

**HERITAGE SURVEY OF THE PROPOSED WAAINEK  
WIND FARM, GRAHAMSTOWN, EASTERN CAPE**

**FOR C.E.S.**

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## EXECUTIVE SUMMARY

*Umlando was contracted to undertake a heritage impact assessment of a proposed wind farm at Waainek, Grahamstown, Eastern Cape. The database at the Albany Museum was consulted prior to the survey as several known sites exist in the area. The survey did not locate any archaeological sites in the affected area, however isolated stone tools were observed.*

*There are no heritage sites in the affected area that will be affected by the proposed wind farm, and no further mitigation would be required.*

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## INTRODUCTION

Umlando cc was contracted by C.E.S. to undertake a heritage impact assessment of the proposed Waainek wind farm. The proposed area is located ~4km (south) west of Grahamstown (fig. 1). A heritage survey was undertaken in mid September 2009, and it included a database survey at the Albany Museum.

The proposed development consists of twelve wind turbines that will be located on the top of three sandstone hills. Several known archaeological sites exist in the immediate area; however, these are located along the slopes of the hills and are unlikely to be affected.

The activities in the affected area will be:

- Wind turbine base, and depth
- Access roads
- Underground cables

## METHOD

The method for Heritage assessment consists of several steps.

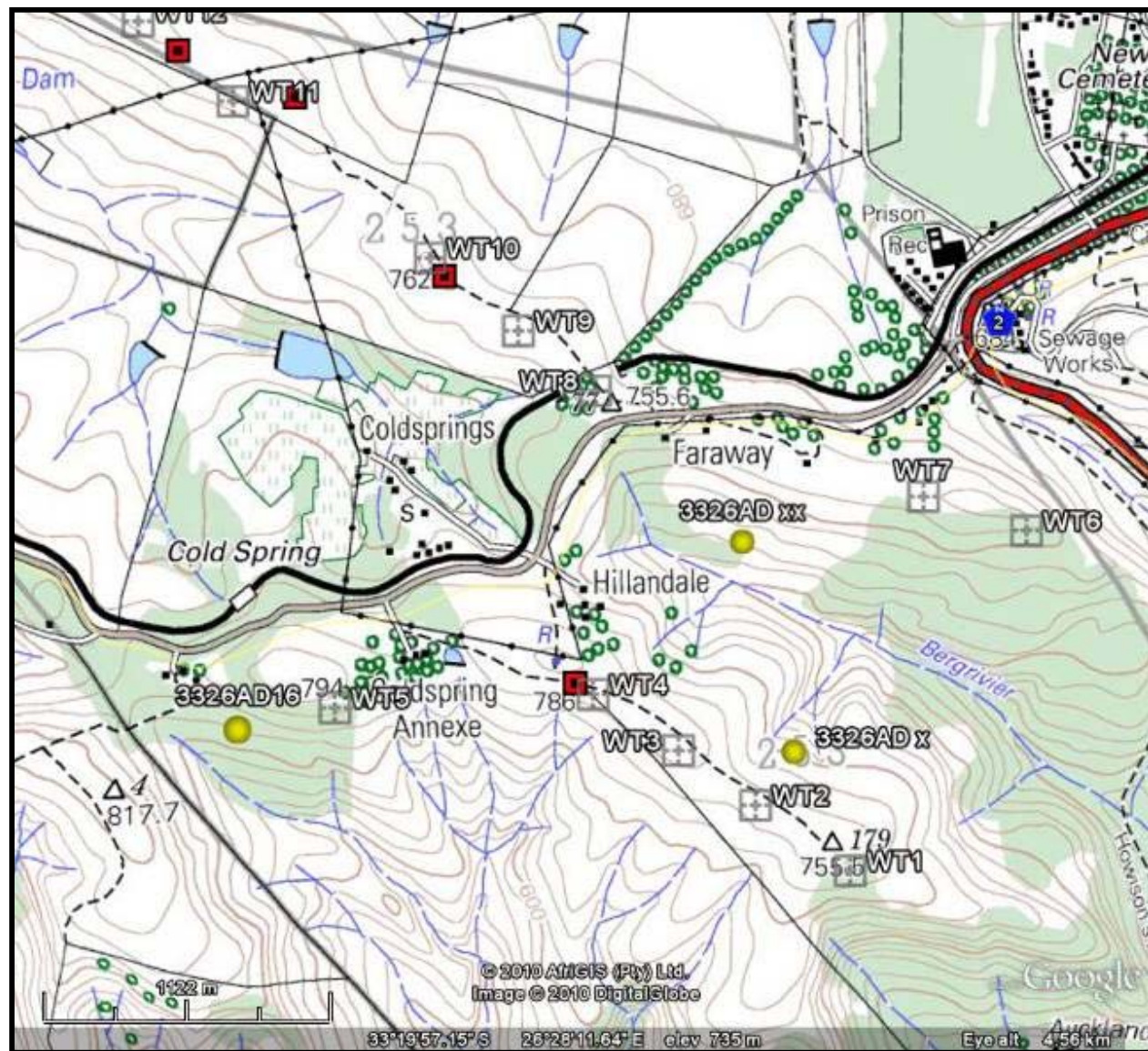
The first step forms part of the desktop assessment. Here we would consult the databases from both Umlando and the Albany Museum. This database tends to be restricted to archaeological and declared memorial sites. Consulting with the relevant authorities will also cover known battlefields and historical sites. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The initial archaeological survey (i.e. fieldwork) consists of a foot survey where the selected area was covered. The general area as well as site-specific areas was surveyed. The survey results will define the significance of each recorded site, as well as a management plan.

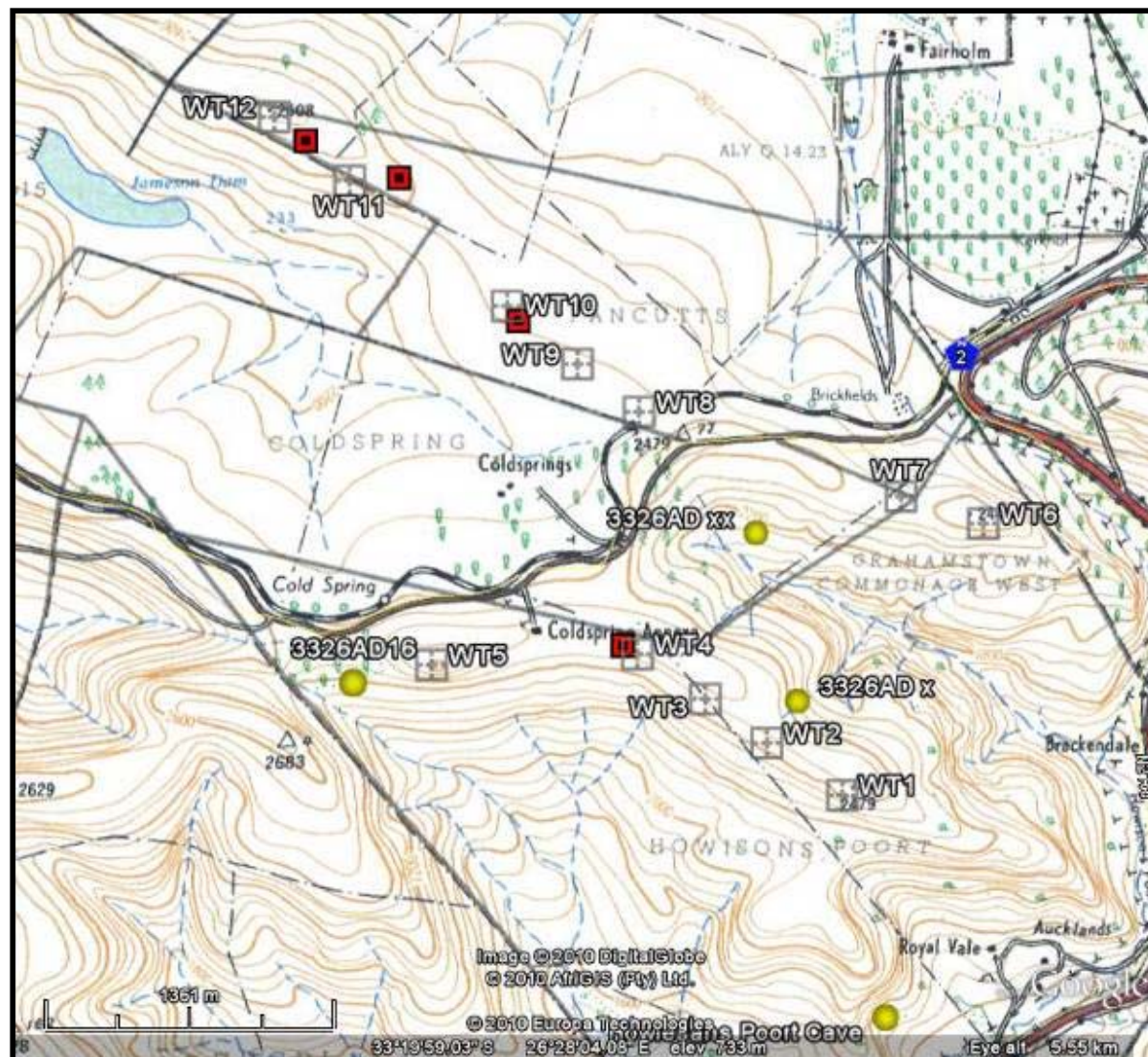
FIG. 1: GENERAL LOCATION OF THE PROPOSED DEVELOPMENT<sup>1</sup>

<sup>1</sup> Yellow circle = recorded archaeological site (courtesy Albany Museum Archaeology Department); white square = approx. location of wind turbine; red square = individual artefacts



FIG. 2: 1996 TOPOGRAPHICAL MAP OF THE STUDY AREA AND TURBINE LOCATION<sup>2</sup>

<sup>2</sup> Yellow circle = recorded archaeological site (courtesy Albany Museum Archaeology Department); white square = approx. location of wind turbine; red square = individual artefacts

FIG. 3: 1960 TOPOGRAPHICAL MAP OF THE STUDY AREA AND TURBINE LOCATION<sup>3</sup>

<sup>3</sup> Yellow circle = recorded archaeological site (courtesy Albany Museum Archaeology Department); white square = approx. location of wind turbine; red square = individual artefacts



All sites are grouped according to low, medium and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts or features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be sampled. Sampling includes the collection of artefacts for future analysis. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features.

### **Defining significance**

Heritage sites vary according to significance and several different criteria relate to each type of site. These criteria form a general assessment of a site; however, they cannot be viewed as a statistical entity as the some of the assessments have no intrinsic numerical value. Umlando has devised this scale several years ago and has corrected it over its 15 years work experience. We do however use the general environmental impact assessment scale to assist impact assessments.

There are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

#### **1. State of preservation of:**

- 1.1. Organic remains:
  - 1.1.1. Faunal
  - 1.1.2. Botanical
- 1.2. Rock art
- 1.3. Walling
- 1.4. Presence of a cultural deposit
- 1.5. Features:
  - 1.5.1. Ash Features



- 1.5.2. Graves
- 1.5.3. Middens
- 1.5.4. Cattle byres
- 1.5.5. Bedding and ash complexes

**2. Spatial arrangements:**

- 2.1. Internal housing arrangements
- 2.2. Intra-site settlement patterns
- 2.3. Inter-site settlement patterns

**3. Features of the site:**

- 3.1. Are there any unusual, unique or rare artefacts or images at the site?
- 3.2. Is it a type site? That is, is the site the first one to be recorded of a specific feature or assemblage
- 3.3. Does the site have a very good example of a specific time period, feature, or artefact?

**4. Research:**

- 4.1. Providing information on current research projects
- 4.2. Salvaging information for potential future research projects

**5. Inter- and intra-site variability**

- 5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?
- 5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

**6. Archaeological Experience:**

- 6.1. The personal experience and expertise of the heritage practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

**7. Educational:**

- 7.1. Does the site have the potential to be used as an educational instrument?
- 7.2. Does the site have the potential to become a tourist attraction?

7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

**8. Other Heritage Significance:**

8.1. Palaeontological sites

8.2. Historical buildings

8.3. Battlefields

8.4. Graves and/or community cemeteries

8.5. Living Heritage Sites

8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. This occurs in Phase 2. These test-pit excavations may require further excavations if the site is of significance (Phase 3). Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary archaeological context. Mapping records the spatial relationship between features and artefacts.

### **LEGISLATION PERTAINING TO HERITAGE SITES**

The National Heritage Resources Act of 1999 (pp 12-14) protects a variety of heritage resources. These resources are defined as follows:

“3. (1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.

(2) Without limiting the generality of subsection (1), the national estate may include—

- (a) places, buildings, structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;

- (f) archaeological and palaeontological sites;
  - (g) graves and burial grounds, including—
    - (i) ancestral graves;
    - (ii) royal graves and graves of traditional leaders;
    - (iii) graves of victims of conflict;
    - (iv) graves of individuals designated by the Minister by notice in the Gazette;
    - (v) historical graves and cemeteries; and
    - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
  - (h) sites of significance relating to the history of slavery in South Africa;
  - (i) movable objects, including—
    - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
    - (ii) objects to which oral traditions are attached or which are associated with living heritage;
    - (iii) ethnographic art and objects;
    - (iv) military objects;
    - (v) objects of decorative or fine art;
    - (vi) objects of scientific or technological interest; and
    - (vii) 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) Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of—
- (a) its importance in the community, or pattern of South Africa's history;
  - (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
  - (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
  - (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
  - (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
  - (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
  - (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
  - (h) 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
  - (i) sites of significance relating to the history of slavery in South Africa"

## RESULTS

### DESKTOP STUDY

The desktop study noted that four archaeological sites exist 1km outside of the study area, but no sites occur within the study area. The desktop information was provided by the Albany Museum Archaeological Department. The four sites are all caves and/or overhangs and have deposit dating to the Middle and Late

Stone Ages. The one site, Howiesans Poort Cave, is a type-site and has provided vital information into the understanding of the Middle Stone Age artefact sequence in southern Africa. The other sites contain archaeological deposit and artefacts, but do not appear to be as important.

All of the archaeological sites occur along the slopes of the affected hills and will not be affected by the proposed development.

The desktop study also used 1960 topographical maps to note buildings that may be older than 60 years (fig. 3). While there are buildings older than 60 years in the general study area, none of these will be affected by the proposed development.

### **SURVEY RESULTS**

The affected area had a very shallow natural soil deposit and only the koppies tended to retain some form of deposit. Figure 4 indicates some of these koppies. It was in these areas that I observed the few stone tools. There was no evidence of any graves, old settlements or old buildings. Subsequent to the original report I was informed of recent palaeontological finds in this area. These finds, according to Dr Gideon Groenewald, are of high significance – see Appendix A.

The entire affected area was surveyed, and the areas with proposed wind turbines were specifically noted. No archaeological sites were recorded in the affected area. However, several isolated stone tools were observed. These consisted of about five stone tools scattered over the entire affected area, and thus do not constitute an archaeological site by my definition.

The stone tools were mostly Late Stone Age flakes made from silcrete. Two Middle Stone Age flakes had been re-utilised by Late Stone Age people and modified to become an adze or a bipolar core.



The archaeological finds are of low significance and no further mitigation would be required. Due to the ephemeral occurrence of the stone tools in the affected area I would not record this as a site, and do not believe that a permit will be required from SAHRA. The significance of the impact is summarised in Table 1.

**TABLE 1: SIGNIFICANCE OF IMPACT OF EACH WIND TOWER AND IN GENERAL**

Impact	Effect					Risk or Likelihood	Total Score	Overall Significance		
	Temporal Scale		Spatial Scale		Severity of Impact					
<b>Wind Tower 1</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 2</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 3</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 4</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 5</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 6</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 7</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 8</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 9</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 10</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>Wind Tower 11</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
<b>General</b>										
Without Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low
With Mitigation	None	1	Study Area	1	Slight	1	Definite	4	7	Low

FIG. 4: VIEWS OF THE VARIOUS TOWER LOCATIONS



WT8



WT 11 -12



Near WT7



Between WT4 and WT5

## **MANAGEMENT PLAN**

The desktop study noted that several archaeological sites exist in the shelters below the top of the two hills. These locations have been noted in figures 1-3. The area should be reviewed, via desktop study, once the plans for the access roads and related servitudes have been finalised. This will allow for a final comment. It will also ensure that these servitudes do not affect the various recorded sites.

A palaeontologist will need to be on site during any subsurface construction activity in order to assess potential palaeontological finds.

## **CONCLUSION**

A heritage impact assessment was undertaken on Waaihoek Farm for a proposed wind farm. A desktop study noted that a few archaeological sites exist in close proximity to the affected area. The survey only recorded a few isolated stone tools in the affected area. These tools are in a secondary context and have little, if any research, value.

There are no heritage issues that will inhibit the proposed development. However, the development still needs to define the location of the servitudes and these needs to be assessed. This can be undertaken as a desktop study.



**APPENDIX A**  
**PALAEONTOLOGICAL REPORT**



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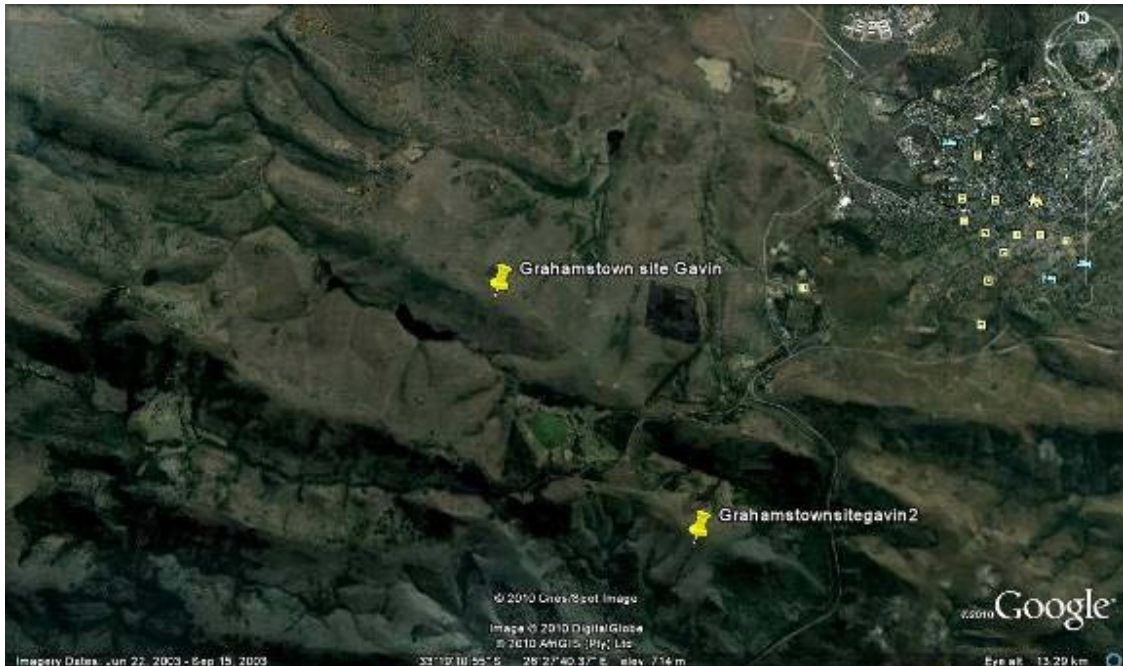
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2 December 2010

Dear Gavin

### **POTENTIAL PALAEOLOGICAL IMPACT GRAHAMSTOWN**

Thank you for your request to comment on the potential impact of the development close to Grahamstown. We used the coordinates supplied to plot the proposed sites of the investigation (Figure 1).



**Fig 1. The sites of investigation falls in the hills south west of Grahamstown and is underlain by quartzites of the Witteberg Group.**

Following a desktop survey and the fact that the site of the development is underlain by sandstone (information supplied as part of the request for comments) it is presumed that the site of the development is underlain by sedimentary strata of the Witteberg Group.

Fossils of uniquely important plants and animals, with specific finds of fish fossils, of the Carboniferous and Devonian have been recorded from the shales and quartzites of the Witteberg Group in the area close to Grahamstown.

We recommend that the developer and contractor be informed of the possibility of fossils on the site and that a suitably qualified palaeontologist be appointed to investigate the outcrops of sandstone for trace fossils and body fossils. For this purpose we recommend discussions with Dr Billy de Klerk at the Museum in Grahamstown. On reporting of a fossil find the developer must appoint a qualified palaeontologist to remove the fossils under guidance of a SAHRA permit.

**GIDEON GROENEWALD (PhD; Pr Sci Nat Earth Scientist)**

**Geologist**