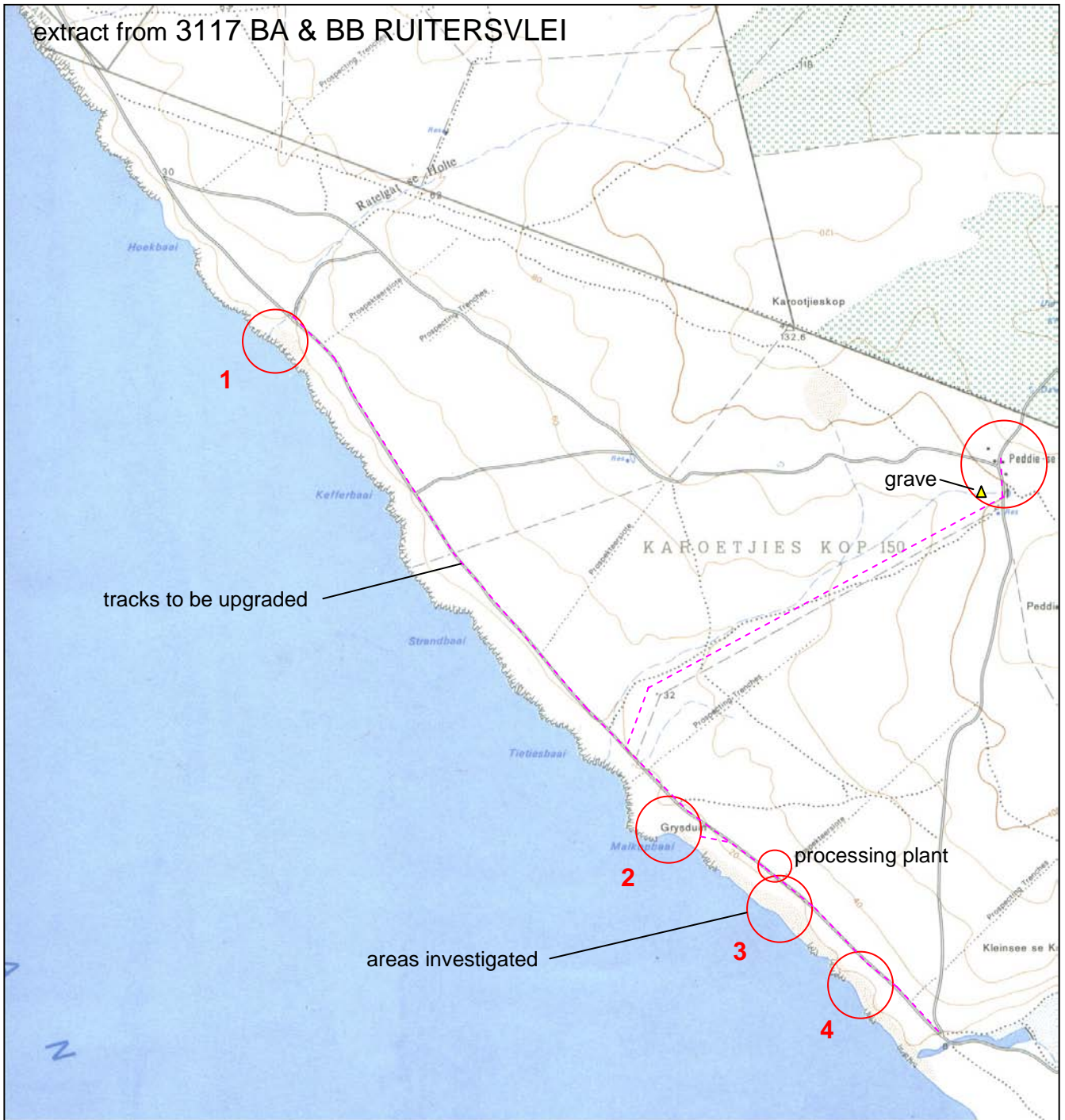
Impact: There is a strong possibility that this midden will be entirely or partly impacted by mining activity;

Suggested mitigation: Sample the shell *in situ* to characterise the species, and collect a sample for possible dating. If no direct impact will occur, cordon the site off to ensure non-disturbance.

3.2 KKP 2 31°12.031'S 17°48.129E

The site lies on the edges of the main track running parallel to the coast adjacent to the rocky point at the northern end of Strandbaai (this is not marked on the orthophoto extracts as it was an isolated site between the main areas inspected). The site consists of occasional Early Stone Age (ESA) stone artefacts. Material of this type occurs along the whole length of the

extract from 3117 BA & BB RUITERSVLEI



tracks to be upgraded

grave

processing plant

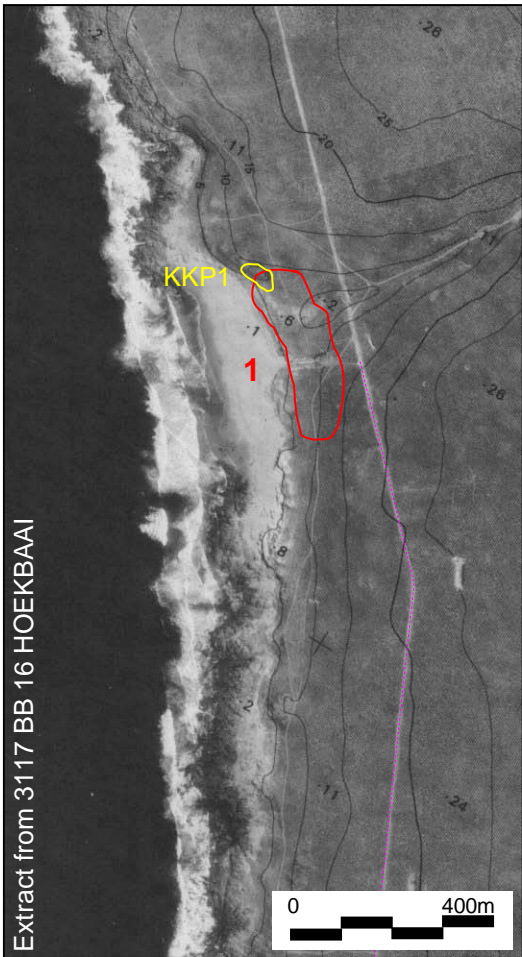
areas investigated

1

Location of the investigation

0 1 2 3km

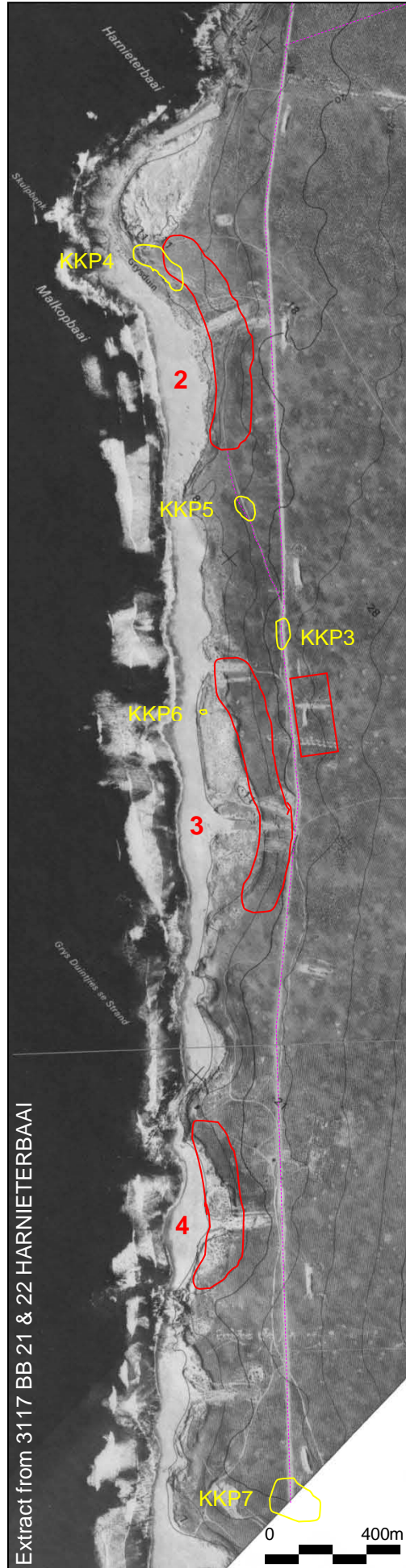




2

**Heritage impact assessment:
areas inspected**

-  mining areas
-  processing plant
-  tracks to be upgraded
-  heritage sites



coastal road and tracks up to Peddie se Kop. In some instances such as KKP2, the material is slightly more dense, perhaps due to erosional or depositional factors subsequent to their discard

Shell species: no shell is present;

Artefactual material: Flakes, cores, and a single broken handaxe. Raw materials include Quartz, quartzite, silcrete, and meta volcanic types.

Significance: Low;

The information that can be derived from these artefacts is limited by the lack of associated non-lithic material and the likelihood that material is not in primary context. The road upgrading could proceed following mitigation;

Impact: There is a strong possibility that this scatter may be impacted by upgrading of the road;

Suggested mitigation: Collect a sample of artefactual material from this and similar ephemeral scatters elsewhere along the roads to characterise the assemblages.

3.3 KKP 3 31°13.566'S 17°49.875E

The site lies on the edges of the main track running parallel to the coast between the proposed processing plant and the track that runs down to mining area 2. The site consists of occasional Early Stone Age (ESA) stone artefacts.

Shell species: no shell is present;

Artefactual material: Flakes, cores, and a single broken handaxe. Raw materials include Quartz, quartzite, silcrete, and meta volcanic types.

Significance: Low;

The information that can be derived from these artefacts is limited by the lack of associated non-lithic material and the likelihood that material is not in primary context. The road upgrading could proceed following mitigation;

Impact: There is a strong possibility that this scatter may be impacted by upgrading of the road;

Suggested mitigation: Collect a sample of artefactual material from this and similar ephemeral scatters elsewhere along the roads to characterise the assemblages.

3.4 KKP 4 31°13.334'S 17°49.242E

The site lies adjacent to the first outcropping of rock at the northern end of the sandy beach at Malkopbaai immediately south of the edge of a partially mobile dune field. The site comprises a very extensive surface scatter of largely fragmented shell possibly as much as 100 meters in length. Some patches are denser than others. A test hole dug close to the edge of the dune field indicates that a buried shell lens, in which the shell is in a more whole state, is present at a depth of approximately 30 centimeters.

Shell species: Surface scatter contains much *Choromytilus meridionalis* with smaller amounts of *Patella* species, particularly *granatina*, *granularis* and *argenvillei*.

Artefactual material: Small amounts of ostrich eggshell and quartz flakes are visible on the surface.

Significance: Medium;

A buried shell lens found in a test pit suggests that there may be multiple occupation of this site. The site could be removed following mitigation;

Impact: There is a strong possibility that this midden will be entirely or partly impacted by mining activity. It is presently being impacted by 4x4 vehicles accessing the beach;

Suggested mitigation: The midden should be sampled by excavation of a number of holes. In this way the differences between surface and buried lenses can be assessed. Material for dating will also be collected during this process. If no direct impact will occur, cordon the site off to ensure non-disturbance.

3.5 KKP 5 31°13.480'S 17°49.657E

The site is located on the track leading down to mining area 2 from the main coastal road and lies some 400 meters inland of a rocky point between sandy beaches on a slightly raised area. The site comprises a dense surface shell scatter occurring as a number of patches and has a diameter of approximately 30 meters. The existing track cuts through the scatter but material on either side is relatively undisturbed.

Shell species: Shell consists mostly of *Patella granatina*, *granularis* and *argenvillei*, but variation between patches is noticed. One patch contains numerous whelk species in addition to other types suggesting possible spatial variation.

Artefactual material: A number of quartz flakes, ostrich eggshell fragments and one large indigenous Khoe-type potsherd.

Significance: Medium;

While a portion of the site has been disturbed the variety of shell species in the different patches suggests that some spatial patterning is preserved. This could enable the determination of smaller occupation areas within the site boundaries. The site could be removed following mitigation;

Impact: There is a strong possibility that this scatter may be impacted by upgrading of the road;

Suggested mitigation: The various patches of midden should be sampled and mapped and material collected for dating. If this road is avoided and access to the mining area is gained from further along the main track, no mitigation would be necessary.

3.6 KKP 6 31°10.558'S 17°46.848E

The site is located close to the shore on the edge of a low coastal foredune almost directly in line with the pattern of prospecting holes located inland. The site consists of a small surface shell scatter with a diameter of approximately 5 meters.

Shell species: *Patella granatina* and *granularis*.

Artefactual material: A number of large chunks of quartz and a number of flakes of the same material.

Significance: Medium;

There is a direct association between the shall scatter and the quartz debris and suggests that the site was formed during a single short term event. The site could be removed following mitigation (if required);

Impact: There is a possibility that this scatter may be impacted by mining although it appears to lie outside of the main area;

Suggested mitigation: If any water pipes or other infrastructure will be laid through this area to supply the processing plant, the site should be cordoned to prevent disturbance, or mitigated by sampling.

3.7 KKP 7 31°14.406'S 17°50.986E

The site lies around the gates onto the property when turning onto the coastal road after crossing the salt pan. The site consists of a large shell scatter that is quite heavily impacted by existing tracks. Some *in situ* material exists away from the roads.

Shell species: *Patella granatina*, *granularis* and *argenvillei*.

Artefactual material: Some quartz flakes were observed.

Significance: Low;

There is a substantial amount of existing disturbance to the site. The significance lies in the possible dating information that the shell could provide. The road upgrading could proceed following mitigation;

Impact: There is a possibility that this scatter may be impacted if upgrading of the road occurs in this vicinity;

Suggested mitigation: The shell material should be sampled *in situ* if the site is to be disturbed due to road upgrading.

3.8 Peddie se Kop

3.8.1 Farmhouse complex

The farm complex is made up of several structures and features. The design elements and construction materials used in the buildings suggest that they were constructed over a relatively long period. There are three core structures, all of which appear to have functioned as residences. The approximate positions of these in relation to each other and a single grave is shown in Figure 3.

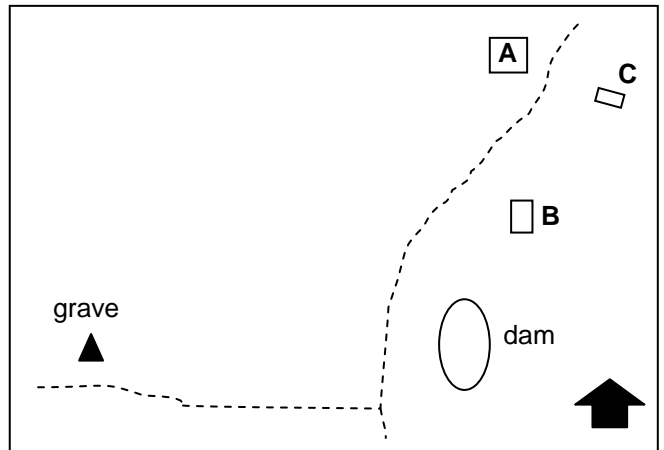
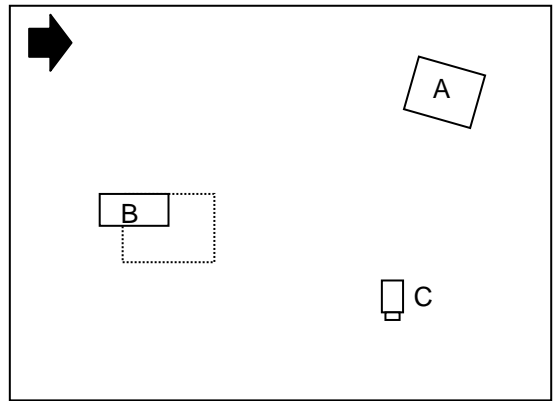
The most recent of the three residences is the blue building to the north end of the *werf*, labeled A on Figure 3. The architectural style and fittings suggests that it was built mid 20th century 1930 - 1960. An older house is represented by building B. This is now used as a shed and has a kraal attached. Mud brick has been used in its construction and the remains of sash window frames are still present. In my opinion this building dates from the late 19th century. What appears to be the oldest of the three houses is that labeled C on Figure 3. This is also constructed from mud brick and is built atop a stone platform. It has gabled ends and originally would have had a thatched roof. It is difficult to put a precise date to it, but almost certainly dates to the 19th century. It may predate building B. Square, subterranean water storage cisterns are found next to buildings A and B, and on the slope above the houses near the bluegum tree. These are cement lined.

Other structures besides the three houses do exist. These are sheds and are generally not considered to be of any heritage significance. Modern materials have been used in their construction.

Significance: Building A : Medium - low; Building B: Medium - high; Building C: Medium - high; Buildings B and C are examples of the earlier vernacular style of farm architecture, while building A is typical of later style. There are fewer examples of buildings B and C surviving than A.

Impact: There is a possibility that modification may occur to building A;

Suggested mitigation: In terms of the South African Heritage Resources Act, no.25 of 1999, all buildings older than 60 years are protected. Permission is required from the South African Heritage Resources Agency (SAHRA) to either alter, or demolish such structures. If no modification or alteration of any of the buildings will take place, then no mitigation is required.



3 Peddie se Kop Farm complex and grave

The age of building A cannot be precisely determined without examining the title deed. As owner of the land De Beers may be possession of such a document which will indicate if the building falls within the period that requires permission from SAHRA before any modification as specified in the legislation.

3.8.2 Grave 31°10.558'S 17°46.848E.

A single grave was located adjacent to the track leading down to the coast from the houses. The approximate position of this is shown on Figure 3. The grave is marked by an informal shale headstone and a few pieces of quartz are scattered above where the shaft must lie. An old wire fence surrounds the grave. No inscription is present on the headstone.

Significance: High; All graves and gravestones are protected by the South African Heritage Resources Act, no.25 of 1999. Permission is required before any removal or disturbance takes place. There is a prescribed legal process in terms of tracing next of kin etc. Where possible it is preferable to avoid disturbing known graves.

Impact: It is unlikely that any impact will occur as a result of to the current proposals;

Suggested mitigation: Ensure that the grave is visible to prevent damage by road making machinery or other vehicles straying off the tracks.

3.8.3 Link road

The track that will link the farmhouse complex with the mining area was inspected. No heritage material was located along the route.

Impact: It is unlikely that any impact will occur as a result of to the current proposals;

Suggested mitigation: No mitigation is necessary.

4. DISCUSSION

The nature of the present coastline is that of sandy beach embayments lying between rocky headlands. This presents a set of fairly predictable archaeological results of which the location of Late Stone Age shell middens existing adjacent to the rocky headlands is the most notable. Palaeontological shell derived from raised beaches has been observed in and around prospecting trenches. This should not be confused with archaeological material.

We have noted several scatters of Early and Middle Stone Age artefacts lying on and adjacent to tracks in the area. This is a phenomenon particular to this part of the coast and similar scatters are seen from as far south as Doringbaai but have also been noted within the Namakwa Sands mining area. The scatters are formed as a result of material deflating down onto the hard layer (Dorbank) which underlies the aeolian sands. These scatters are devoid of any organic component and as such are of limited research value. We should however no ignore the presence which should enjoy some minimal documentation.

The shape of the sandy embayments suggests the possibility that the rocks of the headlands could be found continuing below the sand. The remote possibility exists that old sea caves may be present within gulleys in the rock band and, if not scoured by raised sea levels in the past, could contain archaeological material. This should be borne in mind during mining.

5. RECOMMENDATIONS

The significance, possible impacts and suggested mitigation has been discussed in Section 3. Some additional more general recommendations are presented here for consideration. Please note that archaeological sites are protected by the South African Heritage Resources Act , no.25 of 1999.

5.1 Sampling for purposes of mitigation

All sampling must be undertaken by an accredited archaeologist in possession of a permit issued by SAHRA for this purpose. The collected material must eventually be stored in a recognised museum in the province of origin.

5.2 Graves

Graves dating to the pre-colonial period are in most instances not easily recognisable from the surface. This means that predicting their whereabouts is problematic. These graves are recognised if they are disturbed by the way in which the body is buried in the foetal position. If any form of grave is located during mining or related activity, it must not be further disturbed and its presence should be reported immediately to SAHRA.

5.3 Tracks

All vehicles should be prevented from straying from existing tracks. Those tracks passing through dune areas should be cordoned off.

5.4 Caves

If any caves or shelters are located in the rocks below the sand cover in the mining area, they should be inspected to determine if any archaeological deposits exist. Evidence for this may be visible on the surfaces on the inside of such caves, but may not necessarily be observed without undertaking some form of controlled test excavation. Such deposits may contain the remains of early humans that are extremely rare. If such caves are discovered they should be inspected by an archaeologist.

6. PROFESSIONAL TEAM

Fieldwork and report

Dave Halkett