

ARCHAEOLOGICAL IMPACT ASSESSMENT PROPOSED HOUSING DEVELOPMENT ON PORTION 8 OF THE FARM BUFFELSFONTEIN 250 MOSSEL BAY

Prepared for

Biprops 14 (Pty) Ltd

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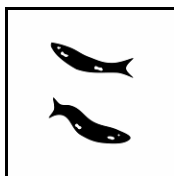
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EXECUTIVE SUMMARY

The Agency for Cultural Resource Management was commissioned to undertake an Archaeological Impact Assessment for a proposed housing development on Portion 8 of the Farm Buffelsfontein 250 in Boggomsbaai in the Western Cape. Boggomsbaai is a small coastal township situated to the west of Mossel Bay and is about 350 kms from Cape Town.

The proposed development will consist of 35 single residential erven, Open Space erven and associated infrastructure including internal streets and services. The total area of the property is about 10.5 ha.

The aim of the study is to locate and map archaeological sites that may be impacted by the planning, construction and implementation of the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

A 2-day survey of the proposed development site was undertaken. Almost the entire property is infested with invasive alien vegetation. The frontal (coastal) portion is virtually impenetrable, resulting in very poor archaeological visibility. It is interesting to note that the coastal portion of the property was surveyed by the archaeologist and Mr Peter Nilssen in 1998 where access was relatively easy and not constrained by the dense vegetation which now covers the site. Several large scatters of stone artefacts were documented on the property at the time.

While the back portion of the proposed development site is also very densely vegetated, several gravel roads and smaller footpaths and sandy tracks intersect the site, which allowed for some access and a greater degree of mobility and archaeological visibility.

The following findings were made:

Despite the thick vegetation cover over much of the proposed development site, exceptionally large numbers of stone tools were documented during the study. Comprising mostly Later Stone Age elements, both diffuse, as well as very high density scatters of stone implements were documented, most of which occur in the back portion of the proposed site, behind the dune crest. It is clear that at least some of the larger scatters represent activity areas, where raw material (mostly quartzite) was brought onto the site, for the purpose of manufacturing stone artefacts. No cultural remains such as pottery or ostrich eggshell was found, but tiny fragments of weathered shellfish (White Sand Mussel) were noted among a few of the scatters logged. The finds suggest that many more archaeological occurrences occur below the top soil in the back portion of the proposed development site.

While archaeological visibility is extremely low in the densely vegetated coastal portion of the property, of particular interest, is that a site recorded during the 1998 survey, was re-visited by the archaeologist. This well-preserved site, comprising a wide scatter of stone tools, large (buried) deposits of shellfish and cultural items such as pottery and shell scrapers, is located on a wind deflated sandy slope surrounded by virtually impenetrable vegetation, outside the proposed development footprint. The site clearly, is the remains of a rare, Later Stone Age campsite and is rated as having high local significance.

An extensive scatter of stone tools that was also documented during the 1998 study was, unfortunately, not accessed by the archaeologist during the current study, due to extremely thick vegetation cover. This scatter, however, is also located outside the proposed development footprint.

The archaeological occurrences documented during the 2009/2010 study have been recorded with GPS waypoints, and photographed in-situ. However, it was an impossible task (in the time allocated to the AIA), to point plot individual tools and map activity areas in the proposed development site behind the dune crest, and this will be required before any proposed development activities can proceed.

The large numbers of stone tools documented during the current study, as well as the presence of a well-preserved Later Stone Age camp site that was documented during the 1998 study, clearly indicates that the archaeological landscape of Boggomsbaai 250/8 is very sensitive to any form of proposed housing development. The removal of vegetation from the site, and activities such as bulk earthworks and construction of internal streets and services will expose many more Later Stone Age and possibly older Middle Stone Age occurrences, below the top soils. Unmarked pre-colonial human remains may also be uncovered during earthmoving operations, particularly, excavations for bulk services and foundations.

The proposed development site has therefore been 'Red Flagged'. If development does proceed to Construction Phase, it will require more detailed and contextual archaeological investigation.

Sites, such as the Later Stone Age camp site, that fall outside the proposed development footprint will also need to be mitigated and managed during the longer term Operational Phase of the proposed development.

With regard to the proposed development of Portion 8 of the Farm Buffelsfontein 250, the following recommendations and mitigation actions are therefore made:

- High density scatters of stone artefacts that have been documented in the back portion of the proposed development site, behind the dune crest will require more detailed fine-scale mapping and plotting, after which the artefacts must be collected for analysis and storage. This must be done by a professional archaeologist under a permit issued by Heritage Western Cape. Cost of archaeological mitigation including report production is the responsibility of the applicant.
- Vegetation clearing operations must be monitored by a professional archaeologist.
- Earthmoving operations must be monitored by a professional archaeologist at all times during the construction phase of the proposed development. This includes all associated infrastructure such as access roads and engineering services. All finds located during monitoring must be documented, mapped, logged and collected for analysis.

- Any archaeological deposits (such as shell middens) intersected by earthmoving operations must be adequately sampled by a professional archaeologist.
- It is noted that the proposed site development plan does not provide for any pedestrian access to the beach. The proposed construction of any boardwalks must be undertaken in consultation with the archaeologist. Boardwalk access must be restricted to the eastern portion of the proposed development site. No boardwalks must be constructed in the south western portion of the remainder of the farm where sensitive archaeological remains and deposits have been documented.
- A Conservation Management Plan (CMP) must be developed and implemented, that ensures the long term protection of important archaeological occurrences that occur outside the proposed development site. This includes particularly, the Later Stone Age camp site and extensive scatters of stone tools in the south western portion of the farm.
- Should any unmarked human remains be disturbed, exposed or uncovered during excavations and earthworks, these should immediately be reported to Heritage Western Cape (Mr Nic Wiltshire 021 483 9685).

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1. INTRODUCTION

1.1 Background and brief

Mr Christo Muller, on behalf of Biprops 14 (Pty) Ltd requested that the Agency for Cultural Resource Management conduct an Archaeological Impact Assessment for a proposed housing development on Remainder of Portion 8 of the Farm Buffelsfontein No. 250, in Boggomsbaai, near Mossel Bay (Eden Municipality) in the Western Cape.

The proposed development will consist of 35 single residential erven, Open Space erven and associated infrastructure including internal streets and engineering services such as water, power and sewerage. The total area of the property is 10.45 ha.

The subject property, which is situated outside the current urban edge, is zoned Agriculture. The proposed development site will therefore have to be rezoned and subdivided in order for the proposed development activities to take place.

The aim of the study is to locate and map archaeological heritage sites and remains that may be impacted by the planning, construction and implementation of the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

Heritage consultant Mr Ron Martin has been appointed to undertake a Heritage Impact Assessment (HIA) of the proposed development. The archaeological study forms part of the HIA.

2. TERMS OF REFERENCE

The terms of reference for the archaeological study were:

- to determine whether there are likely to be any archaeological sites of significance within the proposed development site;
- to identify and map any sites of archaeological significance within the proposed development site;
- to assess the sensitivity and conservation significance of archaeological sites within the proposed development site;
- to assess the status and significance of any impacts resulting from the proposed development, and
- to identify mitigatory measures to protect and maintain any valuable archaeological sites that may exist within the proposed development site.

3. THE STUDY SITE

A Garmin MapSource locality map is illustrated in Figures 1 and 2.

A Google aerial photograph of the proposed development site is illustrated in Figure 3.

A proposed site development plan is illustrated in Figure 4.

Boggomsbaai is a small coastal township situated approximately 350 km from Cape Town and about 25 kms west of Mossel Bay on the southern Cape coast. The proposed development site is located immediately adjacent to the township and comprises a large stable sand dune overlooking the beach. Almost the entire site is covered in a dense layer of alien vegetation, mainly Rooikranz. For the sake of clarity the site has been divided into a coastal portion and a back portion. The back portion behind the crest of the large dune (and defined by a fence line) is very well vegetated (Figures 5 & 6), but a number of gravel roads, and smaller tracks and sandy footpaths intersect the site. This portion of the site is also characterised by smaller, windblown dunes in the north east. There is a large water tank in the north western corner of the property. The western boundary slopes steeply into a heavily wooded kloof that overlooks a small coastal stream that exits at the beach.

The coastal portion of the development site is infested with alien vegetation and is virtually impenetrable. The vegetation is extremely dense dune thicket which has been wind shorn by the coastal winds and sprays. The slopes in the south west are quite steep and heavily wooded (Figures 7-10). There are some deep erosion scars in the south eastern corner, alongside the township, but these eroded slopes and much of the coastal portion falls outside the proposed development footprint.

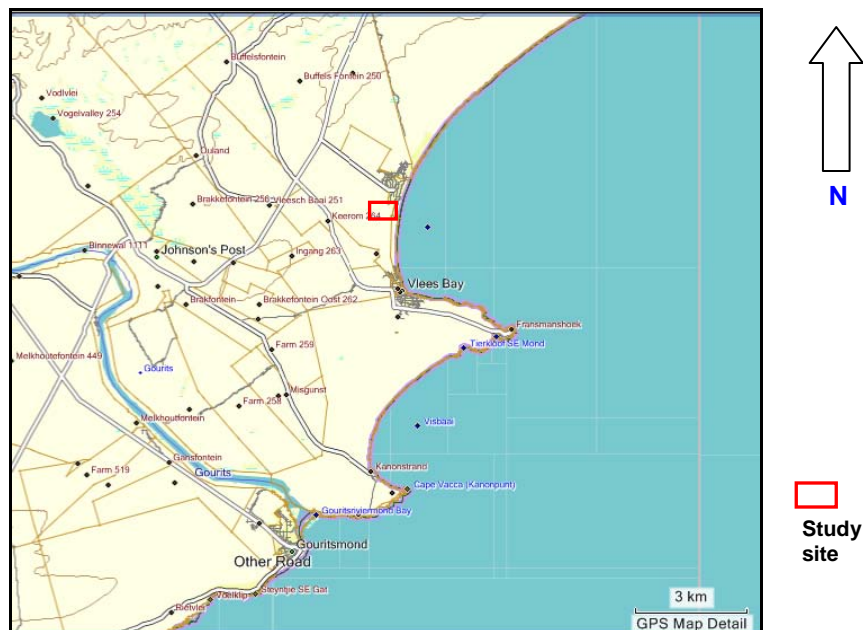


Figure 1. Locality map

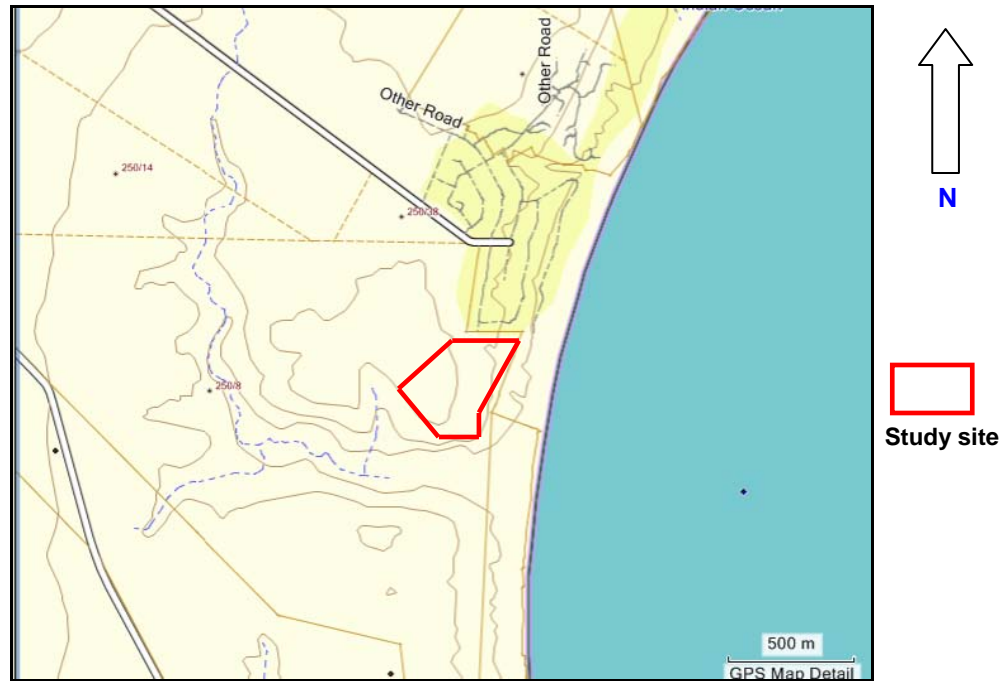


Figure 2. Locality Map



Figure 3. Aerial photograph indicating the approximate boundary of the study site



Figure 5. View of the site facing south east



Figure 8. View of the site facing south west



Figure 6. View of the site facing south west



Figure 9. View of the site facing north



Figure 7. View of the site facing west



Figure 10. View of the site facing north east

4. STUDY APPROACH

4.1 Method

The approach followed in the archaeological study entailed (where possible) a fairly systematic foot survey of the proposed development site. A GPS track path of the archaeological survey was created. This track path has been saved to a DVD and submitted with a digital copy of the report. Archaeological occurrences documented during the study were plotted and photographed in situ, using a Garmin Oregon 300 GPS unit, set on map datum wgs 84. A spreadsheet of the waypoints and a description of the archaeological occurrences are also presented in Table 1. It is important to note that, due to the exceptionally large number of artefacts noted during the study, not every archaeological occurrence was assigned a GPS reading. It is also estimated that only about 40-50% of the entire development site was covered by the archaeologist, due to dense vegetation cover.

Given the visibility constraints associated with the survey it is, however, maintained that the survey has still captured good information on most of the archaeological heritage present.

The site visit and assessment took place on the 11th and 12th November, 2009. The archaeologist visited the site again on 02nd March, 2010.

A desktop study was also undertaken.

4.2 Constraints and limitations

The proposed development site is covered in dense invasive alien vegetation resulting in very poor archaeological visibility. The frontal (coastal) portion of the property is virtually impenetrable as a result of extremely dense dune thicket. Access to the back portion of the site was much easier as a result of gravel roads and smaller tracks and sandy footpaths, but large parts of the site are still covered in invasive Rooikrans and dense bush.

4.3 Identification of potential risks

- Based on the results of the study, it is anticipated that very large numbers of Later Stone Age tools will be exposed and uncovered (below the top soils) during vegetation clearing and earthmoving operations.
- An increased presence in the number of people visiting Boggomsbaai (as a result of the proposed development) may impact negatively on archaeological sites that fall outside the proposed development footprint. These include the remains of a well preserved Later Stone Age camp site in the south western portion of the remainder of the Farm. This potential risk would constitute a long term (cumulative impact) that will need to be carefully managed and mitigated throughout the entire Operational Phase of the proposed project.
- Unmarked pre-colonial human burials may be uncovered during earthworks and bulk excavations.

4.4 Results of the desk top study

The South African coastal zone is a sensitive, threatened and vulnerable archaeological landscape. Research has shown that the majority of archaeological sites are located within 300 m of the shoreline (Kaplan 1993). As development spreads along the coastline, archaeological sites have come under increasing threat and many sites in the coastal zone have already been destroyed completely. Planning for this zone must therefore take account of this rich archaeological heritage. With the increased pressure to develop along the coastline, new settlements are often built on top of much older (pre-colonial) settlements, resulting in the irrecoverable loss of fragile archaeological remains.

According to Mr Fred Orpen (pers. comm.) a resident of Boggomsbaai who runs the popular Oyster Catcher hiking trail and Mr Guy Harris (pers. comm.) of the 'Roots of Modern Humankind Foundation in Mossel Bay', a Section 21 Company committed to protecting the archaeological heritage of the coastal region between Vleesbaai and Mossel Bay, many archaeological sites occur among the sand dunes and rocky shoreline on the hiking trail between Dana Bay (near Mossel Bay) and Gouritz River, but these occurrences have not been formally documented.

Research undertaken by the archaeologist on behalf of the Department of Environment Affairs and Tourism showed that archaeological sites occur in the area, at Kanon, Vleespunt and Gouritz River Mouth west of Boggomsbaai (Kaplan 1993). The archaeologist has also walked much of the coastline between Vleesbaai and Gouritz River Mouth, where shell middens and surface scatters of stone artefacts have been found. Beyond Gouritz River mouth, large numbers of well preserved *visvywers* (ancient tidal fish traps) and many shell middens occur at Rheins Nature Reserve. This relatively short section of the Southern Cape coastline, between Mossel Bay and Gouritz River is characterised by long sandy beaches, rocky shorelines, cobble and shingle beaches, steep coastal cliffs, small streams and estuaries, that support a range of different types of settlement sites and features.

Several Later Stone Age (LSA) sites, including the remains of a historic freshwater spring (apparently excavated by shipwrecked sailors) were documented by the archaeologist during a study of the Farm Buffelsfontein 250 in Vleesbaai (Kaplan 1998a) further to the west of the study site. And at least nine archaeological occurrences, including the well preserved camp site (that is described below) were documented by the archaeologist and Mr Peter Nilssen on the proposed development site during an earlier study undertaken in 1998 (Kaplan 1998b). More than 20 archaeological occurrences and many hundreds of pieces of ostrich eggshell (on one site), and several well preserved shell middens have also been documented at Nautilus Bay, a private residential development situated a few kilometers further to the east of the proposed development site (Kaplan 2004).

5. RESULTS OF THE STUDY

Despite the dense vegetation cover over much of the proposed development site, exceptionally large numbers of stone tools were documented during the archaeological study. Comprising mostly Later Stone Age elements, diffuse scatters, as well as very high density scatters, of tools were documented. For purposes of clarity, the proposed development site (refer to Figure 3) has been separated into a Back Portion and a Coastal Portion.

5.1 Back Portion

By far the majority of archaeological occurrences were documented in the Back Portion of the proposed development site. The Back Portion is defined by a fence line that runs more or less alongside the crest of the large dune. It is also important to note that most of the proposed housing units ($n = 26$), as well as the internal streets (and bulk services) occur in the Back Portion of the proposed site. (refer to Figure 3).

Large numbers of stone tools were found in an exposed strip of land alongside the fence line on the crest of the dune. The vegetation has been cleared and many hundreds of artefacts are exposed on compact brown soils below the top soil. The fence line makes a 90° bend (at S 34 16.355 E 21 54.527) and many more tools occur alongside the fence where the vegetation has been cut back, and top soils have been washed away by sheet erosion. These occurrences (BB1-BB20) – documented during the first day of the study - have been mapped and are indicated on the GPS track path. While some of the occurrences are isolated finds of just a few tools lying about, diffuse, and several high density scatters of tools were also documented. It is more than likely that some of these larger scatters (for example BB9, BB14, BB15, BB16 and BB19) represent activity, or workshop areas. Individual artefacts (numbering several hundred tools) among these higher density scatters have not been point plotted by the archaeologist due to the limited time allocated to the archaeological study. While 99.9% of the tools are in locally available fine-grained quartzite, a few silcrete stone flakes and cores were also noted. The tools comprise mostly large and medium sized, unmodified and utilized sharp-edged flakes, retouched and utilized blade tools, chunks, flaked cobbles and large and medium-sized rounded cores. A few hammerstones were also documented. No formal tools such as scrapers, or adzes were found. Only one Middle Stone Age flake (BB5a) was found. Apart from the lithics, no cultural remains such as pottery, or ostrich eggshell were found. A collection of artefacts that occur alongside the fence line and the context in which the tools were documented are illustrated in Figures 11-22.



Figure 11. BBP9



Figure 12. BBP9 collection of tools.
Scale in cm



Figure 13. BB14



Figure 16. BB16



Figure 14. BB15



Figure 17. BB16. Collection of tools.
Scale in cm



Figure 15. BB 15. Collection of tools.
Scale in cm



Figure 18. BBP19



Figure 19. BB2 Collection of tools scale
in cm



Figure 20. BB5 collection of tools scale
in cm



Figure 21. BB7 collection of tools scale
In cm



Figure 22 BB8 collection of tools scale
in cm

The proposed development site behind (i.e. north of) the fence line is covered in thick bush and trees, but several gravel roads, sandy tracks and smaller footpaths intersect the site. The footpaths and tracks that lead into smaller clearings have been made by local woodcutters. Later Stone Age tools identical to the ones described above occur in all the areas cleared by woodcutters and in the gravel roads and tracks that occur over the property, where the top soils have washed away. Again, the occurrences range from isolated finds, diffuse and higher density scatters (for example BB26-BB37a-e), to exceptionally large numbers of tools that occur in random footpaths and small clearings surrounded by dense vegetation (such as BB38). The archaeologist was quite overwhelmed by the sheer numbers of tools that occur on some of these sites.

Very high density scatters of tools were also documented below the top soil, on exposed, compact brown soils and gravels, in larger clearings surrounded by thick bush (for, example BB42 - BB44 and refer to Figure in Appendix). But again, it was not possible in the time allocated to the study, to point plot individual tools and map these sites.

What is, however, clear is that some of the high density scatters (for example BB38, and BB42-BB44) represents activity areas where raw material (mostly quartzite) was brought onto the site, for the purpose of manufacturing stone artefacts. Artefacts include in the above cases, literally thousands of flakes, chunks, cores and flaked chunks, hammerstones, manuports, blade tools and miscellaneous retouched flakes and pieces. But no formal tools such as scrapers were found. Again, 99.9% of the tools are made from locally available fine-grained quartzite cobbles, but some flakes in indurated shale (BB34) were also documented (Figure 34). No cultural remains such as pottery or ostrich eggshell was found, although very tiny fragments of weathered shellfish (White Sand Mussel) were noted among a few of the scatters (BB31) documented. The above finds suggest that many more occurrences occur below the top soil on the proposed development site, but are not visible due to thick bush and vegetation cover.

A collection of artefacts that occur behind the fence line and the context in which the tools were documented are illustrated in Figures 23-34.



Figure 23 BB38



Figure 27. BB42



Figure 24. BB38 activity area



Figure 28. BB43



Figure 25. BB38



Figure 29. BB44



Figure 26. BB38



Figure 30. BB29 collection of tools scale in cm



Figure 31. BB30 collection of tools scale in cm



Figure 33. BB32 collection of tools scale in cm



Figure 32. BB31 collection of tools scale in cm



Figure 34. BB34 collection of tools scale in cm

5.2 Coastal Portion

The Coastal Portion of the proposed development site is virtually impenetrable as a result of extremely dense vegetation and dune thicket wind shorn by the coastal winds and sprays. As a result, little of this portion of the property was surveyed by the archaeologist. Wherever the archaeologist tried to penetrate the bush, or follow a small sandy footpath, the veld was eventually too thick to penetrate. However, as can be seen from the site development plan (Figure 3) only nine (of the 35) erven are planned for this portion of the site, including bulk services.

A diffuse scatter of quartzite flakes, chunks and cores were documented just inside the fence line that run along the crest of the dune, as well as inside the fence line where it makes a 90° turn toward the coast, but these finds were included with the description of scatters that occur in the Back Portion of the proposed site.

Several quartzite flakes and chunks (BB20) were documented on a thin layer of sand on compact brown soils alongside the fence line that runs down the steep coastal dune.

A few large and smaller quartzite flakes, a large core and a large blade (BB21) was found on a big patch of compact red sands surrounded by dense vegetation overlooking the beach.

A single small quartzite flake (BB22) was found at the bottom of a sandy footpath on the beach at Boggomsbaai. These three occurrences however are situated outside the proposed development footprint (refer to GPS track path).

An extensive, scatter of tools that occurs on compact red sands on the remainder of the farm, which was documented by the archaeologist and Mr Peter Nilssen during the 1998 study (Kaplan 1998), was unfortunately not accessed due to extremely thick, and impenetrable, thicket vegetation. This site, however, also falls outside the proposed development footprint.

A site recorded during the 1998 survey was re-visited by the archaeologist. This well-preserved site (BB23 and BB24), comprising a relatively large scatter of stone tools is located on a wind deflated sandy slope surrounded by virtually impenetrable vegetation in the south western portion of the farm (Figures 35-40 and refer to Figure in Appendix). This important site also falls outside the proposed development footprint. The site is situated quite close to a small stream which exits the deep wooded kloof at the beach. A range of tools, including several small round cores, flakes, blade tools, chunks, chips, a hammerstone and anvil, some weathered pottery and a bone awl were found on the sandy slopes. Many pieces of calcrete/limestone are also scattered about which might represent the remains of stone cooking hearths, although no burnt pieces of stone were noted. The tools occur in a range of materials, such as quartzite, shale, silcrete, chalcedony and limestone. Some shellfish, including Turbo sarmaticus, S. longicosta, S. cochlear, Barnacle, White Sand Mussel (Donax serra), whelk and Diloma sinensis, are also scattered about. In addition to these finds, large deposits of surface and buried shellfish, much of it comprising burnt White Mussel and ashy deposits, occurs in open strips of sand in the nearby bushes. Relatively large numbers of stone flakes, chunks, manuports, some weathered pottery and a few burnt White Sand Mussel scrapers were also found here. BB23 and 24 clearly, represents the remains of a rare, Later Stone Age camp site and is rated as having high local significance.



Figure 35. BB23



Figure 37. BB23



Figure 36. BB23



Figure 38. BB23



Figure 39. BB24



Figure 40. BB23 Mussel Scraper.
Scale in cm

6. DISCUSSION

The exceptionally large numbers of stone tools documented on the proposed development site, especially in the Back Portion where much of the proposed development activities will take place, indicates that the archaeological landscape of Boggomsbaai 250/8 is very sensitive to any form of housing development. The removal of vegetation from the site, and activities such as bulk earthworks and construction of internal streets and services will expose and uncover many more Later Stone Age and possibly older Middle Stone Age elements, below the top soils.

In addition, the presence of a well-preserved Later Stone Age camp site and extensive scatters of tools documented during the 1998 study, indicate that any proposed development will have to proceed very carefully. The proposed development site has therefore been 'Red Flagged'. If development does proceed to a Construction Phase, it will require more detailed and contextual archaeological investigation. Very little is known of the archaeology of Boggomsbaai, but informal surveys undertaken in the area do suggest a very rich and complex archaeological landscape.

7. IMPACT STATEMENT

The archaeological impact assessment has shown that the proposed development of Portion 8 of the Farm Buffelsfontein 250, in Boggomsbaai will impact negatively on archaeological heritage remains. Earthmoving operations will very likely expose, or uncover possibly thousands of Later Stone Age tools below the top soil, over much of the proposed development site. It is maintained that the proposed development will have an impact of great significance on these archaeological heritage remains, as the numbers are very large and their distribution widespread.

An increased presence in the number of people visiting Boggomsbaai (as a result of the proposed development) may also impact negatively on important archaeological sites such as the Later Stone Age camp site (BB23 and BB24) that falls outside the proposed development footprint. This potential risk constitutes a long term (cumulative impact) that will need to be carefully managed throughout the Operational Phase of the proposed development. It is these impacts that are sometimes more difficult to mitigate, as they do not require immediate archaeological attention, but longer term management and monitoring interventions.

Unmarked pre-colonial human remains may also be uncovered or exposed during earthmoving operations, particularly, excavations for bulk services (water, sewerage, etc) and foundations.

8. RECOMMENDATIONS AND MITIGATION ACTION

With regard to the proposed development of Portion 8 of the Farm Buffelsfontein No. 250, the following recommendations are made

- High density scatters of stone artefacts that have been documented in the back portion of the proposed development site, behind the dune crest (i.e. **BB38, 42, 43 & 44**) require more detailed, fine-scale mapping, after which the artefacts must be collected for analysis and storage. This must be done by a professional archaeologist under a permit issued by Heritage Western Cape. Cost of archaeological mitigation including report production is the responsibility of the applicant.
- Vegetation clearing operations must be monitored by a professional archaeologist.
- Earthmoving operations must be monitored by a professional archaeologist at all times during the construction phase of the proposed development. This includes all associated infrastructure such as access roads and engineering services. All finds located during monitoring must be documented, mapped, logged and collected for analysis.
- Any archaeological deposits (such as shell middens) intersected by earthmoving operations must be adequately sampled by a professional archaeologist.
- It is noted that the proposed site development plan does not provide for any boardwalk access to the beach. Should this change, the construction of any boardwalks must be undertaken in consultation with the archaeologist. Boardwalk access must be restricted to the eastern portion of the proposed development site. No boardwalks must be constructed in the south western portion of the farm where sensitive archaeological remains and deposits have been documented.
- A Conservation Management Plan (CMP) must be developed and implemented, that ensures the protection of archaeological occurrences that occur outside the proposed development site. This includes the very important Later Stone Age camp site (**BB23 & 24**) and extensive scatters of stone tools documented during the 1998 study.
- Should any unmarked human remains be disturbed, exposed or uncovered during excavations and earthworks, these should immediately be reported to Heritage Western Cape (Mr Nic Wiltshire 021 483 9685).

9. REFERENCES

Kaplan, J. 2004. Archaeological Impact Assessment proposed development Phase II and Phase III Nautilus Bay, Mossel Bay. Report prepared for Hilland Associates. Agency for Cultural Resource Management

Kaplan, J. 1998a. Archaeological study Portion 8 of the Farm Buffelsfontein No. 250, Vleesbaai, Southern Cape. Report prepared for CODEV. Agency for Cultural Resource Management.

Kaplan, J. 1998b. Archaeological study Portion of Portion 8 of the Farm Buffelsfontein No. 250 Boggomsbaai, Southern Cape. Report prepared for CODEV. Agency for Cultural Resource Management.

Kaplan, J. 1993. The state of archaeological information in the coastal zone from the Orange River to Ponto do Oura. Report prepared for the Department of Environmental Affairs and Tourism. Agency for Cultural Resource Management.

APPENDIX

Site	Name	Long	Lat	Finds
BB	Buffelsfontein 250/8, Boggomsbaai			
BB1		S34 16.218	E21 54.537	Large quartzite utilized flake
BB2		S34 16.229	E21 54.546	Core chunks and flakes
BB3		S34 16.240	E21 54.553	Flakes, hammerstone & core
BB4		S34 16.249	E21 54.556	Cores, inc. 1 silcrete core and flakes
BB5		S34 16.255	E21 54.556	Flakes and chunks
BB5a		S34 16.255	E21 54.556	Flakes, inc. 1 MSA flake
BB6		S34 16.257	E21 54.557	Flakes chunks and core
BB7		S34 16.255	E21 54.556	Flakes and chunks
BB8		S34 16.264	E21 54.552	Flakes and chunks
BB9		S34 16.271	E21 54.551	More than 30 flakes on large gravel patch alongside fence line, includes flakes, blade
B10		S34 16.281	E21 54.547	Flakes and core
B11		S34 16.289	E21 54.548	Flakes and chunks
BB12		S34 16.294	E21 54.545	Flakes, chunks & hammerstone
BB13		S34 16.299	E21 54.543	Flakes core and blades
BB14		S34 16.304	E21 54.542	More than 50 tools, inc. flakes, cores, chunks, on compact sands alongside fence
BB15		S34 16.314	E21 54.540	Scatter of tools on compact sands alongside fence
BB16		S34 16.323	E21 54.538	More than 20 flakes, chunks, cores on compact sands in footpath alongside fence
BB17		S34 16.340	E21 54.534	Diffuse scatter of flakes alongside fence
BB18		S34 16.355	E21 54.527	Large core and more than 50 flakes on sloping compact deposits at 90° bend at fence
BB19		S34 16.357	E21 54.548	More than 45 flakes, chunks and hammerstone on compact sands directly alongside fence
BB20		S34 16.360	E21 54.595	Thin scatter of a few flakes on compact sands alongside fence
BB21		S34 16.409	E21 54.617	Large flake, chunks and smaller flakes on extensive compact red sands <u>outside</u> proposed development site
BB22		S34 16.321	E21 54.726	Single quartzite flake in footpath at beach
BB23		S34 16.468	E21 54.641	LSA camp site
BB24		S34 16.477	E21 54.629	LSA camp site
BB26		S34 16.259	E21 54.460	Large flake & broken flake
BB27		S34 16.254	E21 54.480	Very large flake
BB28		S34 16.239	E21 54.498	Diffuse scatter of flakes, chunks and cores

BB29		S34 16.224	E21 54.525	Diffuse scatter of flakes, chunks, 1 MRP, core
BB30		S34 16.240	E21 54.512	Diffuse scatter of flakes, chunks and core
BB31		S34 16.235	E21 54.528	Thin scatter of flakes, chunks and a few fragments of White Mussel shell on compact surface
BB32		S34 16.273	E21 54.438	Diffuse scatter of flakes in gravel track about 40 south west of tower.
BB34		S34 16.273	E21 54.421	A few flakes, including indurated shale, in footpath
BB35		S34 16.269	E21 54.420	Flakes, cores, chunks, blades, split cobbles in footpath
BB36		S34 16.289	E21 54.400	Relatively high density scatter of flakes, chunks, hammerstone, alongside gravel road about 20 s/e of green water tank
BB37a		S34 16.294	E21 54.411	Flakes and tools in footpath
BB37b		S34 16.296	E21 54.414	Flakes and tools in footpath
BB37c		S34 16.296	E21 54.426	Flakes and tools in footpath
BB37d		S34 16.292	E21 54.434	Flakes and tools in footpath
BB37e		S34 16.287	E21 54.440	Flakes and tools in footpath
BB38		S34 16.280	E21 54.451	Very high density scatter of tools in path surrounded by thick bush – activity area
BB38a		S34 16.273	E21 54.486	Very high density scatter of tools in path surrounded by thick bush – activity area
BB38b		S34 16.282	E21 54.465	Very high density scatter of tools surrounded by thick bush – activity area
BB38c		S34 16.282	E21 54.487	Very high density scatter of tools surrounded by thick bush - activity area
BB38d		S34 16.285	E21 54.481	Very high density scatter of tools surrounded by thick bush- activity area
BB38e		S34 16.281	E21 54.481	Very high density scatter of tools surrounded by thick bush - activity area
BB38ext		S34 16.275	E21 54.468	Very high density scatter of tools path surrounded by thick bush- activity area
BB38f		S34 16.265	E21 54.504	Very high density scatter of tools surrounded by thick bush - activity area
BB38g		S34 16.295	E21 54.472	Very high density scatter of tools surrounded by thick bush - activity area
BB38h		S34 16.302	E21 54.470	Very high density scatter of tools surrounded by thick bush - activity area
BB40		S34 16.327	E21 54.429	Diffuse/medium sized scatter of about 30-40 tools in footpath in western

				portion of site.
BB41		S34 16.329	E21 54.472	Diffuse scatter of tools near western boundary of site
BB42		S34 16.388	E21 54.490	Large scatter of tools on compact brown sands and in footpath and open gravel patch surrounded by dense vegetation – activity area
BB43		S34 16.371	E21 54.501	Large scatter of tools on compact brown sands and in footpath and open gravel patch surrounded by dense vegetation – activity area
BB43 ext		S34 16.365	E21 54.503	Large scatter of tools on compact brown sands and in footpath and open gravel patch surrounded by dense vegetation – activity area
BB44		S34 16.392	E21 54.518	Large scatter of tools on compact brown sands and open gravel patch surrounded by dense vegetation – activity area
BB45		S34 16.320	E21 54.527	Small scatter of stone flakes

Table 1. Spreadsheet of site observations



Aerial photograph illustrating the location of high density scatters and LSA camp site (BB23 & 24)