A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED 20MW WIND FARM ON THREE ALTERNATIVE SITES: ERF 121, DRIFTSANDS (Site Alternative 1), BUSHY PARK FARM, REMAINDER OF ERF 26, AS WELL AS PORTIONS 5, 6 AND 7 THEREOF (Site Alternative 2) AND RIETFONTEIN FARM, ERF 594, VAN STADENS EAST (Site Alternative 3), NELSON MANDELA METROPOLITAN MUNICIPALITY, PORT ELIZABETH, EASTERN CAPE PROVINCE

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Note: This report follows the minimum standard guidelines required by the South African Heritage Resources Agency for compiling Phase 1 Archaeological Impact Assessment (AIA).

EXECUTIVE SUMMARY

Purpose of the Study

The purpose of the study was to conduct a phase 1 archaeological impact assessment (AIA) for the proposed 20MW wind farm on three alternative sites which consist of Erf 121, Driftsands (Site Alternative 1), Bushy Park Farm, remainder of Erf 26, as well as portions 5, 6 and 7 thereof (Site Alternative 2) and Rietfontein Farm, Van Stadens East, Erf 594 (Site Alternative 3), Nelson Mandela Bay Municipality, Port Elizabeth, Eastern Cape Province.

Brief Summary of Findings

The three alternative areas proposed for the construction of the 20MW wind farm are all situated within five kilometres from the coast, which increases the possibility that coastal archaeological sites/materials such as marine shell remains and shell middens would be encountered. Site Alternative 1, Erf 121 Driftsands, is located just north of Marine Drive. The area currently belongs to the municipality and is zoned as "undetermined". Site Alternative 2, Bushy Park Farm, is located on the privately owned, commercially operated Bushy Park Dairy Farm (remainder of Erf 26, as well as portions 5, 6 and 7 thereof) south of the Seaview Main Road. Site Alternative 3 is located on Erf 594, on a ridge east of the Van Stadens River and is privately-owned.

Surface shell scatters and shell middens containing occasional stone tools, pottery, and bone were documented on all three alternative sites for the proposed construction of the 20MW wind farm. The three alternative areas proposed for development are rated as having medium-high cultural significance.

Recommendations

The three alternative areas are rated as having medium-high cultural significance, the following recommendations must be considered before development may continue:

1. A professional archaeologist must be appointed to monitor and oversee the vegetation clearing and construction activities when development commences to observe the possible occurrence of exposed archaeological sites/materials

2. If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must immediately cease and be reported to the Albany Museum and/or the South African Heritage Resources Agency (SAHRA) so that systematic and professional investigation/ excavation can be undertaken.

BACKGROUND INFORMATION

The phase 1 archaeological impact assessment (AIA) is a section of the required environmental impact assessment (EIA) study.

The proposed wind farm will consist of ten wind turbines appropriately spaced over the site, as well as the associated infrastructure for connection onto the existing power grid, and access for maintenance purposes, as required for the particular site selected. Access road, approximately 4 m wide, will be required from the nearest existing road to each of the turbines. A single storey, approximately 300 m^2, control building will be constructed, possibly incorporating a visitor's centre for educational purposes. Medium Voltage (MV) power lines will be installed in servitudes parallel to existing 132kV overhead lines. Site Alternatives 1 and 2 are relatively close to the existing Summerstrand, Arlington and Chelsea Substations, however, a new substation will probably be required for Site Alternative 3.

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Terms of Reference

To conduct a survey of possible archaeological heritage sites within the area of the proposed 20MW wind farm on three alternative sites which consist of Erf 121, Driftsands (Site Alternative 1), Bushy Park Farm (remainder of Erf 26, as well as portions 5, 6 and 7 thereof) (Site Alternative 2) and Rietfontein Farm, Erf 594, Van Stadens East (Site Alternative 3) Nelson Mandela Bay Municipality, Port Elizabeth, Eastern Cape Province.

The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage features, the potential impact of the development and, to make recommendations to minimize possible damage to these sites.

Legislative requirements

Parts of sections 35(4) and 38(1) (8) of the National Heritage Resources Act 25 of 1999 apply:

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of the site –
(i) exceeding 5000m^2 in extent, or
(ii) involving three or more erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA
or a provincial resources authority;
(d) the re-zoning of a site exceeding 10 000m^2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,
Must as the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
(8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Ant No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environmental Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.

BRIEF ARCHAEOLOGICAL BACKGROUND

Literature review

Little is known about the archaeology of the immediate area, mainly because no systematic research has been conducted there. The oldest evidence of the early inhabitants in the Port Elizabeth are large stone tools, called handaxes and cleavers, which can be found amongst river gravels and in old spring deposits in the region (Deacon 1970). These large stone tools are from a time period called the Earlier Stone Age (ESA) and may date between 1 million and 250 000 years old. The large handaxes and cleavers were replaced by smaller stone tools called the Middle Stone Age (MSA) flake and blade industries. Evidence of MSA sites occur throughout the Port Elizabeth region and date between 200 000 and 30 000 years old. Fossil bone may in rare cases be associated with MSA occurrences. (Deacon & Deacon 1999).

The majority of archaeological sites found in the Port Elizabeth area date from the past 10 000 years (called the Later Stone Age) and are associated with the campsites of San hunter-gatherers and Khoi pastoralists. These sites are difficult to find because they are in the open veld and often covered by vegetation and sand. Sometimes these sites are only represented by a few stone tools and fragments of bone. The preservation of these sites is poor and it is not always possible to date them Africa (Deacon & Deacon 1999). There are many San hunter-gatherers sites in the nearby Elandsberg and Groot Winterhoekberg Mountains. Here caves and rock shelters were occupied by the San during the Later Stone Age and contain paintings along the walls. The last San/KhoiSan group was killed by Commando's in the Groendal area in the 1880s.

Some 2 000 years ago Khoi pastoralists occupied the region and lived mainly in small settlements. They were the first food producers in South Africa and introduced domesticated animals (sheep, goat and cattle) and ceramic vessels to southern Africa.

The most common archaeological sites along the nearby coast are shell middens (relatively large piles of marine shell) found usually concentrated opposite rocky coasts, but also along sandy beaches (people refer to these as 'Strandloper middens') (Rudner 1968).These were campsites of San hunter-gatherers, Khoi herders and KhoiSan peoples who lived along the immediate coast (up to 5 km) and collected marine foods. Mixed with the shell are other food remains, cultural material and often human remains are found in the middens. In general shell middens date from the past 6 000 years. Also associated with middens are large stone floors which were probably used as cooking platforms (Binneman 2001, 2005).

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DESCRIPTION OF THE PROPERTY

Area surveyed

Location data

Site Alternative 1, Erf 121, Driftsands, is located close to the coast, just north of Marine Drive, within 2km from the rocky coastline. The proposed area stretches from the western boundary of the Nelson Mandela Metropolitan University Nature Reserve to the Willows Resort (Map 1-2).

Site Alternative 2, Bushy Park Farm (remainder of Erf 26, as well as portions 5, 6 and 7 thereof), is located south of Seaview Main Road on the outskirts of Port Elizabeth between the villages of Sardinia Bay and Seaview, within 2km of the coast. The coastline is comprised of a sandy beach and a rocky coastline (Map 1-2).

Site Alternative 3, Rietfontein, Erf 594, Van Stadens East is located slightly north-west of the village of Blue Horizon Bay and on a ridge east of the Van Stadens River Mouth within 2 km from the coastline. The coastline is comprised of predominantly sandy beaches (Map 1-2).

Maps

1:50 000 3325DC & DD 3425BA Port Elizabeth and 3325CD &3425AB Uitenhage.

ARCHAEOLOGICAL INVESTIGATION

Methodology

The surveys for the 3 Site Alternatives were conducted by two people on foot following the existing footpaths, farm and service roads. GPS readings were taken using a Garmin Plus II at various areas and at occurrences of shell scatter and middens. All 3 Site Alternatives are located within 2 km of the coastline; shell scatters were documented on all three proposed areas; shell scatters and shell middens were mainly documented on Site Alternative 1, Erf 121, Driftsands.

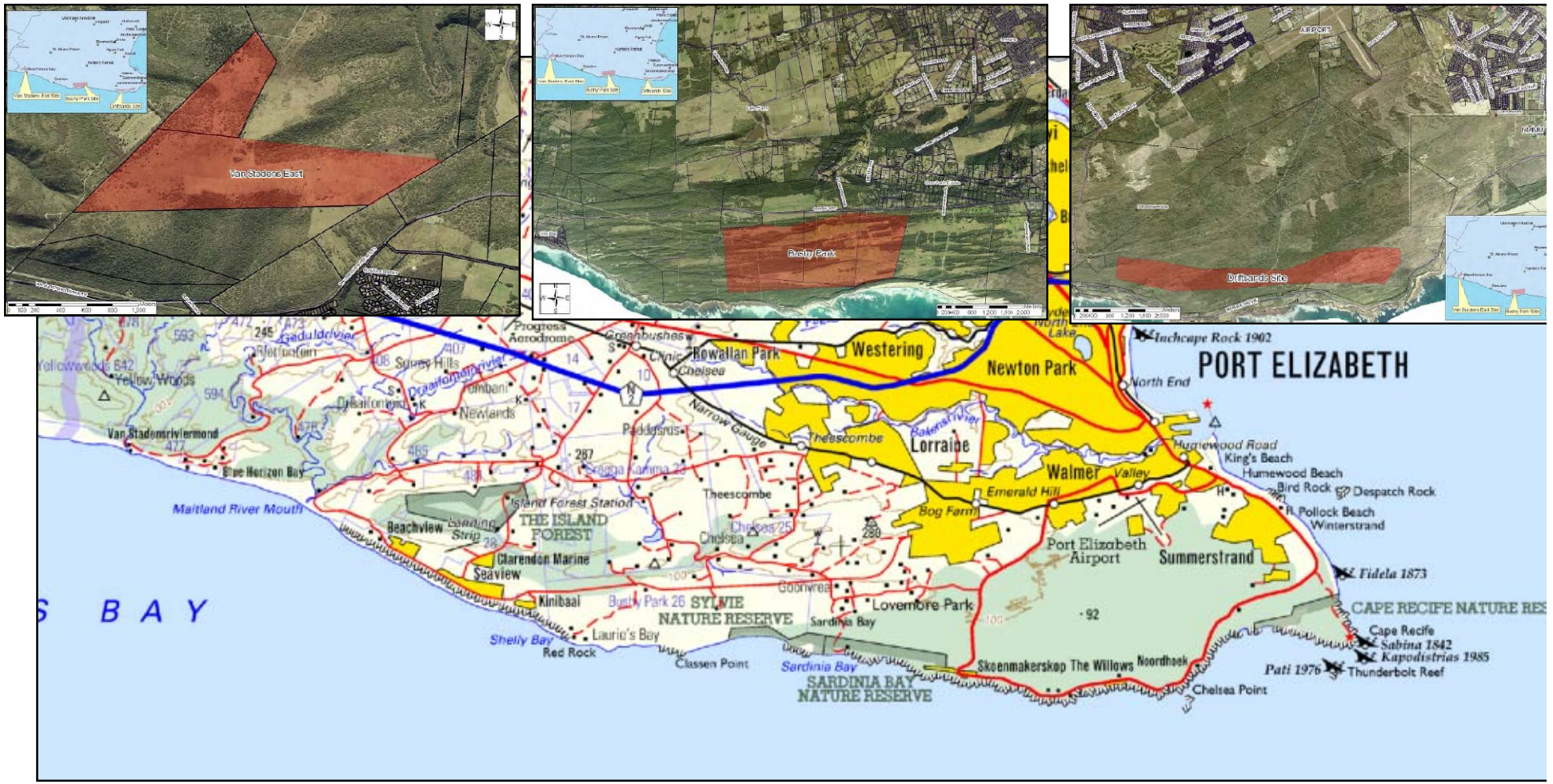
Description of the sites

All the sites were Holocene Later Stone Age open-air sites and included shell middens, shell scatter and stone artefact occurrences. The occurrences of shell within the proposed area have been broken down into two identifiable and explainable parts; surface shell scatters and shell midden scatters.

The former refers to marine shell remains that can be observed only on the surface and the depth of the extent of the shell is unknown. The latter refers similarly to marine shell remains observed on the surface, but the depth of deposits has been exposed owing to previous disturbances and the profile with possible stratigraphy is visible.

The former sites are usually rated as Generally Protected B and C sites (Field Rating IV B and C). These sites should be recorded before destruction (generally Medium to Low significance).

The latter sites are usually rated as Local Grade IIIB and Generally Protected IVA sites. These are regarded as high significance sites and must be mitigated and (part) retained as a heritage register sites. Sites may also be rated as of national, provincial and local importance and retained as heritage register sites (high significance) without any mitigation.



Map 1. 1:250 000 Map indicating the areas proposed for Site Alternatives 1-3 (Insert maps courtesy of SRK Consulting).

Map 2. Arial photographs indicating the areas proposed for Site Alternatives 1-3 (Insert map courtesy of SRK Consulting).

Rating of sites is conducted on visibility and visual impression and may not reflect the real situation. Accurate ratings can only be established with testing. For the field rating/significance of sites, see Appendix 1.

Each Site Alternative will be described separately and the occurrences of shell and archaeological remains will be identified.

Site Alternative 1: Erf 121, Driftsands (Map 3)

Most of the proposed area for the construction of the wind turbines is covered in dense impenetrable alien vegetation and low indigenous dune vegetation (Figs 1-4). The proposed area has been heavily disturbed by the construction of power lines and telephone lines, a signal tower, service roads and the Fynbos hiking trail (Figs 5-8). The construction of a prominent watercourse and pipeline runs north to south through the middle of the proposed area (DS19, Map 4). Informal dumping occurs around the pipeline area and sporadically within the proposed area, the grass is very dense around this area making the visibility of archaeological remains difficult. The surface of this area is uneven, probably caused by bulldozing activities during the construction of the pipeline and watercourse (Figs 9-10). The planting of Rooikrans has also contributed to the disturbance of the underlying shell scatters and shell middens. Exposed shell scatters occur within previously disturbed areas and where vegetation is sparsely covered (Figs 11-12). It is likely that shell scatters and middens are covered by the prevalent alien vegetation that occurs over most of the proposed area.

Fig. 1. View into the dense impenetrable alien vegetation.

Fig. 2. View into the dense vegetation that covers most of the proposed area.

Fig. 3. Eastern view of the low dune vegetation overlooking the close proximity of the coast.

Fig.4. Western view of the low dune vegetation overlooking the close proximity of the coast.

Fig. 5. Shell scatter exposed in one service road, with the telephone poles in the background.

Fig. 6. Shell scatter and midden exposed in a different service road.

Fig. 7. Shell midden scatter in close proximity of the existing power station.

Fig. 8. Profile of the shell midden scatter in close proximity of the existing power station.

Fig. 9. View of the construction surrounding the watercourse and pipeline.

Fig. 10. View of the watercourse running north to south through the proposed area.

Fig. 11. Shell scatter exposed in a small open. area.

Fig. 12. Exposed shell scatter indicating the possibility of more shell underlying the surface vegetation.

Surface Shell Scatters

Surface marine shell scatters surrounding DS3 [34.02.599S; 25.34.482E, 34.02.579S; 25.34.458E, 34.02.471S; 25.34.474E] and DS4 [34.02.757S; 25.34.366E] (Map 4) can be observed within exposed open areas between the dense vegetation. The marine shell scatters comprise mainly of *Turbo sarmaticus*, *Scutellastra* spp. and *Oxystele sinensis*, no other archaeological remains are associated with these surface marine shell scatters.

DS5 [34.02.598S; 25.34.256E], DS6 [34.02.720S; 25.34.730E], DS7 [34.02.713S; 25.34.447E], DS11 [34.02.697S; 25.34.786E], DS15 [34.02.539S; 25.34.596E], DS18 [34.02.729S; 25.35.405E] and DS 27 [34.02.37.85S; 25.34.113E] are surface marine shell scatters comprised of similar marine shell species, *Turbo sarmaticus*, *Scutellastra spp*. and *Oxystele sinensis,* although, the surface scatters are relatively large areas exposed within the service roads. In addition to the fragmentary and whole marine shell surface scatter, DS21 [34.02.559S; 25.37.355E] also comprises of occasional stone tool artefact remains.

Shell midden scatters and shell middens:

DS8/Midden 1 [34.02.714S; 25.34.474E] is a relatively large area, 30 m x 60 m, comprising mainly of *Turbo sarmaticus*, *Oxystele sinensis*, *Cymbula oculus*, *Scutellastra cochlear*, *Scutellastra longicosta* and *Perna perna* marine shell remains. Occasional stone tool artefacts, pottery and tortoise carapace remains also occur over the area.

DS9/Midden 2 [34.02.704S; 25.34.643E] has been exposed in the service road and is comprised mainly of *Turbo sarmaticus* and *Oxystele sinensis* marine shell remains. No other archaeological remains were observed. It is highly possible that the extent of the midden continuous north and south of the service underlying the dune vegetation.

DS13/Midden 3 [34.02.749S; 25.34.786E] has been heavily disturbed by the construction and activities associated with the service road that leads up to the signal tower, as well as the construction of the signal tower and smaller concrete structures. The marine shell midden comprises of a variety of shell remains, including *Oxystele sinensis*, *Scutellastra* spp., *Turbo sarmaticus*, *Perna perna* and Cymbula spp. In addition to the marine shell remains, occasional quartz stone tool artefacts are also present.

DS14/Midden 4 [34.02.755S; 25.34.954E] is comprised mainly of *Oxystele sinensis* and *Turbo sarmaticus* marine shell remains. In addition to the marine shell remains, occasional quart stone tool artefacts, pottery and ostrich eggshell (OES) beads also occur on the surface of the shell scatter.

DS22/Midden 5 [34.02.741S; 25.37.355S], DS23/Midden 6 [34.02.756S; 25.37.404E] and DS24/Midden 7 [34.02.776S; 25.37.503E] are not situated within the area proposed for the construction of the wind turbines, however, they allow insight to the possible archaeological an marine shell remains that underlie the current surface vegetation of the proposed area. DS22-24/Middens 5-7 are located next to Marine Drive on the northern side of the road in close proximity to each other. DS22/Midden 5 is approximately 1 m in length and the lenses with archaeological remains are 10-20 cm thick and have sloped out of the road cutting. This midden is dominated by *Oxystele sinensis* and *Turbo sarmaticus*, some *Burna pena* shell remains are also present. In addition, some stone tool artefacts and pottery were also documented. About 10 m to the east, a few marine shell remains can be observed in the road cutting, however, the rest has completely eroded out of its

original position. DS23/Midden 6 comprises two distinct concentrations of marine shell remains. The first concentration is dominated by *Oxystele sinensis*, *Turbo sarmaticus* and relatively large *Haliotis midae*. The second concentration of marine shell remains is dominated by *Scutellastra* spp. and relatively large *Haliotis midae* and *Haliotis spadicea*. DS24/Midden 7 is approximately 10 m in length and the shell lenses are 10-20 cm thick and include a variety of the above-mentioned marine shell remains.

DS6 is highlighted on Map 4 in green; this area is comprised of calcrete. It is worth mentioning that calcretes sometimes contain Middle Stone Age (MSA) archaeological remains and bone.

Site Alternative 2: Bushy Park Farm (remainder of Erf 26, as well as portions 5, 6 and 7 thereof) (Map 4)

The proposed area is mainly covered in short dense grass used for grazing and in some areas thick impenetrable vegetation (Figs 13-14). The proposed area has previously been highly disturbed by the construction of power lines, fences, farm roads and drinking troughs (Figs 15-16). The proposed area has also been used as grazing lands contributing to the disturbance of the area as well as the continuous vegetation clearing to keep the grazing areas open. Shell scatters have been exposed within the disturbed areas such as the farm road and low sand dunes. Shell fragments that have been exposed within mole holes indicate that shell scatters and middens are likely to occur under the current surface vegetation.

The proposed area for the construction of the wind turbines is highlighted by the green circle on Map 5. The dense short grass vegetation made archaeological visibility difficult; therefore, archaeological materials and shell scatters could only be observed within areas that had previously been disturbed.

BP9 (Site 1) [34.01.557S; 25.27.145E] is approximately 30 m x 50 m in extent comprising of a surface marine shell scatter, stone tool artefact remains and bone fragments. The shell remains include *Turbo sarmaticus*, *Scutellastra* spp., *Cymbula* spp., *Oxystele sinensis* and *Striostrea margaritacea* (oysters). The stone tool artefact remains consist mainly of quartz and quartzite flakes and cores are also present. Occasional unidentifiable bone fragments which are most probably mammal also occur within the area. A fence has been constructed through the middle of the archaeological deposit running from north to south (Figs 17-19).

BP10 (Site 2) [34.01.530S; 25.27.178E] is situated east-north-east of BP9 (Site 1), it contains some fragmentary marine shell remains and some stone tool artefacts resembling a knapping area (Fig. 20).

Mole hills that have been churned up at BP14 (Site 3) [34.01.708S; 25.26.938E] exposed shell remains and stone tool artefacts that are probably buried under the surface vegetation. The churned up mole hills are contained within an area of approximately 10 m x 10 m in extent and consist of *Scutellastra sp*, *Turbo sarmaticus* and *Oxystele sinensis* marine shell remains, as well as quartz stone tool artefacts (Figs 21-22).

Map 3. Aerial view of Site Alternative 1, Driftsands indicating GPS readings and sites. Red-surface shell scatters; Blue-shell midden scatters; Green-calcrete dune (Insert map courtesy of SRK Consulting indicating the proposed areas for the construction of the wind turbines).

Fig. 13. Grazing lands and fences.

Fig. 14. Grazing lands and dense impenetrable vegetation.

Fig. 15. Farm roads and powerlines.

Fig. 16. Grazing lands, fences and a drinking trough around the area of BP6.

There are sporadic occurrences of churned up mole hills between BP14 and BP15 that expose marine shell remains about 8 m running from the fence running parallel to the fence (east-west). Similarly, sporadic occurrences of exposed shell remains in churned up mole hills occurs between BP14 and BP18 (Site 4) [34.01.732S; 25.26.761E] (Figs 23-24).

BP19 (Site 5) [34.01.613S; 25.26.924E] is a shell scatter that has been exposed in the farm road. The farm road is approximately between 20-30 cm lower than the surface vegetation and the depth of the marine shell scatter can be observed (Fig. 25).

Fig. 17. The exposed dune at BP9 showing the fence running through the area.

Fig. 18. View of the eastern side of the fence showing the extent of the shell scatter.

Fig. 19. Quartzite core on the surface of BP9.

Fig. 20. Possible knapping area at BP10.

Fig. 21. View of the mole hills at BP18.

Fig. 22. Close-up of mole hill with exposed fragmented shell.

BP20 (Site 6) [34.01.703S; 25.26.033E] consists of a relative large accumulation of shell exposed in the farm road. The exposed area is approximately 3 m x 5 m, although extends another 30 m north, observed within exposed open areas. The accumulation of fragmentary shell remains is between 15-30 m below the current surface level (Figs 26-27). This marine shell scatter also extends east-west along the farm road until BP21 [34.01.700S; 25.25.790E], which can be observed in the exposed areas in the farm road (Fig. 28).

Fig. 23. View to the west showing extent small open areas with exposed shell remains.

Fig. 24. View to the east showing extent of small open areas with exposed shell remains.

Fig. 25. Hardened clay area exposed in farm road containing shell fragments.

Fig. 26. Exposed shell at BP21.

Fig. 27. Hardened clay and exposed shell remains on the road that leads south to the beach.

Fig. 28. Exposed shell can be observed from BP21 west along the farm road.

Site Alternative 3: Rietfontein, Erf 594, Van Stadens East (Map 5)

Most of the proposed area is covered in short dense grass used for grazing (Figs 29-30). The proposed area has previously been highly disturbed by the construction of farm fences and roads, as well as being continuously used as grazing lands. Marine shell scatters have been exposed within disturbances made by burrowing animals, mole holes and the farm road (Figs 31-34). Although marine shell scatters were only observed within one particular area, it is possible that further marine shell scatters occur under the current surface vegetation.

The exposed marine shell occurrence is located around the area of VSEast 8-12, which is not included with the area proposed for the construction of the wind turbines. However, it is worth mentioning the archaeological and marine shell remains as a representation of and insight into the wider area.

VSEast8 (Site 1) [33.57.536S; 25.14.804E] is a small pile of marine shell scatter that has been dug up by burrowing animals and contains mainly whole marine shell remains of *Donax serra* (white mussel).

VSEast10 (Site 2) [33.57.492S; 25.14.834E] is located in a relatively open dense grass covered area to the west of the farm road and comprises of many churned up mole hills containing mainly *Donax serra* marine shell remains and occasional quartz stone tool artefacts.

VSEast13 (Site 3) [33.57.518S; 25.14.814E] is a relatively large area approximately 20 m x 63 m in extent. A fragmented marine shell surface scatter containing occasional quartz stone tool artefacts have been exposed in the farm road. The marine shell surface scatter comprises mainly of *Donax serra* and to a lesser extent *Turbo sarmaticus*, *Scutellastra* spp. and *Cymbula* spp.

Map 4. Aerial view of Site Alternative 2, Bushy Park Farm, indicating GPS readings and sites. Red-surface shell scatters; Blue shell midden scatters. The proposed area for the construction of the wind turbines is highlighted by the green circle (Insert map courtesy of SRK Consulting indicating the proposed areas for the construction of the wind turbines).

Fig. 29. View of the landscape.

Fig. 30. View of the landscape.

Fig. 31. Burrowed out shell scatter.

Fig. 32. View of churned up mole hills with exposed shell scatter.

Fig. 33. Close-up of mole hills.

Fig. 34. Exposed shell in farm road.

Map 5. Aerial view of Site Alternative 3, Rietfontein, Erf 594, Van Stadens East indicating GPS readings and sites. Red-surface shell scatters (Insert map courtesy of SRK Consulting indicating the proposed areas for the construction of the wind turbines).

Discussion

A large number of these archaeological heritage sites were found during the survey. The area is potentially rich in archaeological heritage sites, but the full extent is unknown because many sites are most probably buried under dunes, soil and vegetation. It is therefore highly likely that archaeological sites/materials (including human remains) will be found when the property is developed.

Most of the archaeological sites were shell scatters, but a few shell middens and stone tool occurrences were also found. In general these sites yielded little cultural material or food remains other than marine shell. Nevertheless, they still provide evidence and carry research information regarding the pre-colonial history of the area. In many cases the size or depths of deposits (if any) represented by the shell scatters are unknown. Concentrations of these shell scatters are present in all areas, also on the high ground along the dune crests. Testing (spade and testpit testing) must be conducted to establish the extent and context of these scatters.

Information from surveys conducted in surrounding areas indicates that the area has been occupied at least from Middle Stone Age times (the past 120 000 years). Occasional stone tools and other materials found on the shell middens and scatters indicate that Later Stone Age San hunter-gatherers were living in the area from at least 6 000 years ago. A few sites found during the survey also yielded Khoi pottery fragments dating from approximately 1 800 years ago.

Conclusions

The dense vegetation and grass made it impossible to have assessed the full archaeological status in the three proposed zones for development. Notwithstanding, it would appear from the visibility of archaeological sites and materials that the Driftsands area (Site Alternative 1) is the most archaeological sensitive zone, followed by Bushy Park Farm (Site Alternative 2) and Rietfontein Farm (Site Alternative 3) as the least sensitive zone.

RECOMMENDATIONS

The proposed development takes place within five kilometres of the coast, and therefore falls within the sensitive zone where marine related archaeological sites, such as shell middens may be found. The development must be closely managed and monitored to avoid any damage to sites/materials.

The 3 Site Alternatives have similarly been rated as having a medium to high cultural significance, although on visual evidence, Rietfontein, Erf 594, Van Stadens East (Site Alternative 3) is the preferred site from an archaeological perspective that is likely to have the least negative impact to archaeological heritage remains.

The following recommendations must be considered prior to the commencement of construction activities:

1. Once the preferred Site Alternative (any of the three) and footprints have been decided and confirmed, a professional archaeologist must be appointed to monitor and oversee the vegetation clearing for the possible occurrence of exposed archaeological materials, marine shell scatters and marine shell middens.

2. All construction activities must be monitored by an appointed professional archaeologist to observe the possible occurrence of exposed archaeological materials, marine shell scatters and marine shell middens.

3. Alternatively, a person must be trained as a site monitor to report to the foreman when archaeological sites are found. This person must monitor all activities during the construction phase.

4. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

5. In the event that any concentrations of archaeological material are exposed during construction, all work in that area should stop and it should be reported immediately to the nearest museum/archaeologist or to the South African Heritage Resources Agency so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material (See appendix 2 for a list of possible archaeological sites that maybe found in the area). Recommendations will follow after the investigation and may include:

    - A Phase 2 Mitigation process to systematically excavate and remove the archaeological deposits before construction of the development continues.

GENERAL REMARKS AND CONDITIONS

Note: This report is a phase 1 archaeological heritage impact assessment/ investigation only and does not include or exempt other required heritage impact assessments (see below).

The National Heritage Resources Act (Act No. 25 of 1999, section 35) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual linguistic or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

It must be emphasized that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, reflect the true state of affairs. Many sites/features may be covered by soil and vegetation and will only be located once this has been removed. In the event of such finds being uncovered, (such as during any phase of construction work), archaeologists must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Act No. 25 of 1999.

It must also be clear that Archaeological Specialist Reports (AIAs) will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which should grant a permit or a formal letter of permission for the destruction of any cultural sites.

APPENDIX: 1. FIELD RATING OF THE SITES (to comply with section 38 of the national legislation).

National: This site is considered to be of Field Rating/Grade I significance and should be nominated as such (mention should be made of any relevant international ranking);

Provincial: This site is considered to be of Field Rating/Grade II significance and should be nominated as such;

Local: This site is of Field Rating/Grade IIIA significance. The site should be retained as a heritage register site (High significance) and so mitigation as part of the development process is not advised.

Local: This site is of Field Rating/Grade IIIB significance. It could be mitigated and (part) retained as a heritage register site (High significance);

Generally Protected A (Field Rating IV A): This site should be mitigated before destruction (generally High/Medium significance);

Generally Protected B (Field Rating IV B): This site should be recorded before destruction (generally Medium significance);

Generally Protected C (Field Rating IV C): This site has been sufficiently recorded (in the Phase 1). It requires no further recording before destruction (generally Low significance).

APPENDIX 2: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM COASTAL AREAS: guidelines and procedures for developers

1. Shell middens

Shell middens can be defined as an accumulation of marine shell deposited by human agents rather than the result of marine activity. The shells are concentrated in a specific locality above the high-water mark and frequently contain stone tools, pottery, bone and occasionally also human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m^2 in extent, should be reported to an archaeologist.

2. Human skeletal material

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general the remains are buried in a flexed position on their sides, but are also found buried in a sitting position with a flat stone capping and developers are requested to be on the alert for this.

3. Fossil bone

Fossil bones or any other concentrations of bones, whether fossilized or not, should be reported.

4. Stone artefacts

These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

5. Stone features and platforms

They come in different forms and sizes, but are easy to identify. The most common are an accumulation of roughly circular fire cracked stones tightly spaced and filled in with charcoal and marine shell. They are usually 1-2 metres in diameter and may represent cooking platforms. Others may resemble circular single row cobble stone markers. These are different sizes and may be the remains of wind breaks or cooking shelters.

6. Historical artefacts or features

These are easy to identified and include foundations of buildings or other construction features and items from domestic and military activities.