

**ARCHAEOLOGY AND HERITAGE MITIGATION STUDY FOR A PROPOSED NUCLEAR POWER STATION AT THYSPUNT, EASTERN CAPE, SOUTH AFRICA**



**Status report and way forward: March 2011**

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## **1 INTRODUCTION**

The physical heritage survey conducted at Thyspunt as part of the EIA for the proposed Nuclear 1 power station, has found Thyspunt to be extremely rich in archaeological material, to the extent that almost the entire sequence of human development in Africa is to be found in the study area.

The heritage impact assessment found that Thyspunt was the least desirable of the three proposed nuclear sites in that mitigation of the archaeological material would be extremely costly, resource sapping and would tax the limited storage capacity of Provincial Museums. For reasons that will be explained, it was found that the likelihood of successful mitigation was limited.

The EIA process for the site has now been completed and an area of least sensitivity has been defined, although a power station foot print will not be defined until such time that a service provider to the project has been identified and plans presented. Given this information and the fact that the Thyspunt option has been identified as being the preferred site overall, a strategy for the mitigation of the archaeological material was requested by Eskom. However developments in the EIA process which are described in the following pages makes it necessary to put on hold the development of detailed mitigation, as the South African Heritage Resources Agency (SAHRA) has indicated that they do not support the selection of Thyspunt for the proposed activity due to the high heritage significance of the site. We have however conducted significant amount of consultation with respect to mitigation of archaeological sites, the findings of which are described. Essentially it has become necessary to extend the heritage assessment process at Thyspunt to provide additional information about the study area, in particular those areas of the site where dense vegetation did not allow for assessment. For information purposes the implications of mitigation by archaeological excavation are discussed below.

## 1.1 Mitigation principals

Archaeological material is a finite resource. Archaeological sites are an archive of forensic evidence of events that happened in the past and the way that people over the ages interacted with the environment around them. In a country such as South Africa where the written word covers only but a small segment of the history of its population, the physical archive of archaeological sites on the landscape is the only testimony and link that many South Africans have with their history. The heritage resource is fragile and under threat as impacts occur on almost every new landscape prepared for development activities. Unlike plants, animals and fish, archaeological sites cannot reproduce themselves. Once they are destroyed or removed they are gone forever, and a fragment of history is irrevocably deleted.

It is for this reason that in most countries archaeological sites are rigorously conserved. The days when archaeologists used to venture forth and investigate sites of their choice are over, as the discipline itself is an agent of destruction, albeit this is done in a scientific manner. Nowadays professional archaeologists are only allowed to excavate under permits issued by the state. The issuing of these permits is based on experience, qualification and a solid motivation from the researcher, and accompanied by conditions which indicate how much of the site is to be excavated, and how much is to be retained for future generations of researchers who may have techniques superior to that of today.

Hence the fundamental principal in heritage management is to conserve archaeological material and sites *in-situ* as far as is humanly possible. In development scenarios favoured mitigation measures are conservation of green belts where there are archaeological sites, active management or even covering archaeological sites with protective soils and under rare instances, concrete. Circumstances do arise in certain critical development projects where mitigation through conservation and avoidance is just not possible. For example open cast mining operations, harbour developments, very large construction projects that involve bulk excavation will result in unavoidable

impacts due to bulk excavation. It is only under these circumstances that archaeologists will apply for permits to excavate archaeological sites.

### **1.1.1 Mitigation through excavation and controlled excavation**

The principal behind mitigation through excavation is to “rescue” evidence. The work essentially involves the controlled disassembly of an archaeological site, (or even structure) and its relocation to another locality where it is kept indefinitely safe. Ideally this process of “disassembly” should be done in such a way that the archaeological site can be re-assembled to reflect its original appearance and composition, however in reality very few archaeologists are able to achieve this goal. Instead the site is excavated in such a way that the maximum of information is retrieved and the excavated material is curated in such a way that its original contextual associations are made available.

#### **Advantages of mitigation**

- Action will achieve the clearing of a given area for construction work
- Action will produce historical and scientific information
- Action may produce material that could be housed in museums and put to use for furthering of education.

#### **Disadvantages of mitigation**

- Action will result in the destruction of the heritage resource (albeit in a scientific manner).
- Action will impact on the completeness of the cultural landscape and remove the archaeological material from its context.
- Action is labour intensive, of long duration (approximately 3 months laboratory time for every 1 month field time).
- Archaeological material needs sustained indefinite curation and management. State Museum facilities in both Eastern and Western Cape filled to capacity.

- Recruitment of skilled staff (extremely scarce in RSA) for major excavation projects can be difficult

## **2 THYSPUNT MITIGATION - CONSULTATION**

The purpose of this study was to determine a way forward with respect to mitigation of archaeological material at Thyspunt. Indications are that given the size and bulk of the proposed activity (if authorised) conservation of all archaeological sites *in-situ* will not be possible and that archaeological sampling will be necessary.

Two areas of study have been carried out which involved consultation with colleagues and other I&APs. This involved assessing level of available staffing for a large project and consultation with the authorities and professional colleagues as to how the actual work should be done.

### **2.1 Authority consultation.**

Formal and informal meetings were set up with both Heritage Western Cape and SAHRA. This took place immediately once the first round of the EIA report was made public. Eskom and Arcus GIBB representatives were present at two SAHRA meetings. Tim Hart also made a formal presentation to the APM committee at Heritage Western Cape, held two one-on-one meetings with Dr Jerardino of SAHRA and conducted an open seminar at UCT which was attended by academics, staff of Iziko Museums, members of the South African Archaeological Society. The implications of mitigation were discussed in detail.

SAHRA (Cape Town) who is responsible for the management of Eastern Cape Heritage expressed their concern with respect to the degree of impact that could be experienced at Thyspunt. In their records of comment on the EIA they have taken the positions that they are not in favour of the proposal and do not support mitigation through excavation as they believe that this action is unfeasible and not in the interest of overall heritage conservation. Since they are the permitting authority, until such time that a formal record of decision is produced by government, no archaeological work can be done without a permit issued by them. SAHRA awaits a revised EIA, after which

they will issue further comment. It is not expected their position will change, however they have indicated that dialogue should continue.

Both Arcus GIBB and ACO have indicated to SAHRA (as reflected in the EIA report) that the Thyspunt site is not well understood, and that there remains a possibility that a minimal damage scenario may exist, however this will need a trail excavation program (see forthcoming pages). ACO is applying to SAHRA for a permit to do this work (see accompanying application). If SAHRA exercises its right to refuse the application, no further work can be done until such time that a positive ROD is issued for the entire project.

Heritage Western Cape who is responsible for the Duynfontein and Bantamsklip sites have indicated they would continue dialogue, should these alternatives be revisited.

Both Heritage Western Cape and SAHRA expressed serious concerns with respect to the issue of the indefinite storage of archaeological material. Storage of such material outside of a museum has never been permitted before, so setting a precedent is a serious concern. Both organisations were insistent that if a construction of a special storage facility were permitted, it would need to be staffed on an ongoing basis, contain the necessary climate control and should be capable of facilitating research.

Since SAHRA is unwilling to support the proposal to mitigate through archaeological sampling, the mitigation plan cannot be continued until SAHRA supports the principal.

## **2.2 Heritage community consultation**

An open seminar was held at UCT in March 2010 in which Tim Hart made a presentation on the archaeology of the Nuclear 1 project with an emphasis on discussing mitigation strategy. The meeting was attended by senior students, colleagues from UCT, other consultancies, SAHRA, Heritage Western Cape and Iziko Museums as well as members of the South African Archaeological



Society. Generally the measures considered in the EIA were found to be satisfactory; however concerns were expressed on two topics.

- 1) It was generally felt that if excavation was to take place, this needed to be done to the highest possible standards, and should include full analysis of material, full application of available scientific techniques (mass-spectrometry isotope studies materials analysis) as well as archaeometric dating (radio-carbon and/or nuclear accelerator dating and/or optically stimulated thermo-luminescence) as need. The furthering of education through use of post-graduate students was firmly supported.
- 2) Deep concern was expressed with respect to the curation of archaeological materials outside of a Museum. It was felt the specially built storage facilities were feasible; however these should be equipped to facilitate research and contain a space and facilities where researchers could come and work on the material – in short such facilities should contain associated laboratory space and some form of public interpretive centre.
- 3) It was felt that if such a curation facility could not be attached to a museum, it would need to have a permanent staff.
- 4) It was strongly felt by heritage authority attendees that the curation facility should be in the province in which the finds were made. Research oriented attendees felt that such a facility should be situated close to a city which has recognised research centres – eg Cape Town.

### **2.2.1 Special focus group with Gamtkwa Khoisan Council**

Tim Hart (ACO) and representatives of both Eskom and Arcus GIBB attended a special focus group meeting with members of the Khoisan Council in Hankey (Eastern Cape) on August 27, 2010. Members of the Gamtkwa Khoisan Council responded to a presentation on the heritage component of the EIA. They presented the notion that the archaeological heritage, much of which is the heritage of the Khoisan people formed a complete and holistic cultural landscape which is relatively undisturbed and uniquely complete (the

notion of cultural landscape with respect to pre-colonial archaeology is becoming increasingly recognised). They expressed the view that the destruction of any archaeological material, even through scientific excavation would diminish the cultural landscape and that the presence of a NPS on the site was an unacceptable intrusion. They do not support the proposal or any mitigation by excavation.

### **2.3 Staffing of a large excavation program (if such a program were to be approved).**

A staffing potential exercise was carried out to establish the amount of experience available should the construction of the NPS be approved and that major excavation of archaeological sites is required. This involved active recruitment of expressions of interest among senior students at Universities and a short assessment of professional archaeologists available who have accreditation through ASAPA (professional body) for coastal archaeology. A contact list has been established should a mitigation project be required. At present there are enough skills that can be recruited to make up a team. Post-graduate students are mobile and tend to seek work opportunities internationally which could mean that staffing could still be a problem when it becomes necessary to commence work on site.

It was found that:

Accredited senior archaeologists for coastal archaeology are scarce, with only about 10 individuals nationally who could fill this role. Most are employed; however UCT could provide 3 *field directors* who have the required experience and could lead field teams, similarly Albany Museum has 1 very experienced field archaeologist. It was found at the time of the assessment that there were some 10 experienced students and persons available to form excavations teams, as well as a number of less experienced persons who would benefit by “on the job training”. Hence we believe that if need be, there is the potential to raise 3 excavation teams of 5 people each which should be adequate to staff a large scale excavation project for a project of 6 months

duration. Local labour would also be used for sorting, curation and management of the archaeological material.

### **3 WAY FORWARD – TRIAL EXCAVATION.**

Since the heritage authority (SAHRA) does not support the proposal for the NPS at Thyspunt, it would be premature to plan a full mitigation strategy until such time that SAHRA has decided to support the proposal, or a positive ROD is issued for the proposal at large, in which case SAHRA will need to allow the required mitigation to take place (see section 38.10 of the National Heritage Resource Act 25 of 1999). SAHRA has the option to declare the Thyspunt cultural landscape a National Heritage Site which would allow them to dictate the future of any proposed activity in the declared area. This would mean that Eskom would need to legally contest this, or negotiate directly with SAHRA with respect to what could be entertained on site.

Given the state of impasse, the only remaining way forward that is open to us, and which is reflected in the latest version of the EIA will be to focus on exploring the unknown aspects of the Thyspunt site to determine if there is an area where the activity footprint will result in fewer impacts. The consensus of opinion in terms of the various specialist studies in the first rounds of the EIA has indicated that the area of overall least sensitivity in most disciplines involved lies between the mobile dunes and the shoreline. It is precisely this area that is so poorly understood in terms of heritage, as it lies in the dense coastal thicket where archaeological observation is not possible. The fact that the frequency of archaeological sites is lower on the existing western access road close to this area leads us to hypothesis that the thicket was less suitable for human occupation and may contain fewer archaeological sites. To test this idea, trial excavations will need to be conducted in the thicket areas so that the underlying soil conditions can be examined for traces of archaeological material. It is argued that this is a logical extension of the heritage assessment process which is responding to new information, and is a necessary step in terms of understanding “the place”.

### 3.1 Testing strategy

**Road alignments:** Our proposal is to conduct trial excavations along the entire length of the proposed Eastern access road – a distance of some 13 kms at 200 m intervals (interval stipulated by SAHRA).

The process will involve the use of a small mechanic excavator (mini-excavator) capable of digging to a depth of 2.5-3m (this cannot be done by hand due to health and safety issues). If any archaeological material is encountered, excavation will be stopped and the material will be evaluated and logged. Determination of the size of archaeological sites found may involve further exploratory excavation at the find area which will need to be conducted by machine or by hand at the discretion of the presiding archaeologist (see appendix A, Motivation for Permit Application)

**NPS Footprint:** Similarly, it is our proposal to conduct trial excavations on area of “least sensitivity” based on the assumption that this could be the target area for a future NPS. The excavations will be based on a 200 m grid system which means that there will be 1-2 excavations per hectare. This is does not represent comprehensive coverage but has been conceived of at the request of SAHRA as a “middle road” strategy that will result in least damage to the environment. Eskom will provide guidance on the size of the area to be studied. If any archaeological material is encountered, excavation will be stopped and the material will be evaluated and logged. Determination of the size of the archaeological site may involve further exploratory excavation at the find area which will need to be conducted by machine or by hand at the discretion of the presiding archaeologist.

The findings of the study will be detailed in a supplementary report. If the study finds that the target area is not sensitive, it will mean that the demands of physical mitigation of the heritage will be greatly reduced within the area subject to the testing work, however it must be understood that this may not

necessarily diminish the impact on the overall cultural landscape. Reducing the number of sites that will need mitigation will reduce the physical curation and analytical demands in the medium term, and may provide SAHRA with a more tolerable scenario to consider.

It must also be taken into account the design specifications of the NPS has not been set. Depending on the final design impacts in the sensitive coastal area may still occur depending on the location of any retention dams and sea water entry and extraction points. Similarly lay-down areas, workshop areas have yet to be identified. These are also a potential source of impact and may need to be subject to trial testing further on in the development process if it is approved.

Given the state of information about the heritage sensitivity of Thyspunt and the fact that the design parameters of the proposed NPS is not known, the development of a detailed scope of works for any mitigation will need to be put on hold until such time that there is enough information to define the extent of what is necessary. In the meantime it is deemed that trial excavations will be a necessary step in providing the Heritage Authority with enough information to comment fully on the heritage implications of the proposal. It is only once trial excavation is completed, and the design parameters of the proposal known in more detail, will it be possible to put into place a mitigation strategy.

