

Mr Sello Mokhanya  
Eastern Cape Provincial Heritage Resources  
Authority (EC PHRA)  
40 King Street, Southernwood  
East London  
5200

Your reference

Our reference 9520

Date 14 January 2012

Dear Mr Sello Mokhanya,

**REVISED DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR THE PROPOSED  
ESKOM THYSPUNT TRANSMISSION LINES INTEGRATION PROJECT (TTLIP): HERITAGE  
REPORTS FOR COMMENT**

- **DEA Ref No: (Southern Corridor): 12/12/20/1211**
- **DEA Ref No: (Northern Corridor): 12/12/20/1212**
- **DEA Ref No: (Port Elizabeth Substation): 12/12/20/1213**

Please find herewith enclosed the following heritage documentation pertaining to the Environmental Impact Assessment (EIA) for the Thyspunt Transmission Lines Integration Project:

1. EIA Phase Heritage Impact Assessment Report
2. EIA Phase Palaeontological Study Report
3. Addendum to EIA Phase HIA Report: Khoisan Heritage Resources

Due to the fact that Environmental Authorisation is being sought for corridors of approximately 2km in width to position 2 x 400 kV power lines and 3 x 400 kV power lines (each lines width being 55 m) and substation respectively, in relation to the attached reports it is hereby suggested the following recommendations / management measures be included within the Final Environmental Impact Report and Environmental Management Programme (EMPr) accordingly:

*Heritage Impact Assessment Report No: 2010/JvS/001, December 2010*  
(Compiled by J.A. van Schalkwyk (D Litt et Phil), Heritage Consultant)

Eskom agrees and supports the management measures set out in Section 7 of the report. It is further proposed that the heritage specialist will undertake a "walkdown" of the pre-liminary profiled servitudes and its surroundings (i.e. at least a buffer width / distance of 50 m from the edge of the servitude) to assess the impact (particularly the direct impacts) of tower positions and access roads on archaeological, cultural and heritage sites prior to finalisation of the construction EMPr.

This exercise is important to ensure that should sites and/or artefacts be identified within the pre-liminary profiled servitudes, the necessary measures are considered and adhered to as per the "Recommended Management Measures" such as to document and fence off the sites, features and objects if needs be, create a comprehensive geo-rectified map book which will serve as a management tool during construction and operation (i.e. maintenance of servitudes). By doing so, adjustments to the servitudes (i.e. tower positions and access roads, etc) will be

proposed to avoid as many impacts as possible. If avoidance fails, permits will be applied for from SAHRA.

*Palaeontological study Report, December 2010*

(Compiled by BPI for Palaeontological Research)

It is recommended that a qualified palaeontologist specialist will undertake a “walkdown” of the pre-liminary profiled servitudes and its surroundings (i.e. at least a buffer width / distance of 50 m from the edge of the servitude) to assess the impact (particularly the direct impacts) of tower positions and access roads on archaeological, cultural and heritage sites prior to finalisation of the construction EMPr.

This exercise is important to ensure that the area is surveyed by the qualified palaeontologist specialist to ensure the identification of fossils, if any and be able to recommend appropriate management measures for construction and operation (i.e. tower positions and access roads, etc) will be proposed to avoid as many impacts as possible. If avoidance fails, permits will be applied for from SAHRA.

*Addendum to Heritage Impact Assessment Report No: 2010/JvS/001, December 2010*

(Compiled by Cape Archaeological Survey CC, Mary Patrick)

As per paragraph 1 – “The detailed comprehensive geo-rectified map book” must be carried out concurrently with the walkdown of the approved corridors during the verification of the preliminary profiles for tower positions. The compiled map book and the construction EMPr will then be placed for public review and the results of this consultation will drive the recommendations of the Final EMPr. The Final EMPr will then be submitted to DEA, SAHRA and other competent authorities for consideration and approval.

As per paragraph 2 – Eskom believes they are not in the position to lead the recommended process, however feel they could be brought in as a key stakeholder. SAHRA, DEA, recognised Khoisan leaders in terms of their respective chieftaincies, Provincial and Local Government (all affected Eastern Cape’s Local - , Metro - and District Municipalities’) should initiate such a process, which may possibly address the grievances of the Khoisan people.

With respect to the following, “Eskom to consult with its internal Stakeholder Management Division to establish a working group with both affected communities to facilitate construction and success of the project”, it should be noted that SiVEST and Eskom representatives did consult with Khoisan leaders and / or representatives of “Khoisan Chieftaincies” of the two groups. Through this consultation process, some of the Khoisan leaders and / or representatives of “Khoisan Chieftaincies” of the two groups declined to participate and comment further on the project.

As part of the EIA process, SiVEST would like to request if the Eastern Cape Provincial Heritage Resources Authority (EC PHRA) would please provide comment in respect to the attached documentation and the associated recommendations and management measures provided herewith and in respect to the attached documentation.

Please do not hesitate to contact us should you have any queries.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Rebecca Thomas", with a stylized circular flourish at the beginning.

Rebecca Thomas (*B.Sc Env. Man; PDM*)  
Senior Environmental Scientist (Acting Project Manager)  
**SiVEST Environmental Division**

**Heritage impact assessment for the  
ESKOM THYSPUNT TRANSMISSION LINES INTEGRATION PROJECT  
400KV ELECTRICITY TRANSMISSION LINES, GRASSRIDGE TO  
THYSSPUNT, PORT ELIZABETH REGION,  
EASTERN CAPE PROVINCE**



**HERITAGE IMPACT ASSESSMENT FOR THE ESKOM THYSPUNT TRANSMISSION LINES INTEGRATION PROJECT 400KV ELECTRICITY TRANSMISSION LINES, GRASSRIDGE TO THYSSPUNT, PORT ELIZABETH REGION, EASTERN CAPE PROVINCE**

**Report No:** 2010/JvS/001  
**Status:** Final  
**Revision No:** 0  
**Date:** December 2010

**Prepared for:**

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**Declaration:**

I, J.A. van Schalkwyk, declare that I do not have any financial or personal interest in the proposed development, nor its developers or any of their subsidiaries, apart from the provision of heritage assessment and management services.



J A van Schalkwyk (D Litt et Phil)  
Heritage Consultant  
December 2010

## **EXECUTIVE SUMMARY**

### **HERITAGE IMPACT ASSESSMENT FOR THE ESKOM THYSPUNT TRANSMISSION LINES INTEGRATION PROJECT -400KV ELECTRICITY TRANSMISSION LINES, GRASSRIDGE TO THYSPUNT, PORT ELIZABETH REGION, EASTERN CAPE PROVINCE**

Eskom propose to develop a nuclear powered electricity generation facility at Thyspunt, southwest of Port Elizabeth. Some of this electricity will be fed into the national grid by means of transmission lines to the Grassridge substation, located to the northeast of Port Elizabeth. For this purpose Eskom has identified two corridors for the development of 400kV transmission lines. Each of the two corridors, referred to as the Northern Corridor and Southern Corridor, has a number of shorter alternatives to be considered.

Therefore, in accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **SiVEST Environmental Division** on behalf of the applicant, Eskom Holdings Limited, to conduct a Heritage Impact Assessment (HIA) as part of an Environmental Impact Assessment (EIA) for the assessment of two proposed corridors and their alternatives for the construction of the transmission line.

Power lines on the scale required for a project such as this put particular constraints on heritage resources. It is anticipated that overall the impact of the development would largely be indirect, as it might pass over or in close proximity of a heritage site or feature. The impact therefore would largely be visual. In other cases the impact will be direct as it would focus on a particular node, i.e. tower positions or access/ inspection roads. This would give rise to the physical disturbance of the material and its context.

The cultural landscape qualities of the region essentially consist of two components. The first is a rural area in which the human occupation is made up of a pre-colonial element (Stone Age) as well as a much later colonial (Settler farmers) component. The second component is an urban landscape dating to the colonial period.

The following heritage sites were identified in the study area:

- Pre-colonial archaeological sites dating to all phases of the Stone Age have been identified to occur in the study area. At present it seems as if these sites cluster into three distinct areas. However, this might only be a viewpoint based on a perception created by the available information. In some cases the impact of the development would only be indirect, e.g. the power line crossing over a site. In other areas of the proposed development, even though the impact will be focused on a particular node, i.e. tower positions or access/ inspection roads, it will give rise to the physical disturbance of the material and its context. This would result in irreplaceable loss of resources.
- Colonial period or historic period heritage manifest in a wide variety. As the power lines are to cross a rural landscape for the most part, the impact would only be indirect, e.g. the power line crossing over a site. In other areas of the proposed development the impact will be focused on a particular node, i.e. tower positions or access/ inspection roads and will therefore give rise to the physical damage of the features or structures and its context.

Heritage sites are not only fixed features in the environment, occurring within specific spatial confines, but they are also finite in number. Avoiding of impacts on sites is therefore the preferred form of mitigation. In areas where a high density of sites occurs, such as at the Thyspunt end of the corridors, if at all possible, exclusion zones where no development is to

take place, should be set aside. If that is not possible, mitigation can only be achieved through archaeological investigation.

For the project to continue, we propose the following:

- The management measures, as set out in Section 7 of this report should be implemented prior to construction taking place.
- Mitigation should be based on avoiding of sites rather than anything else. In order to achieve this, a full "walk down" of the corridors must be done prior to construction taking place, to document all sites, features and objects, in order to propose adjustments to the routes and thereby to avoid as many impacts as possible.
- No impact on heritage sites, features or objects can be allowed without a valid permit from SAHRA.



J A van Schalkwyk  
Heritage Consultant  
December 2010

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## **GLOSSARY OF TERMS AND ABBREVIATIONS**

### **TERMS**

**Study area:** Refers to the entire study area as indicated by the client in the accompanying Fig. 1 & 2.

**Stone Age:** The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

|                  |                                    |
|------------------|------------------------------------|
| Early Stone Age  | 2 000 000 - 150 000 Before Present |
| Middle Stone Age | 150 000 - 30 000 BP                |
| Late Stone Age   | 30 000 - until c. AD 200           |

**Iron Age:** Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. These people, according to archaeological evidence, spoke early variations of the Bantu Language. Because they produced their own iron tools, archaeologists call this the Iron Age.

|                 |                   |
|-----------------|-------------------|
| Early Iron Age  | AD 200 - AD 900   |
| Middle Iron Age | AD 900 - AD 1300  |
| Late Iron Age   | AD 1300 - AD 1830 |

**Historical Period:** Since the arrival of the white settlers - c. AD 1840 - in this part of the country

### **ABBREVIATIONS**

|       |   |
|-------|---|
| ADRC  | Archaeological Data Recording Centre                        |
| ASAPA | Association of Southern African Professional Archaeologists |
| BP    | Before Present  |
| CS-G  | Chief Surveyor-General                                      |
| EIA   | Early Iron Age  |
| ESA   | Early Stone Age   |
| LIA   | Late Iron Age   |
| LSA   | Later Stone Age   |
| HIA   | Heritage Impact Assessment                                  |
| MSA   | Middle Stone Age  |
| NASA  | National Archives of South Africa                           |
| NHRA  | National Heritage Resources Act                             |
| PHRA  | Provincial Heritage Resources Agency                        |
| SAHRA | South African Heritage Resources Agency                     |

## **HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED ESKOM 400KV ELECTRICITY TRANSMISSION LINES, GRASSRIDGE TO THYSPUNT, PORT ELIZABETH REGION, EASTERN CAPE PROVINCE**

### **1. INTRODUCTION**

Eskom propose to develop a nuclear powered electricity generation facility at Thyspunt, southwest of Port Elizabeth. Some of this electricity will be fed into the national grid by means of transmission lines to the Grassridge substation, located to the northeast of Port Elizabeth. For this purpose Eskom has identified two corridors for the development of 400kV transmission lines. Each of the two corridors, referred to as the Northern Corridor and Southern Corridor, has a number of shorter alternatives to be considered.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. According to Section 27(18) of the National Heritage Resources Act (NHRA), No. 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

Power lines on the scale required for a project such as this put particular constraints on heritage resources. It is anticipated that overall the impact of the development would largely be indirect, as it might pass over or in close proximity of a heritage site or feature. The impact therefore would largely be visual. In other cases the impact will be direct as it would focus on a particular node, i.e. tower positions or access/ inspection roads. This would give rise to the physical disturbance of the material and its context.

Therefore, in accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **SiVEST Environmental Division** on behalf of the applicant, Eskom Holdings Limited, to conduct a Heritage Impact Assessment (HIA), as part of an Environmental Impact Assessment (EIA).

### **2. TERMS OF REFERENCE**

The aim of this HIA, broadly speaking, is to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to develop the transmission lines.

The scope of work for this study consisted of:

- Conducting of a desk-top investigation of the area, in which all available literature, reports, databases and maps were studied;
- A visit to the proposed development area.

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;

- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

| Type of study              | Aim  | SAHRA involved                                       | SAHRA response   |
|----------------------------|--|--|--|
| Screening                  | <p>The aim of the screening investigation is to provide an overview of possible heritage-related issues regarding the proposed development by an appropriate heritage specialist. It is based on the review and use of existing heritage data pertaining to the site.</p> <p>The result of this investigation is a brief statement indicating potential heritage impacts/issues and can assist the developer in preliminary planning.</p> <p>This report does grant the developer permission to proceed with the proposed development.</p>   | Not necessary  |  |
| Scoping (basic assessment) | <p>The aim of the scoping investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist. The objectives are to assess heritage sites and their significance (involving site inspections, existing heritage data); to review the general compatibility of the development proposals with heritage policy and possible heritage features on the site.</p> <p>The result of this investigation is a heritage scoping report indicating the presence/absence of heritage resources and what would be required to manage them in the context of the proposed development.</p> <p>This report does not grant the developer permission to proceed with the proposed development.</p>  | Not compulsory                                       |  |
| Heritage Impact Assessment | <p>The aim of a full HIA investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist. The objectives are to identify heritage resources (involving site inspections, existing heritage data and additional heritage specialists if necessary); assess their significances; assess alternatives in order to promote heritage conservation issues; and to assess the acceptability of the proposed development from a heritage perspective.</p> <p>The result of this investigation is a heritage impact assessment report indicating the presence/ absence of heritage resources and how to manage them in the context of the proposed development.</p> <p>Depending on SAHRA's acceptance of this report, the developer will receive permission to proceed with the proposed development, on condition of successful implementation of proposed mitigation measures.</p> | Provincial Heritage Resources Authority              | Comments on built environment and decision to approve or not |
|                            |  | SAHRA Archaeology, Palaeontology and Meteorites Unit | Comments and decision to approve or not                      |

Table 1: Applicable category of heritage impact assessment study and report.

### 3. HERITAGE RESOURCES

#### 3.1 The National Estate

The NHRA (No. 25 of 1999) defines the heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations that must be considered part of the national estate to include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, including-
  - ancestral graves;
  - royal graves and graves of traditional leaders;
  - graves of victims of conflict;
  - graves of individuals designated by the Minister by notice in the Gazette;
  - historical graves and cemeteries; and
  - other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to the history of slavery in South Africa;
- movable objects, including-
  - objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
  - objects to which oral traditions are attached or which are associated with living heritage;
  - ethnographic art and objects;
  - military objects;
  - objects of decorative or fine art;
  - objects of scientific or technological interest; and
  - books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

#### 3.2 Cultural significance

In the NHRA, Section 2 (vi), it is stated that "cultural significance" means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature's uniqueness, condition of preservation and research potential.

According to Section 3(3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of

- its importance in the community, or pattern of South Africa's history;
- its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;

- its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- sites of significance relating to the history of slavery in South Africa.

A matrix was developed whereby the above criteria were applied for the determination of the significance of each identified site (see Appendix 1). This allowed some form of control over the application of similar values for similar sites.

## 4. STUDY APPROACH AND METHODOLOGY

### 4.1 Extent of the Study

This survey and impact assessment covers the area as presented in Section 5 and as illustrated in Figures 1 & 2.

### 4.2 Methodology

#### 4.2.1 Preliminary investigation

##### 4.2.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. Some published books and papers deal with Stone Age occupation of the region (e.g. Deacon 1970; Binneman 2001, 2006/2007), whereas others deal with the colonial history (Bryer & Hunt 1987; Butler 1974; Ferreira 1983; Playne 1910-1911; Richardson 2001). Other sources are unpublished reports, mostly scoping studies and HIAs done in the region (Albany Museum n.d; Archaeological Contracts Office 2010e; Binneman 2003, 2009, 2010a, 2010b; eThembeni 2007; Van Schalkwyk 2010).

- All of these sources contributed some information on historic events in the larger region as well as on the location of specific heritage sites and features.

##### 4.2.1.2 Data bases

The *Heritage Atlas Database*, the *Environmental Potential Atlas*, the *Chief Surveyor General (CS-G)* and the *National Archives of South Africa (NASA)* were consulted.

- Database surveys produced information on a number of sites located in the larger region of the proposed development.
- The original Title Deeds of some of the farms were located and produced some information of use such as the dating of farmsteads, etc.
- A few references were found in NASA, all dealing with aspects of development of roads, bridges, etc.

##### 4.2.1.3 Other sources

Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

- Information of a very general nature were obtained from these sources

#### 4.2.2 Field survey

The area that had to be investigated was identified by **SiVEST Environmental Division** by means of maps and during a site visit.

As this is a linear development the survey was done by travelling the corridors as far as possible. This turned out not to be difficult as in most cases the corridors are easily accessible by means of roads and tracks.

In some cases land owners were interviewed as to the significance or locality of sites on their property.



Fig. 1. Research strategy and findings.

Figure 1 illustrates one of the methods followed. The current 1:50 000 topocadastral map (top left) shows the northern route over the farm Zuurbron. On the right (top) is copy of the title deed of the farm (Zuurbron) dating to 1918, clearly indicating some built features already existing on the site. Below are photographs showing some of the features that date to the time of the Title Deed, in effect dating them to more than 60 years. Unfortunately, this type of information is not available for all properties.

### 4.3 Limitations

- In some sections dense vegetation has limited archaeological visibility. In those cases assumptions had to be made on the occurrence of heritage sites, especially Stone Age sites, for example in the Amanzi Springs region and the Thyspunt area.
- Financial and time constraints did not allow visits with all land owners. Only in those cases where a corridor was identified to cross over or in close vicinity of a farmstead were the owners interviewed.
- In many cases the proposed power lines will have a visual impact, i.e. indirect impact, on heritage sites. This is not addressed in this report as a separate report will be dealing with visual impacts.

## 5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

### 5.1 Site location and description

#### 5.1.1. Southern Corridor

There are three alternative sections within the Southern Corridor namely:

- Southern Corridor Thyspunt (HV Yard) to Port Elizabeth – Northern Alternative
  - Southern Corridor Thyspunt (HV Yard) to Port Elizabeth – Southern Alternative
  - Southern Corridor Port Elizabeth to Grassridge – Fitches Corner Alternative 1
  - Southern Corridor Port Elizabeth to Grassridge – Fitches Corner Alternative 2
  - Southern Corridor Port Elizabeth to Grassridge – Motherwell Alternative 1
  - Southern Corridor Port Elizabeth to Grassridge – Motherwell Alternative 2
- Southern Corridor Thyspunt (HV Yard) to Port Elizabeth – Northern Alternative

This alternative runs within the same corridor as the Northern Corridor. The corridor exits the High Voltage (HV) yard associated with the proposed Thyspunt Power Station to the north of the transverse dunes and moves in a northerly direction towards Humansdorp. The corridor crosses the unsurfaced road between Oyster Bay and Humansdorp in the vicinity of the Farm Kleinrivier. The corridor crosses the steeply incised Krom River Valley at the Farm Elandsjagt (downstream of the Impofu Dam) and then crosses the Geelhoutboom River. The corridor crosses the R102 provincial road and then the Seekoei River in the vicinity of the farm Geelhoutboom and a small portion of the farm Platjesdrift to the west of Kruisfontein. The Corridor turns east after crossing the Seekoei River. After the turn towards the east, the Corridor then crosses the N2 northwest of Humansdorp in the Kruisfontein area. The Corridor then traverses hilly ground crossing the R330 provincial road and the Rondebos River on the farm Zwarteboosch. The alternative crosses farmland and grazing land through the farms Melkhoutbosch, Misgund and the Backbone before re-joining the Southern Alternative in the area of the Mondplaas Siding to the west of the Gamtoos Valley.

- Southern Corridor Thyspunt (HV Yard) to Port Elizabeth Southern Alternative

The Southern Corridor Southern Alternative exits the High Voltage (HV) yard associated with the proposed Thyspunt Power Station to the north of the transverse dunes, heading in a north-easterly direction. The corridor crosses the farm Klein Rivier and the un-surfaced road

linking St Francis Bay with Oyster Bay and heads towards the Krom River valley. The corridor crosses the Krom River to the north-west of the town of St Francis Bay, downstream of where the Geelhoutboom River tributary joins the Krom. After crossing the Krom River, the corridor turns towards the north and crosses grazing land and the R330 provincial road as well as the Seekoei River and the Geelhout Dam. The corridor then traverses the area to the east of Humansdorp, turning north-east to cross the R102 and N2 highway. To the north of the N2 the corridor crosses the farm Melkhoutbosch and the upper reaches of the Swart River. The corridor traverses open grazing land on the farms Rooi Hoek, Kabbeljauwsrivier and Misgund. The corridor traverses the Kabeljous River valley, traversing the farms Papiesfontein and Vlake (where the Northern Alternative intersects this alternative). In this area, the Corridor runs parallel to N2 and R102 roads heading down towards the Gamtoos River valley. The Gamtoos River valley as traversed by the Southern Corridor in this area is characterised by intensive cultivation in the Mondplaas area.

- Southern Corridor Thyspunt (HV Yard) to Port Elizabeth – section east of Mondplaas and the Gamtoos Valley

The N2 and R102 highways run within the Corridor for most of its length in the section east of the Gamtoos Valley up to the proposed Port Elizabeth Substation Alternative in the Fitches Corner area. The corridor crosses the Gamtoos River to the south of the Gamtoos Ferry Hotel. To the east of the valley the area is dominated by farming activities and the corridor crosses the farms Nocton, Brakfontein, Florence and Tecoma in a hilly, incised area of thicket and farmland. The corridor then traverses the village of Thornhill before traversing the farm Sunnyvale in the vicinity of the new Crossways development. The Corridor crosses the Van Stadens River to the north of the Van Stadens Bridge (N2) and Van Stadens Pass (R102). To the east of the Van Stadens Gorge, the corridor continues in an easterly direction, running to the south of the Van Stadensberg (Lady Slipper) mountains in a largely agricultural area of smallholdings traversed by the N2 and R102 highways up to the area of the proposed Fitches Corner PE Substation Alternative 1. Two short alternatives to the Southern Corridor exist in the Fitches Corner area, as described below.

- Southern Corridor Port Elizabeth to Grassridge – Fitches Corner Alternative 1

This alternative traverses the farms Geduldrivier and Betshanger, initially running parallel to, and then crossing the N2 highway and R102 (Cape Road) to the west of the Blue Horizon Bay off ramp, heading northwards. The alternative runs to the south-east and roughly parallel to the R334 road to the north of its intersection with the R102 Cape Road. In this area it runs through an area of smallholdings to the west of the St. Albans Prison Complex. The alternative further crosses several more smallholdings on the farm Brakwater Flats before joining with the Fitches Corner Alternative 2 to the south of Rocklands.

- Southern Corridor Port Elizabeth to Grassridge – Fitches Corner Alternative 2

The alternative starts at the Geduldrivier Siding to the south of Fitches Corner and the intersection of the R102 Cape Road and the R334. The alternative turns north-eastwards to cross both the R102 and the R334 in the Greenbriars area. The alternative runs roughly parallel to the R334 through an area of smallholdings to the south of Rocklands. To the east of the link road between Rocklands and the St Albans Prison Complex, the alternative intersects Fitches Corner Alternative 1.

- Southern Corridor Port Elizabeth to Grassridge between Rocklands and Despatch

The Southern Corridor continues in a north-easterly direction east of Rocklands traversing the farms Brakkefontein and Brak River through hilly, incised terrain in the direction of KwaNobuhle. The corridor skirts the northern edge of the proposed Hopewell Conservancy, turning south-eastwards and then north-eastwards as it skirts the southern boundaries of the township of KwaNobuhle, up to the area of the proposed KwaNobuhle Substation Alternative 2 – a vacant area to the east of KwaNobuhle. The corridor heads east across this vacant area of disturbed thicket vegetation, running to the south of Khayamnandi and crossing the tarred



road linking Booysens Park and Despatch. It heads across an open hilly area of thicket vegetation east of Reservoir Hills, crossing the R75 and R367 (M19) roads to Uitenhage, straddling the northern parts of KwaDwesi. The Corridor then turns northwards to the east of Asalia Park, crossing the railway and the Swartkops River. North of the river the Motherwell Alternatives 1 and 2 begin.

- Southern Corridor Port Elizabeth to Grassridge – Motherwell Alternative 1

Alternative 1 heads northwards, traversing farmland to the north of the Swartkops River at Totteridge Park and then heading up the thicket vegetation on the northern slopes of the Swartkops River Valley. The alternative turns north-eastward as it crosses the R334 (M20), traversing the farms Coegaskop, Welbedachsfontein and Klein Gras Rug, to the area where it intersects the Motherwell Alternative 2.

- Southern Corridor Port Elizabeth to Grassridge – Motherwell Alternative 2

Motherwell Alternative 2 splits from the Motherwell Alternative 2 to the east of Totteridge Park, heading up to the north-east, out of the Swartkops River Valley. Alternative 2 continues in a north-easterly direction straddling the Swartkops Soutpan and salt works, running to the north-west of Motherwell and crossing the R334. The Alternative intersects Alternative 1 to the north of Motherwell where the Corridor crosses the R335 and the Coega River on the farm Welbedachtsfontein.

- Southern Corridor Port Elizabeth to Grassridge – Motherwell to Grassridge

From the area in which the two Motherwell Alternatives meet, the Southern Corridor crosses the Coega River and R335, traversing natural rangeland and a number of brickworks. The Southern Corridor re-joins the Northern Corridor, continuing eastwards towards the Grassridge Substation.

#### 5.1.2 Port Elizabeth Substation

There are two proposed alternative locations for the proposed Port Elizabeth Substation:

- Fitches Corner Substation Alternative 1

The location of this substation alternative is proposed in the Fitches Corner area, southeast of Lady's Slipper Nature Reserve. It is located on farms Gedults River and Willowdene. The area is bisected by the R102 Cape Road, and lies to the north of the N2 highway and to the south of the R334.

- KwaNobuhle Substation Alternative 2

This substation is located in vacant land between KwaNobuhle to the east, Manor Heights and Khayamnandi to the west and Uitenhage and the Swartkops River to the north.

#### 5.1.3. Northern Corridor

The Northern Corridor exits the High Voltage (HV) yard associated with the proposed Thyspunt Power Station to the north of the transverse dunes and moves in a northerly direction towards Humansdorp. The corridor crosses the unsurfaced road between Oyster Bay and Humansdorp in the vicinity of the Farm Kleinrivier. The corridor crosses the steeply incised Krom River Valley at the Farm Elandsjagt (downstream of the Impofu Dam) and then crosses the Geelhoutboom River at the Farm Platjesdrift. The corridor crosses R102 and then the Seekoei River and in the vicinity of the farm Geelhoutboom and a small portion of the farm Platjesdrift to the west of Humansdorp. The corridor continues in a northerly direction further traversing the farm Geelhoutboom and across N2 and some hilly terrain to the north of the

highway on the farm Pampoensland Rivier. At the farm Pampoensland Rivier, the Corridor turns in a north-easterly direction crossing R332 and some hilly ground at the farm Honeyville. From this section (around Honeyville farm) up to the area around Rocklands, there are three alternatives within the Northern Corridor:

- Alternative 1 – This alternative splits from Alternative 3 in the area of farms Weltevreden and Zuurbron. Alternative 1 traverses the R330 Provincial Road on the farm Weltevreden. It continues through the farm Zuurbron where it crosses the upper reaches of the Kabeljous River. The route alternative then traverses the Gamtoos River Valley in the vicinity of the farms Rooidraai, Bosch Bok Hoek and Spitsbak Estate. It continues in an easterly direction through hilly incised terrain on farms Buffels Hoek and Loerie River where it crosses the R331 Provincial Road. The alternative then traverses the area around Loerie Dam and the Loerie Dam Nature Reserve to the north of the town of Loerie, crossing the farms Loerie River, Geelhoutboom and Jagersfontein. Most of this portion of the route runs to the south of the boundary of Otterford State Forest and the Longmore State Forest, traversing the Longmore Forest offices, housing and saw mill (the Longmore Forest Station). To the east the alternative crosses the farms Platberg, Klaarefontein and before entering the Longmore State Forest to the north of the Van Stadens River Mountains. The corridor traverses forestry land (plantations) through this section, crossing the Van Stadens River. The alternative exits the Longmore area to the north of Van Stadensberg Natural Heritage Site Nature Reserve through the farm Boschfontein where it reconnects to Northern Corridor - Thyspunt (HV Yard) to Grassridge alternative 3 (described below).
- *(Please note – Alternative 2 is a deviation off Alternative 3)* Alternative 2 splits from Alternative 3 south-east of the town of Hankey. The route alternative continues in a north-easterly direction traversing the R331 on the farm Roodefontein and continuing through very hilly, natural terrain on the farms Limebank and Klein Rivier, running parallel with the valley of the Klein River. In the vicinity of the Otterford and Forest Reserve (to the west of the old Otterford Forest Station), the route curves towards the northwest through a very steeply incised area. It continues north-westwards through plantations until it re-joins Alternative 3.
- Alternative 3 splits from Alternative 1 in the vicinity of the R332 Provincial Road and the Diep River at the farms Honeyville, Weltevreden and Zuurbron. To the east of this point the alternative runs roughly parallel to the R330 provincial road down the Hankey Pass into the Gamtoos River Valley. The alternative crosses the Gamtoos Valley to the south of the hamlet of Weston, traversing the farms Rooidraai, Gamtoos Riviers and Wagendrift. The alternative passes to the east of Hankey, continuing in a north-easterly direction traversing the R331 Provincial Road. The alternative crosses hilly, incised terrain crossing the Klein River valley on the farms Klein Rivier and Kleinfontein. The alternative continues across very hilly, incised terrain across a portion of the Stinkhoutberg Nature Reserve, entering the Otterford Forest as the route curves to the south-east through a very steep area within Otterford State Forest, crossing the Hankey Forest reserve and the farm Sand River Heights. The alternative crosses the Sand River upstream of the Sand River Dam through forestry land. The alternative continues in a south-easterly direction, following the southern side of the Elands River valley across the farms Palmiet River and Peneheale, and running parallel to the Elands River Road. The alternative enters the Longmore State Forest, crossing the Bulk River Dam and running through the farm Uplands before linking up with Alternative 1 in the vicinity of the farm Boschfontein.

From the point at which alternative 1 and 3 join, the corridor runs in a north-easterly direction, crossing the farms Boschfontein, Brakkefontein, Ruigteveli and Burghley Hills through an uninhabited hilly area to the north of Rocklands. The corridor heads north-eastwards along the eastern boundary of Groendal Wilderness Area, traversing the Elands River valley through the Wincanton Estate, Kruisrivier and Mimosadale West. The Corridor then crosses the Swartkops River in the Kruisrivier area west of Uitenhage, crossing a number of small farms

in the valley. The corridor then climbs into uninhabited land to the west and north of Rosedale, turning to the east. The Corridor traverses uninhabited farm land to the north of Uitenhage, crossing a minor roads as well as the R75 Provincial Road, running between Levydale and the Springs Nature Reserve and Resort. To the east of the R75, the corridor then crosses farming land on the farms Sandfontein, Gras Rug, Longwood, Rietheuwel and Papenkuils Vley. The corridor crosses the farm Welbedachsfontein, crossing the R335 provincial road before feeding into the Grassridge Substation.

East of the Grassridge Substation the Northern Corridor (existing Servitude) Grassridge to Dedisa runs eastwards across largely natural thicket vegetation on the farm Brak River, then south-eastwards and finally southwards until it terminates at the Dedisa Substation which is located to the north of the R334 and R102.



Fig. 3. Elements of the landscape through which the corridors pass.

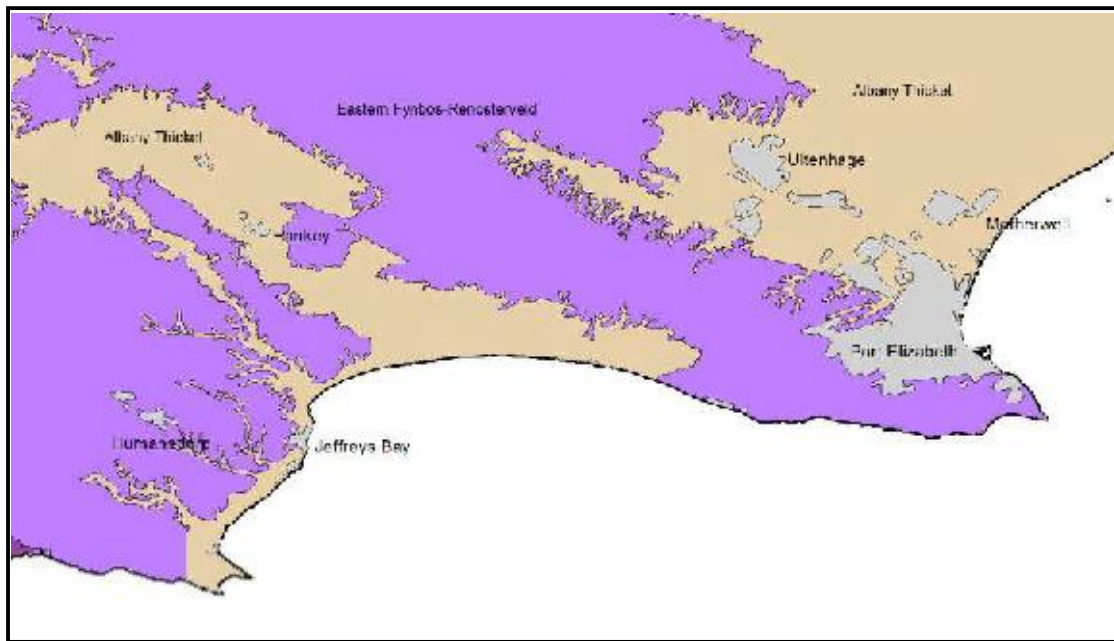


Fig. 4. The two vegetation zones that occur in the study region.

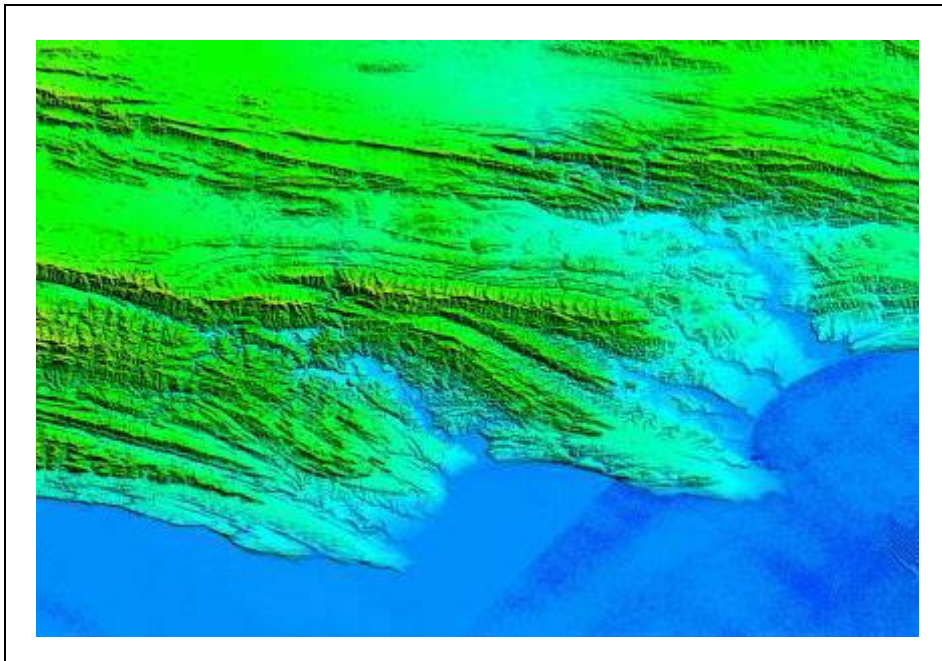


Fig. 5. Digital elevation map showing the topography of the study region.

## 5.2 Overview of the region

The cultural landscape qualities of the region essentially consist of two components. The first is a rural area in which the human occupation is made up of a pre-colonial element (Stone Age) as well as a much later colonial (Settler farmers) component. The second component is an urban landscape dating to the colonial period.

### 5.2.1 Rural landscape

The rural landscape has always been sparsely populated and it was only in a few areas where, through the application of specific economic strategies such as shellfish harvesting or farming, people succeeded to occupy a section of the region for any length of time.

- Archaeological sites

Archaeological sites in this area predominantly date to the Stone Age as early farmer communities, also referred to as Iron Age communities, did not settle this far south (Derricourt 1977).

The Stone Age archaeology of the larger region has been intensively researched and published in a number of publications and reports. The most significant contribution is that of Dr J Binneman of the Albany Museum (e.g. Binneman 2001, 2003, 2005, 2006/2007, 2009, 2010a, 2010b). In addition, a number of other publications and HIA reports also indicate the occurrence of sites/find spots in the larger region (Archaeology Contracts Office 2010; Deacon 1970; eThembeni 2007; Kaplan 2007; Van Schalkwyk 2010).

|  |   |
|--|---|
| <b>NHRA Category</b>   | Archaeological and palaeontological sites |
| <b>Protection status</b>   |   |
| General Protection - Section 35: Archaeology, palaeontology and meteorites |   |



Fig. 6. View over Amanzi springs and some stone tools found in the Grassridge area. The stone tools (bottom left) are not from the region and are only used to illustrate the difference between Early (left), Middle (middle) and Later Stone Age (right) technology.



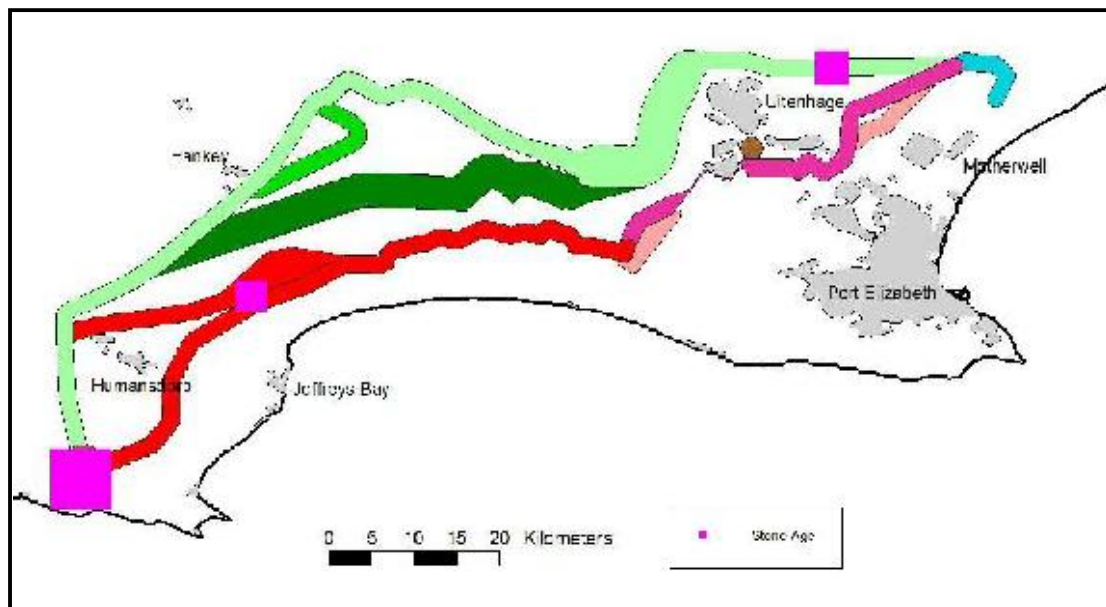


Fig. 7. Map showing the location of known concentrations of Stone Age sites.

Human occupation of the larger geographical region took place since Early Stone Age (ESA) times. Tools dating to this period are mostly, although not exclusively, found in the vicinity of watercourses. The oldest of these tools are known as choppers, crudely produced from large pebbles found in the river. Later, *Homo erectus* and early *Homo sapiens* people made tools shaped on both sides, called bifaces. Biface technology is known as the Acheulean tradition, from St Acheul in France, where bifaces were first identified in the mid-19th century. Biface technology is found over a large area of Africa, some parts of India, Arabia and the Near East, as well as parts of western Europe. This is one of the longest-lasting technologies the world has known, spanning a period of more than 1,5 million years.

During Middle Stone Age (MSA) times (c. 150 000 – 30 000 BP), people became more mobile, occupying areas formerly avoided. The MSA is a technological stage characterized by flakes and flake-blades with faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology. Open sites were still preferred near watercourses, but the people also became adept at exploiting the coastal resources, especially the shellfish.

Occupation of the region seems to have increased during the Later Stone Age (LSA). These people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. A number of sites are known to occur in the region, located to the west and north of the study area. Also, for the first time (with a limited number of exceptions) we get evidence of people's activities derived from material other than stone tools. Ostrich eggshell beads, ground bone arrowheads, small bored stones and wood fragments with incised markings are traditionally linked with the LSA. The LSA people have also left us with a rich legacy of rock art, which is an expression of their complex social and spiritual beliefs.

Although the larger country side probably contains hundreds of sites dating from the Early Stone Age, through the Middle and Later Stone Age, within the proposed power line corridors they tend to cluster in three distinct areas (Fig. 7).

One of the more important Early Stone Age sites in the region occurs at Amanzi Springs, in close vicinity of the northern corridor (located to the west of the Grassridge Substation, in the vicinity of the Coega River valley). The site was excavated by Deacon (1970). Apart from stone tools dating to the Early and Middle Stone Age, the site also produced well-preserved

bone, wooden artefacts and seed remains (probably food material), making this a very significant site. At present it is unsure what else remains of this site as well as similar springs in the region, but the site is viewed to have a high significance on a regional level.

In addition, stone tools dating to the Early and Middle Stone Age have been identified in the Grassridge area (Kaplan 2007; Van Schalkwyk 2010). These are found in a secondary context (open surface material), where they have been exposed in gravel terraces by rivers and streams. Normally this material is viewed to have a low significance and the localities where they are found are referred to as find spots rather than sites.

Further to the west, in the southern corridor, research by Binneman (2001; 2006/2007) has shown that a number of very important Later Stone Age sites occur in the Kabeljousrivier area (roughly to the north of, and inland of Jeffreys Bay). In fact, Binneman was able to demonstrate that these sites belong to a whole new artefact tradition, which he termed the Kabeljous industry. As such they shed important light on human occupation and cultural development in the region and therefore have very high significance on a regional level.

At the Thyspunt end of the corridors, the density and significance of sites dating to the Stone Age have ably been demonstrated by the work done by Binneman (2001, 2005, 2006/2007) and the HIA done for the site selection of the proposed power station (Archaeology Contracts Office 2010 - ACO) and we accept that that report would be read in conjunction with the current report. In summary they report that Later Stone Age sites are very common within 200m of the shoreline, and common within 400m. After 400m the frequency drops off, but in places can be expected to occur as much as 5km from the shore. These sites, according to the ACO, represent the heritage of a great many South Africans who have KhoiKhoi and/or San lineage. We concur with the findings of that report. However, as the High Voltage Yard of the power station is proposed to be located to the north of the shifting dunes, on the farm Penny Sands, in an area which is intensely cultivated, there would be less of a risk of the power lines impacting on this type of sites.

- Farmsteads

|   |  |
|---|--|
| <b>NHRA Category</b>  | Buildings, structures, places and equipment of cultural significance |
| <b>Protection status</b>  |  |
| General Protection - Section 34: Structures older than 60 years |  |



Fig. 8. Examples of farmsteads identified in the region.

Farmsteads are complex features in the landscape, being made up of different yet interconnected elements. Typically these consist of a main house, gardens, outbuildings,

sheds and barns, with some distance from that labourer housing and various cemeteries. In addition roads and tracks, stock pens and wind mills complete the setup. An impact on one element therefore impacts on the whole.

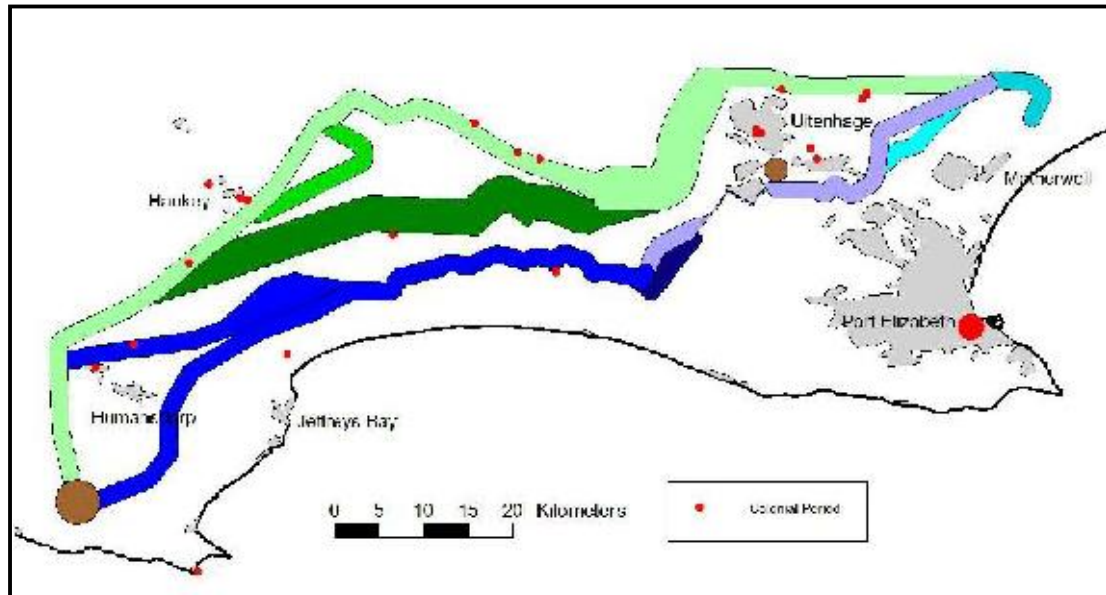


Fig. 9. Distribution of Colonial Period sites.

By the late 18<sup>th</sup> century some Dutch speaking settlers took up farms, but it was only with the arrival of the 1820 Settlers that population numbers started to take off. An investigation of the Title Deeds of most of the farms under consideration indicated that they were surveyed as early as the 1820s, implying that they would have been occupied by colonists since then.

The architecture of these farmsteads can be described as a modified English vernacular tradition that was brought by these settlers to the Eastern Cape region after the 1820s. Farm buildings were generally single storied but town houses often reached two floors. Walls were thick and built in stone and the ridged roof, thatched or tiled, was terminated at either end by simple linear parapet gables (see image above).

In some cases outbuildings would be in the same style as the main house, if they date to the same period. However, they tend to vary considerably in style and materials used as they were erected later as and when they were required.

It is accepted that the power line would not be built across a farmstead and the direct impact can therefore be considered to be low. However, it would have a big visual impact, which might be a problem for some land owners as they have or are planning to have some form of tourism activity on their property. The farmsteads are viewed to have a medium significance on a regional level.

#### • Cemeteries

Apart from the formal cemeteries that occur in municipal areas (towns or villages), a number of these, some quite informal, i.e. without fencing, occur in both corridors. Many also seem to have been forgotten (see image below), making it very difficult to trace the descendants in a where the graves are to be relocated.



|   |                                       |
|---|---------------------------------------|
| <b>NHRA Category</b>                                      | Graves, cemeteries and burial grounds |
| <b>Protection status</b>                                  |                                       |
| General Protection - Section 36: Graves or burial grounds |                                       |



Fig. 10. Examples of burial places.

Most of these cemeteries, irrespective of the fact that they are for land owner or farm labourers (with a few exceptions where they were integrated), are family orientated. They are therefore serve as important 'documents' linking people directly by name to the land.

The various cemeteries, burial places and graves are viewed to have a high significance on a local level.

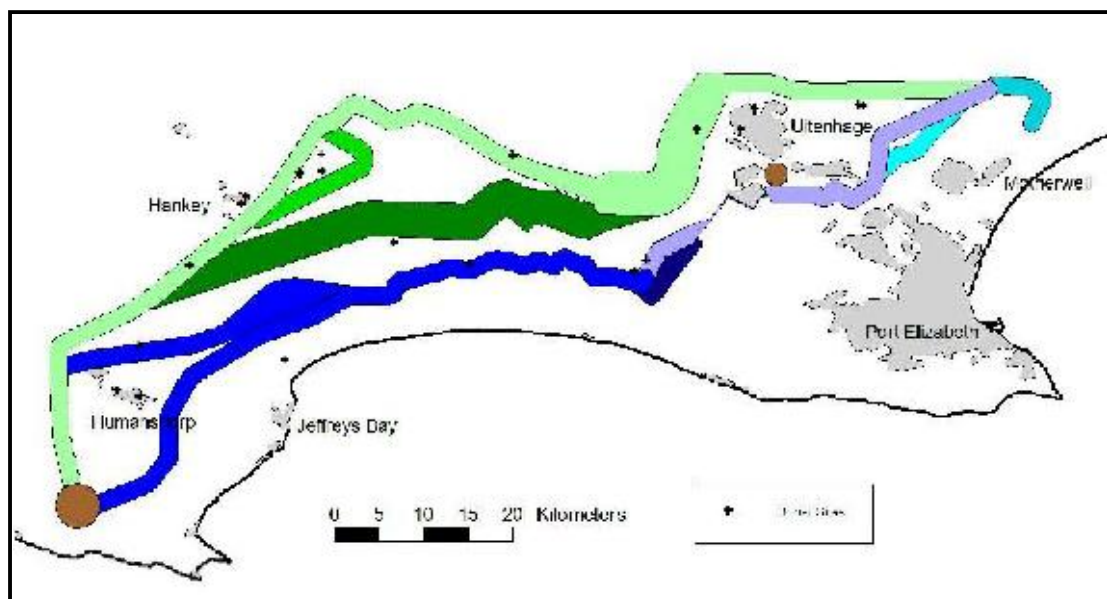


Fig. 11. Distribution of cemeteries and burial sites.

- Infrastructure and industrial heritage

In many cases this aspect of heritage is left out of surveys, largely due to the fact that it is taken for granted. However, the land and its resources could not be accessed and exploited without the development of features such as roads, bridges, railway lines, electricity lines and telephone lines.

|   |  |
|---|--|
| <b>NHRA Category</b>  | Buildings, structures, places and equipment of cultural significance |
| <b>Protection status</b>  |  |
| General Protection - Section 34: Structures older than 60 years |  |



Fig. 12. The narrow gauge railway line across a steel bridge at Hankey and an old brick chimney.

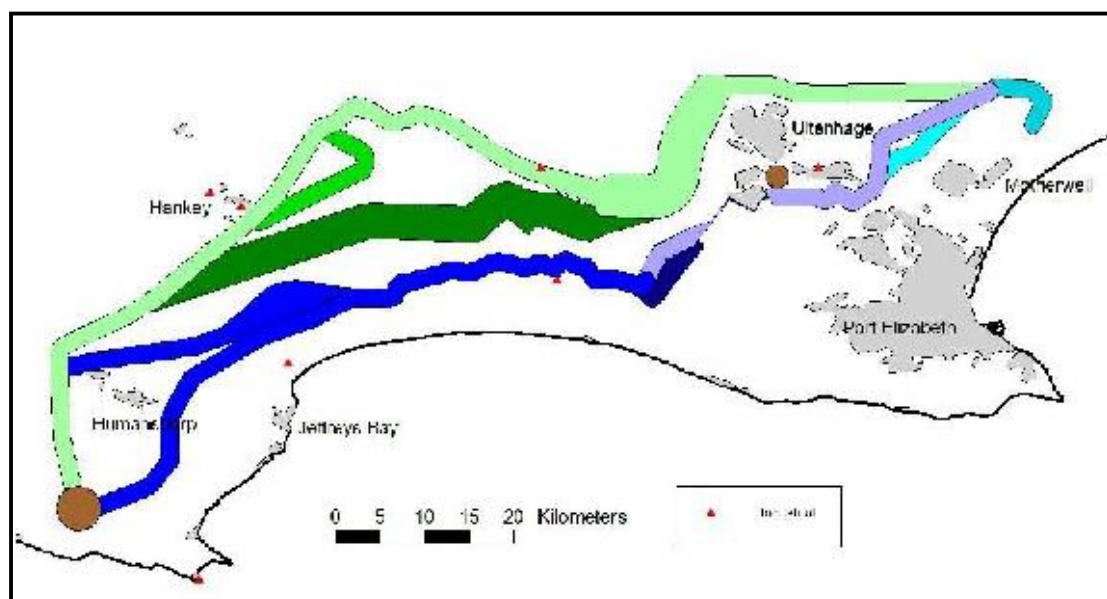


Fig. 13. Distribution of infrastructural/industrial heritage sites.

A variety of bridges, railway lines and other features that can be included in this category occur in or near the corridors. The oldest such features in the region would be the tidal fish

traps found in the coastal area, ascribed by some as dating to the Later Stone Age times, although many were constructed and used during early historic times. Other interesting features are the so-called Philips Tunnel that was developed in the late 19<sup>th</sup> century to bring water to communities in the Hankey region. The Bulk River water supply system that supplies Port Elizabeth with most of its water is a further example.

Most features that can be included in this category are located on the outer fringes of towns.

It is unlikely that the development of the power line would have a direct impact on any of these sites. However, it will have big visual impact, which would be detrimental from a tourism point of view.

### 5.3.2 Urban landscape

The corridors pass in close proximity of the outskirts of a number of towns. This part of the study area falls within that zone usually located on the front edge of (city) urban-sprawl where the land previously used for agricultural use (only) have become subdivided into small holdings. What used to be a large single agricultural unit or farm now consists of tens of small properties. These units do not have their economic base in traditional agriculture but are sustained by a variety of land uses and economic activities with strong urban associations. This phenomenon happened in the past forty to fifty years. Therefore most of the built fabric dates from this period. The result is that any historic farmsteads older than 60 years that may have existed have either disappeared or have been 'upgraded'.

Research on colonial settlement in the region seems to be more focussed on what can be described as conventional history (Bryer & Hunt 1987; Butler 1974) and is less concerned with heritage sites and features, although some regional studies/surveys have been done (Binneman 2003; Ferreira 1983).

|   |  |
|---|--|
| <b>NHRA Category</b>  | Buildings, structures, places and equipment of cultural significance |
| <b>Protection status</b>  |  |
| General Protection - Section 34: Structures older than 60 years |  |

|   |                                       |
|---|---------------------------------------|
| <b>NHRA Category</b>                                      | Graves, cemeteries and burial grounds |
| <b>Protection status</b>                                  |                                       |
| General Protection - Section 36: Graves or burial grounds |                                       |

|   |  |
|---|--|
| <b>NHRA Category</b>  | Buildings, structures, places and equipment of cultural significance |
| <b>Protection status</b>  |  |
| General Protection - Section 37: Public Monuments and Memorials |  |





Fig. 14. Various heritage elements found in the urban environment.

- Hankey:

This is a small town 70 km west of Port Elizabeth. The town was established as a mission station by the London Missionary Society in 1825 and named after William Alhers Hankey, its treasurer.

According to the various databases consulted it has more than 50 houses, buildings and other structures listed as of conservation worthy status.

- Humansdorp

A large town 80 km west of Port Elizabeth. It was laid out on the farm Rheebofsfontein in 1849. It originated as a church village and was after Matthys Human, the owner of the farm.

According to the various databases consulted it has approximately 100 houses, buildings and other structures listed as of conservation worthy status.

- Port Elizabeth

This city grew around Fort Frederick, a military station established in 1799. However, it only developed and expanded after the arrival of the 1820 Settlers. It was named Port Elizabeth in 1820 by Sir Rufane Donkin, Acting Governor of the Cape, after his wife Elizabeth Frances.

According to the various databases consulted it has approximately 250 houses, buildings and other structures listed as of conservation worthy status.

- Uitenhage:

This town was founded on the loan farm of Elizabeth Scheepers and was named in honour of J A Uitenhage de Mist, Commissioner-General. The town attained municipal status in 1841.

According to various databases consulted it has approximately 50 houses, buildings and other structures listed as of conservation worthy status.

### 5.3.3 Proposed development

The area indicated in Fig. 15 is earmarked to be used as a cultural centre where it is planned to relocate Khoisan remains from the St Francis Bay area. However, as this is still in the planning stadium, it is difficult to determine any impact the development of the power line would have on the site.



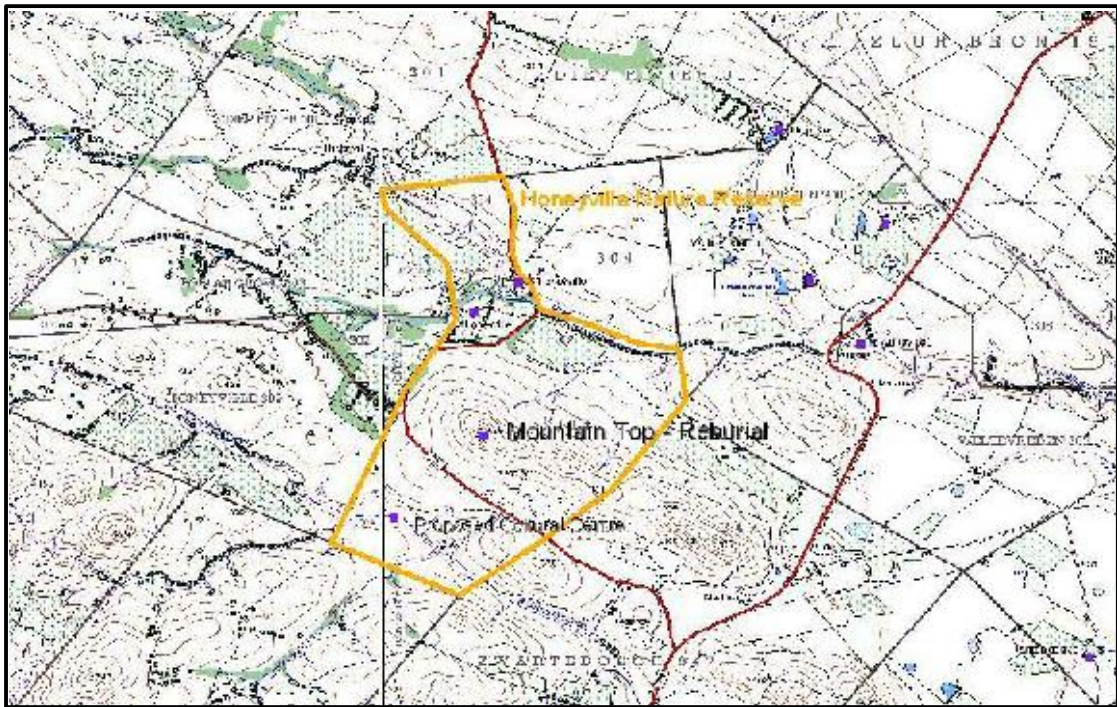


Fig. 15. Proposed cultural centre.

## 6. SITE SIGNIFICANCE AND ASSESSMENT

### 6.1 Heritage assessment criteria and grading

According to the NHRA, No. 25 of 1999, Section 2(vi), the *significance* of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential.

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I:** Heritage resources with qualities so exceptional that they are of special national significance;
- **Grade II:** Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- **Grade III:** Other heritage resources worthy of conservation, on a local authority level.

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the application of mitigation measures would allow the development activities to continue.

A matrix was developed whereby the above criteria, as set out in Sections 3(3) and 7 of the NHRA, No. 25 of 1999, were applied for each identified site (see Appendix 1). This allowed some form of control over the application of similar values for similar sites.

## 6.2 Statement of significance

In terms of Section 7 of the NHRA, the sites currently known or which are expected to occur in the study area are evaluated to have the following significance:

- Stratified Stone Age sites and shell middens are viewed to have a high significance on a regional level and have Grade II significance;
- Farmsteads are viewed to have medium significance on a regional level and have Grade III significance;
- Graves and cemeteries are viewed to have high significance on a local level and have Grade III significance;
- Industrial heritage sites are viewed to have medium significance on a regional level and have Grade III significance.

## 6.3 Impact assessment

Impact analysis of cultural heritage resources under threat of the proposed development, are based on the present understanding of the proposed development.

| Environmental Parameter                  | <b>Pre-colonial: Stone Age sites</b>   |                               |
|--|--|-------------------------------|
| Issue/Impact/Environmental Effect/Nature | Many sites are still unknown. Their potential and significance therefore unknown. The impact will be the physical disturbance of the material and its context. Impact will be focused on a particular node, i.e. tower positions or access/ inspection roads |                               |
| Extent                                   | Local  |                               |
| Probability                              | Definite   |                               |
| Reversibility                            | Irreversible   |                               |
| Irreplaceable loss of resources          | The impact will result in significant loss of resources  |                               |
| Duration                                 | Permanent  |                               |
| Cumulative effect                        | High cumulative impact   |                               |
| Intensity/magnitude                      | Very high  |                               |
| Significance Rating                      | Sites have a high significance on a region level – viewed as NHRA Grade II sites. Distinguish from find spots, which have low significance   |                               |
|  | Pre-mitigation impact rating   | Post mitigation impact rating |
| Extent                                   | 2  | 2                             |
| Probability                              | 3  | 3                             |
| Reversibility                            | 4  | 4                             |
| Irreplaceable loss                       | 3  | 3                             |
| Duration                                 | 4  | 4                             |
| Cumulative effect                        | 4  | 4                             |
| Intensity/magnitude                      | 4  | 2                             |
| Significance rating                      | 80 (negative very high)  | 44 (negative medium)          |

|                     |   |
|---------------------|---|
| Mitigation measures | All of these sites should be avoided as far as possible. This is especially the case with type-sites such as identified in the Kabeljousrivier area by Binneman. Sites that cannot be avoided should be excavated in full by an archaeologist qualified in Stone Age archaeology. |
|---------------------|---|

| Environmental Parameter                  | <b>Colonial Period - farmsteads</b>  |                               |
|--|--|-------------------------------|
| Issue/Impact/Environmental Effect/Nature | The various features are subject to damage. Easier to identify and therefore easier to avoid. Variety of interconnected elements makes up the whole. Impact on part therefore implies an impact on the whole   |                               |
| Extent                                   | Site   |                               |
| Probability                              | Possible   |                               |
| Reversibility                            | Partly reversible  |                               |
| Irreplaceable loss of resources          | Marginal loss of resource  |                               |
| Duration                                 | Long term  |                               |
| Cumulative effect                        | Low cumulative impact  |                               |
| Intensity/magnitude                      | Medium   |                               |
| Significance Rating                      | Sites have a medium significance on a region level – viewed as NHRA Grade III sites.   |                               |
|  | Pre-mitigation impact rating   | Post mitigation impact rating |
| Extent                                   | 1  | 1                             |
| Probability                              | 2  | 2                             |
| Reversibility                            | 2  | 2                             |
| Irreplaceable loss                       | 2  | 1                             |
| Duration                                 | 3  | 3                             |
| Cumulative effect                        | 2  | 1                             |
| Intensity/magnitude                      | 2  | 2                             |
| Significance rating                      | 24 (low negative)  | 20 (low negative)             |
| Mitigation measures                      | Mitigation should take the form of isolating known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. In exceptional cases mitigation can be implemented after required procedures have been followed. |                               |

| Environmental Parameter                  | <b>Colonial Period – industrial heritage</b>   |
|--|--|
| Issue/Impact/Environmental Effect/Nature | Different features are subject to damage. Most are unique – no alternatives or second examples. Easy to identify and therefore easy to avoid |
| Extent                                   | Site   |
| Probability                              | Possible   |
| Reversibility                            | Partly reversible  |
| Irreplaceable loss of resources          | Marginal loss of resources   |
| Duration                                 | Permanent  |

|                     |   |                               |
|---------------------|---|-------------------------------|
| Cumulative effect   | Long term   |                               |
| Intensity/magnitude | Medium  |                               |
| Significance Rating | Sites have a medium significance on a region level – viewed as NHRA Grade III sites.  |                               |
|                     |   |                               |
|                     | Pre-mitigation impact rating  | Post mitigation impact rating |
| Extent              | 1   | 1                             |
| Probability         | 2   | 2                             |
| Reversibility       | 2   | 2                             |
| Irreplaceable loss  | 2   | 1                             |
| Duration            | 3   | 3                             |
| Cumulative effect   | 2   | 1                             |
| Intensity/magnitude | 2   | 2                             |
| Significance rating | 24 (low negative)   | 20 (low negative)             |
| Mitigation measures | Mitigation should take the form of isolating known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. In exceptional cases mitigation can be implemented after required procedures have been followed, but only as last case scenario |                               |

|  |  |                               |
|--|--|-------------------------------|
| Environmental Parameter                  | <b>Graves, cemeteries and burial grounds</b>   |                               |
| Issue/Impact/Environmental Effect/Nature | The impact will be the physical disturbance of the features and its context. Many are hidden and forgotten, i.e. difficult to identify. Impact will be focused on a particular node, i.e. tower positions or access/inspection roads |                               |
| Extent                                   | Local  |                               |
| Probability                              | Probable   |                               |
| Reversibility                            | Irreversible   |                               |
| Irreplaceable loss of resources          | Significant loss of resources  |                               |
| Duration                                 | Permanent  |                               |
| Cumulative effect                        | Medium cumulative impact   |                               |
| Intensity/magnitude                      | Very high  |                               |
| Significance Rating                      | Sites have a high significance on a local level – viewed as NHRA Grade III sites.  |                               |
|  |  |                               |
|  | Pre-mitigation impact rating   | Post mitigation impact rating |
| Extent                                   | 1  | 1                             |
| Probability                              | 2  | 2                             |
| Reversibility                            | 4  | 4                             |
| Irreplaceable loss                       | 3  | 3                             |
| Duration                                 | 4  | 2                             |
| Cumulative effect                        | 3  | 1                             |
| Intensity/magnitude                      | 4  | 1                             |
| Significance rating                      | 68 (high negative)   | 13 (low negative)             |



|                     |   |
|---------------------|---|
| Mitigation measures | Mitigation should take the form of isolating known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. Plan of action should be developed if unknown burial places are discovered. In exceptional cases, relocation of graves can be implemented after required procedures have been followed. |
|---------------------|---|

## 7. RECOMMENDED MANAGEMENT MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated / recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the environmental management plan, whence they can be avoided or cared for in the future.

### 7.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during excavation activities.

The following shall apply:

- Once the power line routes have been confirmed and the location (coordinates) of the various tower structures are available, a walkdown of the routes should be done prior to construction taking place, to document all sites, features and objects, in order to propose adjustments to the routes and thereby to avoid as many impacts as possible.
- Known sites should be clearly marked in the construction Environmental Management Plan (CEMP) in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51.

### 7.2 Control

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

## **8. CONCLUSIONS**

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the corridors in which it is proposed to develop electricity transmission lines.

The cultural landscape qualities of the region essentially consist of two components. The first is a rural area in which the human occupation is made up of a pre-colonial element (Stone Age) as well as a much later colonial (Settler farmers) component. The second component is an urban landscape dating to the colonial period.

The following heritage sites were identified in the study area:

- Pre-colonial archaeological sites dating to all phases of the Stone Age have been identified to occur in the study area. At present it seems as if these sites cluster into three distinct areas. However, this might only be a viewpoint based on a perception created by the available information. In some cases the impact of the development would only be indirect, e.g. the power line crossing over a site. In other areas of the proposed development, even though the impact will be focused on a particular node, i.e. tower positions or access/ inspection roads, it will give rise to the physical disturbance of the material and its context. This would result in irreplaceable loss of resources.
- Colonial period or historic period heritage manifest in a wide variety. As the power lines are to cross a rural landscape for the most part, the impact would only be indirect, e.g. the power line crossing over a site. In other areas of the proposed development the impact will be focused on a particular node, i.e. tower positions or access/ inspection roads and will therefore give rise to the physical damage of the features or structures and its context.

Heritage sites are not only fixed features in the environment, occurring within specific spatial confines, but they are also finite in number. Avoiding of impacts on sites is therefore the preferred form of mitigation. In areas where a high density of sites occurs, such as at the Thyspunt end of the corridors, if at all possible, exclusion zones where no development is to take place, should be set aside. If that is not possible, mitigation can only be achieved through archaeological investigation.

For the project to continue, we propose the following:

- The management measures, as set out in Section 7 of this report should be implemented prior to construction taking place.
- Mitigation should be based on avoiding of sites rather than anything else. In order to achieve this, a full "walk down" of the corridors must be done prior to construction taking

place, to document all sites, features and objects, in order to propose adjustments to the routes and thereby to avoid as many impacts as possible.

- No impact on heritage sites, features or objects can be allowed without a valid permit from SAHRA.

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#### **9.4 Maps and aerial photographs**

1:50 000 Topocadastral maps: 3324DB, 3324DC, 3324DD, 3325CA, 3325CB, 3325CC, 3325CD, 3325DA, 3325DC, 3424BA, 3424BB.

Google Earth

## APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES

### Significance

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

|   |        |  |      |        |     |
|---|--------|--|------|--------|-----|
| <b>1. Historic value</b>  |        |  |      |        |     |
| Is it important in the community, or pattern of history   |        |  |      |        |     |
| Does it have strong or special association with the life or work of a person, group or organisation of importance in history  |        |  |      |        |     |
| Does it have significance relating to the history of slavery  |        |  |      |        |     |
| <b>2. Aesthetic value</b>   |        |  |      |        |     |
| It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group  |        |  |      |        |     |
| <b>3. Scientific value</b>  |        |  |      |        |     |
| Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage  |        |  |      |        |     |
| Is it important in demonstrating a high degree of creative or technical achievement at a particular period  |        |  |      |        |     |
| <b>4. Social value</b>  |        |  |      |        |     |
| Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons  |        |  |      |        |     |
| <b>5. Rarity</b>  |        |  |      |        |     |
| Does it possess uncommon, rare or endangered aspects of natural or cultural heritage  |        |  |      |        |     |
| <b>6. Representivity</b>  |        |  |      |        |     |
| Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects   |        |  |      |        |     |
| Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class  |        |  |      |        |     |
| Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality. |        |  |      |        |     |
| <b>7. Sphere of Significance</b>  |        |  | High | Medium | Low |
| International   |        |  |      |        |     |
| National  |        |  |      |        |     |
| Provincial  |        |  |      |        |     |
| Regional  |        |  |      |        |     |
| Local   |        |  |      |        |     |
| Specific community  |        |  |      |        |     |
| <b>8. Significance rating of feature</b>  |        |  |      |        |     |
| 1.  | Low    |  |      |        |     |
| 2.  | Medium |  |      |        |     |
| 3.  | High   |  |      |        |     |

**Significance of impact:**

- low where the impact will not have an influence on or require to be significantly accommodated in the project design
- medium where the impact could have an influence which will require modification of the project design or alternative mitigation
- high where it would have a "no-go" implication on the project regardless of any mitigation

**Certainty of prediction:**

- Definite: More than 90% sure of a particular fact. Substantial supportive data to verify assessment
- Probable: More than 70% sure of a particular fact, or of the likelihood of that impact occurring
- Possible: Only more than 40% sure of a particular fact, or of the likelihood of an impact occurring
- Unsure: Less than 40% sure of a particular fact, or the likelihood of an impact occurring

**Recommended management action:**

For each impact, the recommended practically attainable mitigation actions which would result in a measurable reduction of the impact, must be identified. This is expressed according to the following:

- 1 = no further investigation/action necessary
- 2 = controlled sampling and/or mapping of the site necessary
- 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary
- 4 = preserve site at all costs
- 5 = retain graves

**Legal requirements:**

Identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project, if mitigation is necessary.

## **APPENDIX 2. RELEVANT LEGISLATION**

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(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;
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- (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.

In terms of cemeteries and graves the following (Section 36):

(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.





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**9 December 2010**

Mr Paul Dacruz  
SiVEST Environmental Division  
51 Wessel Road  
PO Box 2921  
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2128

[pauld@sivest.co.za](mailto:pauld@sivest.co.za)

Dear Mr Dacruz,

**Eskom Thyspunt Nuclear Integration project: Desktop Palaeontological Study.**

As requested by Varsha Naidoo I have undertaken a desk top EIA to assess the effect that the construction of five 400kV transmission lines, the upgrade of two existing substations and the construction of a new Port Elizabeth Substation will have on palaeontological heritage. In my opinion this development will have some affect on palaeontological heritage and have proposed some mitigation measures.

My report is included herewith.

Please come back to me if there is anything you do not understand or are unhappy with in the report.

Yours sincerely

**Professor**

**Bruce**

**Rubidge**

# ESKOM THYSPUNT NUCLEAR INTEGRATION PROJECT: DESKTOP PALAEOONTOLOGICAL STUDY

## Introduction

A desktop palaeontological environmental impact assessment was undertaken on the proposed routes for five 400kV transmission lines from the proposed Thyspunt Nuclear Power Station High Voltage Yard to the existing Grassridge and Dedisa substations to determine the effect that the proposed development may have on palaeontological heritage in the area. Following the map supplied (Figure 1) two corridors are proposed, a Northern Corridor which will contain three lines and a Southern Corridor which will contain two lines.

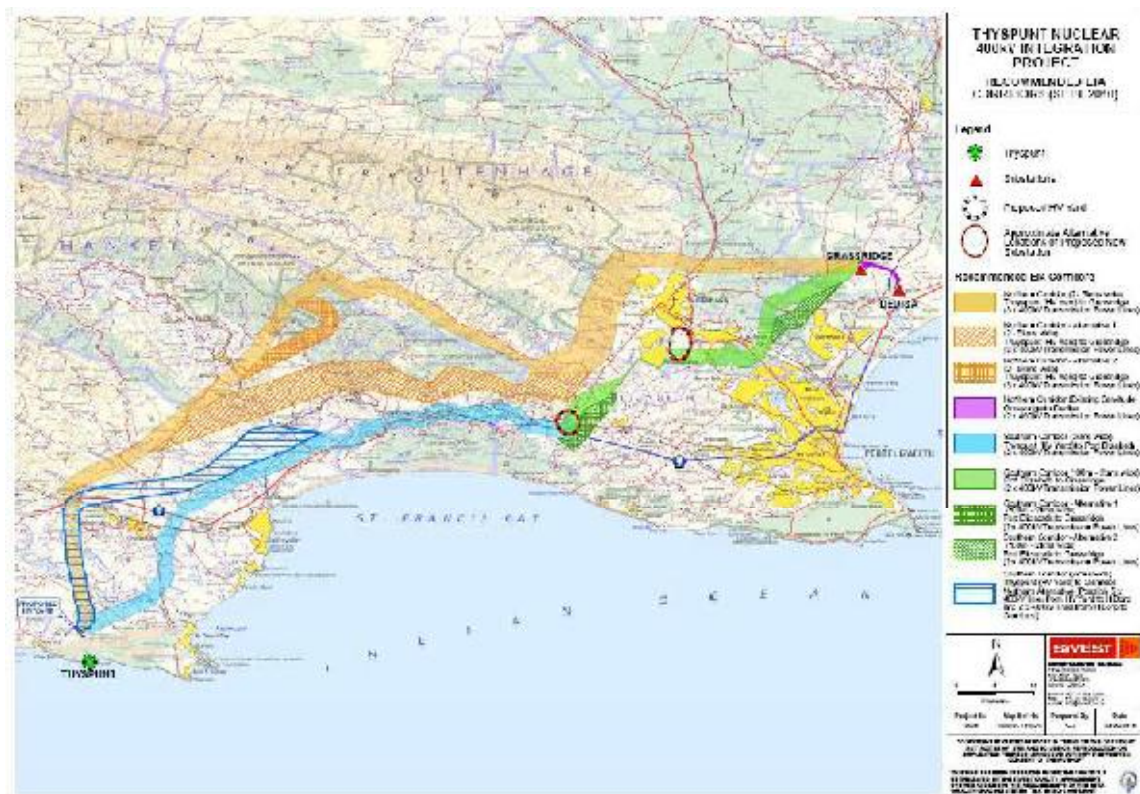


Figure 1: Map of the study area showing the proposed routes for the transmission lines

## Geology of the area

The proposed routes for the transmission lines will cross a wide spectrum of geological formations which range in age from Precambrian to Plio-Pleistocene. As the different rock formations have differing potential for fossils a short description of the different rock formations traversed is provided with the oldest at the base:

|                        |                         |             |
|------------------------|-------------------------|-------------|
|                        | Nanaga Formation        | Tertiary    |
|                        | Kinkelbos Formation     | Tertiary    |
|                        | Alexandria Formation    | Tertiary    |
|                        | Grahamstown Formation   | Tertiary    |
| Uitenhage Group        | Sundays River Formation | Cretaceous? |
|                        | Kirkwood Formation      | Jurassic    |
|                        | Enon Formation          | Jurassic    |
| Bokkeveld Group        | Ceres Subgroup          | Devonian    |
| Table Mountain Group – | Baviaanskloof Formation | Devonian    |
|                        | Skurweberg Formation    | Silurian    |
|                        | Goudini Formation       | Silurian    |
|                        | Cederberg Formation     | Ordovician  |
|                        | Peninsula Formation     | Ordovician  |
|                        | Sardinia Bay Formation  | Ordovician  |
| Gamtoos Group          | Van Stadens Formation   | Namibian    |
|                        | Kaan Formation          | Namibian    |
|                        | Klein River             | Namibian    |
|                        | Lime Bank               | Namibian    |

The following geological description of the different traverses of the power follows the scheme set out in Figure 1.

### **Northern Corridor**

*Northern Corridor (2-5km wide): Thyspunt (HV Yard) to Grassridge (3 x 400kV Transmission Power Lines) (Orange shading)*

From Thyspunt the route extends northwards and then turns northwest to end at Grassridge.

From the farm Welgelegen in the south till northeast of the farm Dieprivier (northeast of Humansdorp) the traverse covers rocks of the Cape Supergroup. Welgelegen is situated on the Peninsular Formation and the traverse extends stratigraphically upward to cover the Cedarberg, Goudini, Skurweberg and Baviaanskloof formations of the Table Mountain Group. Southwest of Humansdorp the route covers an extensive area underlain by rocks of the Ceres Subgroup of the Bokkeveld Group. Over the anticline north of Humansdorp the route again traverses the formations of the Table Mountain and Bokkeveld groups mentioned above. On the farm Marville the line will cross a small outcrop of the Tertiary Grahamstown Formation. Northwest of the farm Klein Zuurbron the route enters the Gamtoos Basin and traverses rocks of the Jurassic Enon Formation

south of the Gamtoos River, and the Kirkwood Formation north of the River. The banks of the Gamtoos River are flanked by Quaternary alluvial deposits.

North of the farm Kleinrivier (north of the town of Hankey) the line traverses rocks of the Precambrian aged Gamtoos Group for a short distance. Northwest of the farm Otterford the line again traverses the Table Mountain Group beginning with the basal Sardinia Bay Formation and extending up as far as to the Skurweberg Formation over which it has a long southeasterly traverse up to the farm Boschfontein. East of this the route extends over the Ceres Subgroup of the Bokkeveld Group before a long traverse over the Kirkwood Formation in the area southwest and north of Uitenhage. In this area the route also covers Quaternary alluvial deposits on the banks of the Coega and Swartkops rivers.

Close to Grassridge the line will cross rocks of the Sundays River and Alexandria formations.

*Northern Corridor – Alternative 1 (2-5km wide): Thyspunt (HV Yard) to Grassridge (3 x 400kV Transmission Power Lines) (Orange diagonal hatching)*

Following the traverse shown on the map by orange diagonal hatching, close to the farm Weltevreden (southeast of Hankey) the traverse branches to the east and joins up with the orange shaded traverse close to the farm Boschfontein southwest of Uitenhage.

On the farm Weltevreden the line will cross a small outcrop of the Tertiary Grahamstown Formation and traverses the Goudini, Skuweberg and Baviaanskloof formations of the Table Mountain Group and the Ceres Subgroup of the Bokkeveld Group. North of the farm Klein Zuurbron the route enters the Gamtoos Basin and traverses rocks of the Jurassic Enon Formation south of the Gamtoos River, and the Kirkwood Formation north of the River. The banks of the Gamtoos River are flanked by Quaternary alluvial deposits.

East of the farm Geelhoutboom (east of the town of Hankey) the line traverses rocks of the Precambrian aged Gamtoos Group for a short distance. Northwest of the farm Longmore the line again traverses the Table Mountain Group beginning with the basal Sardinia Bay Formation and extending up as far as to the Skurweberg Formation where it meets up with the route shaded in orange on the map close to the farm Boschfontein.

*Northern Corridor – Alternative 2 (2-5km wide): Thyspunt (HV Yard) to Grassridge (3 x 400kV Transmission Power Lines) (Orange double diagonal Hatching)*

East of Hankey a short traverse shown on the map by orange double diagonal hatching branches to the east and again joins up with the orange shaded traverse northwest of the farm Otterford. East of Hankey the line traverses rocks of the Precambrian aged Gamtoos Group for a short distance. Southwest of the farm Otterford the line again traverses the Table Mountain Group. It extends northwesterly along the contact between the Sardinia Bay and Skurweberg formations to again meet up with the route shaded in orange on Figure 1.

### **Southern Corridor**

*Southern Corridor (2km wide) Thyspunt (HV Yard) to Gamtoos Northern Alternative (Possibly 5 x 400kV lines from HV Yard to H'dorp and 2 x 400kV lines from H'Dorp to Gamtoos) (Blue cross-shading)*

From Thyspunt the route extends northwards following the route shaded in orange until the farm Mariasdal (northeast of Humansdorp) and then turns east to meet the southern corridor close to Gamtoos

From the farm Welgelegen in the south till the farm Krantzplaas (northeast of Humansdorp) the traverse covers rocks of the Cape Supergroup. Welgelegen is situated on the Peninsular Formation and the traverse extends stratigraphically upward to cover the Cedarberg, Goudini, Skurweberg and Baviaanskloof formations of the Table Mountain Group. Southwest of Humansdorp the route covers an extensive area underlain by rocks of the Ceres Subgroup of the Bokkeveld Group. Over the anticline north of Humansdorp the route again traverses the formations of the Table Mountain and Bokkeveld groups mentioned above. On the farm Rondebos the line will cross a small outcrop of the Tertiary Grahamstown Formation. East of the farm Krantzplaas the route enters the Gamtoos Basin and traverses rocks of the Jurassic Enon Formation and has a short crossing over the Tertiary Bluewater Bay Formation which is now considered a palaeosol of the Alexandria Formation. The banks of the Gamtoos River are flanked by Quaternary alluvial deposits.

*Southern Corridor (2km wide) Thyspunt (HV Yard) to Port Elizabeth (2 x 400kV Transmission Power Lines) (Blue shading)*

The southern route extends roughly parallel to the coastline from north of Thyspunt in the west to Grassridge on the eastern side. The route shaded in blue in Figure 1 from the farm Welgelegen in the east traverses rocks of the Cape Supergroup as far as the farm Krantzplaas. Welgelegen is situated on the Peninsular Formation and the traverse extends stratigraphically upward to cover the Cedarberg, Goudini, Skurweberg and Baviaanskloof formations of the Table Mountain Group. South of Humansdorp the route covers an extensive area underlain by rocks of the Ceres Subgroup of the Bokkeveld Group. Close to The Burns, at the point where the route crosses the R102 road, the route extends over an anticline structure and again traverses the formations of the Table Mountain and Bokkeveld groups mentioned above. East of the farm Krantzplaas the route enters the Gamtoos Basin and traverses rocks of the Jurassic Enon Formation. The banks of the Gamtoos River are flanked by Quaternary alluvial deposits. East of Gamtoos River the route has a short crossing over the Jurassic Kirkwood Formation and an extensive crossing over the Tertiary Nanaga Formation. East of Thornhill the line will again cross the Cape Supergroup and the traverse extends over the Sardinia Bay and Peninsular formations of the Table Mountain Group.

*Southern Corridor (100m – 2km wide) Port Elizabeth to Grassridge (2 x 400kV Transmission Power lines) (Green route)*

In the area around Witteklip the proposed one of the new proposed substation sites is stationed on rocks of the Ordovician Peninsular and Tertiary Bluewater Bay formations (now considered to be Alexandria Formation).

From here the route curves northeasterly and extends stratigraphically upward to cover the Cedarberg, Goudini, Skurweberg and Baviaanskloof formations of the Table Mountain Group and the Ceres Subgroup of the Bokkeveld Group (on the farm Rietkuil) south of Uitenhage. The traverse extends northeasterly with a short area over the Enon Formation before a long traverse over the Kirkwood Formation in the area south of Uitenhage. The second substation alternative site is planned south of Uitenhage and this will be positioned on the Kirkwood Formation. Southeast and northeast of Despatch the route also crosses the Tertiary Bluewater Bay Formation (Alexandria Formation) and the Cretaceous Sundays River Formation. The Swartkops River is flanked by Quaternary alluvial deposits.

Northeast of the crossing over the Swartkops River there are two alternative traverses shown on the map (respectively in green and green diagonal hatching). Both of these traverses will cross the Sundays River, and Alexandria formations as they approach Grassridge.

*Northern Corridor (Existing servitude) Grassridge to Dedisa (2 x 400kV Transmission Power Lines) (Purple route)*

The route between the Grassridge and Dedisa substations will have extensive crossing over the Bluewater Bay Formation (Alexandria Formation) and only a short crossings over the Sundays River and Alexandria formations.

### **Palaeontological Heritage**

As all the rocks underlying the study area are of sedimentary origin and are of late Precambrian to Quaternary age they are potentially fossiliferous. Fossils are known from the following stratigraphic successions:

Caenozoic Cover:

*Kinkelbos Formation* – Occasional marine trace fossils.

*Alexandria Formation* -A rich marine and estuarine invertebrate fauna of molluscs, corals, bryozoans, brachiopods, echinoids, crustaceans, microfossils, sharks' teeth

*Grahamstown Formation* - Fragmentary plant remains

Uitenhage Group

*Sundays River Formation* - A rich and diverse marine invertebrate fauna (comprising mainly mollusks but also has brachiopods, bryozoans, echinoderms, ostracodes, corals, vertebrates (plesiosaurs), microfossils (foraminifera), trace fossils

*Kirkwood Formation* - This formation has yielded a reptilian fauna comprising mainly sauropod and theropod dinosaurs, turtles, crocodiles, invertebrates (bivalves, crustaceans), a rich diversity of plant remains of ferns, cycads and conifers, as well as microfossils.

*Enon Formation* - As this formation comprises mostly cobbles and boulders fossils are scarce but wood and bone fragments have been reported

**Bokkeveld Group:**

*Ceres Subgroup* – Diverse marine invertebrate fauna comprising molluscs, brachiopods, bryozoans, conulariids, echinoderms, ostracods, trilobites, tentaculitids, trace fossils, the only vertebrates are rare fish remains, primitive vascular plants

**Table Mountain Group:**

*Baviaanskloof Formation* - Marine invertebrate fauna comprising brachiopods, molluscs, trilobites and bryozoans.

*Goudini Formation* – Invertebrate trace fossils.

*Cedarberg Formation* - Rich variety of marine invertebrates including arthropods, condonts, brachiopods, mollusks, jawless fish.

*Peninsula Formation* - Invertebrate trace fossils

*Sardinia Bay Formation* – microscopic acritarchs, and invertebrate trace fossils

**Gamtoos Group:**

*Lime Bank, Klein Rivier, Kaan and Van Stadens formations* – Microscopic acritarchs, no other fossils yet discovered but there is a potential for stromatolites and early metazoan organisms

## **Recommendation**

From a desktop study utilizing a geological base map it is not possible to determine the nature of outcrops and the degree of plant and overburden cover. However from the summary above it is evident that, considering that all the rocks in the area are sedimentary, it is most likely that the development will have a bearing on palaeontological heritage. As much of the area is covered by vegetation and soil, some of which will be cleared in the process of erecting of the power lines, this development offers great opportunity for paleontological exploration and research.

Accordingly a qualified palaeontologist must be appointed to undertake a ground survey during the Construction EMP walkdown phase of the project once the tower positions

have been determined (assuming the project receives environmental authorisation) of at least the following stratigraphic units in the area to be traversed by the power lines:

Caenozoic Cover: Kinkelbos Formation, Alexandria Formation, Grahamstown Formation

Uitenhage Group: Sundays River Formation, Kirkwood Formation (particularly in the area to the south and north of Hankey; area around Uitenhage and along the traverse toward Grassridge)

Bokkeveld Group: Ceres Subgroup (particularly in the area south of Humansdorp, and in the area between Van Stadensberg and Uitenhage)

Table Mountain Group: Baviaanskloof Formation, Cederberg Formation, Peninsula Formation, Sardinia Bay Formation (particularly in the area to the south and north of Humansdorp and in the area flanking the Elandsberg between Hankey and Uitenhage.

Gamtoos Group: (in the area to the northeast of Hankey)

The field survey must be done by a qualified palaeontologist before the development begins, but as the development will expose outcrops this will provide a rare opportunity for the same palaeontologist to identify and search newly exposed outcrops to rescue fossils in suitable areas immediately after the development has taken place.

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# **Khoisan Heritage Resources Associated with the Thyspunt Transmission Lines Integration Project**



## **Report Prepared for SiVest Environmental Consultancy**

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## **Executive Summary**

This report, commissioned by SiVEST (Pty) Ltd, attempts to set out the concerns of a small sample of the Gamtkwa KhoiSan interest groups who registered as Interested and Affected Parties during the Thyspunt Transmission Lines Integration Project in the Eastern Cape. The theoretical framework used to interview these groups is borrowed from the National Heritage Resources Act (NHRA:1999) which defines cultural landscapes, as well as the United Nations Policy Paper criteria used for defining First Nation People (1989).

The report found that a memory of KhoiSan culture exists in the minds of the people interviewed, they regard themselves as indigenous on account of their descent from the populations who inhabited the country prior to and at the time of conquest and colonization. The establishment of the present State boundaries, irrespective of their legal status, does not mean that the KhoiSan people have lost their own social, cultural and political institutions. The current engagement with Environmental Stakeholders, and indirectly central government, is seen as a response to this lack of recognition of the displacement of the KhoiSan people from their traditional homelands in the Eastern Cape.

Their attachment to the land is the subject of review by several geneticists interested in the demographic history of human evolution. Behar (et al) constructed a matrilineal ancestry profile (mtDNA) of the present KhoiSan in Southern Africa and was able to demonstrate that their lineages diverged from the rest of humanity at 90 000 – 150 000 years Before Present. This time frame equates with the Middle Stone Age technologies in Southern Africa. By 40 000 BP and additional five lineages existed in parallel and occur in the KhoiSan mtDNA profile which equate with the Later Stone Age. The dispersal routes of these lineages are poorly understood but was further accelerated during the Bantu expansion in Africa. Studies suggest that early settlement of humans in Africa involves small, separately evolving populations.

At the point of colonial contact early travelers describe meeting nomadic Khoi and have left a substantial record of their cultural customs. More difficult, for the purpose of this assessment, is to pinpoint a memory of specific sites that relate to the intangible aspects of KhoiSan culture, such as areas where medicinal plants were collected, specific geographical areas where people were displaced from the landscape and specific songs, poems, skills and language that convey the memory of the Gamtkwa.

Using the UNESCO guidelines for cultural landscapes we conclude that evolutionary process came to an end at some time in the past, either abruptly or over a period of time. Its significant distinguishing features are however still visible in material form. They fall into two sub-categories, relic and continuing cultural landscapes. Archaeological sites, identified over several decades of academic research, and more recently by Archaeological Impact Assessments to comply with the NHRA (1999) speak to elements of relic landscapes. These landscapes are protected under sections 34, 35, 36 and 38 of the NHRA and are found widely dispersed in the study area, and are the subject of concern of the Gamtkwa KhoiSan interest group. The study corridors also contain elements of organically evolved landscapes in that they result from an initial social, economic, administrative and/or religious imperative and developed into their current form by association with and in response to the natural environment. There are also elements of an associated cultural landscape, where powerful religious, artistic or cultural associations with the landscape are significant, rather than embedded within historical physical fabric, which may be insignificant or even absent. On the basis of this it is recommended that an integrated map be developed that highlights the study corridors and the position of early farms and towns of the Eastern frontier that have relevance in the shaping of the cultural landscape. It is here that European and black pastoralists dispossessed and finally subjugated the last of the Eastern Khoikhoi.

The mapping of these heritage resources in the cultural landscape should be seen as opportunity, rather than an a constraint, and used as a management tool which will assist in red flagging areas that require further research, discussion and mitigation with all the relevant role players. The sites identified in the study corridors are of **LOCAL**, **NATIONAL** and **INTERNATIONAL** significance in understanding human adaption to the natural environment.

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## **1. Introduction & Brief**

This report was commissioned by SiVEST (Pty) Ltd to investigate KhoiSan heritage resources associated with the Thyspunt Transmission Lines Integration Project (TTLIP) in the Eastern Cape. The TTLIP project entails the installation of transmission lines along a Northern and Southern Corridor, the upgrading of existing substations and the development of a new substation at Port Elizabeth (see Figure 1). The proposed power lines would allow the electricity generated at the Thyspunt nuclear power station to be transmitted to other parts of South Africa via a National Grid. A comprehensive account of this development may be found in the Draft Environmental Impact Assessments conducted by SiVest (Ref: 12/12/20/1212, 12/12/20.2011 and 12/12/201213).

The proposed development triggers a number of listed activities under the Environmental Management Act (Act 107 of 1998), one of which includes a Heritage Impact Assessment (HIA). This was undertaken by Van Schalkwyk in 2011 and the current report should be seen as an addendum to his report.

## **2. Terms of Reference (ToR)**

It is proposed to identify and assess sites of significance to the Gamtkwa KhoiSan people from existing data banks and describe the culturally significant landscape relationships between them (where existing): in consultation with the people living in the Eastern Cape. This is intended to:

- Investigate the heritage impact of the proposed TTLIP project on the KhoiSan resources within the Study Area. This includes identification of sites of historical / cultural / heritage related importance for the descendants of the KhoiSan. This includes an investigation of the relevant KhoiSan oral history.
- As part of the above, local heritage specialist, and heritage resources centers must be consulted in order to assimilate their information held on KhoiSan related heritage in the study area.
- The potential impacts of the transmission lines and substations on KhoiSan related artifacts should be investigated and reasonable mitigation measures discussed for inclusion into the draft Environmental Management Plan.
- The study must consider the KhoiSan heritage related developments in the Honeyville area that include the relocation of human remains from the St Francis Bay to this area and how the proposed project will impact on these remains

### 3. Project Constraints

This report is an addendum to the existing HIA undertaken in 2011 and as a result only forty hours of consultancy time was allocated to interviewing KhoiSan interest group. The following key components, which are out-with the current ToR, but which are required to comply with the minimum standards for Scoping Heritage Impact Assessments should be referenced in the original scoping assessment reports.

1. The formulation of assessment criteria based on the criteria and grading system outlined in the NHR Act and the DEA&DP Guidelines for Involving Heritage Specialists in EIA processes with specific reference to addressing cultural landscape issues.
2. A historical overview of the origins and patterns of human occupation settlement and land uses over time.
3. The identification of morphological or landscape character zones to be used as the basis for developing an appropriate analytical framework to address heritage issues at various scales.
4. The identification and mapping of potential and known built environment and cultural landscape resources at various scales including *inter alia* structures older than 60 years, previously recorded heritage resources and formally declared heritage sites.
5. The formulation of statements of heritage significance of built environment and cultural landscape resources at various scales in terms of their historical, architectural, aesthetic, social and/or scientific value as well as more specific cultural landscape assessment criteria reference to above.
6. The identification of heritage issues and concerns, “hot-spot” areas which need to be subject to further investigation in terms of their potential heritage impacts.
7. The absence of a composite map that highlights site specific heritage objects and the integration of the findings and recommendations of the VIA in terms of a potential overlap between cultural landscape and visual issues.
8. Limited participation in a targeted consultation with the KhoiSan interest groups.





## 4. Methodology

### 4.1. CULTURAL LANDSCAPE TYPOLOGIES AND ASSESSMENT CRITERIA

The focus of this specialist study is the assessment of the impact of the proposed transmission line on the KhoiSan cultural landscape. The concept of the cultural landscape is thus briefly defined followed by a set of criteria relating to the assessment of significance of cultural landscapes.

#### 4.1.1 DEFINITION OF TERMS AND LANDSCAPE TYPOLOGIES

The National Heritage Resources Act (NHR 1999) does not clearly define what is meant by the term 'cultural landscape'. There is only vague reference to it in the schedule of definitions. In terms of the definitions relating to heritage resource, place and cultural significance, a working definition of cultural landscape can be stated as:

*"A place of cultural significance, which engenders qualities relating to its aesthetic, architectural, historical, scientific, social, spiritual, linguistic, technological, archaeological or palaeontological value."*

In light of this the following extract was taken from a set of definitions designed by Patrick & Winter (2009 ) for use in the Eskom Gamma-Omega Transmission Line in which "cultural landscapes provide the essential context for a range of heritage resources, which can take a variety of forms and are themselves a heritage resource in their right. It could be regarded as the tapestry within which all other heritage resources are embedded and which gives them their sense of place and meaning. The concept of cultural landscape gives spatial and temporal expression to the processes and products of interaction of people with the environment. It may thus be conceived as a particular configuration of topography, vegetation cover, land use and settlement pattern which establishes some coherence of natural and cultural processes. UNESCO identifies three broad categories of cultural landscapes:

- **Designed landscapes** clearly defined and created intentionally by man. This embraces garden and parkland landscapes most frequently constructed for aesthetic reasons.
- **Organically evolved landscapes** usually result from an initial social, economic, administrative and/or religious imperative and develop their current form by association with and in response to the natural environment. Such landscapes reflect the process

of evolution in their form and component features. They fall into two sub-categories, i.e. relic and continuing cultural landscapes:

- A relic landscape in which the evolutionary process came to an end at some time in the past either abruptly or over a period. Its significant distinguishing features are however still visible in material form.
- A continuing landscape, which retains an active social role in contemporary society closely associated with traditional ways of life, and in which the evolutionary process is still in progress. At the same time it also exhibits material evidence of its evolution over time.
- **Associated cultural landscape**, where powerful religious, artistic or cultural associations with the landscape are significant, rather than with historical physical fabric, which may be insignificant or even absent “

#### 4.1.2 ASSESSMENT CRITERIA

The NHR Act (1999) lists the following broad criteria for assessing the heritage significance of a place including landscapes

- Its importance in the community or pattern in South Africa's history.
- Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.
- Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.
- Its importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.
- Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- Its importance in demonstrating a high degree of creative or technical achievement during a particular period.
- Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.
- Sites of significance relating to the history of slavery in South Africa.

#### 4.13 GRADING CRITERIA

The NHR Act makes provision for a three-tier system for grading heritage resources, namely:

- Grade 1: significant within a national context
- Grade 2: significant within a provincial or regional context
- Grade 3: significant within a local context

## **5. Oral Histories**

Two KhoiSan groups, the details of which were provided by SiVest as interest groups who had registered during the public consultation phase of the EIA were approached for comment. This list was expanded by Cape Archaeological Survey to include the names of local, provincial and national representatives of the KhoiSan interest group (see Appendix 1). The CAS consultant faxed/emailed an agenda to each group prior to the interview date on the 30 August 2012 (see appendix 2) and asked each group to think about the intangible aspects of KhoiSan culture that may be recorded and mapped within the study area; such as a community memory of places where medicinal plants may have been collected and songs or poems that relate to the cultural landscape.

A local heritage specialist at the Albany museum was also consulted regarding data held at the museum regarding KhoiSan sites, both tangible and intangible.

### **Group 1:**

Gamtkwa Khoisan Council  
Mr Kobus Reichert (based in Jeffrey's Bay)  
Representative Gamtkwa Khoisan Council  
Tel.: 042 296 2096  
Fax: 042 296 0339  
Cell: 072 800 6322  
E-mail: [kobusreichert@yahoo.com](mailto:kobusreichert@yahoo.com)

### **Group 2:**

Gamtkwa Khoisan  
Chief Michael Williams (Loeries Hill)  
Tel.: 042 287 0664  
Fax: 044 287 0657  
Cell: 076 201 6283

Gamtkwa Khoisan  
Provincial Head Ms Margaret Coetzee  
Tel: 0765524723

### **Group 3:**

Ms Celeste Booth – Museum Curator  
Albany Museum  
Somerset Road  
Grahamstown  
Tel: 046 6222312  
Fax :046 622 2398

## 5.1 INTERVIEW RESULTS

"Group 1:(Mr Kobus Reichert, (based in Jeffrey's Bay) declined to meet or be interviewed by the archaeological consultant. His concerns regarding his withdrawal from this process are related to unresolved Public Participation Issues associated with the Environmental Impact Assessment (EIA) Process and the EIA consultant accordingly. Further details thereto can be obtained from the relevant Environmental Assessment Practitioner at SiVEST or alternatively can be obtained from the Issues and Response Report (IRR) within the Revised Draft Environmental Impact Report (DEIR)."

Group 2: The following information was collected by Teleconference, 30 August 2012, from Chief Michael Williams, of the Gamtkwa National KhoiSan Group of South Africa.. Their concerns which fall into two categories are highlighted below:

Group 3: Information sourced from the Albany Museum Data Base is presented in appendix 3.

- **Cultural Landscape & Disposition of Land**

**Group 2:** Interviewee Chief Williams "The Kohisan people roamed over South Africa, before the arrival of colonial people and KhoiSan sites can be found throughout the study area, particularly at Jeffrey's and St Francis Bay. All of these sites are in the hands of 'white' farmers and the KhoiSan have been excluded from partnership with government about how to manage this landscape. The KhoiSan is the First Nation People of South Africa and would like to be recognized as such. We believe that over three hundred KhoiSan sites will be impacted by the development and we wish to be consulted about this".

"The KhioSan group do **NOT** want land, they want recognition in government structures about their heritage and their right to comment on this as First Nation People".

"How do KhoiSan fit into the proposed development, we have not been consulted about this, and we are financially not able to carry the cost of attending meetings"

"The present government says that we can practice our culture but we are not even recognized as the First Nation People"

"No funding /resources have been made available since 2005 to represent KhoiSan people".

"Over 300 KhoiSan sites have been identified in the study area, some at Oyster Bay, three sites at Cape St Francis Bay and some in the Thyspunt area. We previously worked with Johan Binneman who identified some of these sites but he is now working with another

group and this is a problem for us. There is a perception that these are 'white' run groups that do not serve our interest".

"Our group previously asked that an archaeological specialist meet with Chief Johnny Jenson and myself but the specialist did not turn up for the meeting".

"Some people in our community are poor and cannot afford the fare to attend public meetings".

**Group 2:** Interviewee Mrs Margaret Cotetz The following information was collected by Teleconference, 3 September 2012, from the **Provincial** Head of the Gamtkwa National KhoiSan Group of South Africa and as a Member of the KhoiSan Development Council. Her concerns relate to all the middens and burials identified along the coastline that "prove" that the KhoiSan people were the first to occupy the coastline. We are concerned that we are the last group to be consulted about these large developments and only get to here about them long after the specialist studies have been completed. For 70 years the KhoiSan group has tried to negotiate with various government to highlight the identity of our people".

- **Environmental Landscape & Sustainability**

Group 2: "The KhoiSan people are concerned about the overall suitability of the Thyspunt development and the impact that this will have on the environment and on peoples lives".

"Will the development bring destruction of the landscape or development? All people must benefit, especially the KhoiSan".

- **Relocation of Human Remains**

Neither Chief Williams nor Ms Coetzee are familiar with the KhoiSan heritage related developments in the Honeyville area that include the relocation of human remains from St Francis Bay. Chief Williams is however aware of the human remains found at Pappiesfontein in 2008-9 and records his concern that his group were not consulted regarding reburial.

**Group 3:** Interviewee Ms Celeste Booth provided a list of thirty- seven archaeological sites, accessioned at the Albany museum, that are located in the study corridor (see appendix 4). The sites represent Middle and Late Stone Age sites, one historical structure, ten rock paintings, one cave deposit, nine shell middens and two middens with associated human burials. Several copies of Binneman's (2004-5) published reports on archaeological research along the South-Eastern Cape Coast was included. This results of this work is key to understanding human adaptation to changing environmental constraints.

Ms Booth confirmed that the relocation of the human burial from St Francis Bay to the Honeyville area did not occur. Negotiations around this process appear to have stopped and no current impact is perceived.

## **6. Conclusions**

The report found that a memory of KhoiSan culture exists in the minds of the people interviewed, they regard themselves as indigenous on account of their descent from the populations who inhabited the country prior to and at the time of conquest and colonization. The establishment of the present State boundaries, irrespective of their legal status, does not mean that the KhoiSan people have lost their own social, cultural and political institutions. The current engagement with Environmental Stakeholders, and indirectly central government, is seen as a response to the lack of recognition of the displacement of KhoiSan people from their traditional homelands in the Eastern Cape.

The prevailing narrative of the KhoiSan therefore needs to be understood within a cultural landscape of violence and sacred space. The two colliding narratives correspond to two notions of sacralization which can be translated into the idioms of continuity and closure. Both find expression in the modern political arena. This work is best described by the social anthropologist Katherina Schramm (2011) in a series of essays for East Germany, Croatia, Bosnia, Ghana and the Holy Lands. In Southern Africa the Department of Arts & Culture also recognizes this dichotomy and has made provision in the National Heritage Resources Act during the public consultation phase to consult and record stories of memory and sacred space. At least two case histories from the Western Cape speak to the departments commitment to these ideals; Patrick (2000, 2002, 2005) at St Cyprians, and Malan (2003) at Prestwich Place.

In the midst of political transformation, the KhoiSan claim as First Nation People who wish to reestablish their 'tribal' identity to address their disturbed sense of community, and reconnect them to the land, is accepted. The KhoiSan attachment to the land is not disputed, Behar (et al) 2008 constructed a matrilineal (mtDNA) ancestry profile of the present KhoiSan in Southern Africa and they were able to demonstrate that their lineages diverged from the rest of humanity at 90 000 – 150 000 years BP. This time frame equates with the Middle Stone Age technologies in Southern Africa and that by 40 000 BP additional lineages occur in the KhoiSan mtDNA profile which equate with the Later Stone

Age in Southern Africa. Archaeological sites that relate to these time frames are located with the context of the Thyspunt Integrated Transmission Project. These sites are of **LOCAL, NATIONAL** and **INTERNATIONAL** significance. Geneticists have been able to demonstrate that these small groups of early humans in South African populations remained in geographic and genetic isolation until migration during the Late Stone occurred. Thereafter the dispersal of people through Africa occurred from the South to the North until new groups of genetically distinct populations occur via the Bantu expansion (Behar et al 2008:1137). In light of this we consider the KhoiSan claim that they are South Africa's First Nation People to be fair.

More difficult, for the purpose of this assessment, is to pinpoint a memory of specific sites that relate to the intangible aspects of KhoiSan culture, such as areas where medicinal plants were collected, specific geographical areas where people were displaced from the landscape and songs, poems, skills and language that convey the memory of the Gamakwa diaspora.

The majority of landscapes affected by the Thyspunt Integration Transmission Project are relic and organically evolved. To aid understanding, and appropriate heritage management, the following maps highlight the importance of the cultural landscape to the Gamakwa KhoiSan. The maps have specifically been included as they reflect the earliest description of Late Stone Age sites, named after the farms where the archaeological artifacts were found, under the direction of Hewitt from the Albany Museum in 1910 and later by Goodwin 1935 (see figure 2). Figure 3 shows the geographical distribution of people named by Maingard as the lost 'tribes' of the Cape and figure 4 the burial places of Late Stone Age people from the Eastern Cape described by Morris.



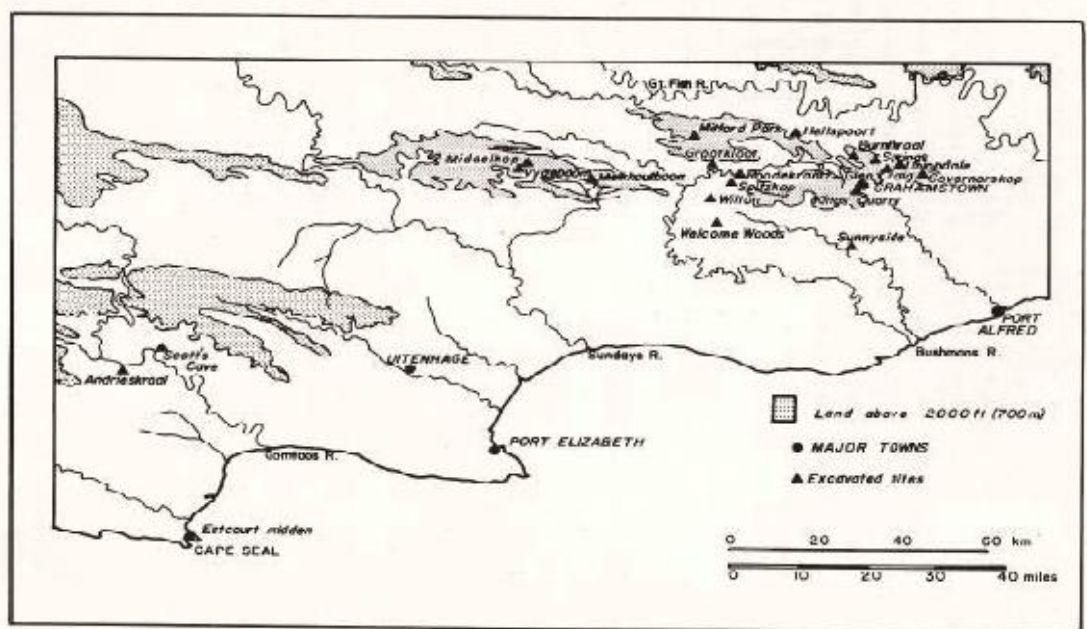


Figure 2: Spatial distribution of Late Stone Age archaeological sites in the Eastern Section of the Cape Folded Mountain Belt that speak to the footprint of a relic landscape. The names of farms where the features were found were used to record caves and rock shelters (Source: H. Deacon 1976).

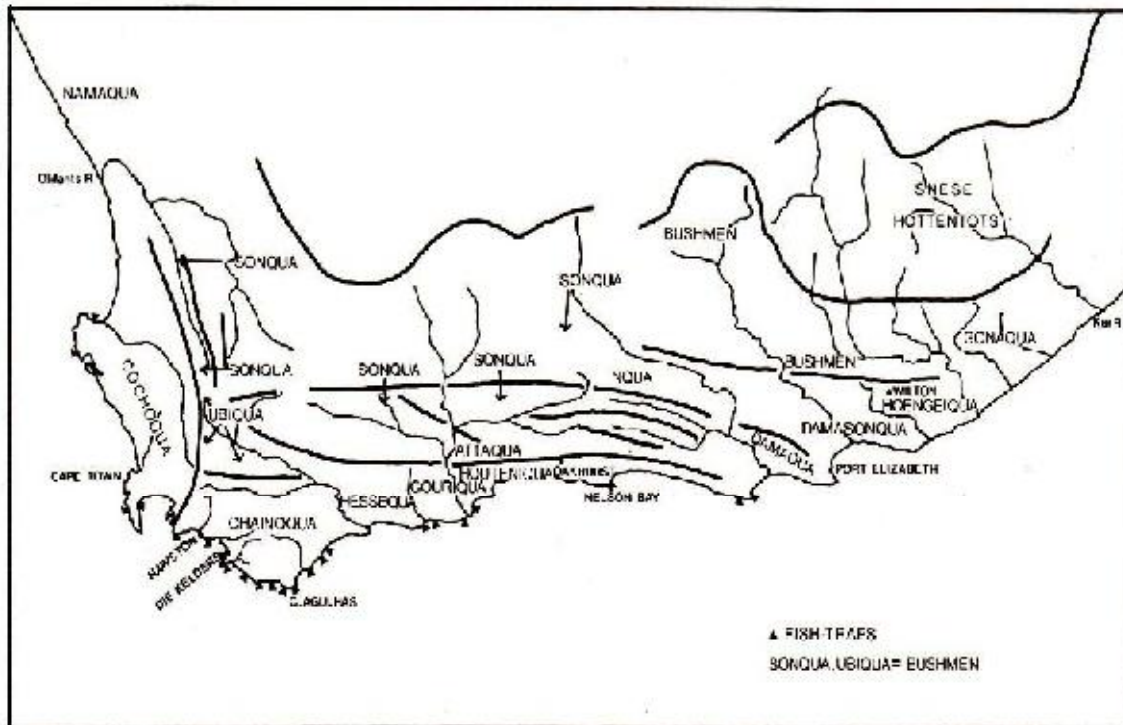


Figure 3: Historical distribution of Southern African people recorded by Maingard in 1931, viewed for the purpose of this research, part of an organically evolving Landscape (Source: G. Avery 1969: 112).

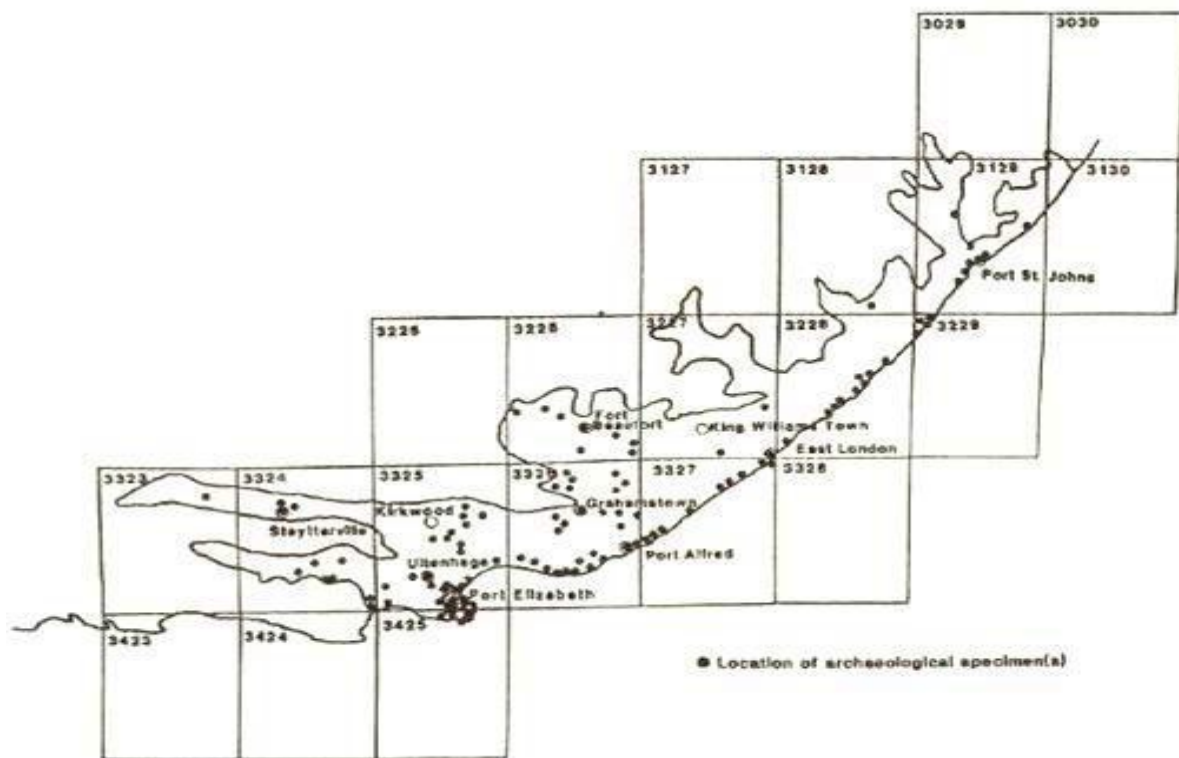


Figure 4: Map of the Savanna Biome and the distribution of Holocene burials in the Eastern Cape (Source: Morris 1992).

## 7. Potential Impacts

Despite the small sample interviewed it is clear that a much wider discussion regarding KhoiSan identity in the Eastern Cape needs to be addressed as part of the HIA. They are an important interest/advocacy group that meet the UNECSO definition of First Nation People and a minority group ( see appendix 4) that need to be consulted about the impact that the entire Thyspunt development; Nuclear Power Station, Sub Stations and Transmission Lines will have on the KhoiSan Cosmological view. The NHRA makes provision for this:

- Their potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.
- Their strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- Their strong and special association with the life of a group of people and their importance in the history of South Africa

Table 1 set out the impacts red flagged during the EIA process and Table 2 the perceived impacts and mitigations measures required in order for the HIA to comply with the NHRA (1999) regarding an assessment of the cultural landscape. The duration of these strategies are considered in both the short and long term.

Table 1: Perceived Impacts to Heritage Resources – Extract from the EIA (2011).

| Specialist Parameter | Problem Areas Identified  |
|----------------------|---|
| Heritage             | Northern and Southern Corridor –<br>Area around the Thyspunt HV yard<br>Northern and Southern Corridor -<br>The Kabeljous River Valley<br>Northern Corridor -<br>Amanzi Springs |

Table 2: Cultural Landscape Impacts – Additional Assessment 2012

| Environmental Parameters Assessed                           | Potential Impacts  | Mitigation Measures Short & Long Term  |
|---|--|--|
| Heritage Assessment –Cultural Landscape and Oral Traditions | <ul style="list-style-type: none"> <li>Concerns that the KhoiSan Cosmological View, which links the tangible with the intangible aspects of heritage resources, have not been adequately described</li> <li>Identification of areas affected by 'living heritage'</li> <li>Identification of memorials/sacred spaces of significance such early frontier loan farms , towns and mission stations where KhoiSan were dispossessed first as servants and later as indentured labour</li> <li>Identification of memorials/sacred spaces of significance such as historic burial sites and burial sites of cultural significance</li> <li>Frontier Wars-establish and identify the historical landscape where Khoi forces encamped under British military leadership and pushed the Xhosa forces over the Fish River in 1812</li> <li>Development of statements of significance for these sites based on recognised criteria</li> <li>Identification, mapping and grading of heritage resources using NHRA criteria</li> </ul> | <p>Targeted Focus Group Meetings with all levels of KhoiSan interest groups, national, provincial and local (Short &amp; Long Term)</p> <p>Additional documentary and archival research regarding the sites in order to Integrated sites of significance and morphological zones in the landscape that are no-go or, red flagged areas (Short term)</p> <p>The development of a social engagement plan that serves as a management framework for the following key activity (1) capacity and skills development to assist KhoiSan people record their oral history. This would be best achieved in partnership within the Nelson Mandela Bay and Coega Metropolitan Spatial Development Framework and Integrated Policy Development Framework. (Long term)</p> |

Failure to adequately address these issues may lead to the destabilization of the entire project. An important case history includes the Eskom's Gamma-Omega Transmission Line when the people of Tulbagh actively involved an environmental lawyer to represent their cultural landscape concerns in the High Court.

## 8. Recommendations

A detailed comprehensive geo-rectified map book that identifies archaeological sites, areas and landscapes of historical significance and highlights, ranks and reviews the impact of the development on these sites is required. The map book will serve as a management tool that can be used during the public consultation phase with KhoiSan interest groups. Individual group comment can be used to verify, refute and define the Cosmological issues that KhoiSan groups are concerned about. The results of this consultation must drive the recommendations formulated and adopted in the Environmental Management Plan.

The author of this report is unfamiliar with the ToR regarding previous KhoiSan engagement in the public consultation process but recommends that the local and provincial groups speak through a united national chairperson. The overarching aim of this engagement is to highlight, and actively participate in commemorating KhoiSan culture in the study area. It is **NOT** aimed at derailing a strategically important country wide project but to achieve recognition of a displaced people who have a right to comment on their cultural heritage.

This may best achieved through utilizing as leverage Municipal Integrated Development Plans for economic development in the study area. It could be framed as a Social Engagement Plan that serves as a framework for three key activities which involve KhoiSan people:

- Social Investment that drives local economic development which is seen as the single most important priority issue, in turn this may address;
- Small Business development and capacity building around tourism;
- Employment creation and skills development

Two working models are suggested to highlight the way forward that demonstrates the capacity for stakeholders to work together and manage these complex issues. The first is the Living Landscape Project in Clan William (Parkington 2008), funded by the Department of Environmental Affairs and Tourism, with additional support from the Canadian International Development Agency and the National Lotteries Board. Parkington and his team have over an extensive period interviewed local people about their San cultural identity and formed a community-based heritage and education project aimed at returning the archaeological archive to the Clan William area as material for curriculum development and job creation.

The second, the Kgalagadi Transfrontier Park which was developed from the joint initiative of President Festus Mogae of Botswana and President Thabo Mbeki of South Africa who formally launched Southern Africa's first peace park, the Kgalagadi Transfrontier Park in 2000. In October 2002, the government of South Africa and Botswana set aside 580 km<sup>2</sup> (224 mi<sup>2</sup>) of land for the use of the indigenous peoples, the Khomani San and Mier communities. This was divided between 277.69 km<sup>2</sup> of San Heritage Land and 301.34 km<sup>2</sup> of Mier Heritage Land. The South African National Parks (SANParks) manages the land under contract. The indigenous communities retain commercial benefits and rights, as well as the use of the land for symbolic and culture purposes. (Patrick et al UNESCO World Heritage Proposal 2011).

Finally, a working model from the Gamma-Omega Transmission Line (Patrick et al 2009) highlights the extensive mapping process that is required to document heritage objects in a complex cultural landscape similar to the current project.

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## **10. Acknowledgements**

The author wishes to thank all those who participated in the interview process, specifically Chief Williams, Chief Margaret Coetzee and Ms Celeste Booth from the Albany Museum in Grahamstown.

## 11. Appendices

Appendix 1: List of KhoiSan Representatives & Albany Museum Heritage Specialists Consulted in August 2012.

| <b>KhoiSan I&amp;APS</b> |                               |   |  |
|--------------------------|-------------------------------|---|--|
|                          | <b>Name</b>                   | <b>Contact Details</b>  | <b>Organization &amp; Area Represented</b>                               |
|                          | Chief Michael Williams        | Tel: (042) 287 0664<br>Fax: (044) 287 0657<br>Cell: 076 201 6283                            | Local Chief Gamtkwa Khoisan<br>Group of SA<br><b>Eastern Cape</b>        |
|                          | Mr Kubus Reichert             | Tel: (042) 296 2096<br>Fax: (042) 296 0339<br>Cell: 072 800 6322<br>kobusreichert@yahoo.com | Representative Chief Gamtkwa<br>Khoisan Council<br><b>Hankey</b>         |
|                          | Paramount Chief<br>Joe Little | 084 621 12731   | National Gamtkwa Khoisan Group<br>of SA<br><b>Cape Town</b>              |
|                          | Chief Moonie                  | 083 5902 740  | National Head of the Gamtkwa<br>Khoisan Group of SA<br><b>Oudtshoorn</b> |
|                          | Chief George Mabilia          | 073 547 6716  | National Secretary of the Gamtkwa<br>Khoisan Group of SA<br><b>Coega</b> |
|                          | Chief Burgens                 | 08396 23225   | Local Chief Gamtkwa Khoisan<br>Group of SA<br><b>Coega</b>               |
|                          | Chief Meonie Samie            | 072463 6161   | Local Chief<br><b>Coega</b>  |
|                          | Chief Jenny Jenson            | 0785328880  | Provincial Chief Gamtkwa Khoisan<br>Group of SA<br><b>Cape Town</b>      |
|                          | Margaret Coetzee              | 076 5524723<br>m.cotetzwilliams@vodamail.co.za  | Provincial Head Gamtkwa Khoisan<br>Group of SA<br><b>Eastern Cape</b>    |
|                          | Ms Celeste Booth              | Tel: 046 6222312<br>Fax :046 622 2398<br>Celeste.Booth@ru.ac.za                             | Curator Albany Museum<br><b>Grahamstown</b>                              |

### Terms of Reference for Heritage Addendum Study

#### Thyspunt Transmission Lines Integration Project

- Investigate the heritage and impact of the proposed TTLIP project on the KhoiSan-related heritage resources within the Study Area. This includes identification of sites of historical / cultural / heritage related importance for the descendants of the KhoiSan in the study area\*. This must include an investigation of the relevant KhoiSan oral history.
- As part of the above, local heritage specialists, and heritage resource knowledge centres (incl. the Albany Museum) must be consulted in order to assimilate their information held on the KhoiSan and KhoiSan-related heritage in the area.
- Potential Impacts of the power line / substation construction on KhoiSan-related artefacts should be investigated, and reasonable methods / mitigation measures to be implemented during construction must be specified for inclusion in the draft EMP. These mitigation methods must consider how to ensure the inclusion and consultation with KhoiSan groupings as part of the construction and operation processes.
- Face-to face Consultation with Khoi-San groupings in the area to acquire their input and feedback on sensitive areas and elements of the heritage environment that must be considered by the EIA.
- The study must consider KhoiSan Heritage-related developments in the Honeyville area (John Barrett) that include relocation of remains from the St Francis Bay Area to this part of the site, and how the proposed project will impact upon these.
- Provide a report based on the above study as the primary deliverable

\* the study area as considered in this study must be focussed around the EIA power line corridors, but if necessary must consider a wider area if the power lines could for example have a visual-related heritage impact.

Appendix 3: :1 50 000 Map Reference Sheet that lists archaeological sites in the study area accessioned by the Albany Museum

| Map number | Site number | Type                 | Site name  | Reference                                     | number of sites |
|------------|-------------|----------------------|------------|---|-----------------|
| 3324       |             |                      |            |   |                 |
| DA         | 3324 DA1    | Paintings            | N/A        | N/A   | 1               |
| 3324       |             |                      |            | C. van Riet Lowe in Archaeology Survey Series |                 |
| DA         | 3324 DA2    | Paintings            | Cambria    | VII   | 1               |
| 3324       |             |                      |            |   |                 |
| DA         | 3324 DA3    | Cave                 | The Havens | Dr J.N.F. Binneman                            | 1               |
| 3324       |             |                      |            |   |                 |
| DB         | 3324 DB 1   | Paintings            | N/A        | N/A   | 1               |
| 3324       |             |                      |            |   |                 |
| DB         | 3324 DB 2   | Paintings            | N/A        | N/A   | 1               |
| 3324       |             |                      |            |   |                 |
| DB         | 3324 DB 3   | Paintings            | N/A        | N/A   | 1               |
| 3324       | 3324 DB     |                      |            |   |                 |
| DB         | 4/5         | Paintings            | N/A        | N/A   | 2               |
| 3324       |             |                      |            | C. Van Riet Lowe - Archaeology survey series  |                 |
| DB         | 3324 DB 6   | Paintings            | Tip Tree   | VII   | 1               |
| 3325       |             |                      |            |   |                 |
| CA         | 3325 CA 1   | Paintings            | N/A        | N/A   | 1               |
| 3325       | 3325 CA     |                      |            |   |                 |
| CA         | 2-5         | Paintings            | N/A        | N/A   | 4               |
| 3325       | 3325 CB     |                      |            |   |                 |
| CB/AD      | 1-8         | Paintings            | N/A        | N/A   | 8               |
| 3325       |             |                      |            |   |                 |
| CC         | 3325 CC 2   | Open Air Site        | N/A        | N/A   | 1               |
| 3325       |             |                      |            |   |                 |
| CC         | 3325 CC 3   | Structure/Historical | N/A        | N/A   | 1               |
| 3325       |             |                      |            |   |                 |
| CC         | 3325 CC 4   | Midden               | N/A        | N/A   | 1               |
| 3325       |             |                      |            |   |                 |
| CC         | 3325 CC 5   | Midden               | N/A        | N/A   | 1               |
| 3325       |             |                      |            |   |                 |
| CC         | 3325 CC 6   | Midden               | N/A        | N/A   | 1               |
| 3325       |             |                      |            |   |                 |
| CC         | 3325 CC 7   | Midden               | N/A        | N/A   | 1               |

|      |           |               |         |                        |   |
|------|-----------|---------------|---------|------------------------|---|
| 3325 |           |               |         |                        |   |
| CD   | 3325 CD ? | Midden        | N/A     | N/A                    | 1 |
| 3424 |           | Open air site |         |                        |   |
| BA   | 3424 BA 2 | MSA/LSA       | N/A     | N/A                    | 1 |
| 3424 |           |               |         |                        |   |
| BA   | 3424 BA   | Midden        | N/A     | N/A                    | 1 |
| 3424 |           |               |         |                        |   |
| BA   | 3424 BA ? | Midden        | N/A     | N/A                    | 1 |
| 3424 |           |               |         |                        |   |
| BA   | 3424 BA/  | Midden        | N/A     | N/A                    | 1 |
| 3424 | 3424 BB   |               |         |                        |   |
| BB   | 1-        | Midden/Burial | N/A     | P. Carins              | 1 |
| 3424 | 3424 BB   |               |         |                        |   |
| BB   | ?         | Midden/Burial | N/A     | N/A                    | 1 |
| 3424 |           |               |         |                        |   |
| BB   | 3424 BB ? | Surface       | N/A     | N/A                    | 1 |
|      |           |               | Cape St |                        |   |
| 3424 |           |               | Francis |                        |   |
| BB   | 3424 BB ? | Midden        | Dunes   | Binneman & Webley 1993 | 1 |

Appendix 4: Extract from Multiculturalism: A Policy Response TO Diversity

Paper prepared on the occasion of the

**"1995 Global Cultural Diversity Conference"**, 26-28 April 1995, and the

**"MOST Pacific Sub-Regional Consultation"**, 28-29 April 1995,

both in Sydney, Australia

**Activities on the Cultural Rights of Persons Belonging to Minorities and the Rights of Indigenous Peoples within UNESCO's Fields of Competence\***

**DEFINITIONS**

- **Minorities**

The question of how to define 'minority' was on the agenda of the United Nations Sub-commission on Prevention of Discrimination and Protection of Minorities, established in 1947, from the very first days of its existence. Since then, numerous attempts have been made to reach an agreement on this question.

Although no definition of a minority was universally recognized and not one of the normative instruments dealing with the rights of persons belonging to minorities adopted by the United Nations or UNESCO contains any formulation in this respect, nevertheless one can observe that draft definitions, despite concrete formulations, repeat certain elements:

(a) a group numerically inferior;

(b) in a non-dominant position;

(c) having certain characteristics (identity), culture (ethnic, religious, linguistic) which distinguish them from the rest of the population;

(d) with a sense of solidarity or will to safeguard their characteristics.

However, some of these elements are subjective and, as such, open to various interpretations and understandings, as the various studies carried out by the United Nations on this question show.

As is the case with the United Nations Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities (1992), normative instruments may regulate questions of the rights of persons belonging to minorities without

containing any definition of this notion. The notion of 'minority', as implied by normative instruments, is a restrictive one and it applies only to national, ethnic, religious, linguistic groups and is not related to other disadvantage groups (women, children, aged, etc.), neither does it cover indigenous people.

- **Indigenous People**

Two definitions are used in the international context. One is to be found in an international law instrument and the other is a 'working' definition which is used as an 'operational' definition in the elaboration of an instrument that is international in character.

The first definition is found in the ILO Convention concerning Indigenous and Tribal Peoples in Independent Countries (Convention N°169 of 1989).

In Article I.1(b) of Convention N°169, it is stated that this instrument applies to:

'Peoples in independent countries who are regarded as indigenous on account of their descent from the populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonization or the establishment of present State boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions'.

The second definition is found in the conclusion of the Study on the Problem of Discrimination against Indigenous Populations. The definition reads as follows: 'Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing in those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems. This historical continuity may consist of the continuation, for an extended period reaching into the present, of one or more of the following factors: (a) occupation of ancestral lands, or at least part of them; (b) common ancestry with the original occupants of these lands; (c) culture in general, or in specific manifestations (such as religion, living under a tribal system, membership of an indigenous community, dress, means of livelihood, life-style, etc.); (d) language (whether used as the only language, as mother tongue, as the habitual means of communication at home or in the family, or as the main, preferred, habitual, general or normal language); (e) residence in certain parts of the country, or in certain regions of the world; (f) other relevant factors' (paras. 379-380).

This definition is supplemented as follows: On an individual basis, an indigenous person is one who belongs to these indigenous populations through self-identification as indigenous (group consciousness) and is recognized and accepted by these populations as one of its members (acceptance by the group). This preserves for these communities the

sovereign right and power to decide who belongs to them, without external interference' (para.381).

This definition was accepted as an 'operational definition' by the United Nations Working Group on Indigenous Populations of the Sub-commission on Prevention of Discrimination and Protection of Minorities.