HERITAGE SURVEY OF THE PROPOSED LUSHINGTON PARK WINDFARM

FOR COASTAL ENVIRONMENTAL SERVICES

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INTRODUCTION

Umlando cc was contracted by Coastal Environmental Services to undertake a Heritage Impact Assessment of the proposed Lushington Park Wind Energy Project, near Kidds Beach, East London. The wind farm is located ~25km southwest of East London, and ~5km north of Kidds Beach. The wind farm will be situated north of the R72, and east and west of the R347 (figures 1 - 4).

The current land use is mainly for pineapple agriculture, with heavily vegetated valleys (fig. 5). Those areas that have been farmed have been extensively ploughed. The soils, in the affected areas, are mostly very shallow, with a shale formation at the base.

The wind farm will consist of 28 turbines. Each turbine is just located just below the top of the hill. Other infrastructures associated with the proposed wind farm will be:

- Concrete foundations to support the wind towers,
- Approximately 3.5 meter wide internal access roads to each turbine
- Underground cables connecting each turbine to the other and to the substation ,
- A small building to house the control instrumentation and interconnection elements, as well as a storeroom for maintenance equipment.

The survey did not locate any heritage sites, even though isolated artefacts were observed.

NATIONAL HERITAGE RESOURCES ACT OF 1999

The National Heritage Resources Act of 1999 (pp 12-14) protects a variety of heritage resources. This are 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"

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. These databases contain most of the known memorials and other listed/protected sites, battlefields and cemeteries in southern Africa. We also use 1937 aerial photographs and first edition 1:50 000 topographical maps when available. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The survey results will define the significance of each recorded site, as well as a management plan.

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. All diagnostic pottery, such as rims, lips and decorated sherds are sampled, while bone, stone and shell are mostly noted. Sampling usually occurs on most sites. 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. However, 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?

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 CRM 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 and general Anglo-Zulu and Anglo-Boer sites

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.

FIG. 1 GENERAL LOCATION OF THE PROPOSED LUSHINGTOM WINDFARM

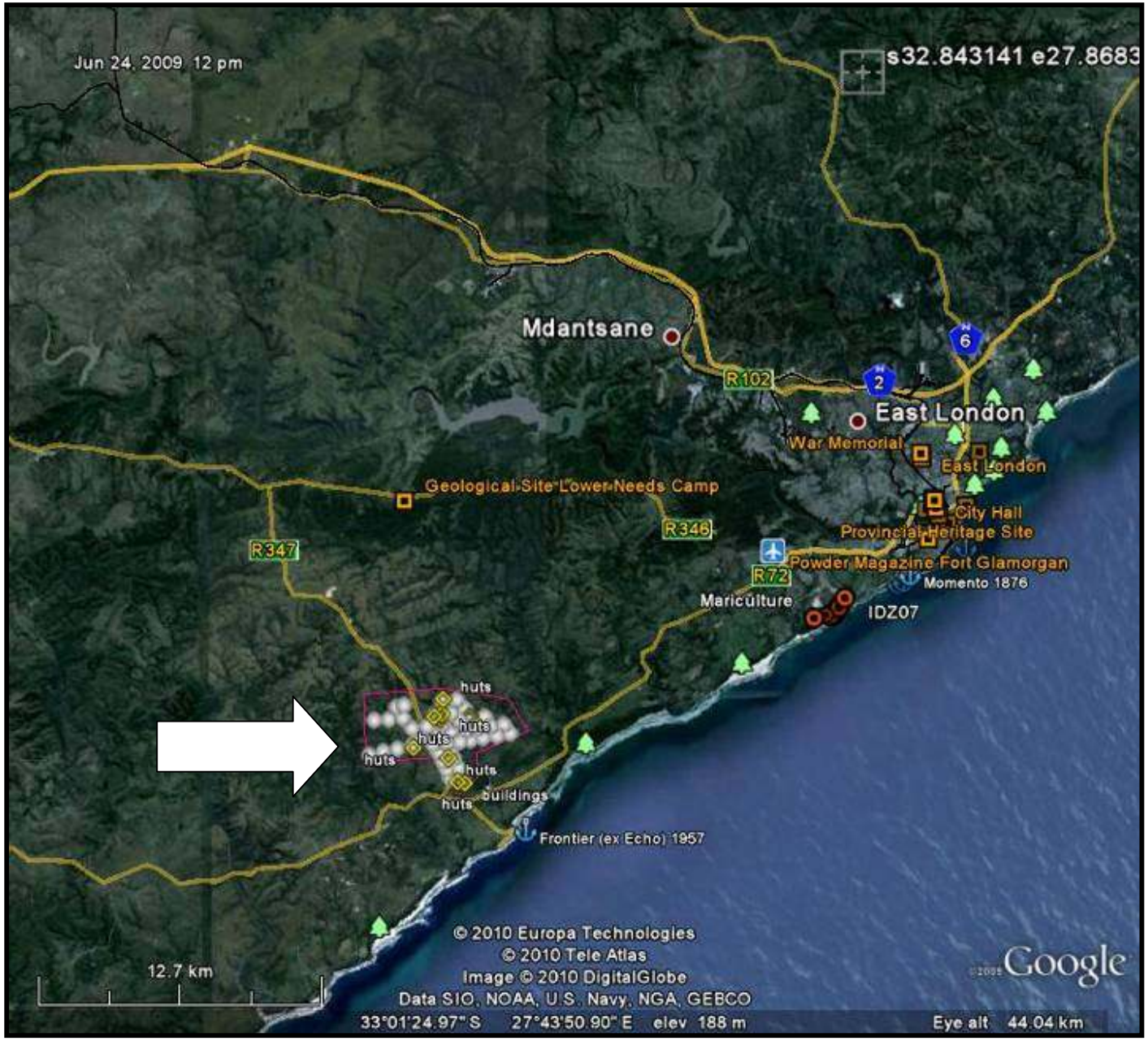


FIG. 2: AERIAL OVERVIEW OF THE PROPOSED LOCATION OF THE TOWERS

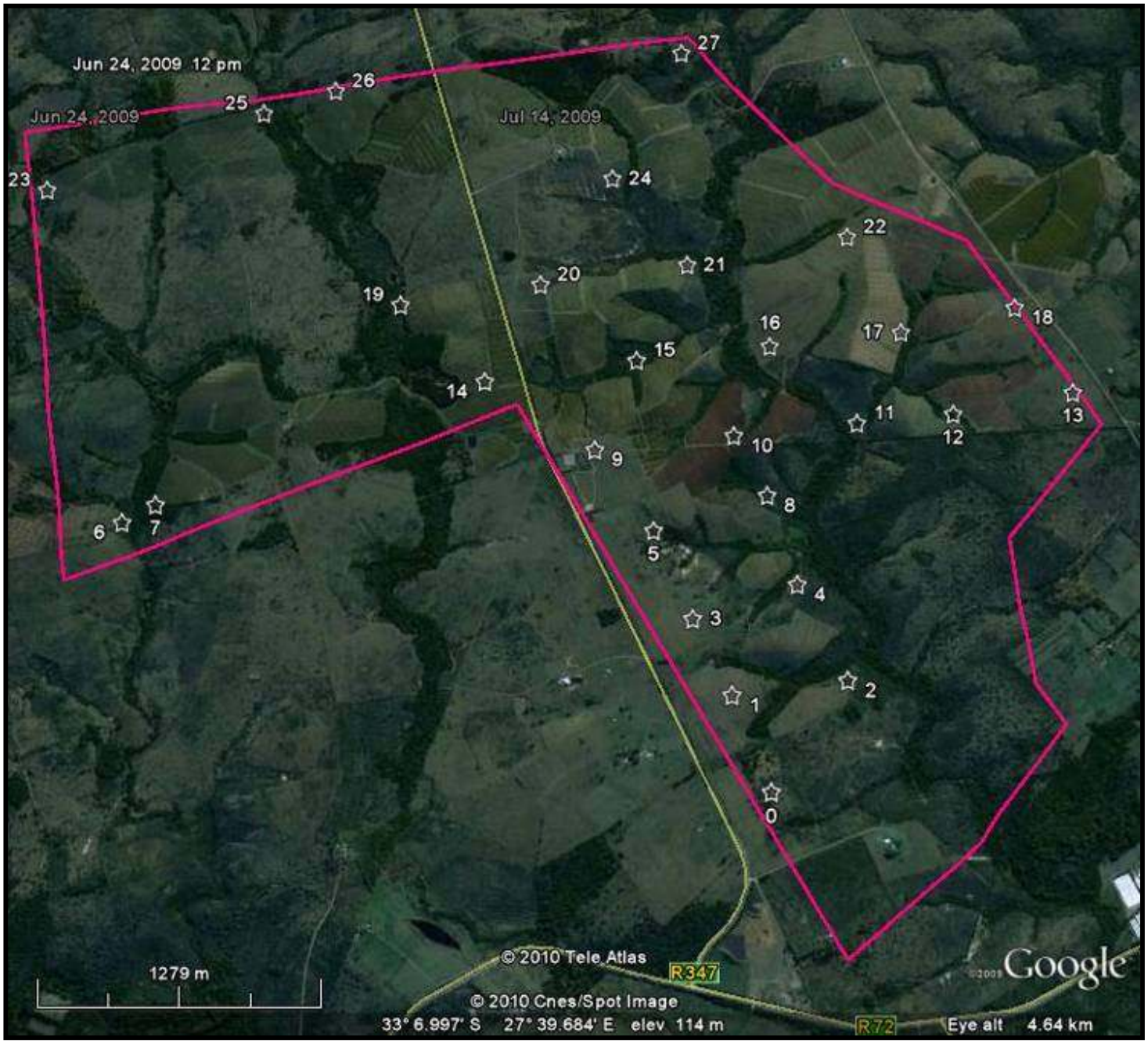


FIG. 3: 1998 TOPOGRAPHICAL MAP OF THE PROPOSED WINDFARM

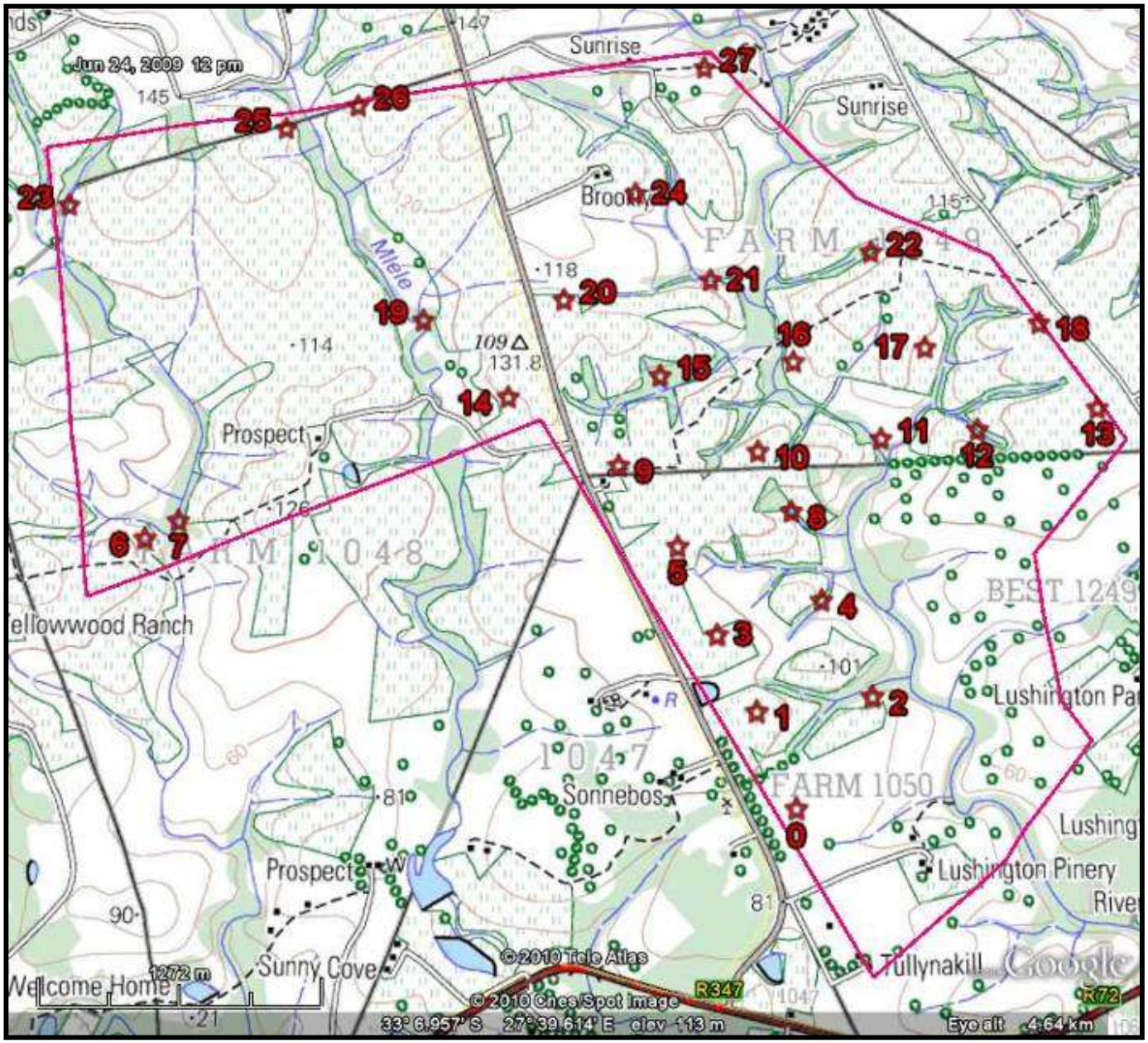
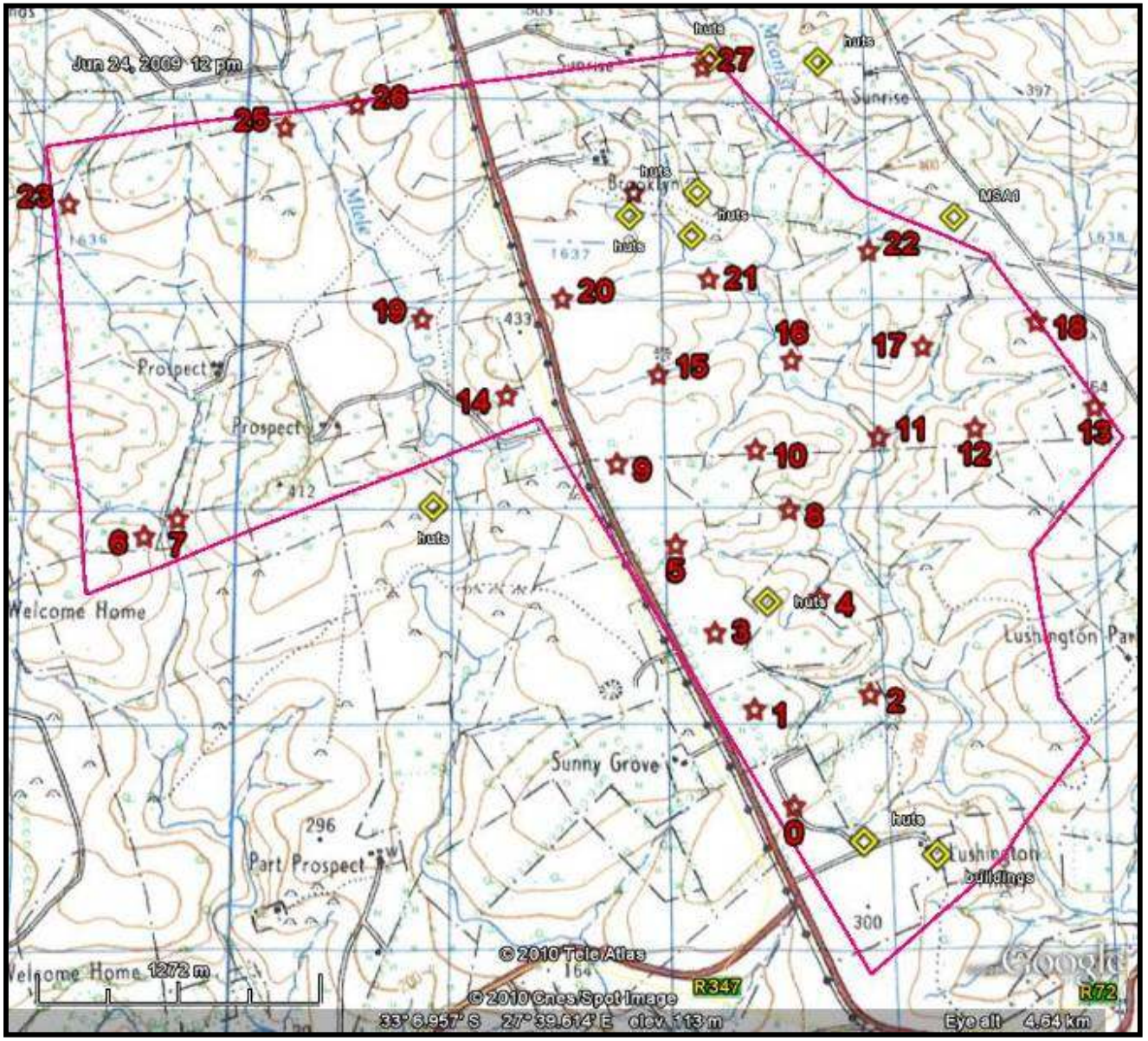


FIG. 4: 1964 TOPOGRAPHICAL OF THE PROPOSED WINDFARM[1]



[1] Red Stars = tower locations; yellow diamond = historical sites observed from the map

RESULTS

The survey concentrated on those areas where the towers would be placed, although I did survey between these locations as well.

The 1964 topographical map indicated that ten labourers' houses occur in the general study area, i.e. within 100m from the turbines. I surveyed these areas, as there was a possibility of human graves. Today there is little evidence for the occurrence of these houses, as these areas have been ploughed. Only one area had an indication of human settlement, and this was only noticeable for the flattened area on the landscape, and several furrows. Even in this area, I could not observe artefacts.

The areas amongst the pineapple plantations allowed for very good visibility. I did observe the isolated individual Middle Stone Age (MSA) and Late Stone Age (LSA) stone tool. I do not consider isolated artefacts over several hills to constitute a site.

The near zero occurrence of artefacts on these hills is in contrast to the several Stone Age sites located 2km to the southeast (Anderson 2009). These sites were, however, in areas with more sandy topsoil.

I observed several ruins during the survey. Some of these are the original farmhouses, while others are more recent farm (labourers') houses (fig. 6). The farmhouses occur on the 1964 topographical maps and are thus at least 50 years old, and probably older than 60 years. The turbines do not occur on these buildings. If any of the farm buildings are to be affected, then they will need to be assessed by an architect historian.

According to Dr Groenewald (Appendix A) there is a probability that fossils, will occur in the lower shale layers. Depending on the depth of the turbine base, will determine which layers will be affected. Dr Groenewald also noted that it was highly unlikely to find fossil remains in the upper 2m of the shale deposits due to natural weathering. Dr Groenewald suggests that someone is trained to observe these fossils; however, I believe that someone with a palaeontological background needs to assess the sites during the construction phase.

MANAGEMENT PLAN

There are no heritage sites *per se* that will be affected by the proposed wind farm. Since the stone tools do not constitute an archaeological site, the client would not need to apply for the archaeological permit from SAHRA,

Several buildings were observed in the general location of the turbines. If any of the buildings are to be physically impacted, then they will need to be assessed by an architect historian. This is especially for the farmhouse buildings.

A qualified palaeontologist will need to be on site if the turbine bases will be impacting on the shale and mudstone layers. The geological report in conjunction with the construction plans should determine the need for this palaeontologist.

I suggest the developer applies for a permit to destroy potential fossil remains before the construction phase. An application on finding fossils during construction will only delay the construction phase.

FIG. 5: VIEW OF THE TOPOGRAPHY AND VEGETATION AT LUSHINGTON PARK

FIG. 6: RUINED HOUSE AT LUSHINGTON PARK[2]

[2] These buildings occur on the 1998 maps, but not the 1964 maps. They are thus less than 60 years old.

CONCLUSION

The heritage survey of the proposed Lushington Park wind farm was undertaken in September. Several areas were surveyed, however, no heritage sites were observed, apart from old farmhouses.

I analysed 1964 maps to determine the location of old labourers' graves and buildings. While these were indicated on the maps, I did not observe any graves or foundations in the selected ten areas. Most of these areas have been ploughed, thus leaving no remains.

If any buildings are to be impacted by the wind farm development, then they will need to be assessed. Currently no buildings are to be affected.

REFERENCES

Anderson, G. 2009. Heritage Survey for the Peregrine Dunes Golf Estate, East London, Eastern Cape. HIA report for Coastal Environmental Services.

APPENDIX A
PALAEONTOLOGICAL REPORT

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To Whom It May Concern:

Dear Gavin

POTENTIAL PALAEONTOLOGICAL IMPACT LUSHINGTON PARK (near Kidds Beach)

Thank you for your request to comment on the potential impact of the development at Lushington. Park.

Following a desktop survey and the fact that the site of the development is underlain by shale (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 Beaufort Group. The region at Kidds Beach is mostly underlain by rocks of the Tarkastad Subgroup and the shales of this group is known for the remains of a mammal-like reptile Lystrosaurus and other vertebrate fossils of the Lystrosaurus Assemblage Zone. In coastal areas the weathering of the shale can be extensive and the fossils are destroyed to depths of up to 2m under ground.

We recommend that the developer and contractor be informed of the possibility of fossils on the site and that one dedicated staff member of the contractor be trained to identify possible fossils. On reporting of a fossil find the developer must appoint a qualified palaeontologist to remove the fossils under guidance of a SAHRA permit.

Thank you for your request to be of assistance.

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Geologist