SCOPING HERITAGE ASSESSMENT FOR THE PROPOSED KLEINZEE 300MW WIND FARM, NAMAKWA MAGISTERIAL DISTRICT, NORTHERN CAPE

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act (No. 25 of 1999) as part of an EIA)

Prepared for

Savannah Environmental (Pty) Ltd
PO Box 148
Sunninghill, 2157
Phone (011) 2346621
Fax (086) 684 0547

18 July 2011

Prepared by

Jayson Orton

ACO Associates cc
8 Jacob's Ladder
St. James
7945

Phone (021) 650 2357
Fax (021) 650 2352
Email Jayson.Orton@uct.ac.za

EXECUTIVE SUMMARY

ACO Associates cc was appointed by Savannah Environmental to undertake a Scoping Heritage Assessment for the proposed Kleinzee Wind Energy Facility (WEF) to be located within a 9300 ha area including the farms Brazil 329/Re, Goraap 323/Re, Honde Vlei 325/Re, Kannabieduin 324/1, Rooivlei 327/2 and Rooivlei 327/3 on the Namaqualand coast, Northern Cape. Parts of the farms have been selected for the WEF which would lie between 1.6 km and 8.0 km from the coast. The facility would comprise of 150 to 200 turbines and will be linked to the Gromis substation by means of a 400 kV overhead power line. Related infrastructure would also be constructed on site.

The study area comprises of undulating terrain covered by low vegetation. This desktop scoping study shows that archaeological resources are widely known to occur throughout coastal Namaqualand and, although generally focused within about 500 m of the shore, shell middens have been recorded up to 6 km inland. Only one farm complex was found in the study area on farm Rooivlei through examination of aerial photography.

Given the nature of the landscape and the industrial (mining) facilities occurring several kilometres to the north, the site is likely to be generally suited to the proposed development. Archaeological resources are likely to be impacted but these would almost certainly be easily mitigated if they cannot be avoided. Land located within some 3.5 km of the coast has been rated to have medium archaeological sensitivity and the remainder of the study area is considered to be of low sensitivity.

It is recommended that the project proceed to the EIA Phase since no fatal flaws or no-go areas have been identified. A Heritage Impact Assessment will be required, primarily to address archaeological concerns and perhaps the routing of the power line.

Contents

1. INTRODUCTION

ACO Associates cc was appointed by Savannah Environmental to undertake a Scoping Heritage Impact Assessment for the proposed Kleinzee Wind Energy Facility (WEF) to be located within a 9300 ha area including the farms Brazil 329/Re, Goraap 323/Re, Honde Vlei 325/Re, Kannabieduin 324/1, , Rooivlei 327/2 and Rooivlei 327/3on the Namaqualand coast, Northern Cape (Figure 1). Parts of these farms have been selected for siting of the WEF and they lie between 1.6 and 8.0 km from the coast. The site lies outside of the existing diamond mining areas and the facility will comprise of between 150 and 200 turbines generating up to 300 MW of power.

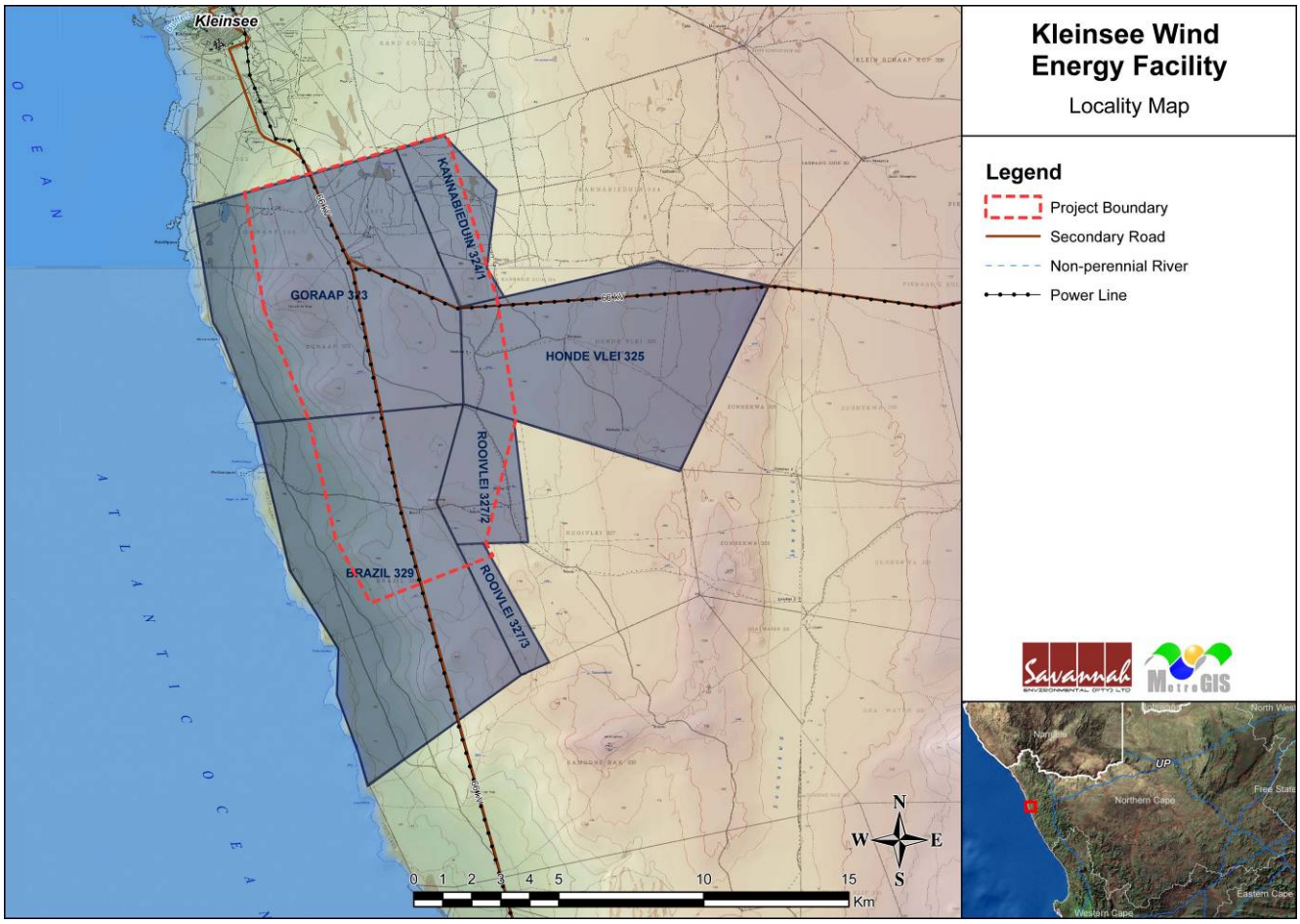

Figure 1: Map showing the location of the proposed WEF (red dashed polygon) within the subject farms (dark shading).

Other related infrastructure to be included in the project includes:

- Concrete foundations to support the turbines;
- Cabling between the turbines to be laid underground where practical ;
- An on-site substation to facilitate the connection between the facility and the electricity grid;
- An overhead power line (400kV) feeding into Eskom's electricity grid at Gromis Substation, which lies approximately 60 km from the site (no proposed routes for this have yet been identified);
- Internal access roads;
- Borrow pits within the site for construction of access roads;
- Office/Workshop area for maintenance and storage; and
- A visitors centre.

Figure 2: Aerial photographic view of the study area showing the outline of the area under consideration for the proposed WEF (red polygon) relative to the town of Kleinsee. The yellow bar for scale is 3 km.

Although this scoping report evaluates all heritage resources, it should be noted that its primary concern is with archaeology as it is that aspect of heritage that will be most heavily affected. Other aspects also considered important are visual impacts and impacts to the sense of place.

2. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources including palaeontological, prehistoric and historical material (including ruins) more than 100 years old (Section 35), human remains older than 60 years and located outside of a formal cemetery administered by a local authority (Section 36) and non-ruined structures older

than 60 years (Section 34). Landscapes with cultural significance are also protected under the definition of the National Estate (Section 3 (3.2d)). Section 38 (2a) states that if there is reason to believe that heritage resources will be affected then an impact assessment resource must be submitted. This report fulfils that requirement.

Since the project is subject to an Environmental Impact Assessment (EIA), the South African Heritage Resources Agency (SAHRA) is required to provide comment on the proposed project in order to facilitate final decision making by the Department of Environmental Affairs (DEA).

3. METHODS

This scoping assessment was conducted entirely at the desktop level and makes use of an extensive body of grey literature and some related publications. Google Earth was used to try locating heritage features that might be of concern but this is only really effective for buildings.

3.1. Limitations

No limitations were experienced.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The coastal region is generally characterised by low, undulating hills and wide open expanses. Close to the coast are areas of dune fields that extend northwards from numerous pocket beaches that occur in the mouths of palaeoriver channels. Some of these can result in plumes of white sand extending quite far into the interior as is evident along the eastern margin of the study area (Figure 2). The vegetation is low, generally knee- to waist-height, and frequently dominated by spiny grass in the dune areas. Examination of Google Earth suggests that small pans are present in places.

The proposed site includes a ridge of high lying topography extending south of Kleinsee and sloping quite steeply towards the coast in the west and more gently towards the east. Several small roads and excavations are present throughout the area and the main tar road from Kleinsee to Koingnaas bisects the site from north to south. No power line route has been provided yet, but the line would traverse land of similar character to the proposed WEF site. It reduces in elevation towards the north but towards the northeast (and the Gromis substation) dune fields and typical low hills maintain the elevation until a gentle slope into the Buffels River valley.

5. HERITAGE CONTEXT

Palaeontological research in Namaqualand is sparse. However, a recent review of the palaeontological record as represented in the De Beers Namaqualand Mines by Pether (2008) provides details of many different paleontological features of scientific value. These are not reviewed here, suffice to say that they vary in depth with some important features being close to the surface, particularly close to the coast where raised beach sequences are frequently intersected. Deeper palaeontological resources would not likely be impacted by the proposed development.

Extensive archaeological surveys in this vicinity have been carried out in 1991 and between 2001 and 2007 with large numbers of archaeological sites being recorded and excavated (e.g. Halkett 2003; Halkett & Dewar 2007; Orton & Halkett 2005, 2006, 2007). The Koingnaas and Sandkop farms in particular have been found to have very dense Later Stone Age archaeological sites and many have been excavated. The quality of data obtained from these sites is variable, but some include very high quality data. Important archaeological sites from this area have already formed the basis of a major research project (Dewar 2008) with a second currently underway (Orton, in prep.). In addition to Dewar (2008), several publications discussing the archaeology of the region

have also appeared (e.g. Dewar *et al.* 2006; Dewar & Jerardino 2007; Orton 2007, 2008a, 2008b; Orton *et al.* 2005). These show that people were living along the coastline throughout the latter half of the Holocene, and possibly earlier, subsisting off shellfish, seals and land animals. They left extensive collections of stone artefacts, pottery, ostrich eggshell beads and flasks but generally few other organic artefacts. Burials are common; several have been uncovered accidentally during mining activities and, owing to the fact that they are completely unmarked and that the substrate is soft and sandy, they can turn up absolutely anywhere in this region. Only one has ever been found in an archaeological excavation, just north of Kleinsee (Orton 2007).

Historical material, such as 19th century glass and ceramic fragments, is sparsely scattered in the Namaqualand Sandveld and occasional farm houses are present (personal observation). Contact period archaeology, where historical and colonial material co-occur, has been recorded at Hondeklipbaai where shell middens containing historical material likely pertained to indigenous people being used to load copper ore onto ships in the bay (Orton 2009).

6. FINDINGS

6.1. Palaeontology

Palaeontological resources are known to occur widely in the region, although these will be less prevalent within the surficial aeolian sands that predominate in the study area. However, if a duricrust (hard soil layer formed through accumulatuion and subsequent precipitation of soluble minerals) is present beneath the sand then this could harbour fossil remains of animals that have been deflated down onto it in the past. In southern Namaqualand these duricrusts usually have archaeological material on them too.

6.2. Archaeology

The study area lies far enough from the coast to avoid the very high concentrations of shell middens that occur within about 500 m of the shore line. However, inland dune fields can harbour archaeological sites and some have already been observed in such localities in the past (Halkett & Hart 1997). The Google Earth images in Figures 3 to 6 show the locations of archaeological sites already on record in the general study area. It should be emphasised that their distribution is more a function of the areas searched than of the real distribution of archaeological sites (Halkett 2006; Halkett & Hart 1997; Parkington & Hart 1991). What is important here is that despite the concentration along the coast, sites are nonetheless found further inland, far enough to be impacted by the proposed WEF. In one area north of Kleinsee three sites were found and excavated 6.0 km from the coast (Halkett 2003). It is very seldom that the types of sites located in this area require *in situ* conservation. Almost all sites are easily mitigated and many are frequently insignificant enough that the Phase 1 recording serves as an adequate record of the site.

6.3. Built environment

The only structures visible on Google Earth occur in the south-eastern part of the study area. They comprise of a small complex of farm buildings on the farm ‘Rooivlei’ (Figure 7). These structures would need to be examined for significance to determine their appropriate adaptive reuse should this be considered in the development. If older than 60 years a permit would be required for demolition or alteration.

6.4. Cultural landscape and visual impacts

Although much of Namaqualand is essentially a pristine natural landscape, the coastal stretch from Kleinsee northwards has been heavily altered by open cast diamond mining. Small test excavations and trenches dot the entire coastline both inside and outside of the current high security mining areas. Large structures and mine dumps are present several kilometres north of

the study area and these lend an industrial character to parts of the landscape. The area is currently all private land and is not accessible to the general public. This means that relatively few visual receptors (aside from the town of Kleinsee) are present on the landscape. The visual impacts will thus be of high significance but of low intensity (or magnitude).

Figure 3: Aerial photographic view of the study area showing archaeological sites on record from earlier surveys in the area.

Figure 4: Aerial photographic view of the north-western part of the study area showing archaeological sites on record from earlier surveys in the area. The yellow bar for scale is 1 km.

Figure 5: Aerial photographic view of the southern part of the study area showing archaeological sites on record from earlier surveys in the area. The yellow bar for scale is 1 km.

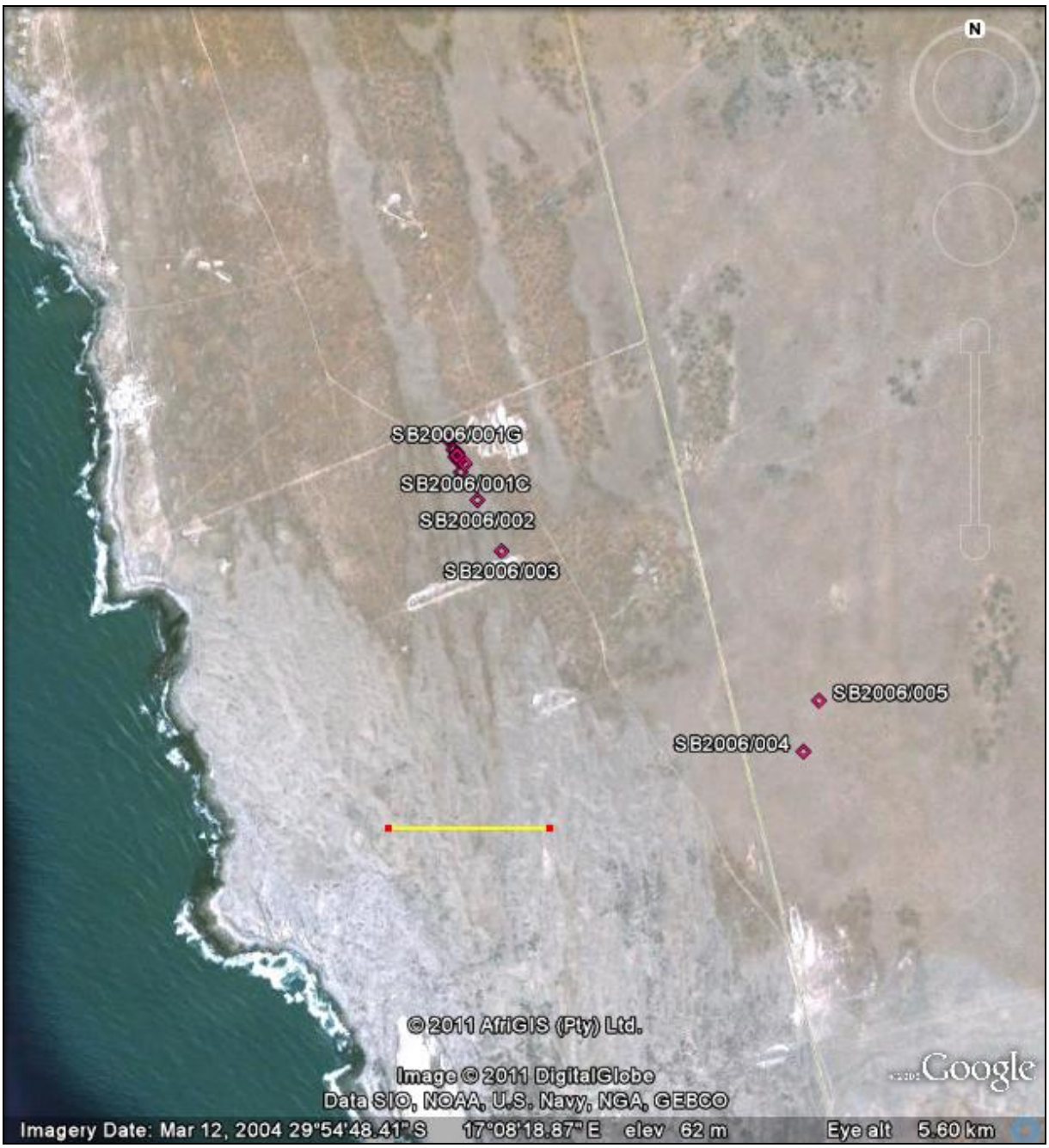

Figure 6: Aerial photographic view of part of Sampson's Bak, the next farm south of the study area showing sites on record from earlier surveys there. The yellow bar for scale is 1 km.

Figure 7: Aerial photographic view of the south- eastern part of the study area (left of the red line) showing the only farm complex, Rooivlei, in the study area. It lies within Rooivlei 327/2

7. CONCLUSIONS

The study area is deemed to be generally suited to the proposed development since it is very remote and currently inaccessible to the general public. There are also very few farm buildings and/or residences in the area. Archaeological resources are concentrated close to the sea shore and they are likely to be relatively uncommon within the study area.

A heritage impact assessment (HIA) is recommended for this project. The reporting would necessarily focus on archaeology, since it is that aspect of heritage that would likely receive the greatest impact. Figure 8 indicates possible sensitivity ratings with areas closer to the coast being rated more highly as this is where shell middens are most frequent. However, the distance from the sea means that the likelihood of significant sites does diminish substantially. It should be noted, though, that a very important site with Middle Stone Age material has been located in a white sand dune field 6.5 km inland and 25 km south of the present study area. During fieldwork the relevant parts of the study area to be impacted by the development will need to be walked such that archaeological resources visible on the surface can be recorded. The client will need to provide detailed mapping of the proposed WEF to enable accurate fieldwork. It is suggested that as part of the HIA a desktop palaeontological specialist report be commissioned.

Although visual impacts of high significance will be experienced they will be of fairly low intensity due to the few potential visual receptors in most of the immediate vicinity. However, the site is on high-lying ground that will be visible from the town of Kleinsee (located 5 km north of the northern limit of the study area) and thus a Visual Impact Assessment (VIA) is recommended since impacts of higher intensity are expected from Kleinsee.

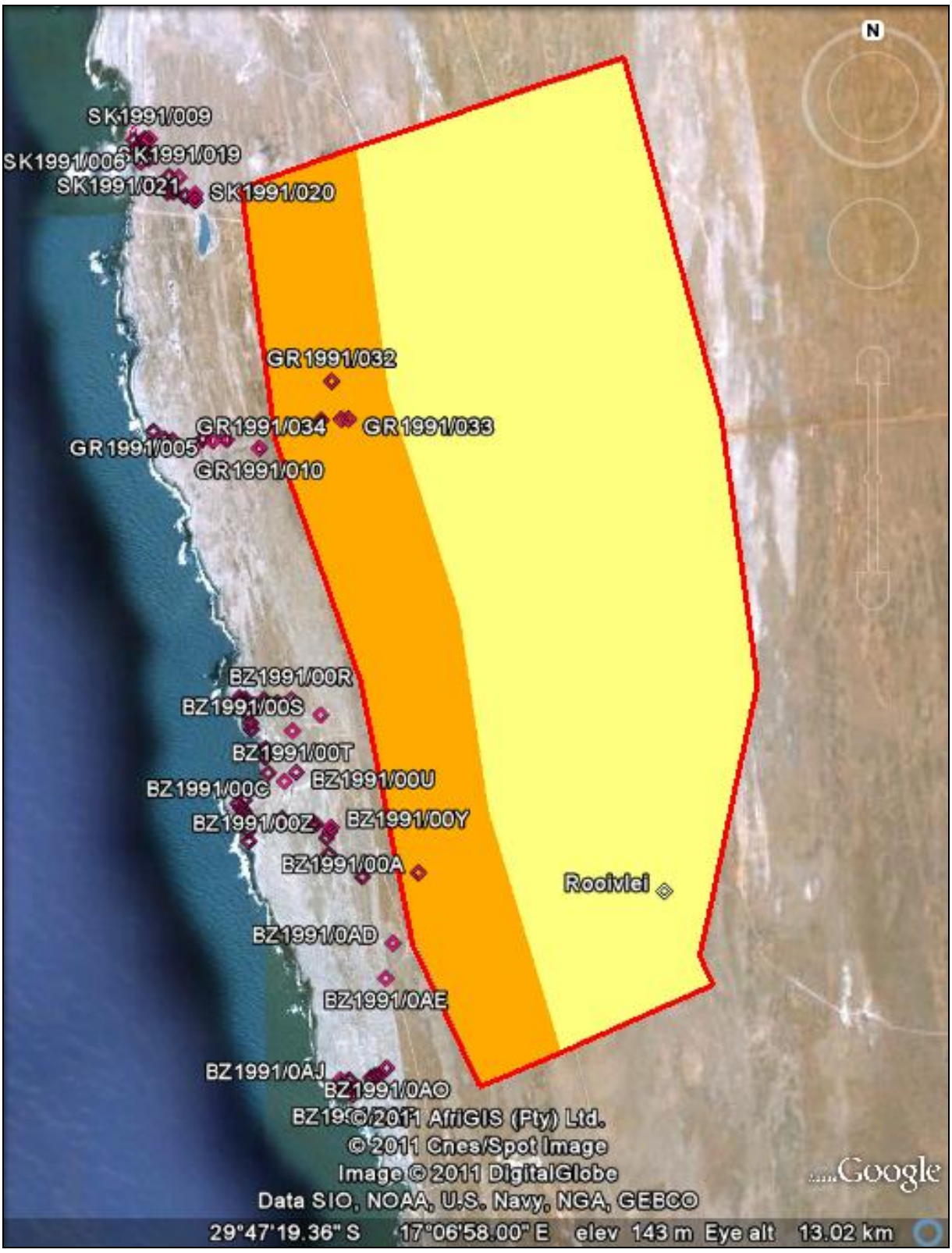

Figure 8: Aerial photographic view of the study area showing areas within approximately 3.5 km of the coast as medium archaeological sensitivity (orange area) and the remaining area as low sensitivity (yellow area).

8. RECOMMENDATIONS

The nature of the receiving environment and of the heritage resources known to occur in the area suggest that the project should proceed to the EIA phase. No fatal flaws are identified but areas closer to the coast are considered to be of higher (medium) significance than those further inland (low significance). No areas are considered to carry potentially high archaeological significance and no no-go areas have been identified. A Heritage Impact Assessment will be required, primarily to address archaeological concerns and perhaps the routing of the power line.

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