

Scoping Heritage Impact Assessment: St Helena Bay Community Wind Farm Development

Prepared for
Arcus Gibb (Pty) Ltd
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Second Draft



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Executive summary

ACO Associates cc was appointed by Arcus GIBB (Pty) Ltd (GIBB) of behalf of the proponent Just Energy to conduct a scoping level heritage assessment on the Farm Langeklip (Erf 47), near St Helena Bay in the Western Cape Province. The proponents propose to construct a 30 MW community wind farm on the property (farm size 744 ha), which belongs to the Seeland Development Trust for the benefit of the family members, most of whom live in the nearby township of Laingville.

This desktop scoping study identified the following heritage indicators:

- The granitic hills of the Patrysburg which has low fossil potential;
- The granite outcrops on the top of the Patrysburg may, potentially, have attracted prehistoric settlement. Elsewhere on the Vredenburg peninsula, archaeological surveys and research programmes have identified numerous archaeological sites around granite koppies;
- Historical records show that the farm Langeklip was originally part of the 18th century loan farm, Patrysenberg, which belonged to H.O. Eksteen. The strategic location of Patrysenberg was recognized during the VOC period and successive Commanders at the Cape appointed soldiers to operate a signaling system on top of the mountain. It is possible that remnants of the signal post may be recovered within the Study Area. The Langeklip 47 subdivision occurred in 1882 and there are farm buildings within the Study Area. A survey will determine whether they are greater than 60 years of age and protected by the National Heritage Resources Act;
- There are likely to be potentially significant impacts to the cultural landscape as the Study Area is situated on the top of the highest ridge of the peninsula. The turbines will be visible from Vredenburg and from the R399 which connects Vredenburg with Veldrif. This issue will need to be followed up with a Visual Impact Assessment.

Proposals for EIA Phase

- A field survey to determine whether heritage resources will be impacted during the construction, maintenance and decommissioning of the wind farm;
- Recommendations for mitigation of any impacts;
- Mitigation (Phase 2 Archaeological Impact Assessment) may include test excavations with a permit issued by Heritage Western Cape;
- A Final HIA report.

Declaration:

Dr Lita Webley is an independent specialist consultant who is in no way connected with the proponent, other than delivery of consulting services.

Lita Webley (Phd) is an archaeologist with 30 years of working experience. She is accredited with Principal Investigator status with the Association of Professional Archaeologists of Southern Africa and has been involved in heritage consultancy work since 1996. She has undertaken more than 100 Heritage and / or Archaeological Impact Assessments in the Northern, Eastern and Western Cape as well as in Kwa-Zulu Natal.

GLOSSARY

Archaeology: *Remains resulting from human activities which are 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: *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.*

Holocene: *The most recent geological time period which commenced 10 000 years ago.*

Late Stone Age: *The archaeology of the last 20 000 years associated with fully modern people.*

Middle Stone Age: *The archaeology of the Stone Age between 20 000-300 000 years ago associated with early modern humans.*

National Estate: *The collective heritage assets of the Nation.*

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.*

Pleistocene: *A geological time period (of 3 million – 20 000 years ago).*

SAHRA: *South African Heritage Resources Agency – the compliance authority which protects national heritage.*

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. Protected structures are those which are over 60 years old.*

Wreck (protected): *A ship or an aeroplane or any part thereof that lies on land or in the sea within South Africa is protected if it is more than 60 years old.*

Acronyms

DEAT	Department of Environmental Affairs and Tourism
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
LSA	Late Stone Age
MSA	Middle Stone Age
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

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1. INTRODUCTION

ACO Associates cc was appointed by Arcus GIBB (Pty) Ltd (GIBB) on behalf of the proponent Just Energy to conduct a scoping level heritage assessment on the Farm Langeklip (Erf 47), near St Helena Bay in the Western Cape Province (Figure 1). The proponents propose to construct a 30 MW community wind farm on the land, which belongs to the Seeland Development Trust, for the benefit of the family members, most of whom live in the nearby township of Laingville.

The aim of the project is to establish a community based independent power generation model whereby the Trust will benefit from an equity share as well as a regular lease payment, which will be used for the social and economic benefit of the 8000 – 10 000 inhabitants of the local township. In addition to providing income to the community, the project will also contribute renewable energy into the South African electricity grid. This proposal has triggered a full EIA process, this report being the heritage component of the scoping study. At this early stage in the project the layout of the proposed facility has not been finalized.

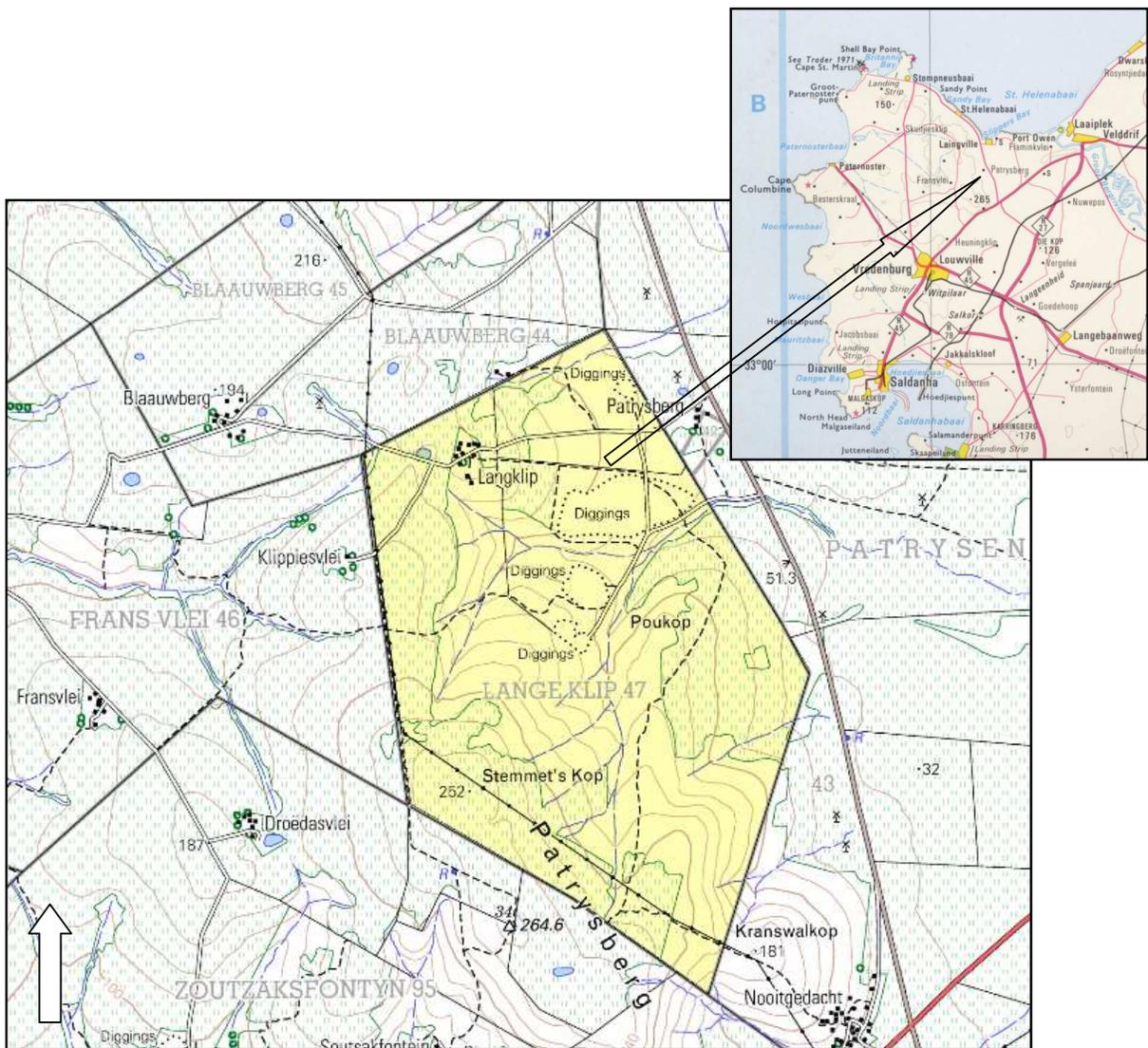


Figure 1: The location of the farm Langeklip (Erf 47) on Patrysberg, located on the eastern section of the Vredenburg Peninsula (1:50 000 map sheet 3218CA-CC Veldrif). Map supplied by client.

1.1 The Development Proposal

The project is still in the inception stage and neither the number nor final positions of the Turbines have been established.

It is anticipated that the infrastructure associated with the Wind Energy Facility will include:

- Between 10 and 30 wind turbines
- The turbines will have a height of between 50 m and 100 m and the blade lengths will vary between 25 m and 45 m
- Since the study area is already zoned agricultural, it is anticipated that no rezoning will be required
- Turbines typically require concrete foundations of about 30x30x3 m set in the ground surface to support the turbine towers
- There will be underground cables between turbines
- Possible overhead power line feeding into the Eskom electricity distribution network which crosses the property
- Proposed new 66 / 132 kV substation adjacent to the existing Eskom powerline.
- Access roads to the site from the main roads
- Internal access roads to each wind turbine, and the substation.
- During the construction period, corridors of landscape disturbance will occur as lay-down areas will need to be prepared, heavy lift cranes and abnormal load trucks brought on to the site.

While specifications have yet to be determined, each turbine typically consists of a concrete foundation on to which a steel column is bolted. Turbines will be optimally positioned to make the most of ambient wind conditions, but generally spaced several hundred meters apart. Since wind turbines utilize such a small portion of the land surface, once the facility is established normal agricultural activity can take place on the land.

2. METHODOLOGY

This study has been commissioned as a scoping assessment that attempts to predict the possible range of impacts and identify issues in terms of accumulated knowledge of the area. The source of information that is used for this process is based on an extensive database of published and unpublished information which is available for the Vredenburg Peninsula.

2.1 Restrictions and assumptions

The study area has not been subject to a field survey. This will be conducted during the course of the full EIA. The primary heritage resources that represent the issues that will need to receive detailed attention during the EIA phase are determined to be as follows:

- Pre-colonial archaeology (Stone Age as well as possible pre-colonial farming sites);
- Colonial period archaeology, including farm houses, historic roads, places, graveyards, tree lines;
- The cultural landscape – in particular the ability of the landscape to accommodate the wind turbines in terms of the heritage values and scenic qualities of the area.

3. LEGISLATIVE CONTEXT

The basis for all heritage impact assessment is the National Heritage Resources Act 25 (NHRA) of 1999, which in turn prescribes the manner in which heritage is assessed and managed. In the case of Environmental Impact Assessments in the Western Cape, the guidelines published by the Provincial Department of Environment Affairs and Tourism are directly based on the provisions of the National Heritage Resources Act (Winter and Baumann 2005).

The National Heritage Resources Act 25 of 1999 has defined certain kinds of heritage as being worthy of protection, by either specific or general protection mechanisms. In South Africa the law is directed towards the protection of human made heritage, although places and objects of scientific importance are covered. The National Heritage Resources Act also protects intangible heritage such as traditional activities, oral histories and places where significant events happened. Generally protected heritage which must be considered in any heritage assessment includes:

- cultural landscapes (described below),
- buildings and structures (greater than 60 years of age),
- archaeological sites (greater than 100 years of age),
- palaeontological sites and specimens,
- shipwrecks and aircraft wrecks,
- graves and grave yards.

Section 38 of the NHRA requires that Heritage Impact Assessments (HIAs) are required for certain kinds of development such as rezoning of land greater than 10,000 sq m in extent or exceeding three or more sub-divisions, or for any activity that will alter the character or landscape of a site greater than 5,000 sq m.

3.1 Cultural Landscapes

Section 3(3) of the NHRA, No 25 of 1999 defines the cultural significance of a place or objects with regard to the following criteria:

- (a) its importance in the community or pattern of South Africa's history
- (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage
- (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period
- (g) its strong or special association with a particular community or cultural group for social cultural or spiritual reasons
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- (i) sites of significance relating to the history of slavery in South Africa.

3.2 Scenic Routes

While not specifically mentioned in the NHRA, No 25 of 1999, Scenic Routes are recognised by DEA&DP as a category of heritage resources. In the DEA&DP Guidelines for involving

heritage specialists in the EIA process, Baumann & Winter (2005) comment that the visual intrusion of development on a scenic route should be considered a heritage issue. This is also given recognition in the Notice of Intent to Develop (NID) application which is used by Heritage Western Cape.

3.3 Heritage Grading

Heritage resources are graded following the system established by Winter and Baumann (2005) in the guidelines for involving heritage practitioners in EIA's (Table 1).

Table 1: Grading of heritage resources (Source: Winter & Baumann 2005: Box 5).

Grade	Level of significance	Description
1	National	Of high intrinsic, associational and contextual heritage value within a national context, i.e. formally declared or potential Grade 1 heritage resources.
2	Provincial	Of high intrinsic, associational and contextual heritage value within a provincial context, i.e. formally declared or potential Grade 2 heritage resources.
3A	Local	Of high intrinsic, associational and contextual heritage value within a local context, i.e. formally declared or potential Grade 3A heritage resources.
3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources.

3.4 Wind Energy Guidelines

A pilot study commissioned by the Provincial Government of the Western Cape "Towards a Regional Methodology for Wind Energy Site Selection in the West Cape region" (May 2006) is the only locally available policy guideline. The study looked at landscape character rather than at the "cultural landscape" or "heritage" but concluded that wind energy facilities can have a profound impact on the landscape in terms of quality of place. In general terms it recommends a buffer of at least 500 m between a wind turbine and heritage sites. Neither SAHRA nor HWC have developed policies with respect to heritage and renewable energy.

4. THE RECEIVING ENVIRONMENT

The farm Langeklip is located on the Patrysberg on the Vredenburg peninsula, to the north-east of the town of Vredenburg (Figure 1). The geological structures exposed today include the granite rocks of the Vredenburg pluton, interspersed with recent sands. The vegetation on the undisturbed lands is variously described as Strandveld or West Coast Renosterveld. The vegetation is a short scrub with taller shrubs in protected places amongst the granite boulders.

4.1 Palaeontology

The Study Area is situated in an area comprising the granitic rocks of the Vredenburg (G3) suite which are described as porphyritic granite. On the Vredenburg plains the granitic rocks are covered in a mantle of Quaternary (Q2) soils. However, the Patrysberg itself comprises mainly granitic rock.

4.1.1 Nature of Impacts

Palaeontological material is destroyed by bulk earthmoving, cutting and mining operations, however palaeontological resources tend to be extensive (depending on the resource) and are rather more resistant to impact than archaeological material for the simple reason is that there is more of it. Because palaeontological material is often very deeply buried, scientists often rely on human intervention in the land surface to collect data. Aside from natural exposures, open cast mines, quarries and deep road cuttings often present the only opportunities for palaeontologists to examine deep sediments which under normal circumstances they may not have access to. In short, provided that palaeontologists can use the opportunity arising from major construction works to adequately sample and record profiles and exposed material as part of the environmental management process, a potential negative impact can be transformed into a positive opportunity to increase the levels of knowledge about a locality and the species of fauna and flora that were present in the past.

4.1.2 Extent of Impacts

In the case of the proposed wind energy facility on the Patrysberg, it is expected that impacts will be very low. The mountain comprises rocks of the Vredenburg granite (Almond & Pether 2008) which is described as having a very low fossil potential. Potential impacts caused by a power line, infrastructure such as sub-stations and access roads are similarly unlikely.

4.2 Pre-colonial archaeology

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 north and south of the Vredenburg peninsula. Associated with these middens are MSA stone tools and a single clearly modern human tooth from Sea Harvest. All these sites are clearly older than 50 000 years.

Hunter-gatherers living on the west coast of South Africa during the latter part of the Holocene made seasonal use of the coastal resources. Archaeological excavations at sites such as Duyker Eiland on the coast at Britannia Bay (Robertshaw 1979) confirm the importance of shellfish such as mussel and limpet. In addition, the excavations of numerous sites on the Vredenburg peninsula have shown that prehistoric groups also utilized resources such as seals, marine birds, crayfish and beached whales. We know this peninsula was particularly attractive to hunter-gatherer, and later pastoralist groups because of its wealth of marine and terrestrial resources. Archaeologists have postulated that the first pastoralist groups (with cattle, sheep and pottery) entered South Africa along the West Coast some 2000 years ago.

The most important pastoralist site on the Vredenburg peninsula (and arguably in South Africa) is that of **Kasteelberg**, which is located on the farm Rooiheuvel of Boebezaks Kraal (Smith 2006; Webley & Orton 2010). The Kasteelberg koppie is located 8.2 km due west of the Study Area. The granite koppie is surrounded by agricultural lands and is highly visible from adjoining properties. The sites KBA and KBB contain deep deposits of shell midden material, incorporating sheep and cattle bones, pottery and stone artefacts. These sites are critical to our understanding of the introduction of pastoralism into southern Africa.

Other important archaeological sites in the vicinity of Kasteelberg include the cave site of **Witklip**, situated in a granite koppie at the town of Vredenburg and 9 km from the coast. Excavations by Smith (2006) suggest that this was a hunter-gather settlement dating to between 3000 and 500 BP.

Heuningklip, some 8 km to the south-east of Langeklip, is also an open site on a granite hill overlooking the surrounding landscape. The site contains shell midden material, although

with a lower depth of deposit. A single date of 760 BP was obtained. It contains a number of bedrock grooves, like Kasteelberg, and also dominates the surrounding landscape.

A selective archaeological survey of the Vredenburg Peninsula was undertaken by Sadr et al. in 1992. The survey strategy was to find and record sites within the two minor drainage basins around Kasteelberg hill although they concentrated their search around the granite outcrops. They recorded 129 archaeological sites. They noted that the sites around Kasteelberg on the Vredenburg Peninsula are predominantly ceramic Later Stone Age, although a thin scatter of earlier material is found in the area. The survey did not extend to the Patryberg.

Webley & Orton (2010) also surveyed large areas of farmland between Kasteelberg and Patryberg for a proposed wind energy facility. They noted that archaeological sites tend to be concentrated around granite koppies, but may also be found in ploughed lands.

The archaeological sites at Kasteelberg have featured prominently in the academic literature concerned with identifying pastoralist sites. Can archaeologists identify the ancestors of the 17th century Khoekhoen groups encountered by the Cape by early Dutch colonists? Were they a different group from the San hunter-gatherers or could San acquire sheep and cattle and become pastoralists? The “Great Debate”, which has attracted the views of both archaeologists and historians working in southern Africa and elsewhere, is concerned with whether the pastoralists had a different cultural signature from the hunter-gatherer groups. Much of this research is centered on the Vredenburg peninsula, highlighting its archaeological importance.

4.2.1 Nature of impacts

Previous archaeological surveys (Sadr et al. 1992) and archaeological research (Smith 2006) have shown that the granite outcrops/koppies on the Vredenburg peninsula acted as a strong focus for prehistoric settlement. *It is possible that the top ridges of the Patryberg, and incorporating the granite outcrop of Stemmet’s Kop, may have formed an important focus for prehistoric settlement and that they may be negatively impacted by the proposed wind turbines.*

The main cause of impacts to these archaeological sites is physical disturbance of the material itself and its context. The heritage and scientific potential of an archaeological site is highly dependent on its geological and spatial context. This means that even though, for example a deep excavation may expose archaeological artefacts, the artefacts are relatively meaningless once removed from the area in which they were found. Large scale excavations will damage archaeological sites, construction of roads and laydown areas, injudicious use of off-road vehicles can contribute to high levels of impact.

4.2.2 Extent of impacts

In the case of the proposed wind energy facility, it is expected that impacts will be quite limited (local) but nevertheless possible. There is a chance that the deep excavations for the tower bases could potentially impact buried archaeological material, similarly excavation of cable trenches and clearing of access roads could impact material that lies buried in the surface sand. Potential impacts caused by access roads, connecting power lines and possible substations are likely to be limited and local, however these will need to be physically searched and assessed during the EIA phase and the routes adjusted where necessary.

4.3 Colonial period heritage

No historical archaeological research has been conducted on the Vredenburg Peninsula and

Phase 1 Archaeological Impact Assessments very rarely discuss historical remains relating to the colonial period or the built environment.

Early travellers reported that large numbers of cattle and sheep were being pastured around St Helena Bay on the Vredenburg peninsula by the 17th century. Nienaber (1989) in his review of the historic accounts, confirms that the *Chariguriqua* (later the Griqua?), a Khoekhoe group, occupied the area around St Helena Bay during the 17th century, with the Cochoquas or Saldanhars further to the west around Saldanha Bay. The name “Boebezaks Kraal” implies the presence of a Khoekhoe group in this area. Smith (2006) has postulated a seasonal transhumant cycle for the Khoekhoe groups between the coast and the interior which was later disrupted by the 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 at St Helena Bay in 1734 (Sleigh 1993). There are no exact positions given for the post, but we know a post was established at Soldantenpost, which is located immediately to the north of the Study Area (Sleigh 1993). A map by Frederici, dated 1788, shows an approximate location for the outpost (Figure 3) but the map is very inaccurate and it is impossible to be exact. The map also indicates the approximate location of the Patrysenberg farmstead to the east of the Patrysenberg.

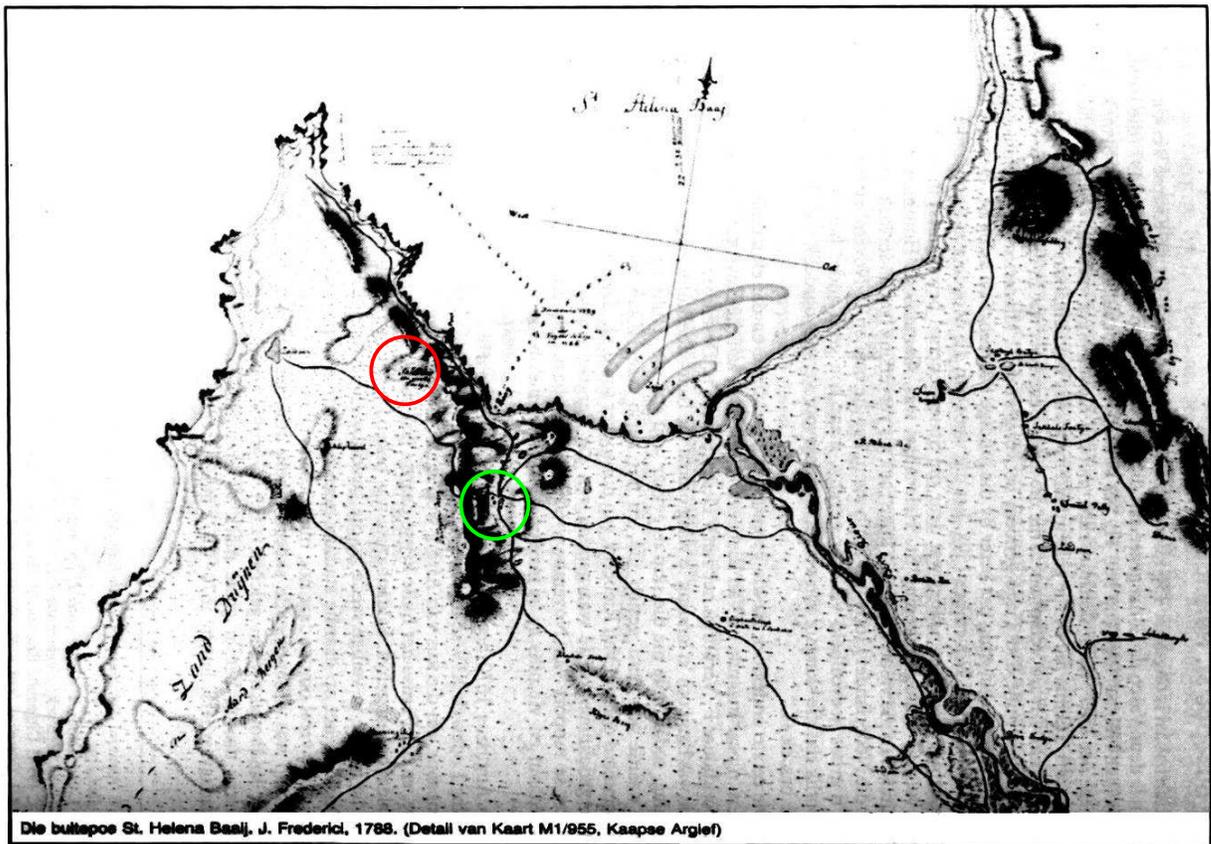


Figure 3: Map of the outpost at St Helena Bay dating to 1788 (in Sleigh 1993), with the position of the Soldantenpost outlined in red and the Patrysenberg homestead in green (Frederici, J Map M1/955, Cape Archives). Note the spine of the Patrysenberg runs almost directly north-south along the eastern section of the Vredenburg peninsula.

To determine the best location for their outpost, the Dutch asked the opinion of the most respected farmers in the area and these included Hendrik Oostwald Eksteen who had

already established a small fishing business in Saldanha in 1717 (Groenewald 2009). The farmers proposed that the outpost should be established at the foot of the Patrysenberg, a loan farm belonging to H.O. Eksteen. *The farm Patrysenberg is important to this study as Lange Klip 47 originally formed part of the farm Patrysenberg 43 (No. 1016/1857).*

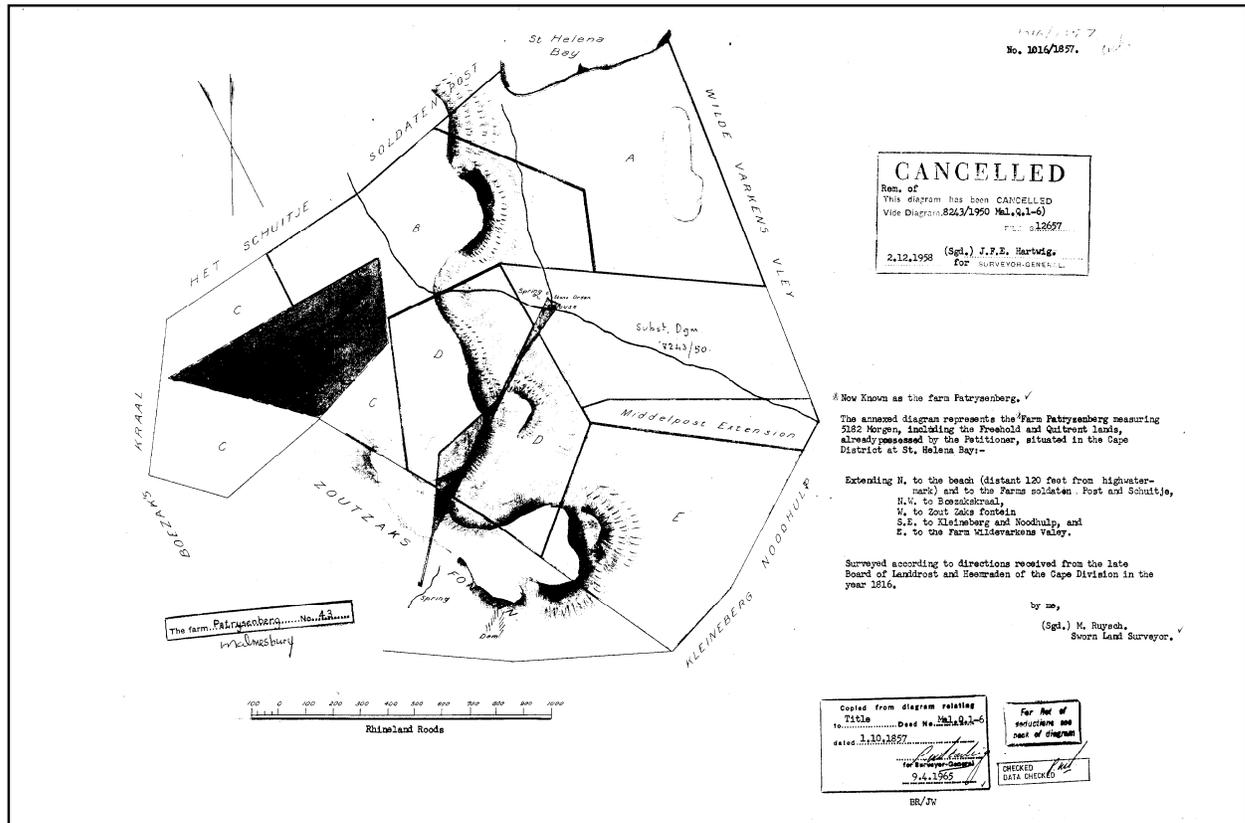


Figure 4: The survey diagram (No. 1016/1857) for the farm Patrysenberg 43 dating to 1816. Lange Klip is shown as portion D in the centre of the farm and incorporating a large part of Patrysenberg.

There is a great deal of information available on the history of Patrysenberg because of its strategic position on the Vredenburg peninsula. In 1745 the VOC negotiated with the widow of H.O. Eksteen promising that she could obtain ownership of her loan farm, De Patrijse Berg in St Helena Bay, if she provided the soldiers at the outpost with supplies. The outpost was occupied again in 1781, with the soldiers quartered on the farm Patrijzenberg belonging to Pieter Laubscher (Eksteen's son-in-law).

In 1789, the Politieke Raad enquired whether the farmers of the St Helena Bay area were prepared to provide wheat to the VOC, confirming that wheat cultivation was already taking place on the Peninsula. A dispute arose between the farmers and the VOC around the arrangements for the collection of the wheat and the names of the disgruntled farmers (including Laubscher) are the same families who still own farms on the Vredenburg Peninsula to this day (Sleigh 1993).

In 1803, the Governor J.W. Janssens visited the farm Patrijzenberg of the veldkornet J. Laubscher (Pieter's son). There was a government building on the farm which was occupied by the "flagman" of the post. According to Sleigh (1993:481), the flagman had to walk for approximately 30 min to the right of his house (which Sleigh interprets as 3 km south-east) to reach the signal station on the highest point of the Patrysenberg (at 265 m above sea level), where the signal post was positioned. Here he sent signals to Saldanha Bay by flags. *It is possible that the flag pole was positioned on Stemmet's Kop, on top of the Patrysenberg, and within the Study Area.*

The farm Patrysenberg features prominently in all these early records of European settlement on the Vredenburg Peninsula. Subsequently, the farm was subdivided into a number of smaller farms, one of them becoming Lange Klip 47. The Surveyor General diagram (No. 1318/1881) shows that this subdivision took place in 1882.

4.3.1 Nature of impacts

The layout of the turbine positions has not yet been determined and at this stage, the entire farm is being considered as part of the environmental investigation. It is possible that the signal post used to send signals to Saldanha Bay during the late 18th and early 19th centuries was placed around Stemmet's Kop, which forms part of the highest ridge on the Patrysenberg at 252 m.

While the layout of the turbines still needs to be determined, it is possible that they may be placed in close proximity to the farmhouse of Langeklip. The survey diagrams suggest that it may contain buildings dating to the 1880s.

Recent research has shown that many of the earliest buildings along the West Coast were made of impermanent materials such as reeds. They may be difficult to trace and their positions may have to be determined by the distribution of historic debris such as glass and ceramics. The location of the signal mast, for example, may be difficult to identify after a period of 200 years. Historic structures as well as historic artefact scatters are sensitive to physical damage such as demolition as well as neglect. They are also context sensitive, in that changes to the surrounding landscape in the form of turbines, will affect their significance. The significance of any historic remains will need to be assessed through site inspection.

4.3.2 Extent of Impacts

There may be direct impacts on historic material dating to the colonial use of the Patrysenberg to signal to Saldanha Bay. If such material exists, it would be of great historic significance and the extent of the impact may extend beyond the local. The farm buildings at Langeklip will have to be inspected to determine their significance and the extent of the impact of the turbines on their place and setting.

4.4 Cultural landscape and sense of place

The cultural landscape associated with the study area comprises the granite mountain range of Patrysenberg. These granitic outcrops are very typical of the Vredenburg peninsula. They are often covered in indigenous vegetation and rise above the surrounding wheat fields, forming important geographic landmarks. It is possible that the wind turbines will be visible from the town of Vredenburg as well as from the R399 which connects Vredenburg with Veldrif. This visual impact of the turbines and associated infrastructure will need to be addressed by the Visual Impact Specialist.

Perusal of international literature indicates that visual impact and changes to *sense of place* or *setting* are among the most contentious issues that the wind energy industry has had to face in terms of finding social acceptability within a given community (Joberta 2007, Clarke 2009). Various nations in the developed world have developed best practice guidelines to deal with the kinds of complex impacts that wind energy facilities can have on the heritage and landscape qualities of an area. In Europe there is a trend towards discouragement of large "wind parks" due to the visual impact they have on landscape. South African landscapes are very different and will have different capacities in terms of their "aesthetic absorption" ability. As yet South Africa does not have well developed guidelines or the benefit of experience within our own landscapes, which is an issue that needs to be addressed and work-shopped at the level of the South African Heritage Resources Agency.

The proliferation of wind energy facilities in South Africa in the absence of heritage guidelines or policy is a cause for concern in terms of accumulative impacts. Wind energy facilities which require vast amounts of landscape threaten significant impacts in terms of potential loss of iconic vistas, and landscape character change, especially in the Cape Province where the identity of the region is strongly linked to its spectacular landscape character.

4.4.1 Nature of impacts

Cultural landscapes are highly sensitive to accumulative impacts and large scale development activities that change the character and public memory of a place. The construction of a wind farm is likely to result in changes to the overall sense of place of a locality, if not a region. The proposed activity is essentially a visual intrusion that is very difficult to measure due to the fact that there is little reference material on which the sense of change can be gauged in a local context.

4.4.2 Extent of impacts

The wind energy facility may affect the atmosphere of the “place”. While this impact may be considered local in terms of physical extent, there may be wider implications in terms of the change in “identity” of the area and the cumulative effect this could have on future tourism potential. In terms of this study it is anticipated that negative landscape impacts and will potentially affect the residents of Vredenburg, as well as the experience of driving from Vredenburg to Veldrif along the R399.

This means that the potential for alteration to the cultural landscape and sense of place will need further attention in the EIA phase. Very close integration of the heritage study and the visual impact assessment will be required.

5. FUTURE WORK IN THE EIA PHASE

The EIA phase study needs to fulfill the requirements of heritage impact assessment as defined in section 38 of the NHRA. This means that the assessment has to cover the full range of potential cultural heritage as defined by the term “culture” contained in the National Heritage Resources Act 25 of 1999.

5.1 Palaeontological material

While the recovery of fossil material is unlikely (Pether & Almond 2008) on the top of the Patrysberg, it is possible that the EMP may require a professional palaeontologist to undertake periodic monitoring of the excavations for the turbines.

5.2 Archaeological heritage

The proposed study area needs to be subject to a detailed survey by an archaeologist who will need to walk a pattern of transects over the site recording details and locations of any heritage material found. The significance of each find will need to be assessed along with the impacts of the proposed activity. A field survey will determine the presence of surface archaeological material (pre-colonial and colonial). It is expected that mitigation through avoidance of sensitive areas may be possible. Adjustments to turbine footings, deviations in service trenches, road alignments or power line towers may be all that is required. If for any reason mitigation by avoidance is not feasible, a Phase 2 Archaeological Impact Assessment may be required.

A Phase 2 Archaeological Impact Assessment includes the recording and sampling of the archaeological site (with a permit issued by Heritage Western Cape), before its destruction is permitted. The costs of the test excavations are for the developer.

5.3 Un-identified archaeological material, fossils and fossil bone

There is always a chance that archaeological material may be exposed during bulk excavation for services and foundations. All archaeological material over 100 years of age is protected and may only be altered or removed from its place of origin under a permit issued by Heritage Western Cape (HWC). In the event of anything unusual being encountered, the HWC archaeology unit must be consulted immediately so that mitigation action can be determined and be implemented if necessary (find-stop scenario). Mitigation is at the cost of the developer, while time delays and diversion of machinery/plant may be necessary until mitigation in the form of conservation or archaeological/palaeontological sampling is completed.

5.4 Built Environment

The Langeklip farmstead falls within the study area being considered for the proposed wind energy facility. It is not expected that the farm buildings and possible graveyard, comprising the built environment, will be directly impacted by the proposal unless it becomes necessary to demolish structures that are greater than 60 years of age. It is important to note that the CNdV (2006) draft recommendations have proposed a buffer zone between the placement of turbines and heritage sites. It may therefore be necessary to move turbine locations to avoid visual impacts on the built environment.

5.5 Cultural Landscape and Sense of Place

This is perhaps the most difficult heritage impact to address. There is no doubt that the wind turbines will affect the landscape qualities of the site, however the degree of impact will be very closely related to the visual impacts of the proposed activity (the visual impact will be separately addressed). The locating of infrastructure close to historical farms and settlements may result in impacts to the quality of the place and detract from sense of history and/or wilderness. From this perspective the layout of the facility will need to respond to the findings of the heritage impact component of the EIA along with close input from the visual specialist.

6. CONCLUSION

It is anticipated that the impact on the Palaeontological heritage of the Study Area is likely to be minimal. However, a palaeontologist may request monitoring of the turbine trenches during construction.

Indications are that the proposed activity may impact on the archaeological (pre-colonial and colonial) heritage and built environment of the Study Area. However, it is expected that impacts may be mitigated through avoidance of sensitive areas which will be identified during the fieldwork phase of the project. The impacts are likely to be limited and controllable. If impacts cannot be avoided, then second phase archaeological work may be required.

A Phase 2 Archaeological Impact Assessment includes the recording and sampling of the archaeological site (with a permit issued by Heritage Western Cape), before its destruction is permitted. The costs of the test excavations are for the developer.

In terms of the natural cultural landscape qualities of the site, the impacts are expected to be more significant especially since the proposed activity is situated on a prominent landscape

feature and in a scenic area. The degree and nature of the impact is going to depend on how the wind turbines are arranged on the landscape, and the ability of the topography to absorb their presence which is an issue which will require close attention during the course of the EIA.

It is anticipated that the landscape impacts of the proposal will receive close scrutiny from Heritage Western Cape.

Follow up heritage work such as monitoring of excavations by a palaeontologist or archaeological sampling is likely to be a requirement of the Environmental Management Plan.

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