

ARCHAEOLOGICAL SCOPING STUDY OF THE PROPOSED BOULDERS WIND FARM, VREDENBURG PENINSULA, WESTERN CAPE

DEA CASE: not allocated yet
HWC CASE: not allocated yet

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

Prepared for
Vredenburg Windfarm (Pty) Ltd.
November 2017



Prepared by
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ACO Associates cc

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Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of Report
(a) details of the specialist who prepared the report; and the expertise of that specialist to compile a specialist report including a <i>curriculum vitae</i> ;	Preface pages
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Preface pages
(c) an indication of the scope of, and the purpose for which, the report was prepared;	1 Scope and purpose
(cA) an indication of the quality and age of base data used for the specialist report;	5.2.2 Previous projects
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	4 Baseline description
(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	2 Date and season
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	3 Methodology
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	5 Identified sensitivity
(g) an identification of any areas to be avoided, including buffers;	5.1 Identification of areas to be avoided.
(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	5.1 Identification of areas to be avoided.
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	5.2 Assumptions and gaps in knowledge.
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment, or activities;	5 Identified sensitivity.
(k) any mitigation measures for inclusion in the EMPr;	10.3 Possible mitigation measures.
(l) any conditions for inclusion in the environmental authorisation;	n/a
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	10.4 Key issues and recommendation
(n) a reasoned opinion— i. as to whether the proposed activity, activities or portions thereof should be authorised; iA. Regarding the acceptability of the proposed activity or activities; and ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr or Environmental Authorization, and where applicable, the closure plan;	10.4.1 Conclusions
(o) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	n/a
(p) any other information requested by the competent authority	n/a
Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	n/a

EXECUTIVE SUMMARY

Introduction

ACO Associates CC have been appointed by Integrated Wind Power (Pty) Ltd on behalf of Vredenburg Wind Farm (Pty) Ltd to undertake an Archaeological Scoping assessment, as part of the EIA process, for the establishment of a wind energy facility on land at the northern end of the Vredenburg Peninsula between the towns of Paternoster and St Helena to be known as the Boulders Wind Farm. The scoping study considers the development of a wind farm with a contracted capacity of up to 140MW.

Methodology

This study has been commissioned as a Heritage scoping assessment that attempts to predict the possible range of impacts on physical heritage resources and identify any issues in terms of accumulated knowledge of the area. This report considers the archaeology of the area and is compiled as part of a broader HIAS process being undertaken by Ms. Katie Smuts. The sources of information consist primarily of published archaeological research reports and unpublished archaeological and palaeontological heritage impact assessments for the general area, as well as a good working knowledge of the site and surroundings. As there is a wealth of studies of both archaeology and palaeontology available (see the extensive bibliography), identification of heritage indicators is well informed. Where relevant, specific reference to certain documents has been made in the text. No archaeological material was removed from the project area, but rather was recorded and photographed *in situ*. Landowners were also consulted with regard to knowledge of heritage resources on their properties.

A site inspection was carried out for the purposes of a previous HIA study within the project site. The findings remain generally useful and relevant.

Summary

We have not identified any archaeological “red flag” issues, although buffers around Kasteelberg have been identified and recommended due to its importance as an archaeological site and is there to protect not only the archaeological sites, but also viewsheds towards and from the coast. Kasteelberg is a grade 2 quality site and one of the most significant of its kind in South Africa. Declaration of the site has been proposed but not yet completed by the Heritage Authority.

A field/desktop assessment of the turbine locations, underground cabling, access roads, laydown areas and substations may be required during the EIA stage for certain parts of the site.

The preliminary constraints maps (Figure 4, 5 and 6) draws on the initial surveys and earlier archaeological research work on the Vredenburg Peninsula. While we have identified a few archaeological sites artefact/marine, shell scatters within the project area, these can generally be avoided (or are of low significance). Where there are complexes of archaeological sites, they have been identified as areas generally not suitable for development/no-go areas within the project site.

We have identified no-go areas where there are known archaeological heritage located around granite koppies (indicated as red zones), within which no infrastructure may be located. Purple zones show areas which have not been ploughed or are riverine which can be more archaeologically valuable. These can be used but will have to be field verified. Houses and farm werfs are generally protected by standard buffer zones to protect residents from disturbance and retain the context of heritage structures. Isolated buildings that may be impacted must be assessed, if not already undertaken.

The turbine and infrastructure layout must take cognisance of all buffers and no-go areas, some of which may need to be avoided by project infrastructure.

Key issues/recommendations to be addressed in the IA phase

As we already know that archaeological and historical resources exist on the site and some have already been assessed, we propose the following recommendations for the EIA:

- The buffer areas that have emerged from previous environmental and heritage authorisations may be applicable to the Boulders Wind Farm. While predominantly related to visual issues, some for example the buffer around Kasteelberg have a bearing indirectly on the archaeology. Although we have argued why some relaxation may be appropriate, these buffers may have to be negotiated with the respective authorities;
- Placing of Turbines on Rem/6 Uitkomst 23 and on Ptn 3 of Boebezaks Kraal 40 may not be acceptable to the heritage authority, or specific IAAP's;

Should any infrastructure (including turbines) be located within the recommended red high sensitivity buffer areas the layout needs to be amended to avoid these. Purple zones show areas which have not been ploughed or are riverine which can be more archaeologically valuable. These can be used but will have to be field verified. Farm houses for both social and heritage reasons should be avoided.

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- Take cognisance of the comments of the I&APs with respect to the heritage of the site and area of the proposed development arising out of the PPP;
- Propose measures to adequately address or mitigate any identified impacts;
- Any graves and cemeteries located outside of the pre-determined buffer or no-go areas that have not yet been identified, must be clearly demarcated and avoided, especially if situated immediately adjacent to the existing farm roads or proposed roads. The appropriate mechanisms for dealing with chance finds of human remains must be included in the HIA and reflected in the EIA report;
- Should the layout occur in areas not previously subjected to site inspection, these areas must be assessed during the EIA phase of the project to determine the type, quantity, location and significance of the heritage resources that may be impacted by the WEF infrastructure;
- No Stone Age artefact scatters are likely to be "red flag" issues but may require mitigation in the form of recording and/or sampling if they cannot be avoided;
- Similarly, significant colonial heritage such as historic buildings (including sheds, kraals, etc.) may need to be recorded and/or avoided if present on the affected properties. As the main farm complexes will be buffered, it is older isolated farm structures that are of more concern. They must be identified, assessed and avoided if necessary;

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DETAILS OF THE SPECIALIST

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Date of Birth: 23.07.1958

Company: ACO Associates cc (Registration 2008/234490/23)

Principal business: Archaeological/Heritage Impact Assessment

Position: Director (Principal investigator)

Profession: Archaeologist, Heritage Impact Assessor

Years with Firm: 8

Years' experience: 27

Previous employment: Archaeology Contracts Office, UCT, 24 years

Nationality: South African

HDI Status: White Male

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EXPERTISE OF THE SPECIALIST

Having co-directed the Archaeology Contracts Office at the University of Cape Town for 24 years (one of the first heritage resource management companies in South Africa), David is now a director of ACO Associates cc, which has taken over from the UCT operation and retains most of its staff. ACO Associates provides Heritage and Archaeological Impact Assessment services to a range of clients in order for them to comply with Environmental and Heritage Legislation. He is a long standing member of the Association of Southern African Professional Archaeologists (ASAPA) and an accredited Principal Investigator of the Cultural Resource Management (CRM) section. With 27 years of working experience in heritage impact assessments, conservation and archaeological research, he has worked in a wide variety of contexts and participated in over a thousand heritage projects ranging from Heritage and archaeological impact assessments, to mitigation of archaeological sites in suburban, rural and industrial (mining) situations. He is an accredited with ASAPA to act as a Principal Investigator on Earlier Middle and Later Stone Age sites, especially coastal shell middens and rock painting sites, and Colonial period sites. David's broad experience in heritage management has led to his participation as an advisor to the National Monuments Council up until 2000, and more recently he served as a member of two Heritage Western Cape regulatory committees, the Impact Assessment Review Committee (IACOM) and the Archaeology, Palaeontology and Meteorites Committee (APM), and he has served on occasion as a forensic consultant to the Missing Persons Unit of the National Prosecuting Authority (NPA). He has led field projects on behalf of both local and overseas research organisations, and continues to participate in archaeological research on an ad hoc basis. Research interests include aspects of the Middle Stone Age, Later Stone Age and Colonial era of southern Africa. He has co-authored a number of peer reviewed journal articles on these topics. ACO Associates cc has assisted on numerous renewable energy projects in the Northern, Eastern and Western Cape and David has been personally involved in a number of these projects.

Education:

1991: M.A. (Archaeology) University of Cape Town

1982: B.A. (Hons) (Archaeology) University of Cape Town

1980: B.A. University of Cape Town

1976: Pinelands High School (matric exemption)

Professional Qualifications:

MA (Archaeology) UCT

Registered member of the Association of Southern African Professional Archaeologists (ASAPA)

Languages:

First language – English

Second language - Afrikaans (speaking, reading and writing).

Summary of other experience:

2008-present: Director and Principal Investigator: ACO Associates cc. Projects undertaken in the Eastern, Northern and Western Cape Provinces.

1988-2012: Principal Investigator and director: Archaeology Contracts Office, University of Cape Town. Projects undertaken in the Eastern, Northern and Western Cape Provinces.

1997: Junior Research Officer: Palaeoanthropology Research Unit, University of the Witwatersrand, (part time apt for one year) Cape Town based.

1984: Part time research assistant: Spatial Archaeology Research Unit, University of Cape Town

Relevant experience:

Employment since 1988 has required management of all aspects of heritage projects, and management of the day to day functions of the business (including Financial, HR).

Participation in selected Wind and Solar RE projects

Halkett, D. 2001. An assessment of impacts on heritage sites at the Darling Demonstration Wind farm. Unpublished report for the Environmental Evaluation Unit, University of Cape Town. University of Cape Town: Archaeology Contracts Office.

Halkett, D. 2014. Heritage Impact Assessment Of The Proposed Romano Pv Facility On The Farm Nuwedrift 292, Near Vredendal, Western Cape. Prepared for Terramanzi Environmental Consulting. ACO Associates cc.

Halkett, D. 2014. Review study of proposed G7 Richtersveld Wind Energy Facility. Prepared for CapeEaprac. ACO Associates cc.

Halkett, D., Webley, L., Orton, J & Pinto. 2010. Heritage Impact Assessment of the proposed Amakhala-Emoyeni Wind Energy Facility, Cookhouse District, Eastern Cape. Unpublished report prepared for Savannah Environmental (Pty) Ltd. ACO Associates cc.

Halkett, D., Hart, T. and Webley, L. 2011. Proposed Middleton Wind Energy Project, Blue Crane Route Local Municipality: Heritage Impact Assessment. Prepared for Coastal and Environmental Services (Pty) Ltd. ACO Associates cc.

Halkett, D. & Webley, L. 2011. Heritage Impact Assessment: Proposed Perdekraal Wind and Solar Energy Facility, Western Cape Province. Unpublished report prepared for ERM. ACO Associates cc.

Halkett, D. & Webley, L. 2011. Heritage Impact Assessment: Proposed Victoria West Mini Wind Energy facility on Bultfontein Farm, Northern Cape Province. Unpublished report prepared for ERM. ACO Associates cc.

Halkett, D. & Orton, J. 2011. Heritage Impact Assessment: Proposed renewable energy facility at the Sutherland Site, Western and Northern Cape Provinces. Unpublished report prepared for ERM SA. ACO Associates cc.

Halkett, D. & Webley, L. 2011. Scoping Report: Proposed wind energy facility on the farms Kruispad 120, Doornfontein 118, Grootvlei 122, Vissershof 124 and Woesteheuwel 130 near Velddrif in the Western Cape. Unpublished report for Aurecon South Africa (Pty) Ltd.

Hart, T., Bluff, K., Halkett, D. & Webley, L. September 2010. Heritage Impact Assessment: Proposed Suurplaat Wind Energy Facility near Sutherland, Western Cape and Northern Cape. Unpublished report prepared for Savannah Environmental (Pty) Ltd. ACO Associates cc.

Hart, T., Halkett, D & Kendrick, N. 2014. Heritage Impact Assessment for the proposed Khai-Ma Wind Energy Facility on farm portions south of Pofadder in the Northern Cape Province. Unpublished report for Savannah Environmental (Pty) Ltd. ACO Associates cc.

Hart, T., Halkett, D & Kendrick, N. 2014. Heritage Impact Assessment for the Korana Solar Energy Facility on Farm Namies South 212/Portion 2, Khai-Ma Municipality in the Northern Cape Province. Unpublished report for Savannah Environmental (Pty) Ltd

Hart, T., Halkett, D & Kendrick, N. 2014. Heritage Impact Assessment for the Korana Wind Energy Facility on Farm Namies South 212/Portion 2 and Poortjie 1/209, south of Pofadder in the Northern Cape Province. Unpublished report for Savannah Environmental (Pty) Ltd. ACO Associates cc.

Hart, T., Halkett, D & Kendrick, N. 2014. Heritage Impact Assessment for the Poortjie Wind Energy Facility on two farm portions south of Pofadder in the Northern Cape Province. Unpublished report for Savannah Environmental (Pty) Ltd. ACO Associates cc.

Webley, L., Halkett, D. & Hart, T. 2009. Heritage Impact Assessment of a proposed Wind Energy Facility to be situated on portions of farms Arolsen 69, Farm 148, Farm 148/1; Rooidraai 146, Baviaans Krans 151, Baviaans Krantz 151/2, Klip Fonteyn 150/2, Roberts Kraal 281, Zure Kop 74/1, Zure Kop 74/2, Van Wyks Kraal 73, Van Wyks Kraal 73/2 and Van Wyks Kraal 73/3 in the Cookhouse District, Eastern Cape. Unpublished report prepared for Savannah Environmental (Pty) Ltd. ACO Associates cc.

Webley, L. & Halkett, D. 2010. Heritage Impact Assessment: Proposed Wind Farm at Klawer, Vredendal District, Western Cape. Unpublished report prepared for ERM. ACO Associates cc.

Webley, L. & Halkett, D. 2011. Environmental Impact Assessment for the Establishment of the Caledon Wind Farm, Western Cape Province. Unpublished report prepared for Arcus Gibb (Pty) Ltd. ACO Associates cc.

Webley, L. & Halkett, D. 2011. Heritage Pre-feasibility study for a proposed wind farm near Wolseley, Worcester Magisterial District, Western Cape. Unpublished report prepared for Arcus Gibb (Pty) Ltd. ACO Associates cc.

Webley, L. & Halkett, D. 2011. Heritage pre-feasibility assessment of the proposed Langehoogte Wind Energy Facility, Botrivier, Caledon District, Western Cape Province. Unpublished report prepared for Arcus Gibb (Pty) Ltd. ACO Associates cc.

Webley, L. & Halkett, D. 2012. Heritage Impact Assessment: proposed Kenhardt photo-voltaic solar power plant on remainder of the farm Klein Zwart Bast 188, Northern Cape Province. Unpublished report for Digby Wells Environmental. ACO Associates cc.

Webley, L. & Halkett, D. October 2012. Heritage Impact Assessment for the establishment of the Wolseley Wind Farm. Unpublished report for Gibb (Pty) Ltd. ACO Associates cc.

Webley, L. & Halkett, D. 2012. Heritage Impact Assessment: proposed establishment of the Langhoogte Wind Farm, Western Cape Province. Unpublished report for Arcus Gibb (Pty) Ltd. ACO Associates cc.

Webley, L. & Halkett, D. 2012. Heritage Impact Assessment: proposed Loeriesfontein Photo-voltaic Solar Power Plant on Portion 5 of the farm Klein Rooiberg 227, Northern Cape Province. Unpublished report for Digby Wells Environmental. ACO Associates cc.

Webley, L. & Halkett, D. 2012. Heritage Impact Assessment: proposed Aggeneys Photo-voltaic Solar Power Plant on Portion 1 of the farm Aroams 57, Northern Cape Province. Unpublished report for Digby Wells Environmental. ACO Associates cc.

Webley, L., Halkett, D & Hart, T. 2012. Heritage Impact Assessment: Proposed Denhami Wind Energy Facility near Struisbaai, Bredasdorp District, Western Cape. Unpublished report for Savannah Environmental (Pty) Ltd. ACO Associates cc.

Webley, L. & Halkett, D. 2014. Amended specialist integrated HIA Impact Assessment Report: Ishwati Emoyeni Wind Energy Facility. Unpublished report for the CSIR. ACO Associates cc.

Webley, L. & Halkett, D. 2014. Heritage Impact Assessment: Walkdown of final layout of the Longyuan Mulilo De Aar 2 North Wind Energy Facility, Northern Cape Province. Mulilo Renewable Projects Developments (Pty) Ltd. ACO Associates cc.

Webley, L. & Halkett, D. 2014. Archaeological Impact Assessment: proposed construction of Re Capital 11 PV on the remainder of the farm Dyason's Klip 454, Northern Cape. Unpublished report prepared for Perception Planning on behalf of Cape Eaprac. ACO Associates cc.

Webley, L. & Halkett, D. 2014. Archaeological Impact Assessment: proposed construction of Re Capital 13 PV on the remainder of the farm Humansrus 147 near Copperton, Northern Cape. Unpublished report prepared for Perception Planning on behalf of Cape Eaprac. ACO Associates cc.

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SPECIALIST DECLARATION

Declaration of independence

I, David J Halkett declare that :

I act as the independent specialist in this application;
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
I declare that there are no circumstances that may compromise my objectivity in performing such work;
I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, Regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
all the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act



Signature of the specialist:

ACO Associates CC

Name of company (if applicable):

10 November 2017

Date:

GLOSSARY

Archaeology: Remains resulting from human activity which is in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;

Early Stone Age (ESA): The archaeology of the Stone Age between 700 000 and 2500 000 years ago;

Fossil: Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment;

Heritage: That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999);

HWC: Heritage Western Cape – the Provincial Heritage Resources Authority;

Late Stone Age (LSA): The archaeology of the last 20 000 years associated with fully modern people;

Middle Stone Age (MSA): The archaeology of the Stone Age between 20-300 000 years ago associated with early modern humans;

Palaeontology: Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace;

SAHRA: South African Heritage Resources Agency – the National heritage compliance authority;

Structure (historic): Any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith. Generally protected structures are those which are over 60 years old.

ACRONYMS

AIA	Archaeological Impact Assessment
DEA	Department of Environmental Affairs
ECPHRA	Eastern Cape Provincial Heritage Resources Authority
ESA	Early Stone Age
HIA	Heritage Impact Assessment
LSA	Late Stone Age
MSA	Middle Stone Age
NGO	Non-government organisation
NHRA	National Heritage Resources Act
PV	Photovoltaic (solar energy)
PVSEF	Photovoltaic solar energy facility
RE	Renewable energy
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
WEF	Wind Energy Facility

1. SCOPE AND PURPOSE OF THE REPORT

1.1 Introduction

ACO Associates CC have been appointed by Integrated Wind Power (Pty) Ltd on behalf of Vredenburg Windfarm (Pty) Ltd to undertake a Archaeological Scoping assessment, as part of the EIA process, for the establishment of a wind energy facility on land at the northern end of the Vredenburg Peninsula between the towns of Paternoster and St Helena. No layout is available for the proposed Wind Energy Facility at this time, which will be designed in response to identified constraints.

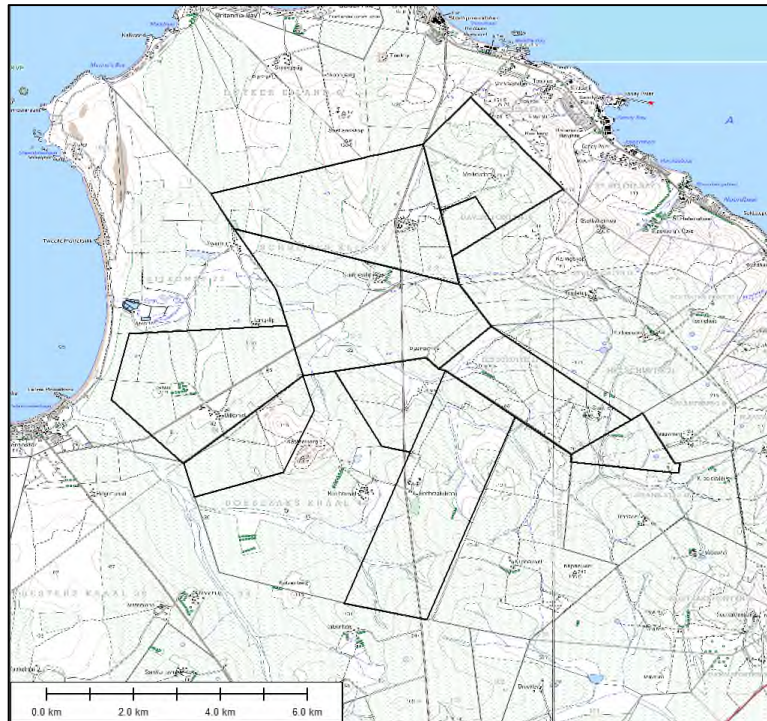


Figure 1: The location of the proposed wind farm (black polygons) situated on the northern end of the Vredenburg Peninsula. 3217DB&DD Vredenburg, 3218CA&CC Velddrif. (Chief Director Surveys And Mapping)

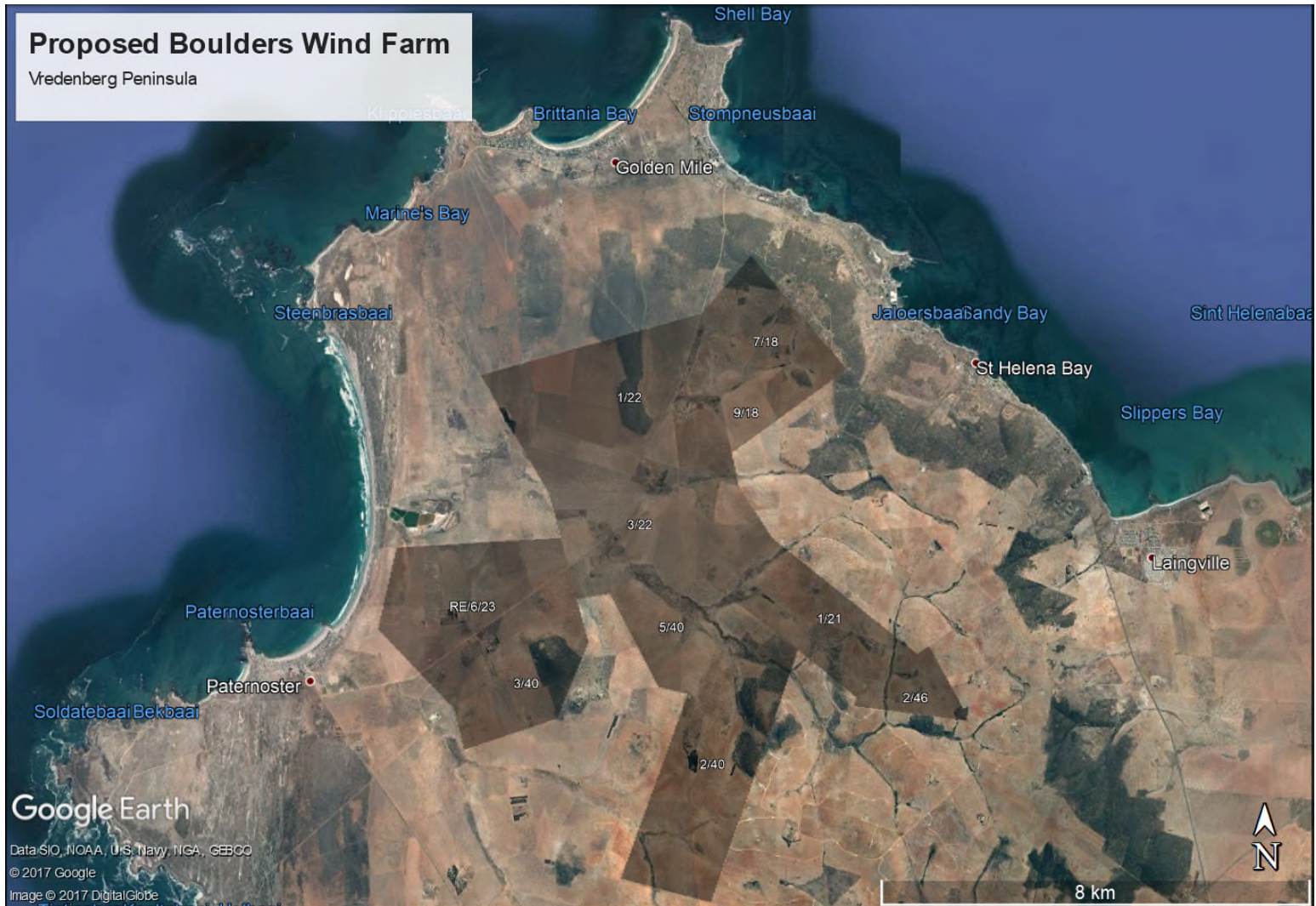


Figure 2: The affected farm portions.

1.2 Project details

Once sufficient environmental and planning information has been collated for the site, detailed planning will be undertaken to design the layout of the WEF, including the wind turbines, access roads, laydown areas and the substation site. Adjustments to the layout will be informed by environmental constraints, and for the purposes of this study, also by heritage constraints. A detailed layout will be available at the EIA stage against which the identified sensitivities will be considered and assessed.

1.2.1 Background

1.2.1.1 Project history

The current project is a fresh initiative to develop the Boulders Wind Farm within the identified project site.

1.3 Proposed site

The site lies at the northern end of the Vredenburg Peninsula between the towns of Paternoster and St Helena (Figures 1 and 2).

Applicant:

Vredenburg Windfarm Pty (Ltd)

Project Name:

Boulders Wind Farm

Proposed Activity and location:

Development of a Wind Energy Facility with a contracted capacity of up to 140MW is proposed to be constructed and operated within a project site identified by the developer. The project site under consideration for the development of the Boulders Wind Farm consists of 10 properties which includes:

- » Boebezaks Kraal 2/40
- » Boebezaks Kraal 3/40
- » Boebezaks Kraal 5/40
- » Frans Vlei 2/46
- » Schuitjes Klip 3/22
- » Davids Fontyn 9/18
- » Schuitjes Klip 1/22
- » Het Schuytje 1/21
- » Davids Fontyn 7/18
- » Uitkomst RE/6/23

2. DATE AND SEASON OF THE SITE INVESTIGATION

The archaeological scoping is based on a desktop assessment conducted in both 2011 and 2015. This is informed by results of field studies undertaken by Halkett and Webley in October 2011 and February 2015. To date some 5 days have been spent on site. For the most part access to fields and good surface visibility was available. There were some areas which were still under crops, but these are not believed to influence the conclusions substantially. We have no information with respect to the timing of initial surveys of the Vredenburg Peninsula by Sadr and Smith et al. Apart from the wheat growing season, archaeological visibility is generally good all-year round.

3. METHODOLOGY

3.1 Project scope

This study has been commissioned as an archaeological scoping assessment that attempts to predict the possible range of impacts on archaeological resources and identify any issues in terms of accumulated knowledge of the area. The sources of information consist primarily of published archaeological research reports and unpublished archaeological and palaeontological Heritage Impact Assessments for the general area, as well as a good working knowledge of the site and surroundings. As there is a wealth of studies of both archaeology and palaeontology available (see the extensive bibliography), identification of heritage indicators is well informed. Where relevant, specific reference to certain documents has been made in the text. The study is part of a broader Heritage Impact Assessment that will be undertaken by Ashley Lillie (Heritage Consultant).

3.2 Field study

A site inspection was carried out for the purposes of a previous wind energy initiative in the project area and the findings remain generally useful and relevant. The landscape has been subject to agriculture and has been disturbed throughout. The field study involved walking forays into the landscape (where possible) to check for archaeological material and covering the site as widely as possible to verify the condition of known sites. The area has been subject to previous research surveys with the result that a number of observations have been made. Anything found was recorded, photographed and mapped using a hand-held GPS.

No archaeological material was removed from the project site, but was rather recorded and photographed *in situ*. Landowners were also consulted with regard to knowledge of heritage resources on their properties).

4. BASELINE DESCRIPTION OF THE SITE

4.1 Environmental attributes

The various farms comprising the project area are shown in Figures 1 and 2 are distributed across the northern end of the Vredenburg peninsula, ~8 km east of Paternoster, ~4 km south west of St Helena Bay and ~12 km north of Vredenburg. The area consists mainly of an undulating agricultural landscape (primarily wheat cultivation) interspersed with occasional patches of indigenous vegetation (Strandveld, or West Coast Renosterveld) growing on successions of older and recent sands that mantle the numerous granite extrusions of the underlying Vredenburg pluton. The granite extrusions are a very distinct feature amongst the rolling hilly landscape and are often impediments to ploughing. Small islands of relatively undisturbed land exist around some of the outcrops and provide refuge for both fauna and flora. The outcrops also functioned as foci for the pre-colonial and early colonial inhabitants of the area providing as they do, shelter from the south easterly winds and occasionally, pools of water trapped in rock depressions (waterbakke) or in crevasses between the rocks.

The study area is heavily disturbed due to years of intensive wheat farming and the allied infrastructure such as the construction of farms and internal farm roads, farm fences, dams, reservoirs and power lines.

4.2 Conservation significance in terms of heritage

There are no declared national or provincial heritage resources in the defined study area although the prominent granite outcrop on the west known as Kasteelberg, was nominated as a Provincial Heritage Site but has not yet been declared.

Following the archaeological work conducted there by Prof A Smith and others, Kasteelberg was identified in the late 1990's as a site worthy of declaration as a National Monument under the old National Monuments Act (of 1969, as amended), but changes in legislation at the time interrupted the process. Heritage Western Cape subsequently attempted to have the Kasteelberg Archaeological site complex declared as a provincial heritage site (PHS) under the National Heritage Resources Act of 1999, but resistance from the landowner has prevented finalisation of the process. It nevertheless remains a highly significant site that resulted in the establishing of a 2 km buffer around it by HWC as part of the West Coast 1 WEF authorisation.

Other important archaeological sites in the vicinity of Kasteelberg include Witklip, a small shelter below a granite boulder situated on the western outskirts of Vredenburg. Excavations by Smith (2006) suggest that this was a hunter-gather settlement dating to between 3000 and 500 BP. The site of Heuningklip, an open shell midden site on a granite hill to the east of Vredenburg, also contains a number of bedrock grooves similar to Kasteelberg. An archaeological site in Paternoster is a declared PHS.

5. SPECIFIC IDENTIFIED HERITAGE SENSITIVITY OF THE SITE

5.1 Identification of areas to be avoided/buffers, or development opportunities

A provisional "constraints and sensitivity" map, is provided below (Figure 3). Sensitivity polygons identify areas where, based on identified heritage indicators, heritage resources may be present. We have commented on existing buffers set by DEA and HWC for the West Coast 1 WEF project as these may apply to the Boulders Wind Farm site as well. We have also identified no-go areas where there are known archaeological heritage located around granite koppies (indicated as red zones), within which no infrastructure may be located. Purple zones show areas which have not been ploughed or are riverine which can be more archaeologically valuable. These can be used but will have to be field verified (Figure3).

The turbine and infrastructure layout must take cognisance of all buffers and no-go areas in order to ensure that no wind farm infrastructure infringes on any sites/features of high sensitivity.

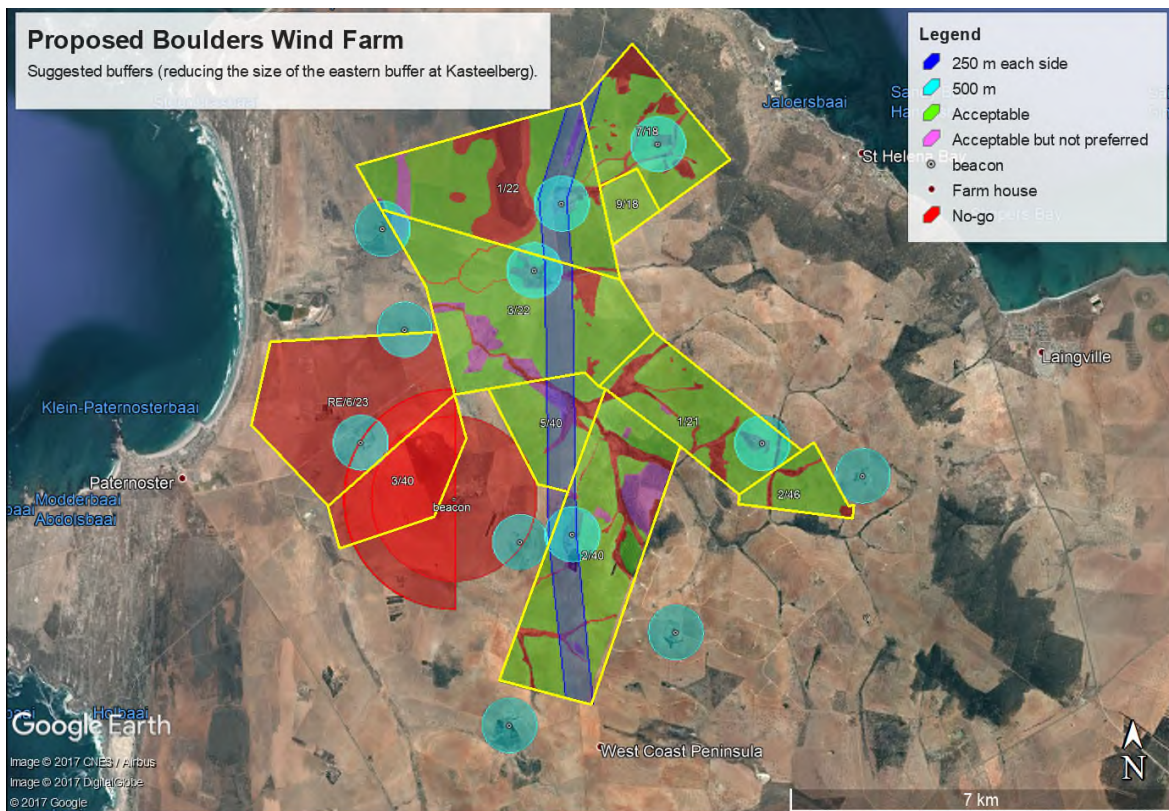


Figure 3: Buffers identified after a review of existing environmental and heritage authorisations for wind energy on the Vredenburg Peninsula (blue range rings: 500 meters from identified houses and farm complexes, red range ring: 2km around Kasteelberg, Blue range ring: 250 meters from either side of the Vredenburg – Stompneus Bay road – these buffers need to be avoided by the wind farm infrastructure due to its potential high heritage sensitivity). The 2km buffer from the R45 (R399?) is not included here as no turbines would be placed within or near that area. After considering changes to the landscape since the buffers were created, we have suggested that some relaxation can be accommodated. The Stompneus Road buffer has been reduced to 250m on either side of the road from an archaeological perspective and can be further reduced on the advice of the Visual Specialist. From an archaeological perspective a reduced 1.5 km buffer to the east of Kasteelberg is recommended.

Light green (preferred) areas consist largely of previously or currently ploughed land. While some archaeology may be present in these areas, disturbance diminishes scientific value somewhat. Nevertheless, some information can still be derived from such material. Turbines and infrastructure are most favoured in the light green areas. Red demarcated areas are not favoured for development due to the presence of known heritage resources (no-go areas), or where heritage resources are very likely to be located based on heritage indicators. Streams and water bodies (purple) are identified as heritage indicators and will probably not be used due to the ecological sensitivity associated with the features (these areas are of a medium sensitivity and is considered to be acceptable from an archaeological perspective, but not preferred). If for whatever reason it may be necessary to place any development within red areas, the sites must be carefully evaluated by site inspection during the EIA phase (Figure 3).

Buffer areas indicated by blue range rings (500 meters) are placed around houses and farms (centrepnts) (to be avoided by infrastructure). A 2 km buffer around Kasteelberg was negotiated with HWC during the West Coast 1 EIA. Similarly, the buffer along the Stompneusbaai road (500 m) and the R45/R399 (2 km) was set by DEA, after the EA for West Coast 1 WEF. We have proposed that the construction of West Coast 1, and the inability to declare Kasteelberg as a PHS, have a bearing on the existing buffers from a visual point of view. Together, the Visual and Heritage specialists have proposed some relaxation of the Stompneusbaai Road and Kasteelberg buffers considering previous work within the area.

5.1.1 Buffers resulting from previous environmental authorisations

ACO have identified existing buffers set by DEA and HWC for the West Coast 1 WEF project as these may also apply to the Boulder Wind Farm site as well (see correspondence in Appendices 3 a-d).

In the application for the West Coast 1 WEF, a number of wind turbines were proposed around the Kasteelberg Hill. Knowing the importance of the hilltop as a significant heritage/archaeological site, and that plans had been mooted for its declaration as a provincial heritage site, the heritage specialist identified the positions of those turbines as a serious heritage issue (visual, sense of place) and proposed setbacks of 2 km in that area.

When it was issued, the authorisation for West Coast 1 indicated that the proponent would have to negotiate the placement of turbines around Kasteelberg with Heritage Western Cape. After discussions with HWC, Moyeng agreed that turbines 48-55 (to the west of Kasteelberg) would be removed and that a 2km buffer around the site would exist for other turbines. In their final comment (10 Nov 2011) HWC took note of the new layout and concluded inter alia that "The mitigated layout addresses HWCs primary concerns regarding the view shed and the cultural landscape associated with Kasteelberg."

In addition, DEA had required setbacks along some of the main roads of the area, namely, 2km from the Stompneusbaai road, 2km from the R45 road to Paternoster, and 500 meters from the farmsteads of Rooiheuvel and Klipheuvel.

The amended DEA authorisation for West Coast 1 (8 Apr 2013) relating to Historical/Palaeontological Resources stated: "Turbines must be placed at least 500m from the local road to Stompneus Bay, 2km from the R45 (R399?) route to Paternoster and 500m from the farmsteads of Rooiheuvel and Klipheuvel."

As far as we can determine, there are no conditions excluding turbines from the west side of the Stompneusbaai Road outside of the buffer. No buffers were ever proposed along the local road from Paternoster that links up with the Stompneusbaai Road. In our opinion, any turbines to the west of Kasteelberg should be avoided to maintain clear viewshed to the coast in the event that in the future, declaration of Kasteelberg as a PHS becomes a possibility.

Since the West Coast 1 buffers were authorised, a number of changes to the visual landscape and heritage constraints have occurred. The construction of the West Coast 1 WEF has introduced a new type of development to the Vredenburg Peninsula and thereby modifies the receiving Visual environment in the south east of the area. Since the owner of the Farm Kasteelberg has prevented declaration of the Kasteelberg archaeological landscape as a Grade II Provincial Heritage site, it was felt that some moderate relaxation of the 2km buffer to the east of the site could be considered. In addition, the backdrop of the existing West Coast 1 turbines to the south east is a consideration in this regard. We propose that the viewshed to the coast to the west of the site however be maintained as this is the most meaningful view from the heritage site, while the view back is of significance for St Helena, Britannia Heights and Paternoster communities. The buffer to the east of Kasteelberg could be reduced from 2 km to 1.5 km (Figure 4).

Originally a buffer of 500 meters on either side of the Stompneusbaai Road was authorised by DEA on appeal for the West Coast One facility, the implications of which need to be considered in the Boulders Wind Farm layout.

5.2 Assumptions, uncertainties and gaps in knowledge

5.2.1 Assumptions & limitations

- We have made assumptions about heritage resources based on results of previous archaeological studies and by looking at aerial photos;
- Previous heritage surveys of the study area (excluding those undertaken by ACO) have not always provided track paths and it is not clear how broadly and which areas were surveyed for heritage resources;

- We expect that archaeological resources, within the project site, will overall be limited to specific areas and will probably be mostly of medium - low significance, though some may be high under certain circumstances;
- We have located a number of graves and/or graveyards where our assessment took us close to farm werfs (both modern and old). We assume colonial burials will be directly associated with farm werfs, or settlements while we presume that pre-colonial burials will be associated with clusters of pre-colonial sites, particularly on and around granite outcrops or areas where soft silty sands are available;
- We have looked at some of the Surveyor General's records in order to establish a baseline for colonial settlement;
- We have some indication of the attitudes of the local community towards heritage resources from previous Public Participation processes. We will have to assume that attitudes have changed (one way or the other) given that West Coast 1 has been constructed since those processes were conducted;
- In our experience, heritage comments/objections with respect to WEFs are usually to do with the Visual impacts thereof;
- Aerial photos give a broad sense of heritage indicators and sensitivity but due to angle, scale and resolution issues, have limitations when trying to identify archaeological sites/features.

5.2.2 Information on heritage resources from previous heritage projects in the area

5.2.2.1 The broad Stone Age period

The West Coast of South Africa has been "settled" for at least 100 000 years. There are shell middens dating to the Middle Stone Age (MSA) both on, and to the north and south of the Vredenburg peninsula (Halkett & Hart 1993, Halkett et al 2003, Klein et al. 2004, Berger and Parkington 2005a,b). Associated with these middens are MSA stone artefacts and occasionally, fragments of anatomically modern human remains e.g. a tooth from the Sea Harvest site (Grine & Klein 1993), and other anatomically modern post-cranial remains from Hoedjiespunt, all clearly older than 50 000 years. The presence of the so-called Saldanha skull fragment, and the not infrequent regionally widespread finds of distinctive ESA artefacts such as handaxes, attests to a much more ancient use of the area, although, climate and coastline might have been very different at that time.

Although evidence of exploitation of marine resources by their ancestral MSA forebears is as yet scant and poorly understood, though appearing sporadic and expedient, Later Stone Age hunter-gatherers living on the west coast of South Africa during the latter part of the Holocene incontrovertibly made regular, and concerted (perhaps seasonal) use of the coastal resources. Archaeological excavations at sites such as Duyker Eiland on the coast near Britannia Bay (Robertshaw 1979) confirm the importance of shellfish such as mussels and limpets as dependable and easily accessible protein resource during these times. In addition, the excavations of other sites on the Vredenburg peninsula (see Malan et al in press) have confirmed the importance of coastal resources such as seals, marine birds, crayfish and beached whales in historical times. We know that the Vredenburg Peninsula was particularly attractive to hunter-gatherers, and later pastoralist groups because of the wealth of marine and terrestrial resources.

Archaeologists have postulated that the first pastoralist groups (with cattle, sheep and pottery) entered southern Africa via the West Coast some 2000 years ago (Smith 2006). The most important pastoralist site on the Vredenburg peninsula (and arguably in South Africa) found to date is that of Kasteelberg, located on the farm Rooiheuvel (ibid). The prominent hill is part of a granite batholith standing 187 m above sea level, today surrounded by agricultural lands. A site survey by Sadr et al. (1992) identified at least 36 discrete occupation areas around the hill ranging from Middle Stone Age scatters to Later Stone Age sites with pottery and domesticated stock remains. It would appear that Kasteelberg was the focus of settlement for over the last 2000 years. At least 10 sites have been excavated around the hill and there are more than 100 grinding grooves on bedrock in the vicinity.

Kasteelberg was identified in the late 1990's as a site worthy of declaration as a National Monument under the old National Monuments Act (of 1969, as amended), but changes in legislation at the time

interrupted the process. Heritage Western Cape has attempted to have the Kasteelberg Archaeological site complex declared as a provincial heritage site (PHS), but resistance from the landowner has prevented finalisation of the process. It remains a highly significant site.

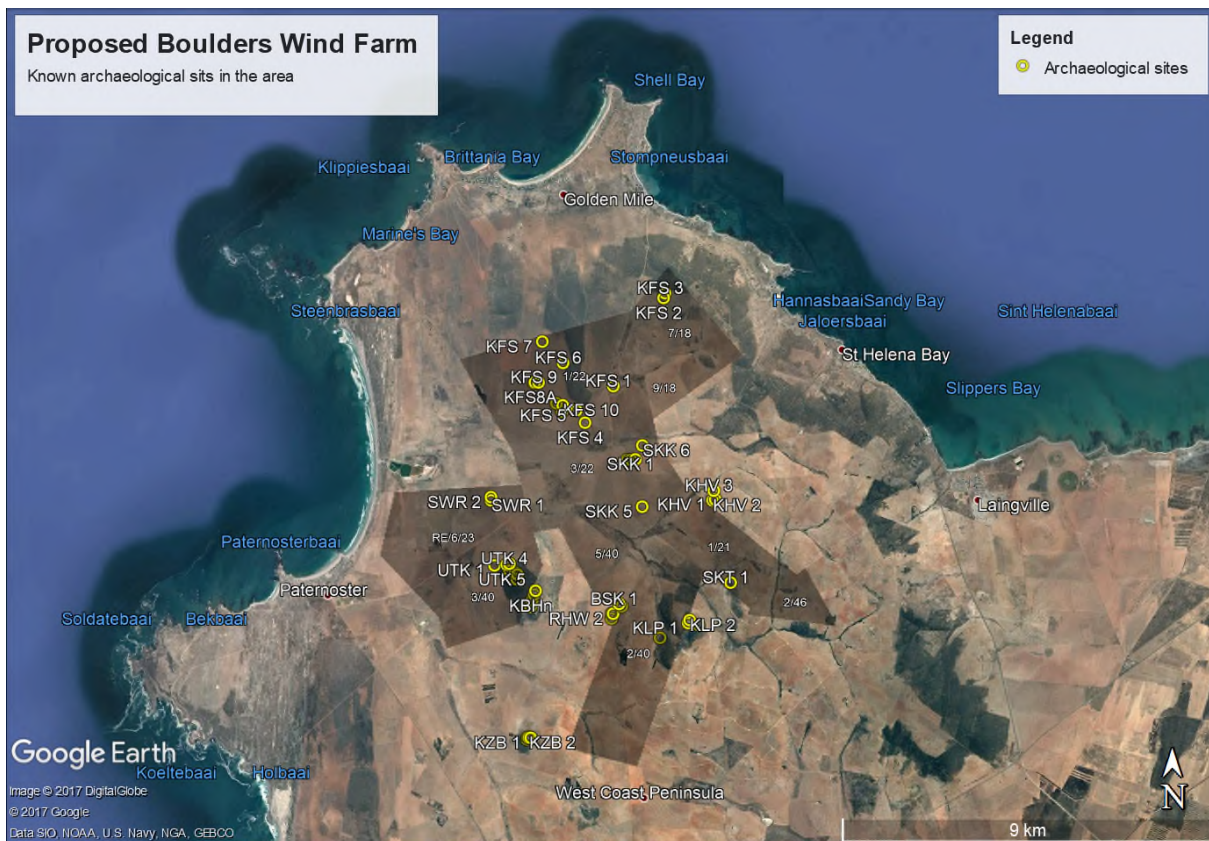


Figure 4: Known archaeological sites and occurrences in the vicinity of the project area (not all sites on the Peninsula are shown).

Other important archaeological sites in the vicinity of Kasteelberg include Witklip, a small shelter below a granite boulder situated on the western outskirts of Vredenburg. Excavations by Smith (2006) suggest that this was a hunter-gather settlement dating to between 3000 and 500 BP. The site of Heuningklip, an open shell midden site on a granite hill to the east of Vredenburg, also contains a number of bedrock grooves similar to Kasteelberg. An archaeological site in Paternoster is a declared PHS.

The sites around Kasteelberg on the Vredenburg Peninsula predominantly date to the period of the Later Stone Age, although earlier material dating to the mid - late mid Holocene is found in the area and probably represent the debris of early San hunter gatherers. The survey of the Vredenburg Peninsula by Sadr (2009) has identified at least 99 archaeological sites concentrated predominantly around granite koppies, although in recent years, additional sites have been found in open wheat fields during archaeological impact assessment surveys (Webley & Orton 2010, Halkett 2012) (Figure 5).

5.2.2.2 Colonial Archaeology

Historical research shows that during the 18th century, the Vredenburg peninsula formed part of the traditional grazing lands of the Cochoqua, a Khoekhoen pastoralist group. Smith (2006) has postulated a seasonal transhumant cycle between the coast and the interior which was disrupted by Dutch settlement. The Saldanha Bay area was the focus of intense competition between French and Dutch interests during the 17th and 18th centuries, with a number of military outposts established in the area to provide protection for fishing and sealing interests. One such post was established early on at St Helena Bay although its exact position is still unknown. A later military outpost was established on the hill overlooking the bay and became known Soldantenpost (Sleigh 1993).

No dedicated historical archaeological research has been conducted on the Vredenburg Peninsula, and unfortunately, due to circumstances, the information is not always accessible in Archaeological Impact Assessments as these did not necessarily discuss historical remains or the built environment. Recent research (Malan et al, 2013) shows that during colonial times there was in fact a thriving industry based on marine products centred on the Vredenburg peninsula. Much of the product was returned to the settlement in Cape Town to feed its growing population.

The early 19th century quitrent grants include Zandfontein (1816) and Honingklip (1816) with a second wave of quitrent grants that included Dawidsfontein, Hollenvallei/Holvlei and Klipfontein. taking place in the 1830's.

5.2.2.3 Palaeontology

An extensive bibliography relating to the Langebaanweg fossils and general area is presented in Hendey (1982) who also gives a summary (perhaps dated now) of the geology of the area. Dr John Pether (2008, 2010) made the following comment in relation to the ore terminal expansion project at the Port of Saldanha and the proposed West Coast One wind energy facility: *“Little detail is known of the wider Saldanha-area coastal plain due to the lack of natural exposures although some widely spaced information has come from Dept of Water Affairs (DWA) boreholes. However, nearly every excavation made in the past into the “fossil” dunes and beaches in the area has yielded fossils of one kind or another. Unfortunately, other than some ad hoc recoveries, many “windows of opportunity” in the area were missed and lost.”*

Dr Pether has previously presented a detailed assessment of the adjacent Moyeng West Coast One wind energy facility, which lies immediately to the south west of the proposed Boulders Wind Farm. He has also completed a desktop PIA of a previous proposal for the site in 2011, which has been renewed for the project area.

5.2.2.4 Burials

We have already located a number of graves and/or graveyards where our tracks took us close to farm werfs (modern and old). We assume colonial burials will be directly associated with older farm werfs, or settlements though may also be found around old stockposts or older informal settlements. A small farm graveyard was previously recorded on Skuitjiesklip.

We presume that pre-colonial burials will be associated with clusters of pre-colonial sites, particularly on and around granite outcrops and/or in areas of deeper sands. Burials have been reported from archaeological excavations in such contexts at Kasteelberg and Witklip in the vicinity of the WEF site (Morris 1992:20-21).

6. HERITAGE: POLICY AND LEGISLATIVE FRAMEWORK

This AIA report is conducted in terms of Section 38 (8) of the National Heritage Resources Act, No 25 of 1999.

While the National Department of Environmental Affairs is the decision making authority acting in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and Regulations (2014), they must ensure that the evaluation of the statutorily defined broad range of heritage resources fulfils the requirements of the relevant heritage resources authority in terms of Section 38 (3) of the National Heritage Resources Act (Act 25 of 1999) (NHRA) and that any comments and recommendations of the relevant heritage resources authority with regard to proposed development have been taken into account prior to the granting of the consent. The Provincial Heritage Resources Authority (PHRA) is a commenting body in the process.

In this case, the responsible Provincial Heritage Resources Authority for the Western Cape¹ is Heritage Western Cape (HWC). They have a defined process in order to achieve a final comment with respect to heritage resources.

In terms of Section 38 (1) (e) of the NHRA, the appointed Heritage Practitioner must submit a “Notice of Intent to Develop” (NID) form to the PHRA for initial adjudication of the project and to determine the need for, and scope of further specialist heritage studies. If it is clear from the NID that no significant heritage resources will be impacted, no further action in terms of heritage will be requested. The comment is submitted to the EAP for inclusion in the Environmental process. If the decision is that further studies are required, the PHRA will request that the additional specialist studies are done as part of an Integrated Heritage Impact Assessment (HIA). The integration is to ensure that there is a recommendation that takes into account the findings of the various requested specialist Heritage studies. The specialist studies may include studies undertaken routinely as part of the EIA process e.g. a Visual Impact Assessment (VIA), but often include Archaeological and/or Palaeontological Impact Assessments. If there is significant Built Environment heritage at the affected site, a study of the buildings and their significance could be requested.

The NHRA provides protection for the following categories of heritage resources:

- Landscapes, cultural or natural (Section 3 (3))
- Buildings or structures older than 60 years (Section 34);
- Archaeological Sites, palaeontological material and meteorites (Section 35);
- Burial grounds and graves (Section 36);
- Public monuments and memorials (Section 37);
- Living heritage (defined in the Act as including cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge systems and the holistic approach to nature, society and social relationships) (Section 2 (d) (xxi)).

General protections applying to heritage resources are as follows:

6.1 Structures (Section 34(1))

No person may alter or demolish any structure part of a structure which is older than 60 years without a permit issued by Heritage Western Cape (HWC), the responsible provincial heritage resources authority.

6.2 Archaeology & Palaeontology (Section 35(4))

No person may, without a permit issued by HWC, destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite.

Archaeological is defined as: “material remains resulting from human activity which is in a state of disuse and is in or on land and which is older than 100 years, including artefacts, human and hominid remains and artificial features and structures”.

¹ The National Department for Heritage management is the South African Heritage Resources Agency (SAHRA). They are responsible for management of Heritage resources all provinces except the Western Cape and KwaZulu-Natal. The submission process to SAHRA differs from that of HWC.

Palaeontological is defined as: “any fossilised remains or fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace”.

6.3 Burial grounds and graves (Section 36(3))

No person may, without a permit issued by the South African Heritage Resources Authority (SAHRA), destroy, damage, alter, exhume or 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.

7. NEED AND DESIRABILITY OF THE PROJECT IN TERMS OF HERITAGE

It is outside our field of expertise to comment on the need and timing for a WEF project in this location. The motivations for the project will be described in the overall Draft Scoping submitted to DEA. At this time, we have not identified obvious significant physical heritage resources on the land that may preclude the WEF construction, bearing in mind that we still have to do a site inspection to assess the layout that will be considered following the draft scoping report. The Visual Impact assessment specialist will comment on the suitability of the location from a broader landscape perspective and this has a bearing on visual Heritage.

We have not yet gauged the opinions of the broader local community with respect to the proposed need and location of the WEF as those will only be forthcoming after submission of the Draft Scoping for the 30 day Public Participation Process.

8. ANTICIPATED CUMULATIVE IMPACTS

The cumulative impacts are expected to be associated with the scale of the visibility from within the surrounding landscape, as well as the presence of other similar developments in the area. The potential cumulative impacts are expected to be associated predominantly with the potential visual impacts, potential noise impacts potential impacts on ecology, avifauna (birds) and bats and impacts on land use and the social environment. The archaeological accumulative impact is difficult to measure accurate apart from to state that destruction of archaeological material was largely avoided during the construction of West Coast 1 (Webley, Hart and Orton 2010) and similarly at the Hopefield Wind Farm (Hart 2009).

Indications are that the accumulative impacts to archaeology to date are insignificant.

9. ALTERNATIVES

No alternative sites have been proposed.

10. IMPACTS AND RISKS

10.1 Preliminary Impact Table

Impacts to archaeological heritage			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Archaeological sites.	Physical destruction of archaeological material during construction.	Local	As per identified buffer areas.
Description of expected significance of impact Given that the layout of the proposed boulders WEF is yet to be determined,			

assessment of the impact on archaeology cannot be accurately predicted, however there are potential impacts during construction that can result in the permanent disturbance or displacement of archaeological material.

Mitigation is possible through avoiding archaeological sites providing that they are known about in the planning stages. Alternatively they can be scientifically removed from their context by archaeological sampling and the process documented.

Normally the impact is considered irreversible as archaeological material can never be replaced once disturbed. Indications are that with suitable mitigation the accumulative impact will be insignificant.

Gaps in knowledge & recommendations for further study

The area is quite well known, however it is important that the new layout is tested against known archaeological sensitivity, and any areas that have not been adequately surveyed be identified and subject to site inspection.

10.2 Positive and negative heritage impacts

The proposed activity may impact heritage resources negatively through physical destruction/damage of heritage resources during the clearing of the ground and installation of infrastructure in the construction phase. We believe however that overall the impacts to archaeology will be low if significant sites are avoided.

It is anticipated that there will be additional impact on the cultural landscape through the introduction of another wind energy facility into what is largely a semi-rural agricultural area, though cumulative impact on archaeological sites will probably be very limited if mitigation is implemented.

10.3 Possible mitigation measures

- Recording, and/or sampling of archaeological material;
- Avoidance and conservation of significant heritage resources (buffers, no-go areas, etc) around farm buildings and graveyards, archaeological sites or complexes.

10.4 Key issues/recommendations to be addressed in the IA phase

- The buffer areas that have emerged from previous environmental and heritage authorisations may be applicable to the Boulders Wind Farm. While predominantly related to visual issues, some for example the buffer around Kasteelberg have a bearing indirectly on the archaeology. Although we have argued why some relaxation may be appropriate, these buffers will have to be negotiated with the respective authorities;
- Take cognisance of the comments of the I&APs with respect to the heritage of the site and area of proposed development arising out of the PPP;
- Propose measures to adequately address or mitigate any identified impacts;
- Any graves and cemeteries outside pre-determined buffer or no-go areas that have not yet been identified, must be clearly demarcated and avoided, especially if situated immediately adjacent to the existing farm roads or proposed roads. The appropriate mechanisms for dealing with chance finds of human remains must be included in the HIA.;

- Any changes to the proposed layout that occurs in areas not previously subjected to site inspection, must be assessed during the EIA phase of the project to determine the type, quantity, location and significance of the heritage resources that may be impacted by the WEF infrastructure;
- No Stone Age artefact scatters are likely to be “red flag” issues but may require mitigation in the form of recording and/or sampling if they cannot be avoided;
- Similarly, significant colonial heritage such as historic buildings (including sheds, kraals, etc.) may need to be recorded and/or avoided if present on the affected sites. As the main farm complexes will be buffered, it is older isolated farm structures that are of more concern. They must be identified, assessed and avoided if necessary;

At this time we do not believe that there are any significant constraints with respect to the archaeology on the site and no “red flag” issues are identified.

A provisional “constraints and sensitivity” map, is provided. Sensitivity polygons identify areas where there are known heritage resources, or where identified heritage indicators suggest that heritage resources may be present. We have identified existing buffers set by DEA and HWC for the West Coast 1 WEF project as these may apply to the Boulders Wind Farm site as well. We have also identified no-go areas where there is known archaeological heritage around granite koppies. Similar exercises will be undertaken by the Palaeontologist and Visual specialist.

10.4.1 Conclusions

We have not identified any archaeological “red flag” issues, although buffers around the Kasteelberg site are due to its archaeological significance and preserving the sites on the hilltop as well as the viewshed to the coast therefrom.

A field/desktop assessment of the turbine locations, underground cabling, access roads, laydown areas and substations may be required during the EIA stage for certain parts of the site.

The preliminary constraints map (Figure 3) draw on the initial surveys and earlier archaeological research work on the Vredenburg Peninsula. While we have identified a few archaeological sites artefact/marine shell scatters within the project site, these can generally be avoided (or are of low significance). Where there are complexes of archaeological sites, they have been identified as areas generally not suitable for development.

Houses and farm werfs are generally protected by buffer zones. Isolated buildings that may be impacted must be assessed, if not already done so.

The turbine and infrastructure layout must take cognisance of all buffers and no-go areas in order to ensure that no wind farm infrastructure infringes on these features.

10.5 EIA stage plan of study

- The proposed layout of turbines, roads and grid connections must be tested against the known distribution of archaeological (and other heritage) sites. This must involve both desktop and if need be, physical site inspection.
- Similarly unknown heritage structures will need to be identified and graded, and where necessary a 500 m buffer zone implemented.
- Turbines or any other infrastructure positions will need to be adjusted in response to findings.
- An AIA must be produced for inclusion within the HIA for the project.

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