

9/12/03 3.11.03  
Completed ready on filing cabinet  
not verified

PROPOSED ST FRANCIS GOLF ESTATE

PHASE 2 – MITIGATION OF HERITAGE RESOURCES

PROPOSAL FOR RECOMMENDED MITIGATION

Prepared For:

SRK Consulting

By:



Dr Peter J Nilssen  
Mossel Bay Archaeology Project  
PO Box 176  
Great Brak River  
6525

Tel: (044) 690 4661 Fax: (044) 691 1915 Cell: 082 783 5896  
E-mail: [map01@telkomsa.net](mailto:map01@telkomsa.net)

20 August 2003

## Table of Contents

<u>Content</u>	<u>Page</u>
Table of Contents .....	2
Executive Summary .....	3
1. Introduction .....	4
2. Discovered Sites and Recommended Mitigation Measures.....	4
3. Scope and Schedule of Recommended Mitigation Measures.....	10
4. Timing of Mitigation Measures & Notes on Estimated Costs.....	10
5. Notes on Estimated Costs.....	10
6. Terminology .....	11
7. References .....	11
Acknowledgements.....	11
Appendix A: Estimated <u>Monthly Cost</u> of Mitigation Measures.....	12
Appendix B: Estimated <u>Total Cost</u> of Mitigation Measures.....	13
Appendix C: Estimated <u>Once-Off</u> & <u>Monthly Cost</u> of Mitigation Measures: Full Time Monitoring During Construction Phase.....	14

## Executive Summary

The proposed development of a golfing estate adjacent to St Francis Bay, involving considerable earth movement, will result in major and permanent alteration to the landscape and its contents. Construction and earth moving activities will have a permanent, direct and negative impact on 23 archaeological sites discovered during the Heritage Impact Assessment (see Phase 1 report submitted to SRK Consulting in August 2003).

Mitigation prior to, during and after the construction phase of the development is essential because archaeological sites are protected by law, and because they are entirely irreplaceable and non-renewable. All discovered sites should be sampled (at least 10% surface collection and/or excavation and all archaeological remains on smaller sites should be collected) while Sites 13, 14, 21 and 22 require special attention. Sites 13 and 21 should be preserved in perpetuity. A management plan for protection and conservation must be devised in consultation with the South African Heritage Resources Agency (SAHRA), the Provincial Heritage Resources Authority (PHRA), archaeologist(s) and the KhoeSan group in Humansdorp. Management plans for protection and conservation will only be effective and acceptable if there is a legal obligation to manage in perpetuity, and if an "entity" (e.g., municipality, home owners association, etc.) is appointed to assume that responsibility. Full time monitoring of all earth moving must be carried out under the supervision of a professional archaeologist, as sites will almost certainly be uncovered during the construction phase. It is also possible that human burials will be uncovered during earth movement.

Providing written guidelines for non-archaeologists to recognize and assess the significance of archaeological sites is not feasible. It takes many years of study, training and experience to attain the necessary expertise to recognize and adequately assess the significance of archaeological sites. It follows that a professional archaeologist must be employed to deal with Heritage Resources.

Little archaeological research has been conducted in this area, and currently, little is known about the frequencies of, and variation in sites in the region (but see Binneman 1996). Given this, and the fact that no two archaeological sites are the same, every site that is in danger of being destroyed has the potential to play a significant and critical role in piecing together the picture of prehistory in the area. Employing adequate and effective mitigation measures - in the form of sampling (collection and/or excavation) and conservation (where appropriate) - for endangered sites is therefore critical to benefit from and manage South Africa's Heritage Resources.

In view of the above as well as the results of the field work conducted for the Heritage Impact Assessment (HIA), the heritage resources (archaeological sites) within the proposed site for the St Francis Golf Estate are, in my opinion, highly sensitive (very low tolerance to disturbance) and will be permanently destroyed and altered by the proposed development. Mitigation measures are therefore recommended to acquire adequate (representative) samples before sites are destroyed and to sample, protect and conserve selected sites.

**All mitigation must be conducted and supervised by professional archaeologists. It is estimated that a team of 9 people will take approximately 2.5 months (50 working days) to complete the recommended mitigation measures for the "pre-construction phase". Report writing will take 3 to 4 weeks. Full time monitoring should be carried out throughout the construction - earth moving - phase of the development.**

## 1. Introduction

The Mossel Bay Archaeology Project (MAP) was approached to recommend mitigatory measures for archaeological sites under threat by the proposed St Francis Bay Golf Estate and to present an estimated schedule and costing for mitigation. Presented below are MAP recommendations that should be evaluated by SAHRA and/or Eastern Cape PHRA prior to finalizing mitigatory measures, scheduling and costing as well as the development of a management plan for Heritage Resources.

## 2. Discovered Sites and Recommended Mitigation Measures

On 22 and 23 July 2003 a survey covering about 70% of the study area revealed the presence of 23 pre-historic archaeological sites. Due to limitations during field work, the area could not be surveyed comprehensively. Nevertheless, the results indicate that it is highly probable that additional sites are located in the study area.

Below are the coordinates (Map Datum WGS 84) for discovered sites as well as brief descriptions and recommended mitigation.

### Site 1

S 34° 09.990' E 24° 48.632'

The site is situated immediately North of the vehicle track near the "Modern Ruins". This is a low-density scatter of predominantly stone artefacts including: a Middle Stone Age flake, a classic upper grindstone, a large core, a small blade in silcrete with Howiesons Poort features and a few fossilized fragments of humerus bone from a size III/IV bovid (wildbeest to buffalo size). The latter was located at S 34° 10.006' E 24° 48.571'. The scatter extends some 150 by 20m and is in an exposed and deflated area

**Recommended Mitigation:** Surface collection of at least 10% (300m<sup>2</sup>), or more if representative sample not acquired in those squares or if significant spatial variation is evident in archaeological materials. The entire surface of this site must be searched for fossilized human remains.

### Site 2, 3 and 4

S 34° 10.004' E 24° 48.538', S 34° 09.994' E 24° 48.475' and S 34° 09.976' E 24° 48.490'

These are low-density scatters of stone artefacts, marine shell, pottery, ochre and bone. A few cracked quartzite cobbles were found as well as large cores and a hammer stone. Marine shell includes arikreukel and limpet. Bones of tortoise, dune molarat as well as larger bovid were observed. A small, unfinished ostrich eggshell bead was found at Site 2. Some material is polished and this is likely the result of sandblasting by wind. Site 4 is somewhat less dense, but contains stone artifacts in quartz, which were not seen at Sites 2 and 3. Scatters are in exposed and deflated areas approximately 70 by 20m and become denser to the West.

**Recommended Mitigation:** Investigate nature and contents of sites prior to sampling. From each site, if appropriate, conduct a surface collection of at least 10% (140m<sup>2</sup>), or more if representative samples not acquired in those squares or if significant spatial variation is evident in archaeological materials. The entire surface of this site must be searched for fossilized human remains.

Site 5

S 34° 10.028' E 24° 48.529'

This is a low-density scatter of Middle Stone Age and Later Stone Age stone artefacts and fossilized as well as non-fossilized bone. Two teeth of a large carnivore were found as well as two small bladelet cores in quartz. The latter were about 2cm in their maximum dimension. The scatter is some 50 by 20m and occurs on an exposed and deflated surface. No marine shell or pottery was observed.

**Recommended Mitigation:** Since this site contains Middle Stone Age material and is of low density, it may be feasible to collect all archaeological material on the deflated surface. Alternatively, conduct a surface collection of at least 10 % (100m<sup>2</sup>) or more, if collected sample is not representative or, if spatial variability is evident. The entire surface of this site must be search for fossilized human remains.

Site 6

S 34° 09.975' E 24° 48.407

This is a low-density scatter of stone artefacts (possibly some of Middle Stone Age origin), bone and marine shell (limpet and chiton). Some artefacts appear polished, probably by sandblasting. The site is in an exposed and deflated area of some 40 by 10m.

**Recommended Mitigation:** Investigate prior to sampling as this site may contain Middle Stone Age material. Surface collection of at least 10% (40m<sup>2</sup>) or more, if collected sample is not representative or, if spatial variability is evident. The entire surface of this site must be search for fossilized human remains.

Site 7

S 34° 10.050' E 24° 48.410'

This is an exposed and deflated area containing a few stone artefacts and no less than fifty shards of pottery, which appear to come from the same vessel. One large fragment has two hand-made perforations.

**Recommended Mitigation:** Collect all material in an area of approximately 50m<sup>2</sup>.

Site 8

S 34° 10.049' E 24° 48.238'

This is a low-density scatter of Later Stone Age stone artefacts (mostly in quartzite), marine shell (limpet and arikreukel), bone, a large lower grindstone located at S 34° 10.060' E 24° 48.210' and a classic hammer stone. The scatter is in an exposed and deflated area of about 60 by 15m.

**Recommended Mitigation:** Surface collection of at least 10% (90m<sup>2</sup>) or more if representative sample not acquired in those squares or if significant spatial variation is evident in archaeological materials. Sampled squares must include those where hammer stone and grind stone were found, as mentioned above. The entire surface of this site must be search for human remains.

Site 9

S 34° 10.050' E 24° 48.179'

This is a small sand mound or dune with medium to high densities of a wide variety of marine shell (abalone, arikreukel, mussel, limpet, periwinkle, etc.). Stone artefacts in quartzite were also noted. Only saw a single fragment of bleached bone. A small heap from a burrowing animal contains archaeological material, which suggests that this deposit has some depth to it.

**Recommended Mitigation:** Excavate at least 3m<sup>2</sup> of this mound if found that deposits are in situ or more if representative sample not acquired in those squares.

Site 10

S 34° 09.632' E 24° 48.339'

This is a small exposure (not deflated) atop a small dune with a low-density scatter of marine shell and a few pieces of quartzite cobble (manuports [see Terminology]). Some of the latter appear fire-cracked and others have flake scars. No pottery or bone was seen.

**Recommended Mitigation:** Sample and excavate at least 10% of this site. Dimensions of area to be sampled and/or excavated must be determined during Phase 2 – mitigation.

Site 11

S 34° 09.538' E 24° 48.316'

This is an exposed but not deflated surface of about 10 by 15m with a low-density scatter of marine shell (arikreukel, whelk and chiton). No stone, bone or pottery was seen.

**Recommended Mitigation:** Monitor during earth movement.

Site 12

S 34° 09.994' E 24° 48.475'

This is an exposed but not deflated surface of about 10 by 10m with a low-density scatter of limpet and arikreukel shell. No other archaeological material was seen.

**Recommended Mitigation:** Monitor during earth movement.

Site 13a and 13b

S 34° 09.743' E 24° 48.547'

This is a classic shell midden and by far the largest and densest seen thus far (Plates 4 and 5). Site 13b appears to be an extension of 13a and is truncated by a vehicle track. The following description applies to both 13a and 13b. The site is situated atop a dune with a commanding view over the Sand River Dune Fields to the North, the Kromme River mouth to the North East and the St Francis Bay shoreline to the East and North East (Plate 6). The "Main House Ruins" are about 450m to the west of Site 13a (see Figure 2). The site is approximately 2km from the above-mentioned localities. The midden is dominated by shellfish including various species of limpet (some extraordinarily large specimens),

periwinkle, arikreukel, whelk, barnacle (some clearly "riding" on mussel shells), abalone, white mussel, mussel, chiton and so on. Some shellfish is burnt and it is likely that in tact hearths are preserved in the midden. In addition to the wide array of shellfish are shards of pottery, flaked quartzite cobbles/cores, quartzite flakes and pieces of ochre. No bone was seen. The midden is at least 20 by 30m in extent and about 3m high.

**Recommended Mitigation:** Sample and/or excavate at least 30m<sup>2</sup> or more if sample is not representative or if spatial variation is evident. Devise an effective management plan to protect and conserve site in perpetuity. This plan must be discussed with and approved by SAHRA and/or PHRA.

#### Site 14

S 34° 09.749' E 24° 48.475'

This site is also in an exposed, but not deflated area of approximately 20 by 10m atop a low dune some 110m West of Site 13a. It is a shell midden with a high density and wide variety of marine shells like described for Site 13. Some shell is clearly burnt. Pottery, bone, flaked quartzite and an upper grindstone was also seen. This site has the same commanding view of the surrounding landscape as described for Site 13.

**Recommended Mitigation:** Sample and/or excavate at least 15m<sup>2</sup> or more if sample is not representative or if spatial variation is evident. If this site proves to be significantly different from Site 13a and 13b, it may not be necessary to conserve it, provided that a representative sample is collected. If the site is to be conserved, an effective management plan must be devised to protect and conserve it in perpetuity. Such plans must be discussed with, and approved by SAHRA and/or PHRA.

#### Site 15

S 34° 09.815' E 24° 48.372'

This is a deflation hollow with a low-density scatter of arikreukel, pencil bait and periwinkle. Numerous shards of pottery were seen, but bone and stone artefacts were absent. The exposed and deflated area is approximately 20 by 10m.

**Recommended Mitigation:** Surface collection of at least 10% (20m<sup>2</sup>) or more if representative sample not acquired in those squares or if significant spatial variation is evident in archaeological materials.

#### Site 16

S 34° 09.845' E 24° 48.669'

This is a medium to low-density shell midden with a wide variety of shellfish remains including various species of limpet, arikreukel, mussel, white mussel, whelk and periwinkle. A few pieces of flaked quartzite were seen, but bone and pottery are absent. The site is located on the Northern edge of a high dune some 250m from the "Main House Ruins". Most of the site is covered with grass and estimating its extent is therefore difficult, but the exposed portion of it is about 20 by 10m. Like Sites 13 and 14, the view of the surrounding landscape is good and the site is sheltered from southerly winds by a dune to the South.

**Recommended Mitigation:** Sample and/or excavate at least 10% (20m<sup>2</sup>) or more if sample is not representative and/or if spatial variation is evident.



Site 17

S 34° 09.855' E 24° 48.519'

This is a low-density scatter of pottery in an exposed and deflated area of about 10 by 15m. The pottery shards appear to be the remains of a single vessel. A spout fragment of a "pot" was also found.

**Recommended Mitigation:** Complete surface collection of pottery shards.

Sites 18, 19, 20 and 23

S 34° 09.897' E 24° 48.477', S 34° 09.900' E 24° 48.461', S 34° 09.898' E 24° 48.418' and S 34° 09.919' E 24° 48.307'

These are exposed and deflated areas of about 10 by 5m each, with low-density scatters of limpet, mussel, arikreukel and pieces of flaked and cracked quartzite. No bone or pottery was seen at these sites. Site 23 is a low-density scatter of whelk, arikreukel and stone artifacts in quartzite. The site occurs in an exposed but not deflated area of about 10 by 5m.

**Recommended Mitigation:** Surface collection of at least 10% (5m<sup>2</sup>) from each site, but more if samples are not representative or if spatial variation is evident.

Site 21

S 34° 09.897' E 24° 48.246'

This is a very large shell midden situated on and down the slopes of a dune and its extent is approximately 70 to 100 by 50m (Plates 7 and 8). It contains a high density and wide variety of shellfish remains including various species of limpet (some of which are unusually large), mussel, white mussel, chiton, periwinkle, arikreukel, abalone, oyster, and so on (Plate 9). One oyster shell displays utilization that is unequivocally humanly produced (Plates 10 and 11). Other observations include a large lower grindstone, many pieces of flaked quartzite in a variety of colours and of differing quality as well as burnt marine shell. No bone or pottery was seen, but all the shellfish may swamp them and bone that was on the surface may not have survived weathering processes. This site does not have a view of the shore at this time, but being in a dune field, it may have had a different view in the past.

**Recommended Mitigation:** The size of this site and the fact that its depth and thickness are currently unknown makes it very difficult to estimate the percentage that should be excavated to acquire a representative sample. At the outset, at least 20m<sup>2</sup> at various localities on the site should be excavated to establish its depth, thickness and extent. Such testing is critical for a realistic assessment of the amount of work required to adequately sample the site. Nevertheless, I estimate that is may be necessary to excavate as much as 350m<sup>2</sup>, which - if the site has much depth to it - will be a monumental undertaking. If adequate measures can be put in place to protect and conserve this site in perpetuity, then mitigation could be completed piecemeal. An effective management plan must be established to protect and conserve the site in perpetuity. This plan must be discussed with, and approved by SAHRA and/or PHRA as well as the relevant local authorities. The entire surface of this site must be search for human remains.

Site 22

S 34° 09.915' E 24° 48.177'



This site is in an exposed and deflated area of about 10 by 5m and is located some 50m East to South-East of Site 21 (Plate 12). It is possible that it is associated with Site 21. It is a fairly dense scatter of stone including many pieces of flaked and fire cracked quartzite, large and small flakes in quartzite, fragments of grindstone(s), a anvill/hammer stone (Plates 13 and 14), a broken hammer stone/anvil, fire cracked cobbles, marine shell (mostly arikreukel, but also limpet, mussel and white mussel, and some of which is burnt), pottery and bone including a molar from a large bovid. This site contains the highest density of stone seen thus far and is very different in nature from all sites recorded in the study area.

**Recommended Mitigation:** Because the contents of this site will deteriorate as a result of natural weathering processes it is strongly recommended that a surface collection be made of all archaeological material on the deflated area of some 50m<sup>2</sup>. The site almost certainly extends underneath the adjacent sand bodies and test excavations (5m<sup>2</sup>) along the perimeter of the exposed areas should also be conducted to evaluate its extent. Further sampling may be required if spatial variation continues in as yet unexposed archaeological materials. The entire surface of this site must be searched for fossilized human remains.

**Table 1. Summary of Age, Significance and Recommended mitigation for discovered archaeological sites. Lumped sites share certain characteristics. "Investigate to sample", means that the site(s) in question require additional assessment prior to sampling. See above for sites to be searched for human remains.**

Site No.	Period/Age	Potential Significance	Recommended Mitigation
1	LSA & MSA	International / National	Surface Collection of some 300m <sup>2</sup>
2, 3, 4	LSA	National	Surface Collection of 140m <sup>2</sup> for Site 2 & Investigate to sample 3 & 4
5	LSA & MSA	International / National	Surface Collection of 100m <sup>2</sup>
6	LSA, & poss. MSA	National	Surface Collection of 40m <sup>2</sup>
7	LSA	National	Complete Surface Collection of 50m <sup>2</sup>
8	LSA	National	Surface Collection of 90m <sup>2</sup>
9	LSA	National	Excavate at least 3m <sup>2</sup>
10	LSA	National	Collect and excavate at least 10%. Dimensions to be determined during Phase 2 – mitigation
11, 12	LSA	Low significance	Monitor during earth moving
13	LSA	National	Surface Collection and/or excavate at least 30m <sup>2</sup> and plan to conserve
14	LSA	National	Surface Collection and/or excavate at least 15m <sup>2</sup> & possibly conserve
15	LSA	National	Surface Collection of 20m <sup>2</sup>
16	LSA	National	Surface Collection and/or excavate 20m <sup>2</sup>
17	LSA	National	Complete Surface Collection of 150m <sup>2</sup>
18, 19, 20, 23	LSA	National	Surface Collection of 5m <sup>2</sup> from each site
21	LSA	(Inter)National	Excavate about 20m <sup>2</sup> to provide adequate data to assess potential for future research, provide & guarantee a long-term management plan
22	LSA	(Inter)National	Complete Surface Collection of 50m <sup>2</sup> and test 5m <sup>2</sup> on edges of deflated area

### **3. Scope and Schedule of Recommended Mitigation Measures**

All mitigation must be conducted and/or supervised by at least 2 professional archaeologists and at least partially trained site assistants. A 9 person team would be suitable to undertake the recommended mitigation measures.

Site 21 will require long-term investigation as well as a management plan for its protection and conservation in perpetuity. A management plan should be devised in consultation with SAHRA and/or Eastern Cape PHRA as well as relevant local authorities. Management plans for protection and conservation will only be effective and acceptable if there is a legal obligation to manage in perpetuity and if an "entity" (e.g., municipality, home owners association) is appointed to assume responsibility and to administer the management plan. In the short term, Site 21 requires test excavations to establish the nature, extent and depth of archaeological remains to assess its potential for future research. An excavation team consisting of 3 people will take approximately 40 working days to excavate 20m<sup>2</sup> at selected localities on the shell midden. Protection of exposed sections and backfilling will require about 10 working days. Results of these excavations will guide the long-term sampling and management strategy for Site 21.

Surface collections (15 days by 3 teams of 2 persons) and excavations (35 days by 2 teams of 3 persons) at other sites will require approximately 50 working days. Writing the Phase 2 - Mitigation Report to meet SAHRA's required standards will take 3 to 4 weeks

Weather permitting, and with the exception of long-term plans for Site 21, mitigation measures should be completed in 50 working days or 2.5 months.

If human burials are uncovered, developers should grant the archaeologist(s) 2 days for exhumation though a week may be required if a burial is complex and/or contains grave goods and so on.

Full time monitoring of all earth moving activities during the construction phase of the project must be carried out under the supervision of a professional archaeologist. In the event that mitigation is required as a result of monitoring, developers should provide sufficient time for archaeologists to conduct appropriate mitigation.

### **4. Timing of Mitigation Measures**

It may be suitable to commence with mitigation by the middle or toward the end of January 2004. We are flexible and open to negotiation. As developers would like to break ground by April 2004, this should provide archaeologists sufficient time to complete the "Pre-construction Phase" mitigation. Full time monitoring must be carried out during the construction phase (earth moving) i.e. from April 2004 to completion of earth moving activities. Management plans for Sites 13 and 21 should be in place and legally binding before the end of the construction phase. Developing and appointing a responsible "entity" to administer the management plans may be a time-consuming process and therefore this should be initiated early in the mitigation process.

### **5. Notes on Estimated Costs**

Estimated costs for Recommended Mitigation Measures are given in Appendices A, B and C. Costs of mitigation were calculated conservatively to err on the safe side. If SAHRA and/or PHRA, after considering the recommended mitigation measures, decide that fewer sites