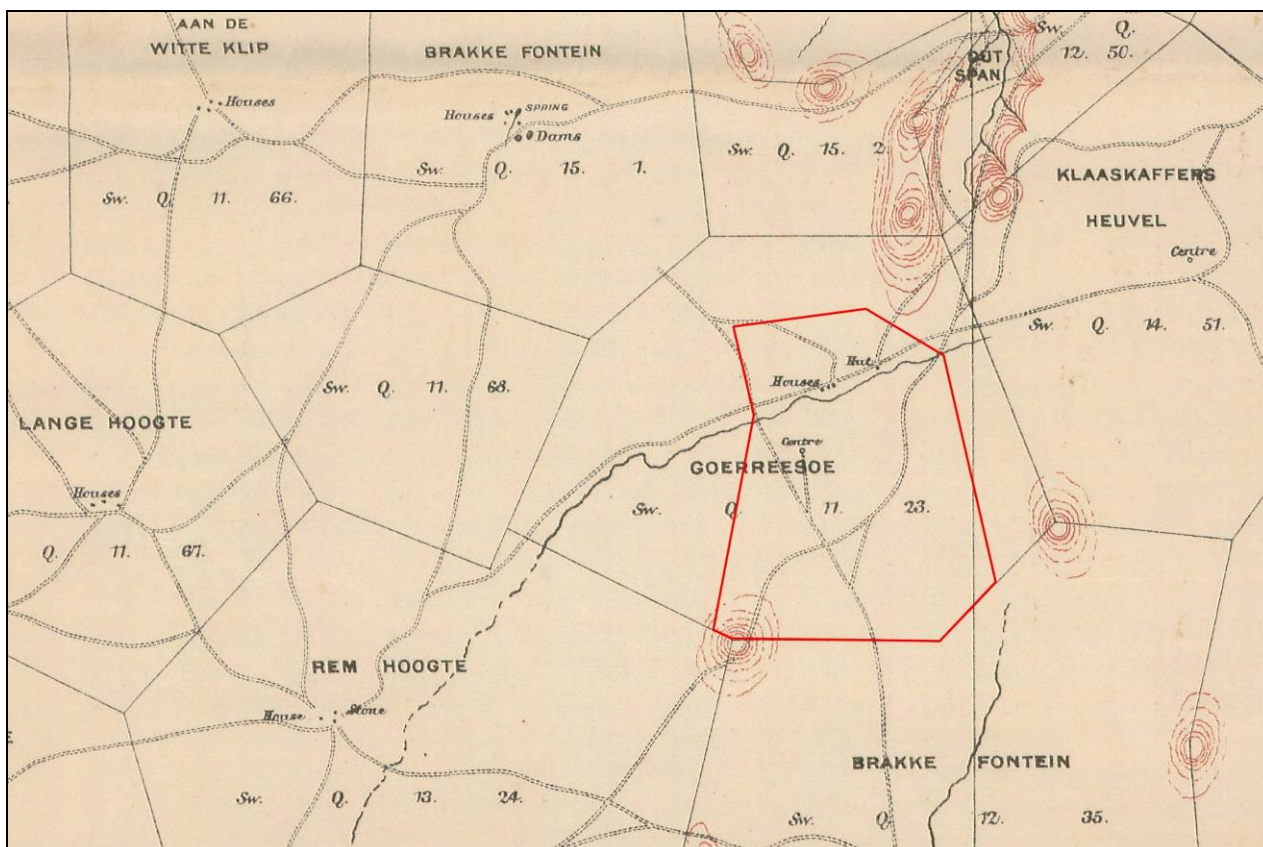


**INTEGRATED HERITAGE IMPACT ASSESSMENT IN TERMS OF SECTION
38(8) OF THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT 25 OF
1999)**

**PROPOSED GOERREESOE WIND ENERGY FACILITY: PORTIONS OF THE
FARMS GOERREESOE 432/ REM, 2, 4 & 5, SWELLENDAM DISTRICT**



ON BEHALF OF: IE Swellendam Wind (Pty) Ltd

APRIL 2013

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PERCEPTION

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1. Almond, J (August 2012). Palaeontological Specialist Assessment (Desktop Study): Inca Goereesoe Wind Farm near Swellendam, Western Cape Province
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ABBREVIATIONS:

1. CDSM – Chief Directorate Surveys & Mapping
2. DEA – Department of Environmental Affairs (National)
3. DEADP – Department of Environmental Affairs & Development Planning
4. EA – Environmental Authorisation
5. HIA – Heritage Impact Assessment
6. HWC – Heritage Western Cape
7. NHRA - National Heritage Resources Act, 1999 (Act 25 of 1999)
8. NID – Notice of Intent to Develop
9. PHRA – Provincial Heritage Resources Agency
10. PHS – Provincial Heritage Site
11. PPP – Public Participation Process

COVER: Approximate site boundaries transposed onto extract from 1880-1900 SG mapping for relevant area (Source: CDSM)

1. INTRODUCTION

PERCEPTION Heritage Planning was appointed by *IE Swellendam Wind (Pty) Ltd* to compile and lodge an Integrated Heritage Impact Assessment (HIA) to Heritage Western Cape (HWC) in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act 25 of 1999) in relation to proposed development of the study area. Sanction for submission of this HIA was provided by *IE Swellendam Wind (Pty) Ltd*, (as developer/ on behalf of registered property owners) and is attached hereto as part of Annexure 1.

This report serves as an ***Integrated Heritage Impact Assessment (HIA)*** and includes inputs from the following specialist reports sanctioned as part of the HIA:

- Visual Impact Assessment – MetroGIS (Lourens du Plesses)
- Scoping Archaeological Impact Assessment – Dr. Peter Nilssen
- Final Archaeological Impact Assessment – ACO Associates (Dr. Lita Webley)
- Palaeontological Impact Assessment – Dr. John Almond
- Historical background research – Ms. Kathleen Schulz

2. INDEPENDENCE OF ASSESSOR

The developer appointed *SE de Kock (PERCEPTION Heritage Planning)* as an independent professional heritage practitioner to compile the Integrated Heritage Impact Assessment, coordinate the public participation process and submit the report to the relevant provincial heritage resources authority, being Heritage Western Cape.

With relation to the author's appointment to compile and submit to Heritage Western Cape an Integrated Heritage Impact Assessment in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act 25 of 1999), it is hereby declared that:

- This consultancy (including the author) is not a subsidiary, legally or financially, of the proponents;
- Remuneration for professional services by the proponent in relation to this proposal is not linked to approval by any decision-making authority responsible for permitting this proposal;
- Nor this consultancy, nor the author has any interests in secondary or downstream activities as a result of the authorisation of this project.

It is further hereby certified that the author has 15 years professional experience as urban planner (3 years of which were abroad) and 7 years professional experience as heritage practitioner. The author holds the following qualifications:

- Urban and Regional Planning (B-Tech, CPUT, 1997)
- Environmental Impact Assessment Management – Heritage, Environmental (Dipl/ Masters, Dublin University, 2002)
- Architectural & Urban Conservation (CDP, UCT, 2007)
- Urban Design (CPD, UCT, 2009)

The author is professionally registered as follows:

- Accredited Heritage Practitioner – Association for Professional Heritage Practitioners
- Registered as Professional Planner with South African Council for Planners

3. BACKGROUND

Following submission of a Notice of Intent to Develop (NID) regarding the proposed development by *us* during August 2011, HWC issued the following Interim Comments (HWC Comment dated 7th September 2011 attached as Annexure 2):

"A Heritage Impact Assessment is required consisting of a historic background analysis, a built environment and cultural landscape analysis, a visual impact study including cumulative impact

against similar developments in the Swellendam area, an archaeological study and palaeontological study, with an integrated set of recommendations and specialist studies appended in full. Recommendations must in each instance address the impacts and advantages/ disadvantages of the alternative models (10 to 20 turbines).”

4. METHODOLOGY

As part of the compilation of this Integrated HIA report the author has studied, visited, photographed and assessed the subject site and its environs, which more specifically involved the following (also refer to Figure 1):

- Field work carried out on 14th August 2011, 27th November 2012 and 11th December 2012;
- Assimilating findings and recommendations emanating from specialist inputs into HIA by historian, cultural landscape assessor, archaeologist, palaeontologist and visual specialist;
- Identification of heritage-related issues and concerns;
- Analysis of development site and its environs;
- Identification of contextual spatial informants;
- Establishing cultural significance, based on criteria set out in NHRA;
- Identification of heritage-related design informants based on the above;
- Assess conformity of final proposed site layout to design informants identified.

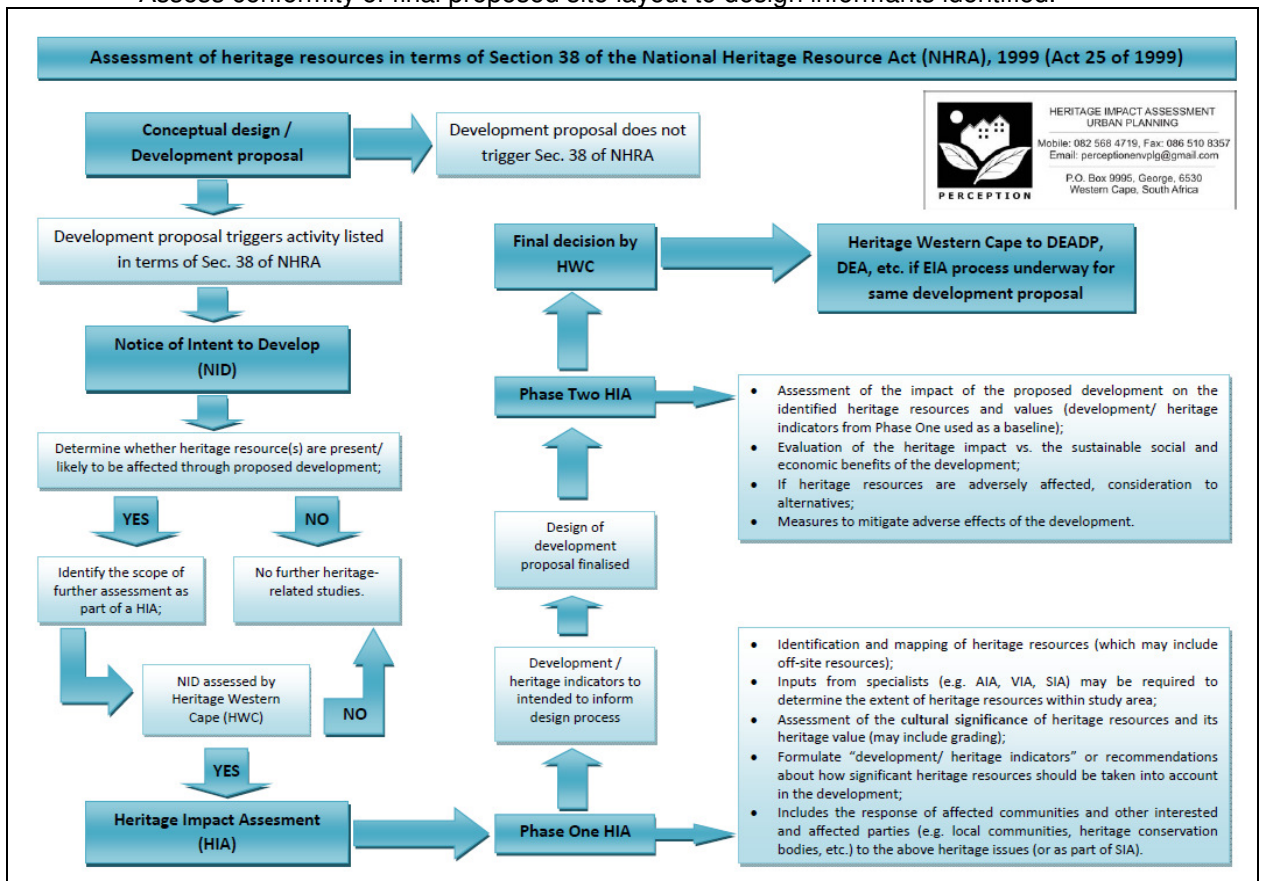


Figure 1: Flowchart describing the HIA process in terms of Section 38 of the NHRA (Act 25 of 1999). The HIA process is now at its final stage, prior to submission to HWC

Aspects to be dealt with in the Final HIA will include (refer Figure 1):

- Focussed public participation process aimed at soliciting heritage-related comments from local conservation bodies – refer Section 10);
- Negotiations, discussions with consultant team regarding nature and detailed design of proposed development.

5. DESCRIPTION OF STUDY AREA

The proposed development site (c. 1,315ha in extent) forms part of portions of the farms Goereesoe 432/ Remainder, 2, 3 and 4. The site is located approximately 34km southwest of Swellendam as indicated with the locality plan (Figure 2).

Access to the site is directly from the R319 (between N2 and Bredasdorp), which also effectively divides it into two distinguishable portions:

The **northeast portion** is located within a gently undulating rural landscape within which the predominant land use is agriculture/ cultivation as illustrated through photographs attached as Annexure 3. Apart from the current (modern) farmstead and associated outbuildings at least two historic building precincts, each containing a number of now derelict structures, mostly constructed with mud bricks, were noted. Landscape features noted included linear planting of trees along one of the primary approach roads to the farmstead as well as within the proximity of historic farmsteads – mostly likely serving as wind breaks.

While much of the site located **southwest of the R319** is also used for agriculture/ cultivation, this landscape is more rugged and consists of deep valleys/ steeper sloping areas as illustrated through recent aerial photography of the site (Figure 3). Small pockets of indigenous vegetation remaining along narrow, inaccessible valleys were noted to the southeast. A number of dams and water reservoirs were noted.

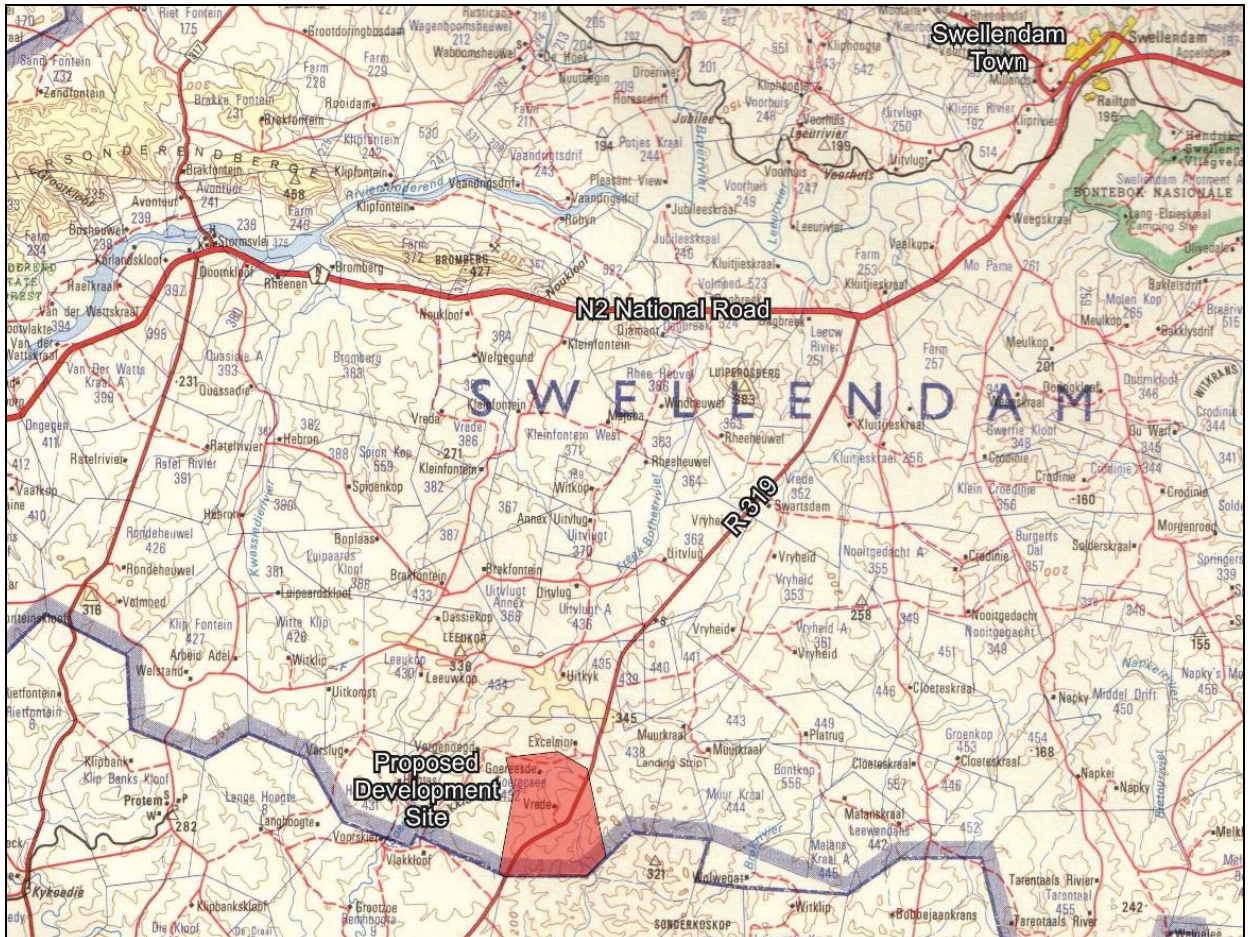


Figure 2: Study area shown within regional context (Source:1:250,000 Topo-cadastral series, CDSM)

No gravesites/ burial grounds were noted anywhere on the site. Various farm roads, the alignment of which seems to correspond with that of roads noted on early mapping, we noted. Also refer to recent aerial photography for the study area (Figure 3).

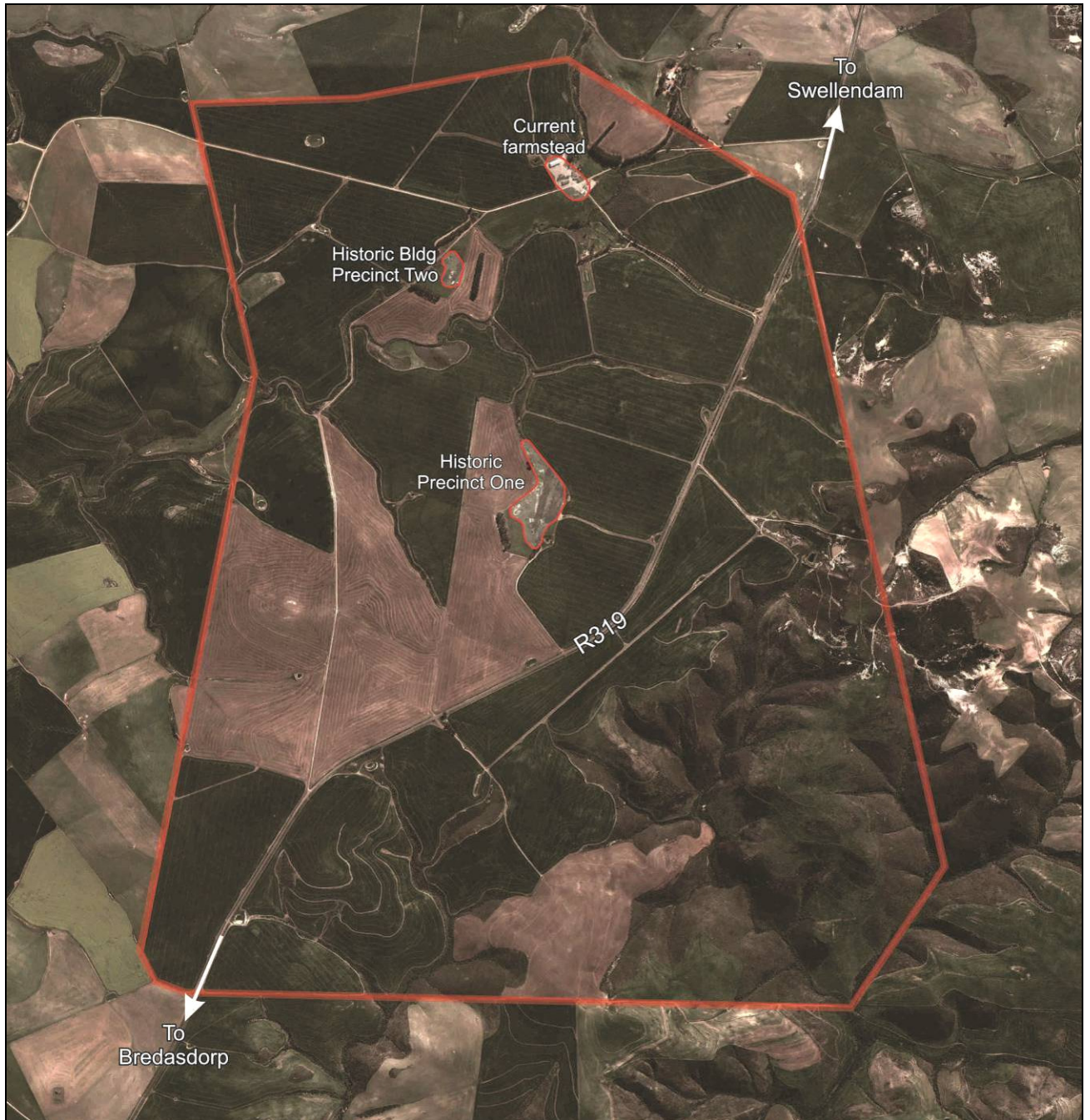


Figure 3: Study area imposed on recent aerial image of surrounding areas (Source: Google Earth, 2011)

6. DEVELOPMENT PROPOSAL AND ALTERNATIVES

The proposal is for construction of a wind energy generation facility and associated engineering services and infrastructures within the study area. According to information made available by the Savannah Environmental, as presented through the Final Scoping Report (April 2012), Project Alternatives (including Site Alternatives, Technology Alternatives, Site-specific or Layout design Alternatives), will be considered as part of the Environmental Impact Assessment Phase.

6.1 **Alternative One**

Put forward as part of NID submission during August 2011, initial proposal was for a wind energy facility allows for 30MW to be joined to an existing 66KV Eskom line traversing the northwest quadrant of the site and following its western boundary as illustrated (blue line) with Figure 4 below. The number of turbines envisaged at that stage would depend on whether 1.5MW or 3MW turbines were to be used (Estimated height of 80m – 100m). The maximum number of wind turbines envisaged would be between 10 (all 3MW turbines) – 20 (all 1.5 MW turbines) turbines, depending on a number of factors e.g. wind strength at the specific point of location of each turbine. See layout, Annexure 4.1.

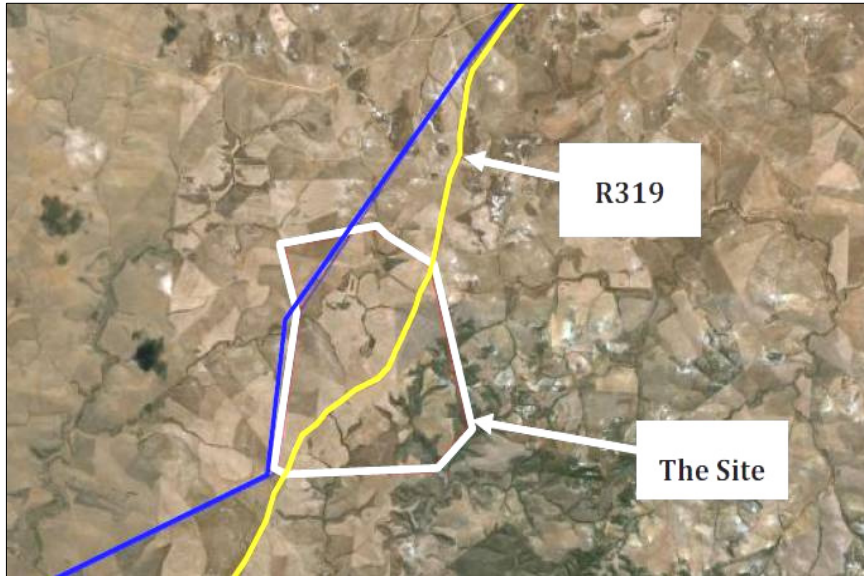


Figure 4: Alignment of existing 66kV Eskom power line (blue) in relation to site boundaries (white) and R319 road (yellow) (Source: NID Submission, August 2011)

6.2 **Alternative Two (Preferred Alternative)**

The current alternative is for the construction of 13 wind turbines, varying between 2 – 3MW in capacity and of up to 110m in height as illustrated through the site layout plan compiled from data provided by Savannah Environmental and attached to this report as Annexure 4.2. Further infrastructure and services proposed to be constructed as part of the proposed development would include the following:

- Concrete foundations to support the turbines;
- Cabling between the turbines, to be laid underground where practical;
- An on-site substation to facilitate the connection between the wind farm and the electricity grid. Two options are being considered:
 - Option A, adjacent to the north of proposed with turbine 1;
 - Option B, located on the south-western boundary of the proposed project site adjacent to the existing Vryheid-Vredasdorp 66kV power line.
- An overhead power line (66kV) likely to be connected to the existing Vryheid-Bredasdorp 66kV power line which crosses the north-west corner of the site;
- Internal access roads to each turbine (Up to ± 13 m wide during construction phase and ± 6 m width during operation phase);
- Workshop area / office for control, maintenance and storage;
- Flat and hardened lay-down area (± 40 m x 40m) for each turbine during construction phase.

6.3 **No-Go Alternative**

Since the core business area of the project proponent is the development of renewable and wind energy facilities, the fundamental alternative of a development type other than the proposed facility is therefore not technically feasible in this instance, and will not be considered further in the EIA process. Similarly, different energy generation technology alternatives are not assessed.

This would mean that the property will be used in accordance with its current zoning, being Agricultural zone I. This alternative would result in no environmental impacts as contemplated as part of the current development proposal other than that associated with its current zoning. This alternative would however mean that an additional 30MW would not be generated for integration into the Eskom national grid.

7. HISTORICAL BACKGROUND

Historical background research focussed on available primary sources relating to the farm Goereesoe 432, Swellendam and its environs as obtained from the Cape Town Archives, Deeds Office and Surveyor General's Office. The historical background was compiled by Ms. Kathleen Schulz and assisted by the author.

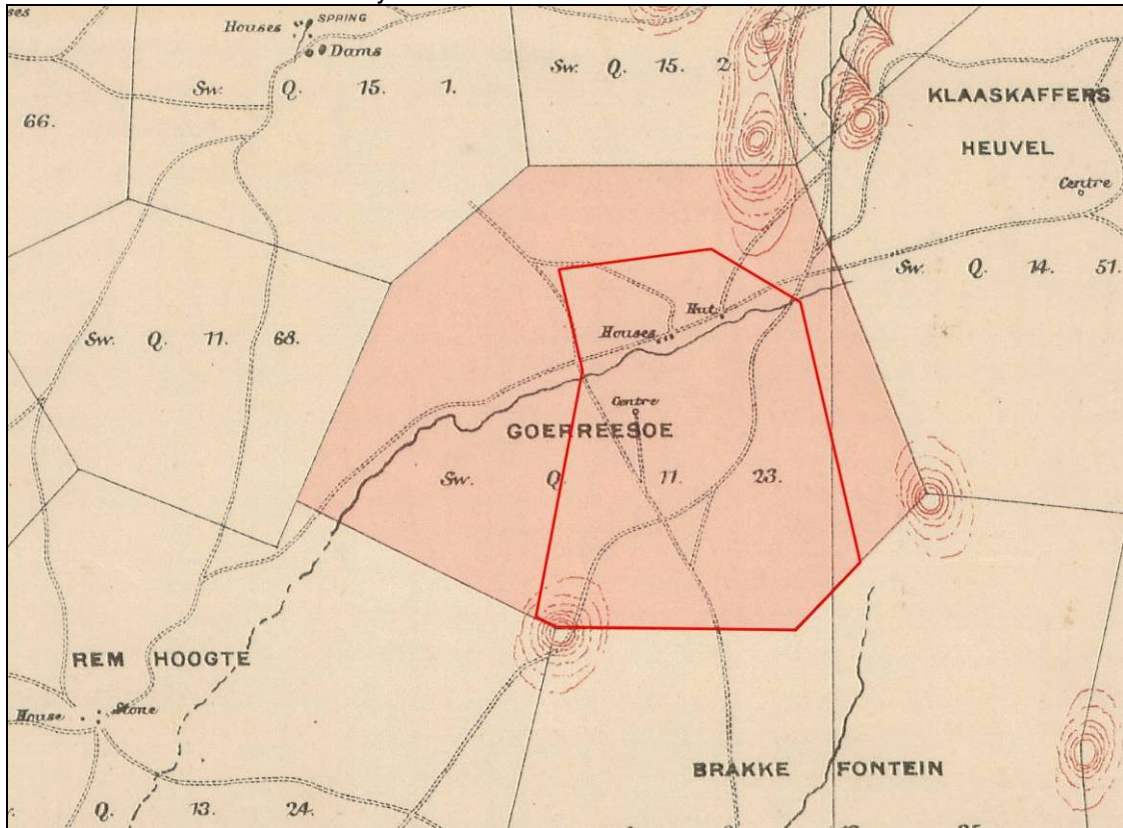


Figure 5: Location of the site in relation to early (1880-1900) farm boundaries for the farm Goereesoe, Swellendam. Note annotations referring to built environment, roads/ tracks shown (Source: CDSM)

7.1 Introduction

From a Pre-Colonial historical perspective it is considered highly likely that the area within which the site is located had been used for grazing by indigenous groups prior to colonial occupation.

No evidence could be found in loan farm records of eighteenth century occupation of the farm Goereesoe. It may be possible that the farm was run under another name, although unlikely. No cemeteries or burial grounds were found on maps or in archival records.

7.2 Earliest Census Record

Census records for Swellendam 1809 and 1811 were badly water damaged and the full record could not be read. Eighteenth century Swellendam census records unfortunately do not record

the farm name. The first census records for Goereesoe were found in 1821 by which time the farm appears to have been well established and jointly loaned by:

- 1.) Jacobus Stephanus de Wet (married to Susanna Magdalena du Toit.) and
- 2.) Jacobus Johannes Swart (married to Maria Swart).

De Wet family

The son of Jacobus S de Wet and Susanna M. du Toit, also named Jacobus Stephanus, died in 1873. His death certificate states that he was baptized in Graaf Reinet in 1809, indicating that his parents settled in the Swellendam district after this date. Jacobus and Susanna were married in Stellenbosch in 1806 according to Dutch Reformed church records captured on the Church of the Latter Day Saints, Genealogy web site. It was not established what Jacobus Stephanus de Wet senior was doing in Graaff Reinet at the time his son was born, or when they arrived in Swellendam.

Swart family

No link could be found through the normal channels of research between the De Wet family and the Swart family who co-owned Goereesoe. In all probability there was some family connection.

Interrogating desktop and de Villiers Pama genealogical records it appears that many early members of the Swart family lived in the Bredasdorp area. For example Pieter Swart lived on Ulkraal, before his death in 1756.

7.3 Time Line of relevant Dutch Inventory (“Opgaaf”) Entries

DATE	DESCRIPTION OF SOURCE	REFERENCE
1813	No Census Records found for Goereesoe	J.330 (SWD)
1815	No Census Records found for Goereesoe	J.330 (SWD)
1816	<p>Slaves registered to Jacobus Johannes Swart and his wife Maria Swart (between 1816 to 1832):</p> <p>1816 (Enregistering of slaves compulsory at this time)</p> <p>Silvia from Mozambique, Housemaid. About 30</p> <p>Sara, this Colony, about 12</p> <p>Carolina, this colony, about 10 (sold 10/3/1832 to Jacobus Nicolas Swart)</p> <p>Louisa, this colony, about 8 (sold 18/2/1825 to Johannes Gert. Laurens)</p> <p>Annette, this colony, about 3. Sold to Jacobus Nicolas Swart 1831)</p> <p>Sylvia born 15th August 1816, mother's name Sylvia. Sold 30/10/1824 to Matthys Johannes Taljaard.</p> <p>1819</p> <p>Philida. Born 14th May 1819.</p> <p>Mother Sylvia.</p> <p>Sold to Pieter Arnoldus Swart 1/5/1830.</p> <p>1822</p> <p>Mozes. Born 13th October 1821.</p> <p>Mother Sylvia.</p> <p>Died 15th August 1824.</p> <p>1824</p> <p>David. Born 13th April 1822.</p> <p>Mother Carolina Sold to Jac. Nicolas Swart 10/3/1832.</p> <p>1826</p> <p>Jassemein. Born 28th April 1826 (No commentary) Why was she registered 2 years after her birth?</p> <p>1827</p> <p>October. Born 22nd January 1826.</p> <p>Mother Sara (No commentary)</p> <p>1830</p> <p>Isac. Born 30th November 1827 reported to have died 15th October 1830. (late registration)</p> <p>1831</p> <p>Jacob. Born 12th December 1829. Mother Sara.</p> <p>Sara died 15th October 1830.</p> <p>1832</p> <p>Sylvia. Born 15th November 1830 (late registration) Mother Carolina.</p>	J.330 (SWD)

DATE	DESCRIPTION OF SOURCE	REFERENCE
	Sold/transferred to Jacobus. Nicolas Swart 10 th March 1832. 1832 Sylvia. Born 20 th January 1832. Mother Sara. (No commentary)	
1821	Census Record (Dutch "Opgaaf record") ½ share of property registered to Jacobus Stephanus de Wet married to Susanna Magdalena du Toit (3 sons 2 daughters): Labour 1 - Adult male Hottentot 1 - Adult female Hottentot 1 - child male Hottentot 1 - child female Hottentot 1 - Adult male slave 1 - Adult female slave 1 - child male slave 1 - child female slave Livestock 2 - wagon and riding horses	J.339 (SWD)
	14 - other horses 14 - wagon oxen 40 - sheep 80 - goats Crops Wheat 5 muids sown, 10 reaped. 1 Wagon Deaths on the farm. 1 male slave	
	Jacobus Johannes Swart married to Maria Swart ½ share (No children): Labour 1 adult female slave 6 child female slaves Livestock 1 - Wagon and riding horse 10 - other horses 10 - wagon oxen	
	Crops 6 muids wheat sown, 20 reaped 1 ½ muids barley sown, 10 reaped. 1- Wagon 6 hours from the Drostdy	
1824	Census Record (Dutch "Opgaaf record") ½ of the farm Goeree Zoe occupied by Johannes Jacobus Swart married to Maria Swart (No children) Labour 1- Adult male Hottentot 1 - Adult female Hottentot 2 - male child Hottentot 1 - female child Hottentot 1 - Male adult slave 1 - Female adult slave 6 - Female child slaves Livestock 4 - Wagon or riding horses	J. 345 (SWD)
	3 - Horses 12 - 'Trek' oxen 10 - Hamels (male sheep) 100 - Goats Crops Wheat 6 Muids sown, 10 reaped 1 Wagon 1 One male slave died.	
	½ of the farm Goree Zoe occupied by Jacobus Stephanus de Wet, married to Susana Magdalena du Toit (3 sons 2 daughters)	
1825	Census Record same as for 1824 above	J.330 (SWD)
1835	Slave Records: Slave owner Jacobus Johannes Swart (Pieter's son) married to Maria Swart. On the death of her husband transferred the following slaves according to their will drawn up in 1832: David born 13 th April 1822 (13 years old) Silvia born 18 th November 1830 Transferred to: Jacobus Nicolaas Swart (Jacobus's son) Also Jacobus Nicolas Swart transferred to Johannes Jochesmus Swart Regina about 22 ¼ years old (from this Colony)	1/SWM 16/8
1873	Jacobus Stephanus de Wet Death Notice: Died 9 th August 1873 at his home "Goeresoe". Born in Graaff Reinet. His parents were Jacobus Stephanus de Wet and Susanna Magdalena du	MOOC 6/9/144 f.9672.

DATE	DESCRIPTION OF SOURCE	REFERENCE
	Toit. He was 64 years old at the time of his death. Surviving children: 1. Jacobus Gabriel Stephanus 2. Johannes gerhardus 3. Johanna Dorothea 4. Willem Daniel 5. Daniel Stephanus 6. Wynand Jacobus Wilhelm	
1875	Goereesoe Valuation Land: 3174 morgen 311 sq.rds. value £900 (Remainder after portion 1 taken off in 1872. 609m. 489 sq rds) 5/8 share (3174 morgen 311 sq.rds.) belonging to Widow J.S. de Wet £1250. J.C and D.C. Uys owned unspecified shares of 609 morgen 589 sq.rds, valued at £498. Widow J.S. de Wet also owned a ¼ portion of Klaas Kaffers Heuvel situated east of Goereesoe, valued for the same amount as Goeresoe - £1250.	4/SWM 7/1/1/1
1885	Goereesoe Valuation Widow J.S. de Wet appears to have transferred her Goeresoe shares to Willem de Wet, but still owned Klaas Kaffirs Kraal	4/SWM 7/1/1/3

7.4 Early Deeds records

The following represent a time line for transfers of the farm Goereesoe that could be recorded from available archival sources:

1836	Goereesoe Quitrent farm granted to Christiaan Lourens Herman, married to Maria Clementina de Wet. Granted in two portions A and B. A measuring 794 morgen and B 2990 morgen. The ravine, running east west divided the two portions.	SG Diagram 498/1836		
1857	Goereesoe 432/1 (Title Deed 335/1857) 609 morgen 489 sq.rds. J.S. de Wet and another to Petrus Johannes Uys. (No record found of when Christiaan Lourens transferred to Johannes Stephanus de Wet.)	SG Diagram 1011/1855		
1872	Goereesoe 432/1 (Title Deed 365/1872) 609 morgen 489 sq. rds P.J. Uys and 3 others to Johannes Cornelis Uys and Dirk Cornelis Uys.			
1876	Goereesoe 432/2 (Title Deed 335/1876) 1419 morgen 75 sq rds Estate de Wet and others to Johannes Cornelis Uys.	Deeds Office erf register.		
1890	Goereesoe 432/2 1419 morgen 75 sq rds Sale of portion 2 from Johannes Cornelis Uys to Pieter Langendyk.	Deeds Office erf register.		
1926	Goereesoe 432/5 (Title Deed 6853/1926) 760 morgen 200 sq. rds. This property includes portions measuring 131 sq.rds, 7 morgen 28sq rds and 753 morgen 41 sq.rds. No individual diagrams exist for the smaller portions, nor were they mentioned in the erf register in the deeds office. Estate late P.P. de Wet to Pieter de Wet Title 12631/1926. P. de Wet to Willem Jacobus de Wet. Title 17739/1955 W.J de Wet to Willem Daniel de Wet.	SG Diagram 1024/1921		
1929	Goereesoe 432/? Valuation Records (775 morgen 450 sq.rds.) Owner and occupier Phillipus de Wet	4/SWM 7/1/2/3		
	<table border="1"> <tbody> <tr> <td>Sowing lands - £150 Stables, stores - £75 Stable, wagon house - £150 Kraal - £20 Dams - £150</td> <td>Fencing - £270 Site - £2,500 Buildings - £375 Total - £3,690</td> </tr> </tbody> </table>	Sowing lands - £150 Stables, stores - £75 Stable, wagon house - £150 Kraal - £20 Dams - £150	Fencing - £270 Site - £2,500 Buildings - £375 Total - £3,690	
Sowing lands - £150 Stables, stores - £75 Stable, wagon house - £150 Kraal - £20 Dams - £150	Fencing - £270 Site - £2,500 Buildings - £375 Total - £3,690			
	Goereesoe 432/? Valuation Records (Portion 550 morgen)			

Owner and occupier Willem J. de Wet		
Sowing lands - £300 Stable - £50 Wagon House - £150 Shed - £25 Dams - £100 Fencing - £225	Boreholes - £150 Site - £1,900 Buildings - £650 Total - £3,650	
Goereesoe 432/? Valuation Records (Portion 1328 morgen)		
Owner Johannes Giliomee/ Occupier Dirk C. Giliomee		
Sowing lands - £450 Stable and wagon house - £180 Dams - £160 Fencing - £360 Site - £4,450		

7.5 Conclusions

Pre-Colonial:

Archival sources relating to pre-colonial history for the farm Goereesoe and its environs were not available. However, secondary sources suggest that the region between the Hottentots Holland Mountains and Keurbooms River included traditional grazing lands of the Hessequa and Chainouqua Khoekhoen people (Clift, 2001) and that in particular, various kraals were scattered along the southern foothills of the Riviersonderend mountains during the early eighteenth century.

Cultivation:

Census records dating back to 1821 confirm that the farm Goereesoe was cultivated (wheat, barley, oats). These records also indicate that there was a communal bailing area northeast of Goereesoe (on the neighbouring farm Klaaskaffirsheuvel, now Muurkraal).

While livestock was kept (cattle, horses, sheep and goats), the numbers kept were not considerable and appear to be more for domestic use than commercial production (Refer to Section 7.4 for detail).

Water scarcity:

Water resources were clearly always limited within the general farming community within the environs as described through one of the conditions applied on a 1837 Quitrent Title for the farm Muurkraal with reference to water rights/ usage: *“By mutual consent of theapplicants, the pools at the upper end of the Botha’s ravine marked 1,2 and 3 although separately measured and included in the different portions of the respective parties, are to be used by them in community as long as the Water lasts”*.

Slavery:

Another important historic theme is slavery. Joint owners, de Swart and de Wet families owned slaves according the 1821 census and slaves were presumably employed with caring for livestock, domestic help and other farm duties. Hottentot workers were also listed as present on the farm on the 1821 census.

Built environment:

From Surveyor General diagrams it would appear that an historic road from Swellendam traversed the property east to west and north of the ravine. The first diagram dated 1836 shows three dwelling houses along the historic road on the northern side of the ravine as well as a hut, north east of the homesteads. The location of these three homesteads appears to correlate with the location of the current ‘modern’ farmstead used by the land owner (Figure 4). The remains of the hut were not located during field work investigation. No buildings were found on diagrams for the remaining portions, but this does not mean that buildings did not exist.

From the above it is therefore evident that the farm Goereesoe and environs have significant historic associations with agriculture, cultivation and the slave trade.

8. HERITAGE RESOURCES AND ISSUES

With relation to the integrated mapping of heritage resources and/ or occurrences noted on and within the proximity of the study area please note that:

- The outcomes of archival research, archaeological investigation, analysis of built environment, cultural landscape and visual spatial issues are presented through the Integrated Heritage Resource Mapping (Annexure 5) as well as further supportive figures included in the text below where appropriate;
- Heritage resources and issues highlighted through the respective specialist inputs have been assimilated into this report. However, please also refer to the detailed mapping and visual presentations contained in these specialist reports.

8.1 Landscape setting

8.1.1 Regional landscape context

The study area is located ±34km southwest of Swellendam and ±40km northeast of Bredasdorp along the R319, an important tourism route stretching between the N2 and coastline. It is set within the wide undulating rural landscape between the Riviersonderend mountains and coastline, broadly referred to as the Overberg. This landscape has for the most part, been completely transformed through agriculture/ cultivation save for small, isolated clusters of indigenous vegetation located in steeper areas such as deep ravines or high-lying koppies, not suitable for cultivation.

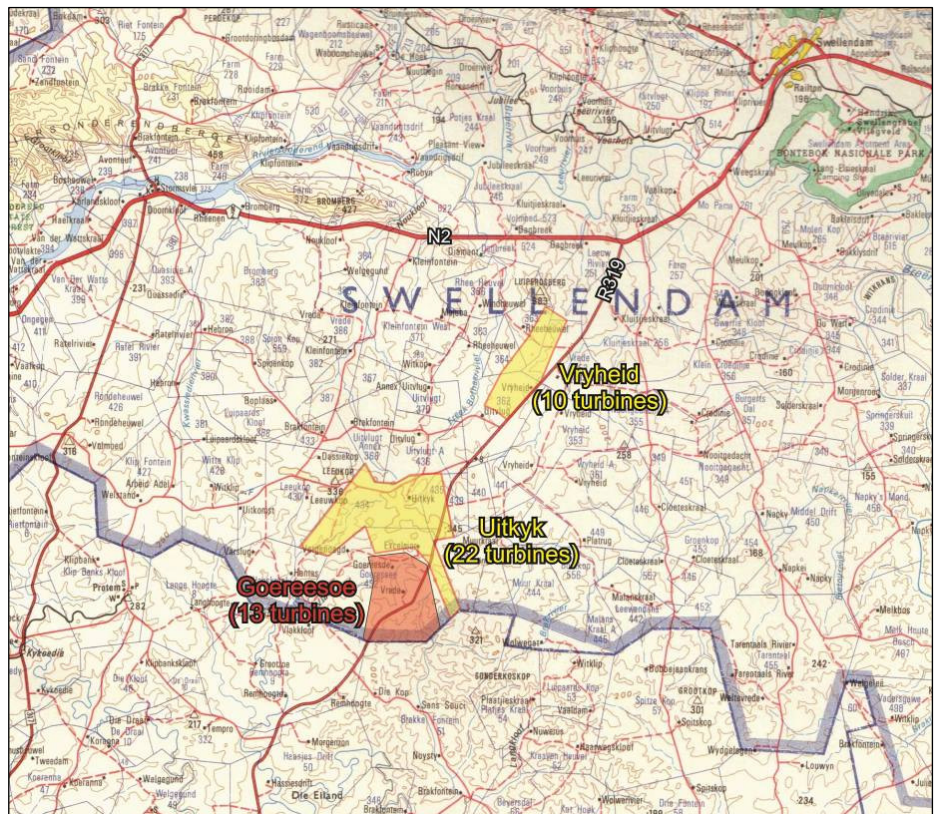


Figure 6: Location of two authorised wind farms within direct proximity of the study area

Note however that the Department of Environmental Affairs (DEA) recently authorised two wind farms within the direct proximity of the study area, which will inevitably introduce modern infrastructure and therefore alter this portion of the landscape. Details concerning permissions granted are as listed below (also refer Figure 6):

- The *Biotherm Wind Energy Project*, a 50MW facility consisting of up to 22 wind turbines was approved by the DEA on 29th September 2011 (EA 12/12/20/1798) and is situated on portions of the farm Uitkyk (also “Excelsior”) directly north of Goereesoe;
- The *Innowind Wind Energy Facility*, a max. 20MW facility consisting of up to 10 wind turbines was approved by the DEA on 2nd November 2011 (EA 12/12/20/1815) and is situated on portions of the farms Kluitjeskraal and Uitvlucht (also “Vryheid”) north of Goereesoe.

The site certainly contributes to the overall rural landscape setting along the R319 though we do not consider the landscape quality along this stretch of the road to be of the same significance as further south, closer towards the coastline. Furthermore, having regard to the nature and extent of development permitted within its direct proximity, elements within the study area contributing to the regional landscape character is considered to be of **low local aesthetic cultural significance**.

8.1.2 Cultural landscape context

The term “*cultural landscape*” refers to the imprint created on a natural landscape through human habitation and cultivation over an extended period of time. While the Cape has been inhabited for many hundreds of thousands of years (pre-colonial history) prior to Western settlement (colonial history), the nomadic lifestyles of early inhabitants are not always as evident within the landscape as the significant imprints made by humans during the last two – three hundred years and more. Unlike ancient landscapes in parts of the world where intensive cultivation over periods much longer than locally have allowed natural and cultural components of the landscape to become interwoven, landscape components within the Overberg area have not yet developed in such a manner. The fact that natural and cultural landscape components in the region is therefore more distinguished means that the cultural landscape is likely to be very vulnerable to the cumulative impact of any large-scale development.

Ultimately however, definition of a cultural landscape can be informed by the following elements, weighed through professional opinion, public values and statutory (legal) framework:

- Natural Landscape
- Public Memory
- Social History
- Historical Architecture
- Palaeontology
- Archaeology

Most of the study area falls just outside the area between Swellendam and the coastline covered by the earliest available aerial photography (Flight Survey 170/ 1942). Fortunately, a single image covers the northeast portion of the study area and provides some insight into traditional (i.e. Pre-Modern) cultural landscape patterns legible within the landscape (refer Figure 6):

Aerial survey 170 of 1942 (Figure 7):

- Image highlights strong agricultural landscape character present within this quadrant of the Goereesoe site, which is consistent with current land use pattern. Note cultivation extending right up to the easternmost property boundary of the farm;
- The early alignment of the historic road between Swellendam (to the north) and Bredasdorp/ Agulhas (to the south), winding through the landscape and traversing the site, is clearly visible in this image;
- Linear landscape features recorded during fieldwork (i.e. wind break/ rows of blue gum trees) are distinguishable in this early aerial imagery;
- At least three building precincts, the locations of which correspond with most of those recorded through field work can be seen in this image:
 - While a group of buildings are visible within the proximity of the current primary farmstead and large outbuildings, these are all modern structures except for the old outbuilding (#081) described elsewhere in this report;

- An old labourer's cottage (#080), as well as several other small structures, which no longer remain, are visible;
- All historic structures recorded as part of "Historic Bldg Precinct One" are present;
- The farmstead on the adjoining "Excelsior" property is shown.

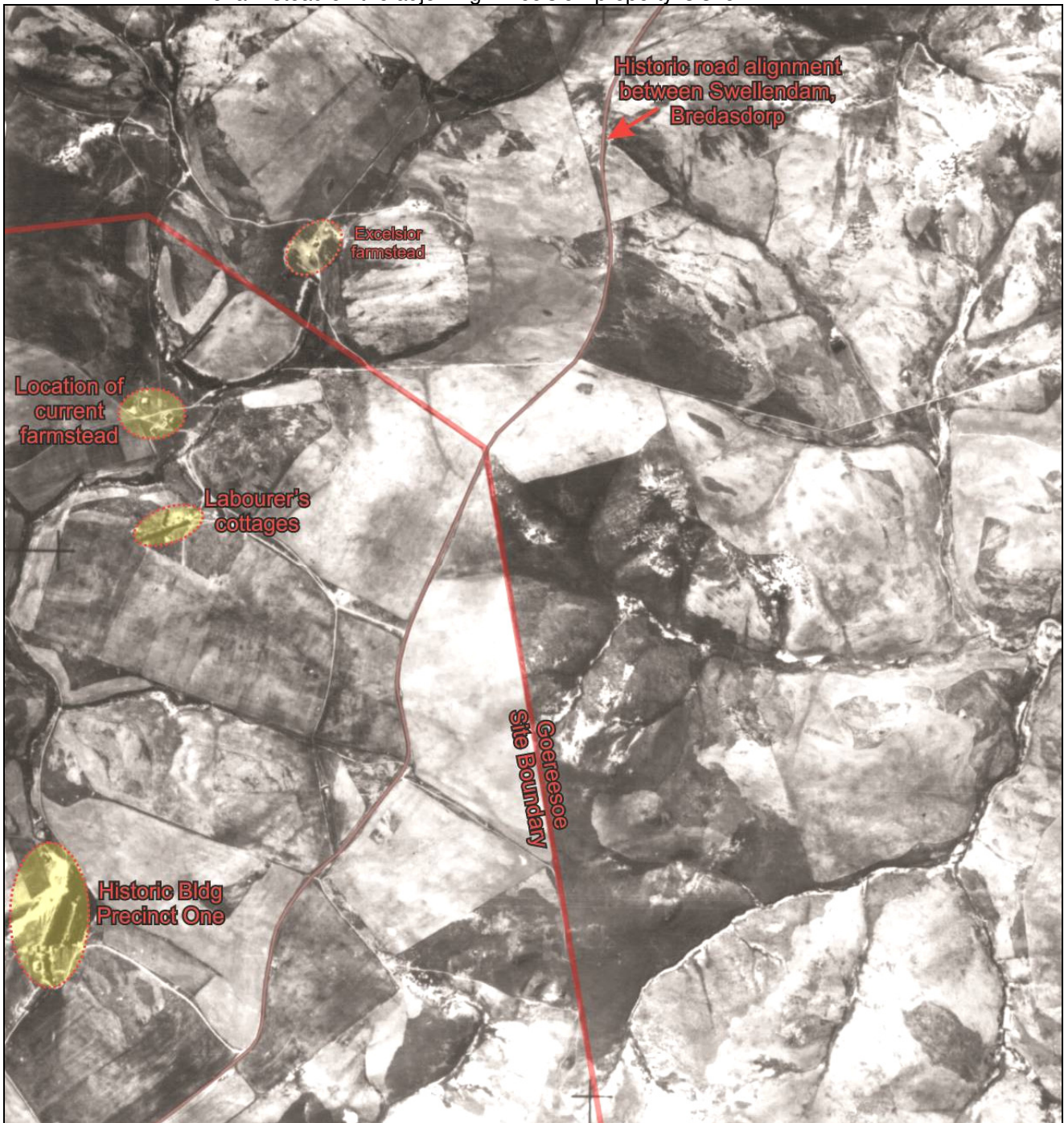


Figure 7: Only available early aerial only covering northeast portion of Goereesoe site. Note alignment of early roads and building precincts (Source: Aerial survey 170 of 1942, Flight strip 15, Image 42493, CDSM)

These site-specific land use patterns contributed to the structure and character of the present landscape within the study area over an extended period of time. In addition to the predominant agricultural landscape character of the site, the ruins of a substantial number of historic buildings remain evident within the landscape, all of which provide a sense of continuity. It is unfortunate that few of these structures were maintained and that they were allowed to become derelict (refer Section 8.2). Having regard to the above, elements

contributing to the cultural landscape character evident within the study area are considered to be of **moderate to high local historic cultural significance**.

8.2 Built environment

A number of historic buildings and structures older than 60 years, arranged in four clusters within the study area, were recorded during fieldwork and are listed in Table 1 below (also refer Integrated heritage resource mapping, Annexure 5). These clusters can be described as:

- The current (modern) farmstead with one remaining historic outbuilding;
- Labourer's cottage (abandoned) set within cluster of more recent cottages;
- Historic building precinct One including the ruins of at least six historic structures sited within the proximity of what had once been a significant farmstead;
- Historic building precinct Two including the ruins of at least seven historic structures located around what would have once been another significant farmstead.

Table 1: List of historic structures and landscape features older than 60 years recorded during fieldwork (also refer Heritage resource mapping, Annexure 5)

Bldg Precinct	GPS #	Description of Heritage Resource	Photo Ref, Annexure 3
Building Precinct One	71	Linear-planted gum trees perpendicular to R319	-
	72	Copse of blue gum trees/ wind break	-
	73	Remains old water trough	6
	74	Old livestock keep, low, flat roof with corrugated iron roof sheeting and water reservoir to side.	6
	75	Ruin of two-roomed outbuilding, pit latrine (mud brick walls, corrugated iron flat roof)	9
	76	Ruin of substantial U-shaped, single-storey farmstead with stoep to front, two entrances to attic along front facade, later additions to side and rear. Mud brick construction with pitched (corrugated iron) roofing. Former sash windows, timber flooring and timber ceilings sadly removed and building allowed to deteriorate significantly – repair probably no longer feasible. Interior of building was not accessible due to presence of bee colony.	5, 7, 8
	77	Agricultural outbuilding with pitched roof and flat-roofed addition to side as well as an attic space. Mud brick construction and corrugated iron roofing with modern extensions to rear. North-facing gable replaced, building in neglected state. Interior not accessible due to presence of bee colony. Two circular modern silo structures to side.	10 – 13
	78	Agricultural outbuilding with pitched roof and flat-roofed extensions to side. More recent but >60 yrs with corrugated iron roofing. North-facing gable replaced in same style and (most likely) during same period as for #77 above.	14, 15, 16
	78 a	Copse of blue gum trees	-
	78 b	Copse of blue gum trees	-
	79	Derelict labourer's cottage (mud brick)	18, 19
	80	Labourer's cottage older than 60 years in picturesque setting along slope and amongst row of bluegums and small dam. Pitched roof with attic and corrugated iron roofing and lean-to addition – also of corrugated iron sheeting. Small addition (bathroom) to side and previously fitted with water, electricity though now abandoned. In fair condition though requiring urgent maintenance.	20, 21, 22
	80 a	Row of blue gum trees lining approach road from R319	17
	80 b	Linear-planted blue gum trees (Y-shaped wind breaks)	-
	81	Agricultural store with kraal directly south. Mud brick construction, corrugate iron roofing, reed ceiling, still in use though in poor condition requiring urgent maintenance.	23, 24, 25
Building Precinct Two	82	Labourer's cottage, age uncertain	28
	83	Building rubble dumped on top of foundations. Location corresponds with that of former structure visible on 1942 aerial photography.	29
	84	Small ruined outbuilding set within copse of bluegum trees (mud brick construction, square with simple but quaint northeast-facing gable)	30
	85	Ruin of substantial single-storey farmstead. U-shaped but with centrally-orientated flank to rear. Stoep to front (east-facing) elevation as well as two stoeps to rear elevation. Two entrances to attic along front facade. Mud brick construction with pitched (corrugated iron) roofing. Former sash windows, timber flooring and timber ceilings sadly removed and building allowed to deteriorate significantly – restoration probably no longer feasible. Interior of building not accessible due to presence of bee colony.	33 – 36
	86	Derelict secondary homestead of simpler but similar mud-brick construction as #85. Corrugated iron roofing and attic. Poor condition though presently used as storage.	31, 32
	87	Two ruined agricultural outbuildings (mud brick construction, corrugated iron roofing) set to side of stonewalled kraal. Restoration probably no longer feasible.	37
	88	Linear-planted blue gum trees (wind break)	-
	89	Linear-planted blue gum trees (wind break)	-
	90	Linear-planted blue gum trees (wind break)	-
	91	Linear-planted blue gum trees (wind break)	-

92	Rubbish dump	-
93	Linear-planted blue gum trees (landscape framing/ wind break)	-



Figure 8: Mapping of heritage resources in Historic Bldg Precinct One (Source: GoogleEarth)



Figure 9: Mapping of heritage resources in Historic Bldg Precinct Two (Source: GoogleEarth)

Most of the historic structures noted in the table above would appear to date to roughly the same period (estimate late eighteenth century) though some were clearly altered or added at a

later stage. Details concerning former occupation or reasons for abandoning these historic structures could not be found. The high concentration and generally dilapidated condition of historic structures noted within the study area were disconcerting. Although early (1880-1890) mapping (refer Figure 5) shows the locations of three “Houses” and a “Hut”, it was unfortunately not possible to reconcile this with what remains in present day.

While unfortunately mostly ruined, the former historic farmsteads, outbuildings, labourer’s cottages and associated structures recorded within the study area are strongly associated with agriculture and therefore considered to be of **low local historic and architectural cultural significance**. The clustering, siting and orientation of these historic buildings within the landscape, taking cognisance of micro-climatic conditions and providing for linear-planting of bluegum trees serving as effective windbreaks are considered of **moderate to high local historic and aesthetic cultural significance**.

8.3 Archaeology

This Section has been transposed from the Archaeological Impact Assessment dated December 2012, compiled by *Dr. Lita Webley (ACO Associates)*, attached to this report as Annexure 6. This Section of the HIA should therefore be read in conjunction with said documents and respective appendixes. Archaeological occurrences identified in the AIA are spatially referenced in Annexure 5 (Heritage resource mapping).

8.3.1 Executive Summary

“No Early or Middle Stone Age implements or Historical archaeological material was recorded during the survey. Two Later Stone Age sites were identified. They are Site 001-005 (a single site) and Site 006. It is concluded that the position of Turbine 6 will result in the destruction of Site 001-005. This Later Stone Age (LSA) site with silcrete adzes is unusual and has been allocated a medium to high significance because of the potential information it may provide of the late Wilton period in the Southern Cape. The access road to Turbines 8, 9 and 10 passes within 10m of Site 006. As an isolated occurrence it is considered of low significance, but together with Site 001-005, may inform on LSA settlement patterns in the area.”

Table 2: Archaeological sites recorded during survey (also see Annexure 5)

Site Number	Unique Site Number	GPS Co-ordinates	Description	Significance	Mitigation (est)
001	GRS002	S34 15.937 E20 14.827	Few silcrete cores and flakes	Medium	1 hour
002	GRS003	S34 15.937 E20 14.826	LSA. Dense surface distribution of silcrete flakes, cores, 2 adzes and one retouch piece	Medium-High	2 hours
003	GRS004	S34 15.939 E20 14.823	Spread of silcrete flakes and cores	Medium	1 hour
004	GRS005	S34 15.941 E20 14.821	LSA. Collection of silcrete flakes and cores including scraper	Medium-High	2 hour
005	GRS006	S34 15.927 E20 14.821	Diffuse spread of silcrete flakes and cores	Medium	1 hour
006	GRS007	S34 16.328 E20 15.003	Diffuse spread of silcrete cores and chunks next to two large boulders	Low	1 hour

Based on results from the current study it is recommended that;

- *“Turbine 6 may be moved away from the koppie and further into the field. The full extent of the archaeological site at this location needs to be determined and marked off, to ensure that it is not impacted during construction. Alternatively, the site may be sampled by an archaeologist. Since there is no evidence of any depth of deposit, surface collections may be sufficient but the full extent of the site needs to be determined, mapped and artefacts collected for analysis back in the laboratory. This will require a permit issued by Heritage Western Cape.*
- *Avoidance of Site 006 is not possible as the access road follows a steeply sided hill and mitigation will be required. Alternatively a new road will have to be constructed.*
- *If any unmarked graves or human remains are uncovered during the construction of the site, work should stop in that area and Heritage Western Cape must be notified.*

- *If, in the opinion of ACO Associates, there are any significant changes to the layout of the Goereesoe Wind Farm as presented through this HIA, further archaeological survey work may be necessary”.*

Table 3: Summary of likely impacts on pre-colonial archaeology

Nature: Disturbance and destruction of pre-colonial archaeological material by turbine footings, sub-stations, access roads and power lines		
	Without Mitigation	With Mitigation
Extent	Regional (3)	Local (2)
Duration	Permanent (5)	Permanent (5)
Magnitude	Moderate (5)	Minor (2)
Probability	Highly Probable (4)	Improbable (2)
Significance	Medium < 52	Low < 30
Status (positive or negative)	Negative	Neutral
Reversibility	No	No
Irreplaceable loss of resources?	Yes (Site 001-005) at Turbine 6.	No
Can impacts be mitigated?	Yes	
Mitigation: There are two alternatives to conserving the archaeological sites recorded during the survey. Turbine 6 may be moved further into the field and away from the koppie. This will ensure the site is not impacted at all. Alternatively, the site is sampled by an archaeologist/s with a permit issued by Heritage Western Cape. The estimated number of hours for mitigation is provided in Table 1. With regard Site 006, it will not be possible to move the access road as it is located on a steeply sloping hillside. Mitigation in the form of archaeological sampling is the only alternative. The number of hours for mitigation is provided in Table 2 above.		
Cumulative impacts: The cumulative impact is not likely to differ from the above.		
Residual impacts: N/A		

8.4 Palaeontology

This Section has been transposed from the Palaeontological Impact Assessment (Desktop PIA) compiled by *Dr. John Almond*, attached to this report as Annexure 7, and should therefore be read in conjunction with said document and its appendixes.

8.4.1 Introduction

“The gently undulating landscape in the study area is largely underlain by Early to Middle Devonian sediments of the Bokkeveld Group (Ceres and Bidouw Subgroups). These marine to estuarine rocks were probably highly fossiliferous originally, containing rich assemblages of shelly invertebrates and trace fossils, as well as drifted land plant remains, fish and microfossils. However, on the southern coastal plain their fossil content has been largely destroyed by intense tectonic deformation during the Permo-Triassic Cape Orogeny (mountain-building event) as well as by deep chemical weathering beneath the so-called “African Surface” under humid tropical climates during the Late Cretaceous to Tertiary period. Exposure of these Palaeozoic rocks is very limited due to extensive cover by superficial sediments (mainly pedocrete lag gravels, soils, alluvium) that are themselves very poorly fossiliferous to unfossiliferous. A variety of Paleogene (Early Tertiary) to Quaternary duricrusts - tough, secondarily cemented superficial deposits (soils, gravels etc), including silcretes and ferricretes of the Grahamstown Formation as well as younger calcretes - are present in the study area, but are also largely unfossiliferous. Recent palaeontological field studies in the region have failed to yield significant fossil remains, apart from sparse, low-diversity trace fossils”.

8.4.2 Conclusions

“Because the sedimentary rocks in the Goereesoe wind farm study area are either poorly fossiliferous, or their original fossil content has been largely destroyed by tectonic deformation and weathering, it is concluded that the proposed wind farm development will have a very low impact on the very limited local fossil heritage, whether during the construction phase or later. No further specialist studies or mitigation of palaeontological heritage for this project are recommended. However, should substantial fossil remains be exposed during development, the responsible ECO should alert Heritage Western Cape so that appropriate mitigation measures may be considered. Mitigation in the form of fossil recording and collection will have a positive impact on our appreciation of local fossil heritage.”

8.5 Visual – Spatial Issues

This Section has been transposed from the Visual Impact Assessment (VIA) compiled by MetroGIS (Pty) Ltd, attached to this report as Annexure 8, and should therefore be read in conjunction with said document and its appendixes.

8.5.1 Summary of potential Visual Impacts

“The following is a summary of impacts remaining, assuming mitigation as recommended is exercised:

- *The potential visual impact of the facility on observers travelling along arterial and secondary roads in close proximity to the proposed facility (i.e. within 8km) will be of high significance;*
- *The anticipated visual impact on residents of settlements and homesteads within an 8km radius of the proposed facility will be of high significance;*
- *Within the greater region (i.e. beyond 8km from the proposed facility), the potential visual impact on sensitive visual receptors (i.e. users of roads and residents of settlements and homesteads) will be of moderate significance;*
- *In terms of ancillary infrastructure, the anticipated visual impact of the access roads, workshop / office and substation will be of low significance. The anticipated visual impact of the proposed power lines will be of moderate significance in close proximity to the proposed facility;*

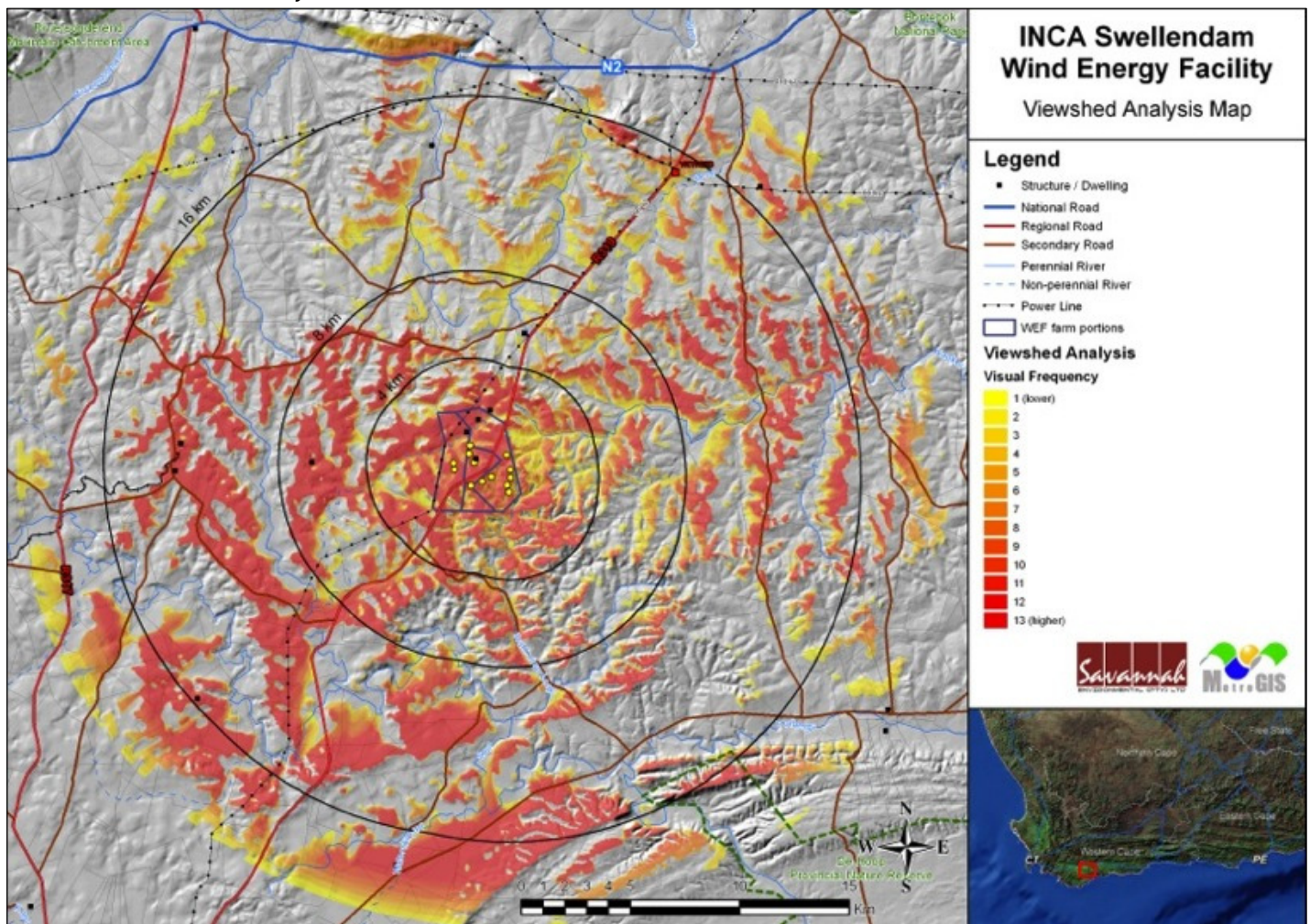


Figure 10: Potential visual exposure of the proposed Goereesoe Wind Farm (Source: Map 4, VIA, MetroGIS, Nov 2012)

- *Anticipated visual impacts related to lighting and shadow flicker will be of moderate significance;*
- *The visual impact of construction is expected to be of low significance;*

- *In terms of secondary visual impacts, the significance of the anticipated impact on the visual character and sense of place of the region will be of moderate significance;*
- *In terms of secondary visual impacts, the significance of the anticipated impact on tourist routes and tourist destinations will be of low significance, as will the anticipated impact on;*
- *The visual impact on conservation areas within the region is also likely to be of low significance.*

The anticipated visual impacts listed above (i.e. post mitigation impacts) are mostly of moderate or low significance. Anticipated visual impacts on sensitive receptors in close proximity to the proposed facility remain high, but are, nonetheless not considered to be fatal flaws for the proposed GWF.

The main consideration in this regard is the small scale of the proposed GWF and the fact that limited tourist routes, coastal holiday towns and conservation areas are likely to be affected.

In addition, the anticipated visual impacts of high significance (i.e. where high frequencies of visual exposure correspond with sensitive visual receptors) are quite limited in extent.

Considering all factors, it is recommended that the development of the facility as proposed be supported, subject to the implementation of the recommended mitigation measures (Chapter 5.9) and management programme (Chapter 9).

Where sensitive visual receptors are likely to be affected (i.e. residents of farmsteads in close proximity), it is recommended that the developer enter into negotiations regarding the potential screening of visual impacts at the receptor site. This may entail the planting of vegetation, trees or even the construction of screens. Ultimately, visual screening is most effective when placed at the receptor itself.”

8.5.2 Mitigation measures

“While the overall potential for mitigation is generally considered low or non-existent, the following mitigation is recommended:

- *That vegetation cover (i.e. either natural or cultivated) be maintained in all areas outside of the actual development footprint, both during construction and operation of the proposed facility. This will minimise visual impact as a result of cleared areas, power line servitudes and areas denuded of vegetation.*
- *Existing roads should be utilised wherever possible. New roads should be planned taking due cognisance of the topography to limit cut and fill requirements. Construction / upgrade of roads should be undertaken properly, with adequate drainage structures in place to forego potential erosion problems.*
- *In terms of on-site ancillary buildings, it is recommended that the substation and workshop / office be planned so that clearing of vegetation is minimised. This implies consolidating this infrastructure as much as possible and making use of already disturbed areas rather than undisturbed sites wherever possible.*
- *The Civil Aviation Authority (CAA) prescribes that aircraft warning lights be mounted on the turbines. However, it is possible to mount these lights on the turbines representing the outer perimeter of the facility. In this manner, fewer warning lights can be utilised to delineate the facility as one large obstruction, thereby lessening the potential visual impact.*
- *Mitigation of other lighting impacts includes the pro-active design, planning and specification lighting for the facility. The correct specification and placement of lighting and light fixtures for the proposed GWF and ancillary infrastructure will go far to contain rather than spread the light. Mitigation measures include the following:*
 - *Shielding the sources of light by physical barriers (walls, vegetation, or the structure itself);*
 - *Limiting mounting heights of lighting fixtures, or alternatively using foot-lights or bollard level lights;*
 - *Making use of minimum lumen or wattage in fixtures;*
 - *Making use of down-lighters, or shielded fixtures;*
 - *Making use of Low Pressure Sodium lighting or other types of low impact lighting.*

- *Making use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes.*
- *Mitigation of visual impacts associated with the construction phase, albeit temporary, would entail proper planning, management and rehabilitation of the construction site. Recommended mitigation measures include the following:*
 - *Ensure that vegetation is not unnecessarily cleared or removed during the construction period.*
 - *Reduce the construction period through careful logistical planning and productive implementation of resources.*
 - *Plan the placement of lay-down areas and any potential temporary construction camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible.*
 - *Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.*
 - *Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.*
 - *Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).*
 - *Restrict construction activities, whenever possible, to daylight hours in order to negate or reduce the visual impacts associated with lighting.*
 - *Rehabilitate all disturbed areas, construction areas, roads, slopes etc immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications.*
- *During operation, the maintenance of the turbines and ancillary structures and infrastructure will ensure that the facility does not degrade, thus aggravating visual impact.*
- *Roads must be maintained to forego erosion and to suppress dust, and rehabilitated areas must be monitored for rehabilitation failure. Remedial actions must be implemented as and when required.*
- *Once the facility has exhausted its life span, the main facility and all associated infrastructure not required for the post rehabilitation use of the site should be removed and all disturbed areas appropriately rehabilitated. An ecologist should be consulted to give input into rehabilitation specifications.*
- *All rehabilitated areas should be monitored for at least a year following decommissioning, and remedial actions implemented as and when required.*
- *Secondary impacts anticipated as a result of the proposed GWF (i.e. visual character and sense of place) are not possible to mitigate. There is also no mitigation to ameliorate the negative visual impacts on tourist routes, tourist destinations and conservation areas within the region.*
- *Where sensitive visual receptors are likely to be affected, it is recommended that the developer enter into negotiations regarding the potential screening of visual impacts at the receptor site. This may entail the planting of vegetation, trees or event the construction of screens. Ultimately, visual screening is most effective when placed as close to the receptor self."*

The VIA contains detailed management programme tables aimed at (a) summarising key findings of the visual impact report and (b) to suggest possible management actions with relation to the Planning, Construction, Operational and Decommissioning Phases of the project, in order to mitigate the potential visual impacts (Refer Section 9 of VIA).

9. HERITAGE INFORMANTS AND INDICATORS

According to the requirements of Section 38(3) of the NHRA it is crucial that the land use planning and EIA processes be informed by and incorporate heritage informants and indicators as done through the mapping and grading of relevant heritage resources in Section 8 of this report. It is the purpose of this Section to define heritage informants and indicators pertaining to the way in which heritage resources must be incorporated into the overall design of the

proposed development and should therefore be read in conjunction with Annexure 5 (Integrated heritage resource mapping).

9.1 Landscape issues (Regional, Cultural)

- Given recent approval of the 22 turbine 50MW Biotherm WEF and 10 turbine 20MW Innwind WEF, both directly north of the study area, the potential cumulative impact of similar developments, particularly from a regional landscape perspective as well as local cultural landscape perspective, need to be assessed;
- The R319 is considered a tourist route and the proposed development is likely to be highly visible for a section of this road to traffic north and southbound. Some modification of the overall rural landscape character along a section of this road is therefore inevitable and would need to be assessed;
- Elements identified within the study area as being part of the cultural landscape (e.g. treelines, bluegums, landscape framing, wind breaks) shall be retained and adequate setbacks be allowed for.

9.2 Historic themes

- Available primary archival sources indicate that the farm Goereesoe and its environs have significant historic associations with agriculture, cultivation and slavery and the way in which these themes would be acknowledged through the proposed development need to be assessed.

9.3 Built environment

- The proposed development shall provide for adequate setbacks from all historic structures and the two historic building precincts;
- The registered property owner shall retain historic buildings worthy preservation and ensure restoration of historic building nos. 81, 82 and 86 listed in Table 1, Section 8.2 of this report in accordance with Section 34 of the NHRA;
- Accurate measured drawings, including ground floor plans, elevations and photographic record of each historic building precinct shall be compiled and submitted to Heritage Western Cape prior to the commencement of the development.

9.4 Visual-spatial issues

- Detailed Mitigation measures set out in Section 5.9 of the VIA as well as Management Programme set out in Section 9 of the VIA (also refer Section 8.5.2 of this report) shall be implemented as part of the proposed development.

9.5 Archaeology

- Turbine 6 may be moved away from the koppie and further into the field. The full extent of the archaeological site needs to be determined and marked off, to ensure that it is not impacted during construction. Alternatively, the site may be sampled by an archaeologist. Since there is no evidence of any depth of deposit, surface collections may be sufficient. The full extent of the site needs to be determined, mapped and artefacts collected for analysis back in the laboratory. This will require a permit issued by Heritage Western Cape;
- Avoidance of Site 006 is not possible as the access road follows a steeply sided hill and mitigation will be required. Alternatively a new road will have to be constructed;
- In the event of exposing human remains during construction, the matter will fall into the domain of Heritage Western Cape (021 483 9685) or the South African Heritage Resources Agency (021 462 4502) and will require a professional archaeologist to undertake mitigation if needed.

9.6 Palaeontology

- The ECO responsible for the development should be alerted to the possibility of fossils being found on the surface or exposed by fresh excavations during construction. Should substantial fossil remains be discovered during construction, these should be safeguarded (preferably in situ) and the ECO should alert Heritage Western Cape so that appropriate mitigation (e.g. recording, sampling or collection) can be taken by a professional palaeontologist. The specialist involved would require a collection permit from Heritage

Western Cape. Fossil material must be curated in an approved repository (e.g. museum or university collection) and all fieldwork and reports should meet the minimum standards for palaeontological impact studies developed by SAHRA. These recommendations should be incorporated into the EMP for the Goereesoe Wind Energy Project.

10. PUBLIC PARTICIPATION

In addition to the Public Participation Process (PPP) facilitated by *Coastal Environmental Services* as part of the EIA Process in terms of the National Environmental Management Act, 1998 (Act 107 of 1998), *Perception Heritage Planning* engaged with the following local conservation body:

- Swellendam Heritage Association
PO Box 349
SWELLENDAM
6740
Attention: Danie de Wet (Chairman), Penny Pistorius

Said conservation body was provided with a digital copy of the Draft Integrated HIA, including respective specialist inputs, via registered mail and be invited to submit to us **heritage-related comments** regarding the proposal within a period of 30 calendar days from date of registration (proof of PPP attached as Annexures 9.1 and 9.2). **No comments were submitted to us as part of the above PPP.**

A further Public Participation Process will be invoked through the Land Use Planning Ordinance, 1985 (Ord. 15 of 1985) as part of the land use planning application to be submitted to Swellendam Municipality in due course.

11. ASSESSMENT OF IMPACTS

This Section serves to assess conformity of the proposed Layout Option 2 (Preferred Alternative, Annexure 4) to the key heritage design informants and indicators identified in Sections 9 and 10 above. Where possible, each indicator has been assessed individually for ease of reference. A comparative analysis of the perceived significance of impacts on heritage resources is attached as Annexure 11 to this report.

11.1 Indicators relating to Landscape issues (Regional, Cultural)

a.) **INDICATOR LA-1:** *Cumulative impact of similar development within proximity of study area from regional landscape perspective (both alternatives).*

Assessment:

From a regional landscape perspective, the study area forms part of a rural landscape well south of Swellendam though not visible from this town or the N2 National Road. Development of a wind farm on the study area would have an impact on the rural landscape character of the site and its environs – irrespective of which alternative layout is implemented. However, in addition to the anticipated visual impact of the approved Innowind and Biotherm wind farms directly adjoining, approval of another wind farm is therefore likely have some cumulative impact. The risk of space crowding (high spatial density of impacts on a rural environment) of wind developments in the region does exist if they all reach an operational state.

However, taken in conjunction with permitted development within the direct environs of the site and furthermore do not consider the landscape quality along this stretch of the road to be of the same significance as e.g. further south, closer towards the coastline. The regional landscape character is considered to be of **low local aesthetic cultural significance**.

A moderate cumulative impact is expected, although there are large uncertainties involved in the cumulative impact assessment since the effect of large wind farms on the South African landscape is still unknown (Moderate impact).

b.) INDICATOR LA-2: *Impact of the proposed wind farm on the rural landscape character along the R319 (a tourism route) must be assessed (both alternatives).*

Assessment:

Views of the proposed wind farm would be possible from a section along the R319 (north and southbound), irrespective of which alternative layout option is implemented. The severity of this anticipated impact is likely to be only marginally less with the Alternative Layout Two (13 turbines) than with Alternative Layout One (10 to 20 turbines) but either layout would ultimately alter the landscape character of the study area.

Taken in conjunction with two similar developments authorised directly north of the study area, we do not believe that the impact of the subject proposal would significantly exacerbate same impacts that may be expected from the already approved wind farms. It is however recommended that the detailed Mitigation measures and Management plan set out in the VIA be implemented as part of the proposed development.

At least partial views of all the proposed turbines would be possible for traffic north and southbound for a distance of up to c. 20km north and south of the study area, though findings from the VIA indicate that views from the N2 would not be possible. We do not consider this impact warrants refusal of the proposed development (Moderate impact).

c.) INDICATOR LA-3: *Elements identified within the study area as being part of the cultural landscape shall be retained and adequate setbacks be allowed for.*

Assessment:

None of the tangible heritage resources forming part/ defining the local cultural landscape, including bluegum tree lines/ wind breaks/ landscape framing or historic structures would be impacted through either one of the alternative layout options put forward. It is imperative that all landscape features mapped as part of this Integrated HIA (Annexure 5) be retained.

Both Alternative Layouts One and Two adequately addresses this indicator (Neutral impact).

11.2 Indicators relating to Historic themes

a.) INDICATOR HT-1: *Historical background research highlights associations between the study area and agriculture, cultivation and slavery. The manners in which these historical themes would be acknowledged through the proposed development needs to be assessed.*

Assessment:

Dutch census records from 1816 onwards (earlier records not available or water damaged) indicate that slaves were used as labourers and sold/ transferred by early colonial occupant of Goereesoe. Hottentot workers were also listed as present on the farm on the 1821 census. However, due to insufficient information, it is not possible to spatially relate this information to a specific portion of the study area and therefore this aspect is not as easy to acknowledge as with the agricultural/ cultivation theme, which is still practised to present day.

Consideration should be given to display the finding of research arising from early census records pertaining to the farm Goereesoe in a meaningful manner in the Office proposed to be constructed as part of the proposed development (Condition of approval).

11.3 Indicators relating to Built environment issues

a.) INDICATOR BE-1: *Proposed development shall provide for adequate setbacks from all historic structures and the two historic building precincts.*

Assessment:

None of the tangible (built environment) heritage resources situated within the study area would be impacted through either one of the alternative layout options put forward. It is imperative that all built environment elements mapped as part of this Integrated HIA (Annexure 5) be retained.

Both Alternative Layouts One and Two adequately addresses this indicator (Neutral impact).

b.) INDICATOR BE-2: *Registered property owner shall retain historic buildings worthy preservation and ensure restoration of historic building nos. 81, 82 and 86 listed in Table 1, Section 8.2 of this report.*

Assessment:

The registered property owner is obliged in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999) to retain and maintain all structures other than 60 years situated on land owned by such owner. The high concentration of historic structures (former farmsteads, labourer's cottages and associated outbuildings) within the study area that have been allowed to significantly deteriorate and most of which are now in a dilapidated condition, of concern.

The registered property owner shall retain historic buildings worthy preservation and ensure restoration of historic building nos. 81, 82 and 86 listed in Table 1, Section 8.2 of this report in accordance with Section 34 of the NHRA to the satisfaction of Heritage Western Cape (Condition of approval).

c.) INDICATOR BE-3: Accurate measured drawings, including ground floor plans, elevations and photographic record of each historic building precinct shall be compiled and submitted to Heritage Western Cape prior to the commencement of the development.

Assessment:

Following from Indicator BE-2, this heritage indicator is intended as a condition of approval.

Accurate measured drawings, including ground floor plans, elevations and photographic record of each historic building precinct shall be compiled to the satisfaction of Heritage Western Cape prior to the commencement of the development (Condition of approval).

11.4 Indicators relating to Visual-Spatial issues

Detailed Mitigation measures set out in Section 5.9 of the VIA as well as Management Programme set out in Section 9 of the VIA (also refer Section 8.5.2 of this report) shall be implemented as part of the proposed development.

11.5 Indicators relating to Archaeology

All recommendations contained in AIA, as summarised in Section 9.5 of this HIA report shall be adhered to, subject to any amendments to the significance assessment and heritage indicators that may be required by the findings of recommended mitigation during archaeological mitigation as recommended.

11.6 Indicators relating to Palaeontology

Recommendations contained in PIA, as summarised in Section 9.6 of this HIA report shall be adhered to, subject to any amendments to the significance assessment and heritage indicators that may be required by the findings of recommended mitigation during construction (i.e. possible fossil finds).

11.7 Summary/ Recommended conditions of approval

From the assessment set out in this Section, we conclude that while the proposed wind energy facility would have an impact on the rural landscape character of the area it would not have any impact on the built environment or palaeontological resources. It would have an impact on pre-colonial archaeological for which appropriate mitigation would be required as recommended in the AIA.

Alternative Layout Two, which is the preferred alternative, is recommended as this layout have been developed through inputs obtained through the EIA process thus far and because this 13 turbines are proposed as opposed to up to 20 turbines with Alternative Layout One. Purely based on the number of turbines proposed, we are of the view that the overall impact of the first alternative layout would be more than that of the second.

Therefore, having regard to the detailed analysis and finding with relation to the potential impact of the proposed wind energy facility on heritage resources on the study area and its environs, we

are of the view that the proposal may be supported, subject to the conditions summarised in the table below:

Indicator Ref	Recommended HWC Conditions of Approval
HT-1	<i>Consideration should be given to display the finding of research arising from early census records pertaining to the farm Goereesoe in a meaningful manner in the Office proposed to be constructed as part of the proposed development.</i>
BE-2	<i>The registered property owner shall retain historic buildings worthy preservation and ensure restoration of historic building nos. 81, 82 and 86 listed in Table 1, Section 8.2 of this report in accordance with Section 34 of the NHRA to the satisfaction of Heritage Western Cape.</i>
BE-3	<i>The registered property owner shall retain historic buildings worthy preservation and ensure restoration of historic building nos. 81, 82 and 86 listed in Table 1, Section 8.2 of this report in accordance with Section 34 of the NHRA to the satisfaction of Heritage Western Cape.</i>
VS-1	<i>Detailed Mitigation measures set out in Section 5.9 of the VIA as well as Management Programme set out in Section 9 of the VIA (also refer Section 8.5.2 of this report) shall be implemented as part of the proposed development.</i>
AIA-1	<i>All recommendations contained in AIA, as summarised in Section 9.5 of this HIA report shall be adhered to, subject to any amendments to the significance assessment and heritage indicators that may be required by the findings of recommended mitigation during archaeological monitoring.</i>
PIA-1	<i>Recommendations contained in PIA, as summarised in Section 9.6 of this HIA report shall be adhered to, subject to any amendments to the significance assessment and heritage indicators that may be required by the findings of recommended mitigation during construction (i.e. possible fossil finds).</i>

12. RECOMMENDATIONS

Having regard to the above assessment, it is recommended:

- 12.1 That this report fulfils the requirements of a Heritage Impact Assessment (HIA);
- 12.2 That Alternative Layout 2 (Preferred Alternative) be accepted and that the recommendations set out in Sections 8, 9 and reiterated through Section 11 of this Integrated HIA be incorporated into the proposed development and that the National Department of Environmental Affairs (DEA) be informed accordingly.

PERCEPTION Heritage Planning

8th April 2013



SE DE KOCK

B-Tech (TRP) EIA Mgmt (IRL) Pr Pln MAPHP