

INITIAL ARCHAEOLOGICAL AND PALAEOLOGICAL ASSESSMENT OF A PORTION OF ERF 471 VELDDRIF, WESTERN CAPE

Prepared for

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1 Introduction

The Archaeology Contracts Office of the University of Cape Town was commissioned by Ninham Shand Consulting Services to comment on the palaeontological and archaeological sensitivity of a portion of erf 471 situated at Laaiplek, west coast, Western Cape Province (Figure 1). Portions 1 and 2 of the erf are destined for low cost housing development, while the remainder of the erf is to remain undeveloped for the time being. The development area lies in a region that is considered to be palaeontologically sensitive.

2 Background

2.1 Geological history

The section of coastline extending from the mouth of the Berg River in a north easterly direction towards Dwarskersbos has a complex geological history brought about the combination of Pleistocene fluctuations in mean sea level interacting with the mouth of the Berg River. This has resulted in the deposition of a succession of sand and shell bars, the most significant of which is the Veldrif fossil shell bar which extends from just north east of the town of Laaiplek to Dwarskerbos some 10 km up the coast. These shelly bars formed when the mean sea level was considerably higher than that of today. The mouth of the Berg River then formed a substantial embayment or lagoon. The shelly deposit accumulated in the mouth of this bay, although there are scattered deposits of various marine fauna composition extending up to 15 km inland. These bars have survived as they as part of an actively prograding shoreline.

The faunal contents of the main Veldrif shell bar indicate a late quaternary date of about 125 000 years old (Tankard 1976) which equates to the Eemian interglacial high sea level of that time (about 4-6m higher than that of today). Despite the fact that the shell bar has been commented on numerous times by various scientists, its full sedimentary history remains poorly understood. Figure 2 indicates the extent of fossil shell deposits (after Tankard 1976).

As one of two surviving features of this type on the west coast, and an excellent example of its kind, the shell bar is considered to be important heritage resource. In the past, various developers have targeted the shell bar to mine it for shell and grit.



Figure 1: Location of the study area (3218 CA&CC Veldrif)

Mitigation of these proposed actions were to be carried out through a procedure that was established in consultation with Dr Graham Avery and Dr Roger Smith, Earth Sciences Division, Iziko Museums (see Hart and Miller 1994).

Two previous studies have been carried out in the Veldrif - Laaiplek area. In 1994 Hart and Miller assessed the significance of the Veldrif shell bar in the face of an extensive proposed mining operation. Seven prehistoric shell middens were located on top of the shell bar. A survey of the Waste Disposal site in 1995 revealed no archaeological material in that locality but recommended that mitigation of the damage to the shell bar continue to be negotiated with Iziko Museum as per the finding of the 1994 study (Hart and Miller).

2.2 Description of the affected area

Erf 471 includes a large section of the Veldrif shell bar along the northwest boundary of the site. Included within this area is the waste disposal site, which was the focus of a separate study in 1995. The southwest section of the erf is made up of the suburb of Noordhoek. The area immediately on the landward side of the shell bar is low-lying and contains several small salt marshes (a possible relict of the mid-Holocene high sea level inner cordon lagoons of about 4000 years ago). The development activities proposed for portions 1 and 2 of the erf will not directly impact the main Velddrif shell bar or the low-lying lands, but will concentrate on a ridge of yellow sands elevated roughly 3-4 meters above the surrounding flat lands (north eastern half of the erf 471). This is the inner bar of the Pleistocene estuarine complex. Described by Tankard in 1976, the inner bar is "type site" for the Velddrif formation, and is considered to be of palaeontological importance.

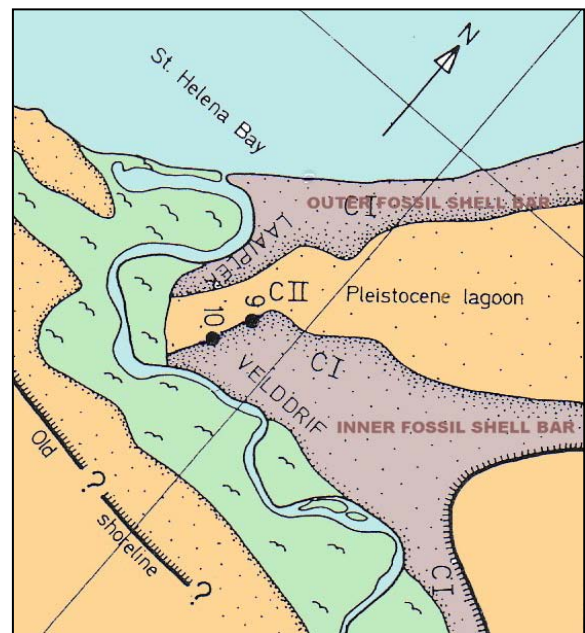


Figure 2 Fossil shell bars (after Tankard 1976)

2.3 Surface conditions

In general the study area is covered with grass and low bush. Ground surface visibility is fair. Dune mole rats are highly active with much of the sandy surface deposits highly disturbed and riddled with burrows. The area bordering Noordhoek is polluted with litter and excrement due to its close proximity to the informal housing area.

3 Method

The development area consisting of portions 1 and 2 of erf 471 was searched on foot by 2 archaeologists. Each archaeologist completed an independent zig-zag walk pattern. Any heritage sites found were plotted using a Garmin GPS 3 Plus (map datum WGS84). No trial excavations were conducted on any of the archaeological sites or geological features. The client supplied a copy of a geo-technical report, which detailed trial excavations to a depth of 2m below surface.

4 Findings

4.1 Palaeontology

Fragments of fossil shell are ubiquitous throughout the area, and dense lenses of it probably occur in any area of Velddrif, Laaiplek and Dwarskerbos that formed part of the succession of estuaries and sandbars formed by the meanderings of the mouth of the Berg River. The sand bar that the proposed development is to be built on is the remainder of the *inner bar*. Fragments of fossil shell (*Venerupis corrugata*, *Crepidula capensis*) are visible on the surface of the bar in patches of varying density. According to Tankard (1976), the sandy surface caps 4 distinct stratigraphic units containing locally extinct mollusc species. The section sampled by Tankard was situated closer to the town of Velddrif south west of the study area. This means that locally, the content of the inner bar remains un-described, although it is likely to be similar to the main shell bar.

Status: A significant palaeontological feature, the faunal component of which is protected by the National Heritage Resources Act.

Likely impacts: The inner bar will be disturbed by development, as this is where the bulk of houses will be built. Its visibility and form will be obscured by the proposed development. Surface preparation of the development site will involve earthmoving operations, which may impact buried horizons of fossil shell.

Mitigation: It is recommended that once contractors move onto the site and earthmoving operations commence, the opportunity should be given for a palaeontologist to visit the site, assess the deposits and sample the sand bar according to what he/she would deem to be adequate. It is suggested that such sampling should take place at about 3 different localities on the bar.

4.2 Archaeology

Three archaeological sites were found in the development area. These are detailed below and their locations are roughly indicated on the site development plan (Figure 3).

VD 1 (32° 45' 42.0"S 18° 10' 29.1"E)

A large low-density scatter of quartz artefacts scattered on top of the yellow sand bar. This sparse site contains quartzite flakes and chunks that are not associated with any fresh

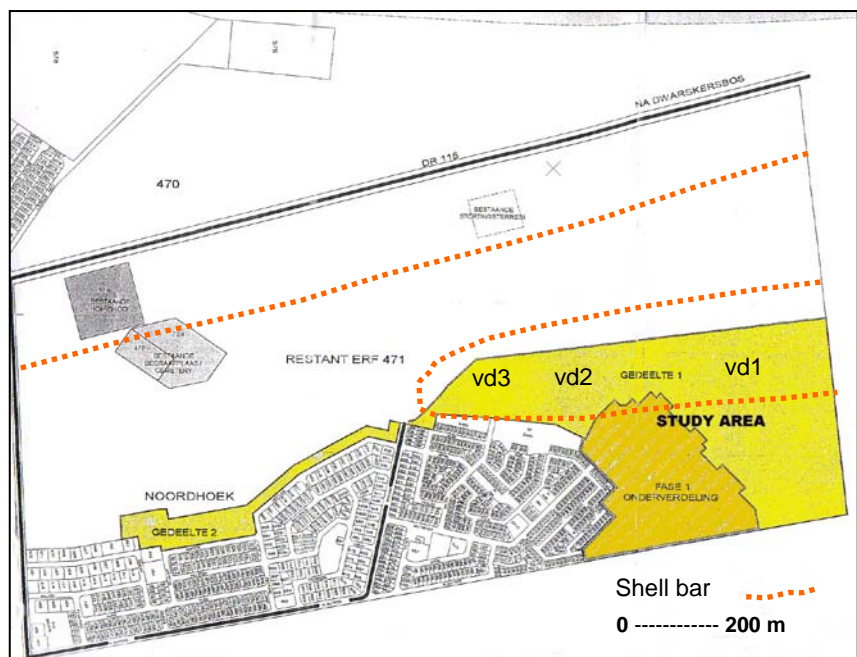


Figure 3 Site Locations and fossil shell bars in the development area.

shell, bone or other artefactual material. A quartzite flake (MSA) struck from a prepared core was observed. No formal tools were noted so it is difficult to assign the material with certainty to any specific time period. The absence of any fresh shell indicates that the scatter may date to the late Pleistocene (Middle Stone Age).

Status: Insignificant, but protected by National Heritage Resources Act.

Likely impacts: The scatter will be disturbed by the planned development.

Mitigation: None suggested site details to be lodged with SAHRA.

VD 2 (32° 45' 34.8"S 18° 10' 43.8"E)

A small Late Stone Age shell midden situated on top of the yellow sand bar. This small site (4x4 m) consists of a scatter of *Choromytilus meridionalis* and *Burnupena sp.* shell, which is much fresher than the shell of marine fossil origin that is ubiquitous in the area. No pottery, but a single quartz flake was noted. The site is likely to be over 2000 years of age, being similar in content to those recorded by Hart and Miller (1994) on the Veldrif shell bar. The site lies in a very polluted area and has been heavily disturbed by dune mole rat activity.

Status: Insignificant, but protected by National Heritage Resources Act.

Likely impacts: The scatter will be disturbed by the planned development.

Mitigation: None suggested, site details to be lodged with SAHRA.

VD 3 (32°45' 43.6"S 18°19' 21.0"E)

A small Late Stone Age scatter very similar to site 2 in size and content. Also badly disturbed by both human activity and mole rats.

Status: Insignificant, but protected by National Heritage Resources Act.

Likely impacts: The scatter will be disturbed by the planned development.

Mitigation: None suggested, site details to be lodged with SAHRA.

5 Recommendations

5.1 Palaeontology

- An arrangement should be made with Iziko Museums (Dr Graham Avery, Dr Rodger Smith) to sample the shell bar during the development process.
- A permit will need to be obtained from SAHRA to disturb palaeontological material.

5.2 Archaeology

- None of the archaeological sites found in the development area are worth further mitigatory action. The reason for this is that dune mole rats and human activity have extensively disturbed all of them. The quartz artefact scatter is so thin and dispersed that it will not provide a statistically analysable sample of material to securely characterise the site.
- The associated group value of the archaeological sites and contribution to regional spatial information is important for future research. It is important that site location information, brief descriptions and survey information is forwarded to SAHRA for entry into the database of the National Estate. To this end a copy of this report must be forwarded to the manager of the National Estate.
- The National Heritage Resources Act protects the archaeological material. A permit for the destruction of archaeological sites must be obtained from the Provincial Heritage Authority prior to commencement of development activities.

6 References

Hart, T.J.G. and Miller, D. 1994. Phase 1 archaeological and palaeontological survey of the proposed mining area on farm Veldrif 110, Veldrif, Western Cape Province. ACO: Unpublished report prepared for Limes Sales Limited.

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