A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED DORPER WIND ENERGY FACILITY ON A SITE NEAR MOLTENO, CHRIS HANI DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE.

Prepared for: Savannah Environmental (Pty) Ltd
Contact person: Ms Karen Jodas
PO Box 148
Sunninghill
2157
Tel: (011) 234 6621
Fax: (086) 684 0547
Email: karen@savannahSA.com

Compiled by: Dr Johan Binneman, Ms Celeste Booth and Ms Natasha Higgitt
Contact person: Ms Celeste Booth
Department of Archaeology
Albany Museum
Somerset Street
Grahamstown
6139
Tel: (046) 622 2312
Fax: (046) 622 2398
j.binneman@ru.ac.za
celeste.booth@ru.ac.za

August 2010

TABLE OF CONTENTS

A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED DORPER WIND ENERGY FACILITY ON A SITE NEAR MOLTENO, CHRIS HANI DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE

Note: This report follows the minimum standard guidelines required by the South African Heritage Resources Agency (SAHRA) for compiling a Phase 1 Archaeological Impact Assessment (AIA).

EXECUTIVE SUMMARY

Purpose of the Study

The purpose of the study was to conduct a phase 1 archaeological impact assessment (AIA) for the Dorper Wind Energy Facility near Molteno, Chris Hani District Municipality, Eastern Cape Province. The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage materials and features, the potential impact of the development and, to make recommendations to minimize possible damage to these sites.

Brief Summary of Findings

The proposed area for the Dorper Wind Energy Facility includes the following farms: Spreeukloof (portion 18), Paarde Kraal (portion 7), Uitekyk (portions 1, 3 and remaining extent), Farm 68 (portion 4), Cypher Gat (portions 1, 2, 3, 4, 5, 6, 7, and 9 and remaining extent) Highlands (remaining extent) Bushmans Hoek (remaining extent) and Post Houers Hoek (remaining extent). The proposed area is situated between 5 and 20 km south-east of the small town of Molteno on the R397 road to Sterkstroom. An area of approximately 13 200 ha is being considered for the establishment of the proposed wind energy facility and associated infrastructure. The proposed wind energy facility would include: up to 240 wind turbines and foundations to support them, underground cables between the turbines, a substation to facilitate the connections between the wind energy facility and existing power lines, and internal roads to each turbine.

Surface scatters of Middle Stone Age (MSA) stone artefacts were observed over most of the area surveyed. These occur between the surface and approximately 50 cm below the current surface level. Later Stone Age (LSA) stone artefacts were also observed as surface scatters, but mainly occurred in density around the koppies and rocky outcrops. Stone walling and remains thereof occur on the landscape, mainly as dam walls, but also as remaining foundations of buildings. Stone walling was also observed in some rock shelters on the koppies/rocky outcrops, which may either have been used as stock kraals/pens and to provide shelter from the wind as occupation areas. Historical buildings and abandoned farmhouses with outside rubbish dumping areas containing stoneware and porcelain

ceramics as well as glass, iron and copper also occur within the proposed area for development. Graveyards and informal burials were also observed within the proposed area, most of the burials are deemed to be older than 60 years.

Most of the area has been highly disturbed owing to farming activities such the cultivation and ploughing of the lands, grazing by cattle and sheep, the construction of the farm and service roads, fences, telephone poles as well as Eskom power lines and substations.

No other associated archaeological materials were observed with the stone artefact scatters, and it is unlikely that the stone artefacts would be in primary context. No sites containing any depth of deposit or other archaeological material associated with the stone tool artefacts and archaeological material were observed within the proposed area for development. The proposed area for development is considered as having a low-medium cultural significance, although the following recommendations must be taken into consideration prior to the construction activities.

Recommendations

The area is of a low-medium cultural sensitivity, the following recommendations must be considered:

1. If any of the existing buildings are planned to be demolished during the course of development, a built-environment heritage specialist or historian must be appointed to assess the significance of the built environment and historical buildings.
2. The grave and burial areas must be identified and cordoned off prior to the commencement of development so that no negative impact and vandalism occurs.
3. Once the exact coordinates for the wind turbines are established an archaeologist should be appointed to inspect the exact and immediate surrounding area for possible sites. Further recommendations may follow after the investigation.
4. A professional archaeologist should be appointed during the construction phases to observe whether any depth of deposit and *in situ* archaeological material remains is uncovered.
5. It is unknown whether any *in situ* archaeological sites/remains, and human remains would be uncovered during construction. However, if concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/excavation can be undertaken (See Appendix A for a list of possible archaeological sites that maybe found in the area).
6. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

BACKGROUND INFORMATION

The phase 1 archaeological impact (AIA) assessment report is required as part of the environmental impact assessment (EIA) for the proposed Dorper Wind Energy Facility on a site near Molteno.

Developer:

Dorper Wind Farm (Pty) Ltd, a Rainmaker Energy Projects (Pty) Ltd ("Rainmaker") development.

Consultant:

Savannah Environmental (Pty) Ltd
Contact person: Ms Karen Jodas
P.O. Box 148
Sunninghill
2157
Tel: (011) 234 6621
Fax: (086) 684 0547
Email: karen@savannahSA.com

Terms of Reference

To conduct a survey of possible archaeological heritage sites for the proposed Dorper Wind Energy Facility near Molteno on the farms Spreeukloof (portion 18), Paarde Kraal (portion 7), Uitekyk (portions 1, 3 and remaining extent), Farm 68 (portion 4), Cypher Gat (portions 1, 2, 3, 4, 5, 6, 7, and 9 and remaining extent) Highlands (remaining extent) Hushmans Hoek (remaining extent) and Post Houers Hoek (remaining extent), Chris Hani District Municipality, Eastern Cape Province. The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage materials and features, the potential impact of the development and, to make recommendations to minimise possible damage to these sites.

Legislative requirements

Parts of sections 35(4), 36(3) and 38(1) (8) of the National Heritage Resources Act 25 of 1999 apply:

Archaeology, palaeontology and meteorites

35 (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;
(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.

Burial grounds and graves

36. (3) (a) 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.

Heritage resources management

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of the site –
- *(i) exceeding 5000m^2 in extent, or*
- *(ii) involving three or more erven or subdivisions thereof; or*
- *(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
- *(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial resources authority;*

(d) the re-zoning of a site exceeding 10 000m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

(8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Ant No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environmental Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.

BRIEF ARCHAEOLOGICAL BACKGROUND

Literature review

Although a heritage scoping assessment had been undertaken by eThembeni Cultural Heritage for the proposed wind energy facility near Molteno, additional literature on rock art research had been acquired and should be mentioned.

Little is known about the archaeology of the immediate area, mainly because no systematic archaeological research has been conducted within and surrounding Molteno. However during 2005, David Pearce of the Rock Art Research Institute, University of the Witwatersrand, had conducted rock art research on the farms Post Houer's Hoek and Highlands reported from the 1937 official records (see Pearce 2005). Four rock art sites have been recorded on the farm Post Houer's Hoek, only two of them, in addition to Later Stone Age stone artefacts, containing cultural material such as ostrich eggshell, lower grinding stones and one bored stone, with slight depth of deposit. The rock art site on Highlands accordingly contains good, deep archaeological deposit and many Later Stone Age stone artefacts seem to be washing out at the drip line. Stephen Townley-Basset, who resides within the Molteno, has also published some of the rock art on the farm Uitekyk (portion 1).

In enquiring from the farm owners, it has been established that the farm Spreeukloof contains two rock art sites, on the farm Cypher Gat (portion 1) one rock art site is situated in the rocky ridges overlooking the dam, and the farm Bushmans Hoek also contains rock art sites. It could not be established whether the farms Cyphergat (portions 2, 7, 8, 9), Tolkop and Uitekyk (prortions 3, 6) contain rock art sites.

DESCRIPTION OF THE PROPERTY

Area surveyed

Location data

The proposed area for the Dorper Wind Energy Facility includes the following farms: Spreeukloof (portion 18), Paarde Kraal (portion 7), Uitekyk (portions 1, 3 and remaining extent), Farm 68 (portion 4), Cypher Gat (portions 1, 2, 3, 4, 5, 6, 7, and 9 and remaining extent) Highlands (remaining extent) Bushmans Hoek (remaining extent) and Post Houers Hoek (remaining extent). The proposed area is situated between 5 and 20 km south-east of the small town of Molteno on the R397 road to Sterkstroom.

Map

1:50 000 3126AD Molteno, 3126CB Moordenaarshoek, 3126BC Brosterlea and 3126DA Sterkstroom (Map 1) (Refer to Map 2 for GPS coordinates and Map 3 for Sites)

ARCHAEOLOGICAL INVESTIGATION

Methodology

The survey was conducted by two heritage consultants by following the farm roads in a vehicle and performing spot checks where archaeological stone artefacts were observed in the road and the surrounding area. Other exposed areas such as dongas, exposed flat bedrock areas, road cuttings and koppies were investigated for possible archeological remains. GPS readings were taken using a Garmin Plus II. All GPS readings have been plotted on Map 2 and 3 however, only those of relevance have been mentioned within the text. Each of the proposed farms for the Dorper Wind Energy Facility will be discussed as separate units.

***SPREEUKLOOF (portion 18)*:**

The farm Spreeukloof (portion 18) is located approximately 5 km to the south-south-west of the town of Molteno and is about 6 km x 3 km in extent. The area proposed for the development of the wind turbines is situated on the flat plateau in the south-western half and corner of the farm boundary. The proposed area is covered in dense grass vegetation, which made archaeological visibility difficult (Figs 1-2). However, the exposed open areas, eroding dongas and rocky outcrops were investigated for any possible archaeological remains (Figs 3-4).

Figs 1-2. Views of the vegetation cover and landscape.

Figs 3-4. Exposed areas investigated.

A surface scatter of weathered Middle Stone Age (MSA) stone artefacts were observed at the entrance gate to the proposed area (Site 1: 31°28'29.22"S; 26°20'44.40"E). The stone artefacts mostly occurred in the farm road and within the exposed donga areas. They comprised mainly of flakes, blades and cores manufactured from hornfels and shale raw materials. About 1 km to the north-east, Middle Stone Age (MSA) and Later Stone Age (LSA) stone artefact scatters were documented eroding out of the donga and on the surface surrounding the rocky outcrop (Site 2: 31°28'29.22"S; 26°20'44.40"E). The Later Stone Age (LSA) stone artefacts comprised mostly of flakes and chips which indicates that people were knapping and manufacturing their tools within this area. Formal tools comprised of a few endscrapers made on hornfels and one segment made on silcrete (Figs 5-6).

The area has previously been disturbed by the erection of farm boundary fences, the construction of power lines and poles, farm roads, stock grazing and the erosion of the dongas. It is highly unlikely that the stone artefacts observed are in a primary context although *in situ* scatters may be present beneath the current surface level, where heavy disturbance has not yet occurred (Figs 7-8).


Figs 5-6. Examples of MSA and LSA stone artefacts observed within the exposed areas and dongas.


Figs 7-8. Views of the disturbances within the proposed area.

It was reported by the farm owner that the farm Spreeukloof (portion 18) contained two rock art sites; however, these have not yet been formally recorded by the Albany Museum and may not be impacted on by the development.

PAARDE KRAAL (portion 7):

The farm Paarde Kraal (portion 7) is located approximately 4 km south of the town Molteno bordering on the R397 road to Sterkstroom and is about 6 km x 2 km in extent. The area proposed for the wind turbines is situated on the flat plateau area bordering along the R397 road and across the southern half of the farm.

Most of the proposed area is covered in thick dense grass cover which made archaeological visibility difficult (Figs 9-10). However, the exposed areas were investigated for possible archaeological remains.

A scatter of weathered Middle Stone Age (MSA) stone artefacts made predominantly on shale occurred on the surface of the farm road and could be stratigraphically observed in the 20 cm – 30 cm inclines on both sides of the farm road (Site 3: 31°25'44.16"S; 26°23'29.52"E)(Figs 11-12). It is highly unlikely that the stone artefacts observed occur in a primary context owing to disturbances such as the construction of the farm roads and nearby power lines and fences. However, *in situ* archaeological may be uncovered in

undisturbed areas below the current surface level. The remains of stone walling and foundations were also observed close to the farm road (Site 4: 31°25'29.40"S; 26°23'38.28"E).

It unknown whether the farm Paarde Kraal (portion 7) contains any rock art sites. None were observed during the survey.


Figs 9-10. Views of the vegetation cover and disturbances.


.

Figs 11-12. MSA stone artefacts observed in the farm road (left) and stratigraphically in the farm road incline (right)

CYPHERGAT (portion 1):

The farm Cyphergat (portion 1) is located approximately 2 km west of the R397 and is bordered by the farms Paarde Kraal to the north, Spreeukloof to the west and the remaining portions of Cyphergat to the east and south and is about 3 km x 5 km in extent. The area proposed for the wind turbines situated on the relatively flat plateau in the eastern half of the farm area and is covered in dense grass vegetation which made archaeological visibility difficult (Figs 13-14). However, exposed areas and koppies were investigated for possible archaeological remains.

Two informal burial grounds were documented within the proposed area. The first burial ground (Site 6: 31°26'45.96"S; 26°23'4.02"E) observed is situated at the foot of a koppie and contained approximately 30 burials all of which had been packed with stones and stone slabs used as individual headstones. Most of the burials are probably older than 60 years

except for one relatively recent grave (Figs 15-16). The second informal burial ground (Site 10: 31°26'44.52"S; 26°22'22.38"E) is situated outside of the area proposed for development and contains approximately six burials. The burials were very difficult to identify owing to deposition of the soil over time.


Figs 13-14. Views of the landscape and disturbances.


Figs 15-16. Informal burial areas within area surveyed. Site 6 (left) and Site 10 (right).

Packed stone walling in the form of a circular stone walling feature as well as a stone walling kraal were documented at a koppie marked Site 7 (31°27'42.60"S; 26°23'8.88"E). Two rock shelters were also observed with packed stone walling, however no obvious archaeological scatters or deposit was observed within the rock shelters, except a pitted lower grindstone and a bead was noted at the rock shelter marked Site 8 (31°27'44.58"; 26°23'6.36"E) (Figs 17-20). Random surface scatters of Later Stone Age (LSA) stone artefacts were documented around and on top of the koppie. The stone artefacts comprised mainly of formal tools such as endscrapers, flakes and chips were also observed on top of the koppie. The stone artefacts were mainly manufactured on hornfels and other fine-grained raw materials such as chalcedony and silcrete (Figs 21-22). A few fragments of porcelain and copper and freshwater mussel were also documented around the circular stone walling feature (Site 7). The fresh water mussel may have been brought into the area by otters or other animals. (Figs 23-24).

The farm Cyphergat (portion 1) has is the past been heavily disturbed by the construction of buildings, fences, farm roads and more recently the 132kV power lines. The cultivation and ploughing of lands and the grazing of stock animals has also contributed to disturbances on the landscape. No archaeological remains were observed in the flat plateau areas proposed for development, however, stone artefacts may occur between the surface and 30-50 cm below ground.

It was reported by the farm owner that the farm Cyphergat (portion 1) contains one rock art site which has not yet been recorded by the Albany Museum. Development is not expected to infringe on the rock art site.

Figs 17-20. Circular stone walling and a stone walling kraal (top left and right). Packed stone walling within the rockshelters (bottom left and right)

Figs 21-22. Examples of stone artefacts

CYPHERGAT (portion 9):

Cyphergat (portion 9) is located adjacent to the R397 and is bordered by the farms Paarde Kraal and the remaining Cyphergat portions and is about 3 km x 3 km in extent. The area proposed for the wind turbines is situated on the flat plateau and is covered in dense grass vegetation, which made archaeological visibility difficult (Figs 25-26). However, the exposed areas and farm road were investigated for possible archaeological remains.

A surface scatter of Middle Stone Age (MSA) stone artefacts were observed at the entrance gate to the farm underneath an electricity power line-crossing (Site 5: 31°26'16.74"S;26°24'32.10"E). The area has been highly disturbed by the construction of the power lines and the stone artefacts are more than likely in secondary context.

Figs 23-24. Examples of other archaeological remains observed. Porcelain, iron, freshwater mussel (left) and a pitted stone and a bead (right).

The area has previously been highly disturbed by the construction of the smaller power lines and more recently with the construction of the 132kV power lines which run across the landscape. The construction of fences, farm roads, dams and cultivated lands also add to disturbances (Figs 27-28). No rock art sites occur on the farm Cyphergat (portion 9).

Figs 25-26. Views of the landscape.


Figs 27-28. Examples of disturbances in the landscape.

CYPHERGAT (portions 2, 3, 4, 5, 6, 7, and remaining extent):

Cyphergat (portions 2, 3, 4, 5, 6, 7, and remaining extent) is located adjacent to the R397 and is bordered by Cyphergat portions 1 and 9, Tolkop, Post Houers Hoek and Farm 68. The farm is about 7 km x 5 km in extent. The area proposed for development is situated on the flat plateau and is covered in dense grass vegetation which made archaeological visibility difficult (Figs 29-30). However, exposed open areas, eroding dongas, flat exposed bedrock and koppies were investigated for possible archaeological remains (Figs 31-34).


Figs 29-30. Views of the landscape.


Figs 31-32. Areas investigated for possible archaeological remains. Stone artefact scatter (left); stone artefacts observed in donga (right).


Figs 33-34. Areas investigated for possible archaeological remains. Surface scatters of MSA, LSA and historical artefacts on exposed bedrock (left); koppies in the landscape (right).

Surface scatters of Middle Stone Age (MSA) stone artefacts were documented sporadically over the entire area within the exposed areas (Site 11: 31°27'21.24"S; 26°25'33.00"E – Site 24: 31°27'55.08"S; 26°24'1.32"E). The stone artefact scatters comprised mainly of blades, flakes and cores made on a variety of raw materials such as hornfels, shale, chert, chalcedony, fine-grained quartzite and some silcrete. It was noted within the exposed donga areas that the Middle Stone Age (MSA) stone artefacts occurred between the current ground level to between 30 cm and 50 cm below ground. Later Stone Age (LSA) stone artefacts and possible retouched and utilized glass pieces also occurred together with the Middle Stone Age (MSA) artefact scatters as well as around nearby koppies. Some porcelain, stone ware, glass and pieces of iron and copper were also documented on the flat exposed bedrock surfaces (Fig 35-38).

The area proposed for development has in the past been highly disturbed by the construction of farm roads, fences, cultivated lands and general farming activities such as grazing, ploughing and the establishment of dams and windmills. The implementation of smaller power lines and the more recently implemented 132kV power lines has also contributed to heavy underground disturbances. It is therefore highly unlikely that the stone artefacts may be in primary context (Figs 39-40). No rock art sites were reported to occur on the farm Cyphergat (portions 2, 3, 4, 5, 6, 7, and remaining extent).


Fig 35-36. Examples of artefacts documented during the survey. MSA stone artefacts (left); LSA stone artefacts (right)


Fig 37-38. Examples of artefacts documented during the survey. MSA stone artefacts (left) and upper grinding stone; historical stoneware, glassware and iron artefacts (right).


Figs 39-40. Examples of disturbances: power lines (left) and cultivated ploughed lands (right).

TOLKOP (portions 1 and 4):

Tolkop (portions 1 and 4) is located approximately 7 km west of the R397 is bordered by the farms Spreeukloof, Cyphergat and Post Houer's Hoek, and is about 2 km x 7 km in extent. The area proposed for the development is on the flat plateau and is covered in dense grass vegetation (Figs 41-42). However, the exposed open areas, eroding dongas, road cuttings and flat exposed bedrock were investigated for possible archaeological remains.


Figs 41-42. Views of the landscape and vegetation cover.

Scatters of Middle Stone Age (MSA) stone artefacts were mainly documented within the farm roads at Site 25 (31°29'16.44"S; 26°23'30.36"E) – Site 28 (31°27'59.04"S; 26°22'26.52"E) and Site 30 (31°28'10.62"S; 26°22'0.42"E). The stone artefacts comprise mostly of flakes, blades and cores made on hornfels, fine-grained quartzite, silcrete, chalcedony, shale, and a few quartz chunks were also present. At Site 28 stone artefacts were observed in the stratigraphy of the road cutting at the bottom of a hill. The stone artefacts may have washed down the hill over time (Figs 43-46). Abandoned farm houses and buildings occur at Site 29 (31°27'54.00"S; 26°22'9.66"E).

The area has previously been disturbed by the implementation of fences, dams and windmills as well as the construction of farm roads. No rock art sites were reported to occur on the farm Tolkop (portions 1 and 4).

Figs 43-46. Top: Occurrence of stone artefacts; Bottom: Examples of stones artefacts

POST HOUERS HOEK (remaining extent), HIGHLANDS (remaining extent) and FARM 68 (portion 4):

Post Houers Hoek (remaining extent), Highands (remaining extent) and Farm 68 (portion 4) are located at the most south-westerly boundary of the proposed area for the wind energy facility and is about 8km x 8km in extent. The proposed area for the wind turbines is situated on the flat plateau and is covered in thick dense grass vegetation making archaeological visibility difficult (Figs 47-48). However, the exposed open areas and farm roads were investigated for possible archaeological remains.

Figs 47-48. Views of the landscape.

Random surface scatters of Middle Stone Age (MSA) stone artefacts were documented in the exposed areas and the farm road at Site 31 (31°30'7.86"S; 26°25'25.80"E) and GPS 30 (31°28'59.04"S; 26°26'15.78"E). However, the stone artefacts are more than likely in a disturbed, secondary context.

The area has in the past been disturbed by general farming activities and the construction of farm roads, fences, dams, windmills, power lines and more recently the 132kV Eskom power lines. Therefore occurrences of stone artefacts may be in a secondary, disturbed context, although it may be possible that in situ occurrences of stone artefacts may occur in between the surface and 30-50 cm below ground in areas that have not yet been disturbed.

Four recorded and reported rock art sites occur on the farm Post Houer's Hoek and one rock art site on the farm Highlands. It is unknown whether rock art sites occur on Farm 68. The rock art sites will not be affected by the proposed development.

UITEKYK (portions 3 and remaining extent):

The farm Uitekyk (portions 3 and remaining extent) is located on the eastern side of the R397 road to Sterkstroom and is bordered by the farms Cyphergat to the north and Uitekyk (portion 1) to the south and is about 3 km x 7 km in extent. The proposed area for the wind turbines is situated about 1 km to the west of the Bamboesberg Mountain Range up to the R397 on the flat plateau and is mainly covered in thick grass vegetation which made archaeological visibility difficult (Figs 49-50). However, disturbed and exposed areas, dongas and the farm road were investigated for possible archaeological remains.

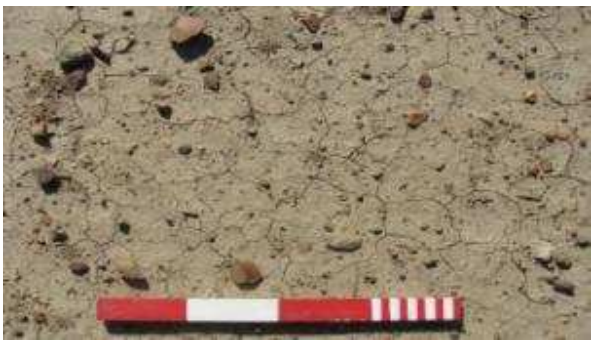
Middle Stone Age (MSA) artefacts embedded into the ground and exposed along the road cutting were documented at Site 32 (31°27'10.44"S; 26°27'32.40"E) (Figs 51-52). The stone artefacts comprised mainly of flakes, blades and cores made predominantly on shale, chalcedony and silcrete (Figs 53-54). An historical graveyard was also documented at Site 33 (31°27'26.76"S; 26°26'2.58"E) surrounded by a Middle Stone Age (MSA) surface scatter. There were approximately 36 graves, the earliest dating from the late 1800's and included both children and adult graves.


Figs 49-50. View of the landscape.

The area has in the past been highly disturbed by general farming activities, the construction of farm roads, fences, dams, windmills, and more recently the 132kV Eskom power lines. Excavations and sampling for possible coal has also been carried out. It is therefore unlikely that stone artefacts may be in primary context.

No rock art sites have been reported or documented on the farm Uitekyk (portion 3 and 6).


Figs 51-52. Occurrences of stone artefacts.




Figs 53-54. Examples of stone artefacts embedded into the ground.

UITEKYK (portion 1) and BUSHMANS HOEK (remaining extent):

The farm Uitekyk (portion 1) is located on both sides of the R397 road to Sterkstroom and is bordered by the farms Uitekyk (portions 3 and 6) to the north and Bushmans Hoek to the south-east and is about 4 km x 7 km in extent. The proposed area for the wind turbines is situated on the flat plateau and is covered in dense grass vegetation which made archaeological visibility difficult (Figs 55-56). However, the exposed open and disturbed areas, farm roads and dongas were investigated for possible archaeological remains.

A surface scatter of weathered Middle Stone Age (MSA) stone artefacts were documented at Site 35 (31°28'21.06"S; 26°26'28.65"E) in a disturbed context underneath crossing power lines. The area has in the past been highly disturbed by the ploughing and cultivation of the lands as well as the construction of buildings, dams, fences, power lines and more recently the 132kV power lines (Figs 57-58). It is therefore highly unlikely that archaeological remains would occur *in situ* within the area proposed for development.

It has been reported that two rock art sites occur on the farm Uitekyk (portion 1), but is not within the proposed development area.


Figs 55-56. Views of the landscape.


Figs 57-58. Examples of disturbances within the area proposed for development.

DISCUSSION

Middle Stone Age (MSA) artefacts occur widely over the area proposed for development, however, they are predominantly in a secondary context owing to general farm and construction disturbances. It has been observed that the Middle Stone Age (MSA) artefacts occur between the ground surface and 30-50 cm below ground, as observed by the stone artefacts eroding out of dongas. However, some stone artefacts may still be in situ within areas that have not yet been disturbed. Later Stone Age (LSA) artefacts occur mainly around the koppies and rocky outcrops, but are also found together with surface scatters of Middle Stone Age (MSA) and historical artefacts. Stone walling seems to occur randomly on the landscape which may have been used prehistorically, historically and recently. Informal burial grounds and graves older than 60 years also occur on the landscape.

Table 1: List of predicted impacts on the archaeological heritage as a result of the proposed Dorper Wind Energy Facility

Construction Phase Direct Impacts										
Impact	Extent	Duration	Intensity	Probability	Significance without mitigation	Significance assuming mitigation	Status	Reversibility	Irreplaceable loss of resources	Can impacts be mitigated?
Impact: Loss of stone artefact scatters and possible sites										
Impact rating	Site specific	Permanent	High	High	Medium	Medium	Negative	None	Yes	Yes
Assigned Score	5	5	10	5	50	30				

Mitigation Measures:

- No phase 2 archaeological mitigation is required for the proposed development to proceed.
- If any of the existing buildings are planned to be demolished during the course of development, a built-environment heritage specialist or historian must be appointed to assess the significance of the built environment and historical buildings prior to demolition.
- The grave and burial areas must be identified and cordoned off prior to the commencement of development so that no negative impact and vandalism occurs on these sites.
- Once the exact coordinates for the wind turbines is established, an archaeologist should be appointed to inspect the exact and immediate surrounding area for possible sites. Further recommendations may follow after the investigation.
- An ECO should be appointed during the construction phases to observe whether any depth of deposit and *in situ* archaeological material remains is uncovered.
- If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/excavation can be undertaken.
- The ECO, as well as all construction managers/foremen should be formally informed before construction starts on the possible types of heritage sites and cultural material they may encounter, and the procedures to follow when they find sites.

RECOMMENDATIONS

No phase 2 archaeological mitigation is required for the proposed development to proceed. The area is of a low-medium cultural sensitivity, the following recommendations must be considered:

1. If any of the existing buildings are planned to be demolished during the course of development, a built-environment heritage specialist or historian must be appointed to assess the significance of the built environment and historical buildings.
2. The grave and burial areas must be identified and cordoned off prior to the commencement of development so that no negative impact and vandalism occurs.
3. Once the exact coordinates for the wind turbines are established an archaeologist should be appointed to inspect the exact and immediate surrounding area for possible sites. Further recommendations may follow after the investigation.
4. An ECO should be appointed during the construction phases to observe whether any depth of deposit and *in situ* archaeological material remains is uncovered.
5. It is unknown whether any *in situ* archaeological sites/remains, and human remains would be uncovered during construction. However, if concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/excavation can be undertaken (See Appendix A for a list of possible archaeological sites that maybe found in the area).
6. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

GENERAL REMARKS AND CONDITIONS

Note: This report is a phase 1 archaeological heritage impact assessment/investigation only and does not include or exempt other required heritage impact assessments (see below).

The National Heritage Resources Act (Act No. 25 of 1999, section 35) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual linguistic or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology,

shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

It must be emphasized that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, reflect the true state of affairs. Many sites/features may be covered by soil and vegetation and will only be located once this has been removed. In the event of such finds being uncovered, (such as during any phase of construction work), archaeologists must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Act No. 25 of 1999.

It must also be clear that Archaeological Specialist Reports (AIAs) will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which may grant a permit or a formal letter of permission for the destruction of any cultural sites.

APPENDIX A: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM INLAND AREAS: guidelines and procedures for developers

1. Human Skeletal material

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general the remains are buried in a flexed position on their sides, but are also found buried in a sitting position with a flat stone capping and developers are requested to be on the alert for this.

2. Freshwater mussel middens

Freshwater mussels are found in the muddy banks of rivers and streams and were collected by people in the past as a food resource. Freshwater mussel shell middens are accumulations of mussel shell and are usually found close to rivers and streams. These shell middens frequently contain stone tools, pottery, bone, and occasionally human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m^2 in extent, should be reported to an archaeologist.

3. Stone artefacts

These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified

4. Fossil bone

Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

5. Large stone features

They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane.* They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

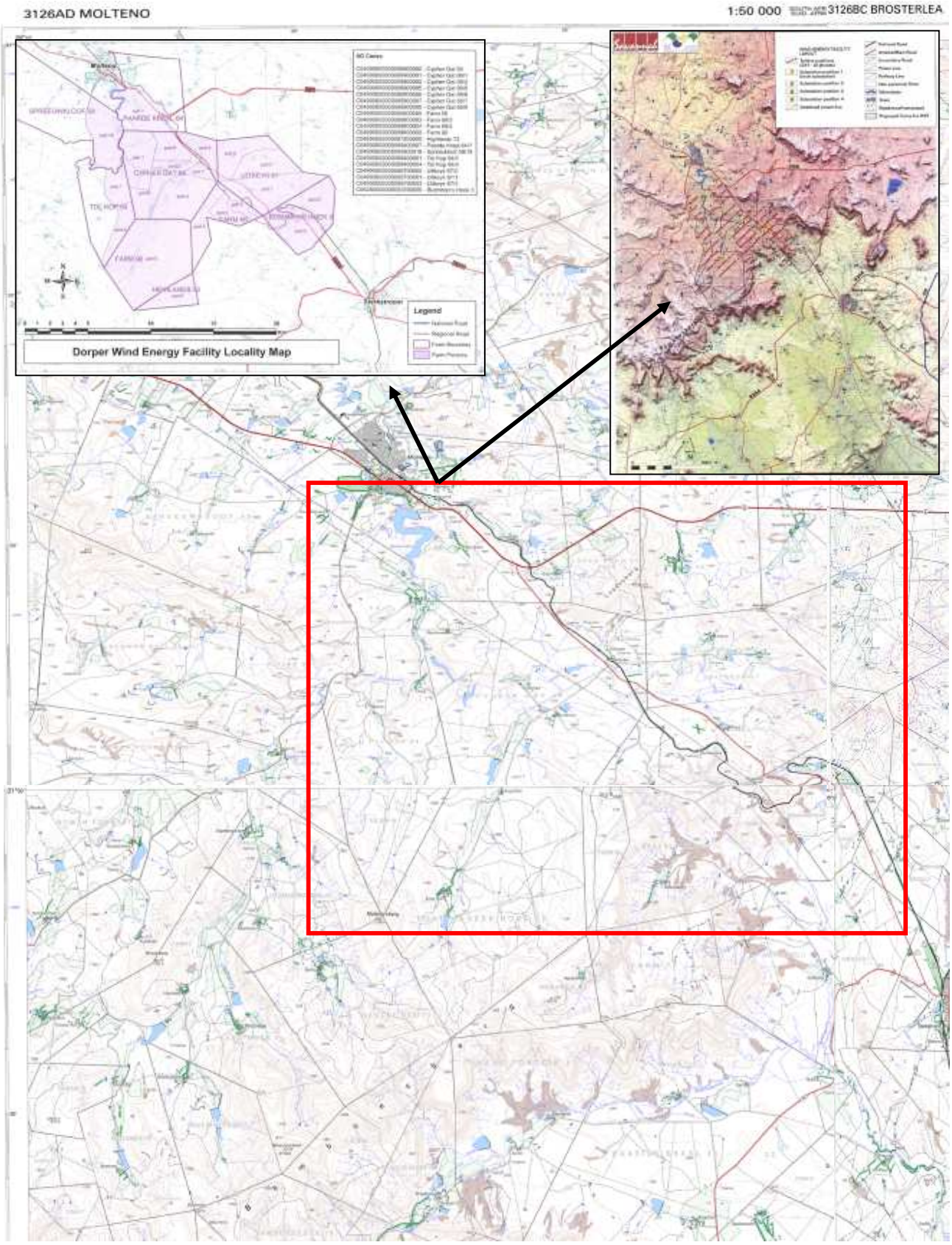
6. Historical artefacts or features

These are easy to identified and include foundations of buildings or other construction features and items from domestic and military activities.

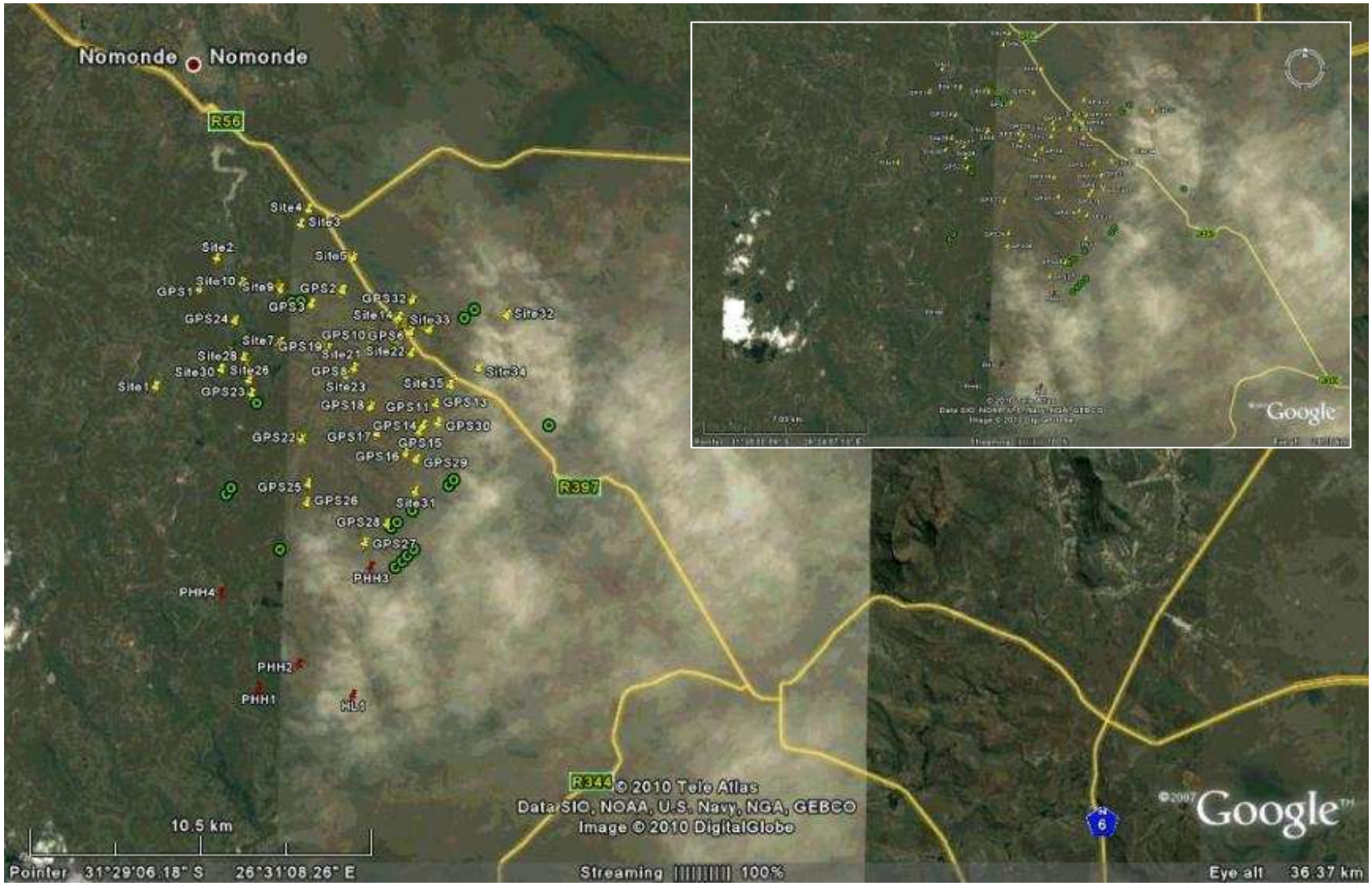
References:

Pearce, D. 2005. The rock art of Post Houers Hoek (King's Glen) and Highlands Farms, Molteno District, Eastern Cape Province, South Africa. Rock Art Research Institute, University of the Witwatersrand.

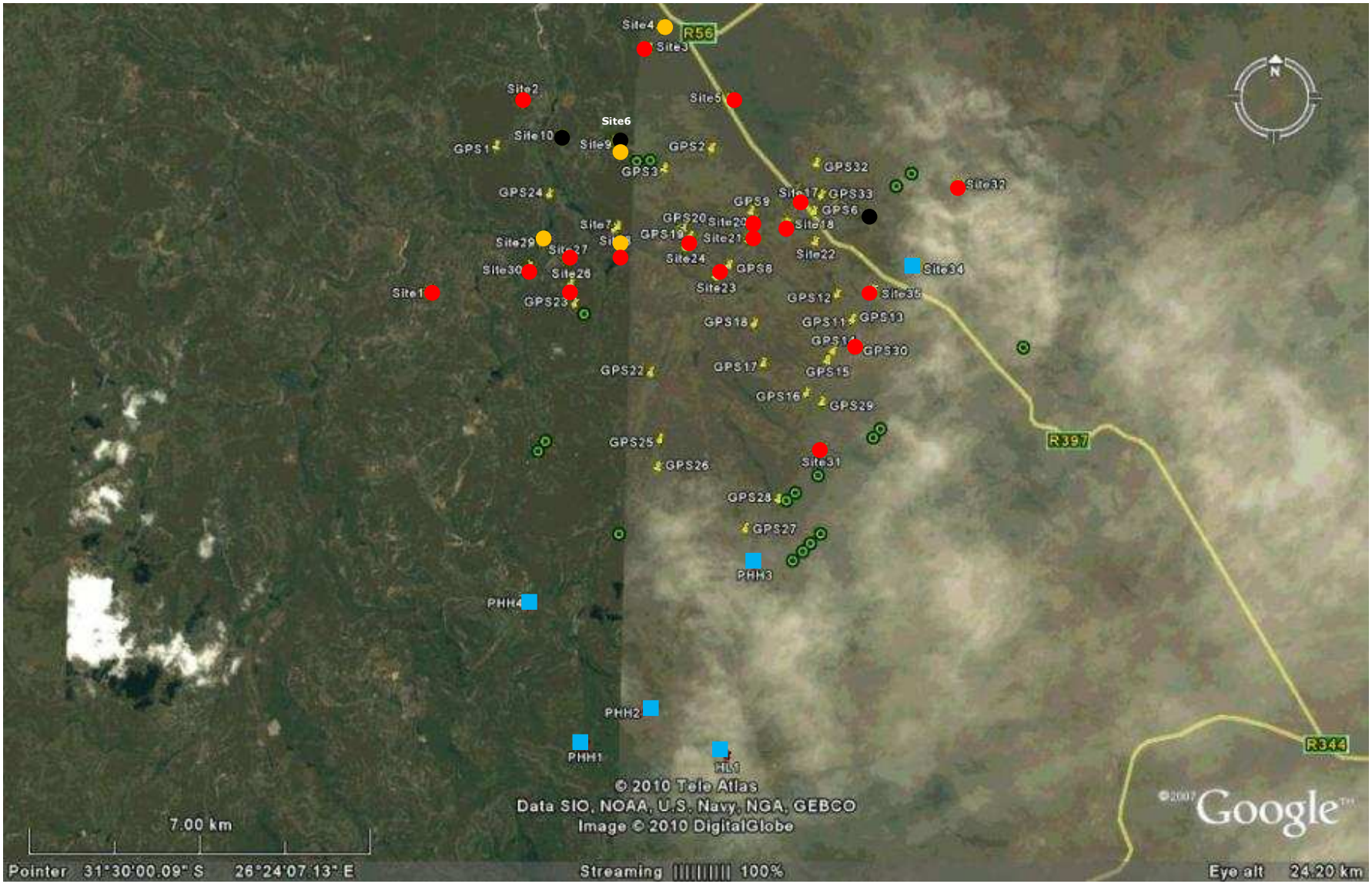
eThembeni Cultural Heritage. 2010. Heritage scoping assessment of Dorper Wind Energy Facility, Molteno, Eastern Cape Province, South Africa. Pietermaritzburg.



Map 1: 1:50 000 Map indicating area proposed for development (insert maps courtesy of Savannah Environmental)



Map 2. Aerial view and GPS co-ordinates of the proposed area for the wind energy facility (Red pins indicate rock art sites)



Map 3: Close-up aerial view indicating GPS coordinates and sites (Red: stone artefact scatters; Black: burial grounds and graves; Orange: stone walling and historical buildings; Blue squares: rock art sites; Greencircles: proposed wind turbines).