Archaeological Scoping Report for The Proposed Castle Wind Energy Facility Near De Aar, Northern Cape Province

Prepared For

Savannah Environmental (Pty) Ltd

By

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VERSION 1.0

26 AUGUST 2013

ACKNOWLEDGEMENT OF RECEIPT

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I, Jaco van der Walt as duly authorised representative of Heritage Contracts and Archaeological Consulting CC, hereby confirm my independence as a specialist and declare that neither I nor the Heritage Contracts and Archaeological Consulting CC have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Savannah Environmental was appointed as Environmental Assessment practitioner, other than fair remuneration for work performed on this project.

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EXECUTIVE SUMMARY

Site name and location: Castle Wind Farm (Pty) Ltd has identified a site near De Aar within the Emthanjeni Local Municipality (Northern Cape Province) for the establishment of a wind energy facility. The wind energy facility will be referred to as the "Castle Wind Energy Facility". The site is located 28 km north-east of De Aar and 22 km south-west of Philipstown. The wind energy facility is proposed to be located on the following farm portions:

» Portion 12 of Farm 165 (Vendussie Kuil)
» portions 13 of Farm 165 (Vendussie Kuil)
» The Remaining Extent of Portion 0 of Farm 8 (Knapdaar)

1: 50 000 Topographic Map: 3024 CB

EIA Consultant: Savannah Environmental (Pty) Ltd.

Developer Castle Wind Farm (Pty) Ltd
Heritage Consultant: Heritage Contracts and Archaeological Consulting CC (HCAC).

Contact person: Jaco van der Walt Tel: +27 82 373 8491 E –mail jaco.heritage@gmail.com.

Date of Report: 26 August 2013

Findings of the Assessment:

Based on research done for this scoping, sites of paleontological and archaeological significance can be expected in the study area. Heritage resources are unique and non-renewable and as such any impact on such resources must be seen as significant. However based on the scoping report no red flags are expected for the proposed development and any heritage finds should be mitigatable.

Field confirmation through an archaeological walk down and palaeontological study covering the areas to be impacted should be conducted as part of the EIA process.

Disclaimer: *Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Heritage Contracts and Archaeological Consulting CC and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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- The results of the project;
- The technology described in any report

Recommendations delivered to the Client.

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Annexure A – Paleontological Desktop Study

ABBREVIATIONS

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMP: Environmental Management Plan
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

**Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

GLOSSARY

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (2 million to 300 000 years ago)

Middle Stone Age (300 000 to 30 000 years ago)

Late Stone Age (30 000 years ago until recent)

Historic (approximately AD 1840 to 1950)

Historic building (over 60 years old)

Lithics: Stone Age artefacts

1. INTRODUCTION

Heritage Contracts and Archaeological Consulting CC was contracted by Savannah (Pty) Ltd to conduct a Heritage Scoping report for the Castle Wind energy Facility and associated infrastructure. Castle Wind Farm (Pty) Ltd has identified a site near De Aar within the Emthanjeni and Renosterberg Local Municipality (Northern Cape Province) for the establishment of a wind energy facility. The wind energy facility will be referred to as the "Castle Wind Energy Facility". The purpose of the proposed wind energy facility is to sell the electricity generated to Eskom under the Renewable Energy Independent Power Producers (IPP) Procurement Programme. The IPP Procurement Programme has been introduced by the Department of Energy (DoE) to promote the development of renewable power generation facilities (derived from) by IPPs in South Africa. The heritage scoping report forms part of the scoping phase of the EIA for the proposed project.

The aim of this scoping report is to conduct a desktop study to identify possible heritage resources within the project area and to assess their importance within a Local, Provincial and National context. The study furthermore aims to assess the impact of the proposed project on non - renewable heritage resources and to submit appropriate recommendations with regards to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage legislation.

The report outlines the approach and methodology utilized for the Scoping phase of the project. The report includes information collected from various sources and consultations. Possible impacts are identified and mitigation measures are proposed in the following report. It is important to note that no field work was conducted as part of the scoping phase but will be conducted as part of the Impact Assessment phase of the EIA.

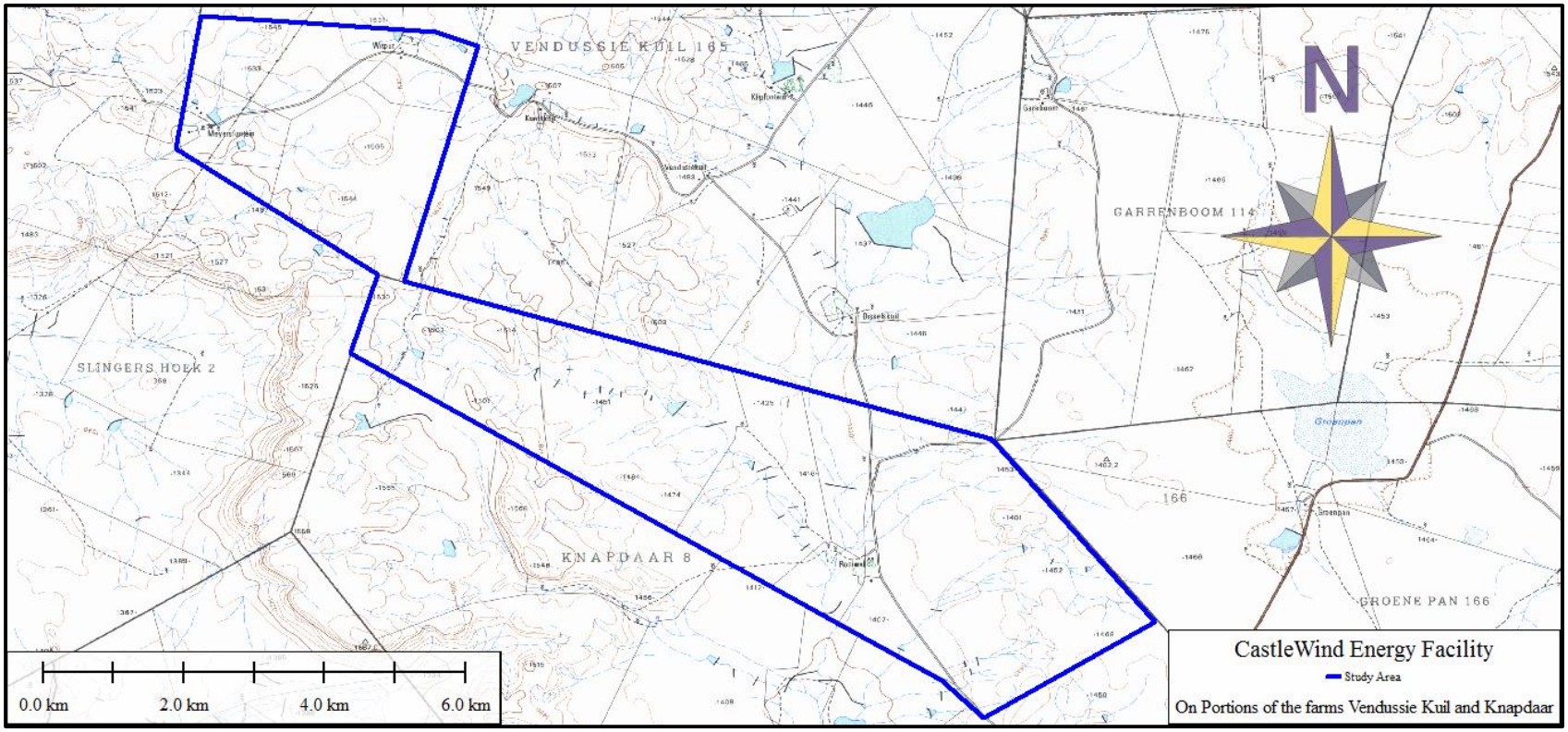

Figure 1: Location Map of the Castle Project.

1.2 Terms of Reference

The main aim of this scoping report is to determine if any known heritage resources occur within the study area and to predict the occurrence of any possible heritage significant sites that might present a fatal flaw to the proposed project. The objectives of the scoping report were to:

- Conduct a desktop study:
    - Review available literature, previous heritage studies and other relevant information sources to obtain a thorough understanding of the archaeological and cultural heritage conditions of the area;
    - Gather data and compile a background history of the area;
    - Identify known and recorded archaeological and cultural sites;
    - Determine whether the area is renowned for any cultural and heritage resources, such as Stone Age sites, Iron Age sites, informal graveyards or historical homesteads.
- Report

The reporting of the scoping component is based on the results and findings of the desk-top study, wherein potential issues associated with the proposed project will be identified, and those issues requiring further investigation through the IA Phase highlighted. Reporting will aim to identify the anticipated impacts, as well as cumulative impacts, of the operational units of the proposed project activity on the identified heritage resources for all 3 development stages of the project, i.e. construction, operation and decommissioning. Reporting will also consider alternatives should any significant sites be impacted on by the proposed project. This is done to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage Legislation.

1.3 Nature of the development

The facility will comprise up to 38 wind turbines with a generating capacity of up to 3.5MW each, with a hub height of up to 100m and a rotor diameter of up to 112m (i.e. each blade is approximately 56m in length). The entire facility would have a capacity of up to 133 MW.

The typical infrastructure associated with the wind energy facility includes:

- Wind turbines.
- Concrete foundations to support each turbine

- Cabling between turbines, to be laid underground where practical, this will connect to an on-site substation.
- An on-site substation to facilitate the connection between the wind energy facility and the electricity grid.
- A 132 kV overhead power line to connect into the authorised Ilanga Lethemba Substation, near De Aar.
- Internal access roads to each turbine to link the wind turbines and other infrastructure on the site. Existing roads will be used as far as possible.
- Workshop area / office for control, maintenance and storage.

1.4 The receiving environment

The proposed project development site is located in the Northern Cape 28 km north-east of De Aar and 22 km south-west of Philipstown. The wind energy facility is proposed to be located on the following farm portions:

» Portion 12 & 13 of Farm 165 (Vendussie Kuil)

» The Remaining Extent of Portion 0 of Farm 8 (Knapdaar)

The proposed project is situated on the plateau of the mountain ranges to the east of de Aar (Figure 2). The area is rugged and falls within the bioregion described by Mucina *et al* (2006) as the Upper Karoo Bioregion with the vegetation described as Northern Upper Karoo. Land use in the general area is characterized by agriculture, dominated by sheep farming.

Figure 2: Google image of the study area.

2. APPROACH AND METHODOLOGY

The assessment is to be undertaken in two phases, a desktop study as part of the Scoping phase and an Archaeological Impact Assessment as part of the Environmental Impact Assessment phase. This report concerns the scoping phase. The aim of the scoping phase is to cover archaeological and cultural heritage data available to compile a background history of the study area. In order to identify possible heritage issues or fatal flaws that should be avoided during development.

This was accomplished by means of the following phases (the results are represented in section 4 of this report):

2.1 Literature search

Utilising data for information gathering stored in the archaeological database at Wits University, published articles on the archaeology and history of the area. The aim of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves of the area.

2.2 Information collection

The SAHRA report mapping project (Version 1.0) and SAHRIS was consulted to further collect data from CRM practitioners who undertook work in the area to provide the most comprehensive account of the history of the area where possible.

2.3 Public consultation

No public consultation was conducted during this phase.

2.4 Google Earth and mapping survey

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological sites might be located.

2.5 Genealogical Society of South Africa

The database of the genealogical society was consulted to collect data on any known graves in the area.

3. LEGISLATION

For this project the National Heritage Resources Act, 1999 (Act No. 25 of 1999) is of importance and the following sites and features are protected:

a. Archaeological artefacts, structures and sites older than 100 years
b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
c. Objects of decorative and visual arts
d. Military objects, structures and sites older than 75 years
e. Historical objects, structures and sites older than 60 years
f. Proclaimed heritage sites
g. Grave yards and graves older than 60 years
h. Meteorites and fossils
i. Objects, structures and sites or scientific or technological value.

The national estate that includes the following:

a. Places, buildings, structures and equipment of cultural significance
b. Places to which oral traditions are attached or which are associated with living heritage
c. Historical settlements and townscapes
d. Landscapes and features of cultural significance
e. Geological sites of scientific or cultural importance
f. Archaeological and palaeontological importance
g. Graves and burial grounds
h. Sites of significance relating to the history of slavery
i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

Section 34 (1) of the act deals with structures which is older than 60 years. Section 35(4) of this act deals with archaeology, palaeontology and meteorites. Section 36(3) of the National Heritage Resources Act, deals with human remains older than 60 years. Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

3.1 Heritage Site Significance and Mitigation Measures

The presence and distribution of heritage resources define a Heritage Landscape. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. National and Provincial Monuments are recognised for conservation purposes. The following interrelated criteria were used to establish site significance:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposit;
- The wider historic, archaeological and geographic context of the site;
- The location of the site in relation to other similar sites or features;
- The depth of the archaeological deposit (when it can be determined or is known);
- The preservation condition of the site;
- Potential to answer present research questions.

The criteria above will be used to place identified sites with in SAHRA's (2006) system of grading of places and objects which form part of the national estate. This system is approved by ASAPA for the SADC region. The recommendations for each site should be read in conjunction with section 11 of this report.

FIELD RATING	***GRADE***	***SIGNIFICANCE***	***RECOMMENDED MITIGATION***
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)

Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

4. REGIONAL OVERVIEW

4.1 General Information

4.1.1. Literature search

Several previous heritage studies were conducted in the general study area (SAHRA report mapping project V1.0 and SAHRIS). CRM projects by Van Ryneveld (2008), Kaplan (2010), van der Walt (2011), Morris (2011), Kruger (2012) and Orton (2012) has revealed a rich archaeological and historical background to the greater study area ranging from Earlier Stone Age (ESA) through to the Later Stone Age (LSA) and herder settlements represented by stonewalled kraals along numerous ridges in the greater study area. The colonial period is also represented by historical farm infrastructure as well as Anglo Boer War remains.

4.1 3. Public consultation

No public consultation was conducted by the heritage consultant during the scoping phase.

4.1.4. Google Earth and mapping survey

Google Earth and 1:50 000 maps of the area was utilised to identify possible places where archaeological sites might be located.

4.1.5. Genealogical Society of South Africa

No grave sites are indicated within the study area.

4.2 Archaeological and Historical Information Available on the Study Area

The following report will endeavour to give an account of the history of these farms and also a brief overview of the history of the area and district in which the farms are located. The report has been divided into several sections that will focus on the following aspects:

» General history of human settlement in the area

» The history of black and white interaction in the farm area

» The development of the farms under investigation

4.2.1. Historiography And Methodology

It was necessary to use a range of sources in order to give an accurate account of the history of the area in which the farms Vendussie Kuil 165 and Knapdaar 8 are located. Sources included secondary source material, maps and archival documents. Unfortunately almost no information could be found at the National Archives regarding the history of the specific farms, though it was possible to write a more general history of the area. The information that could be found in archival sources and maps were however pieced together to write a short history on each of the properties.

This study should be viewed as an introduction to the history of the De Aar area and the specific farms under investigation. The following are relevant sources that can be consulted in the future, if a more thorough investigation is done on the history of the farm area:

- A. Mountain. 2003*. The first people of the Cape*. Claremont: David Philip Publishers.
- E. A. Anderson. 1987. *A history of the Xhosa of the Northern Cape, 1795-1879.* MA Thesis. Cape Town: University of Cape Town.

4.2.2. Maps Of The Area Under Investigation

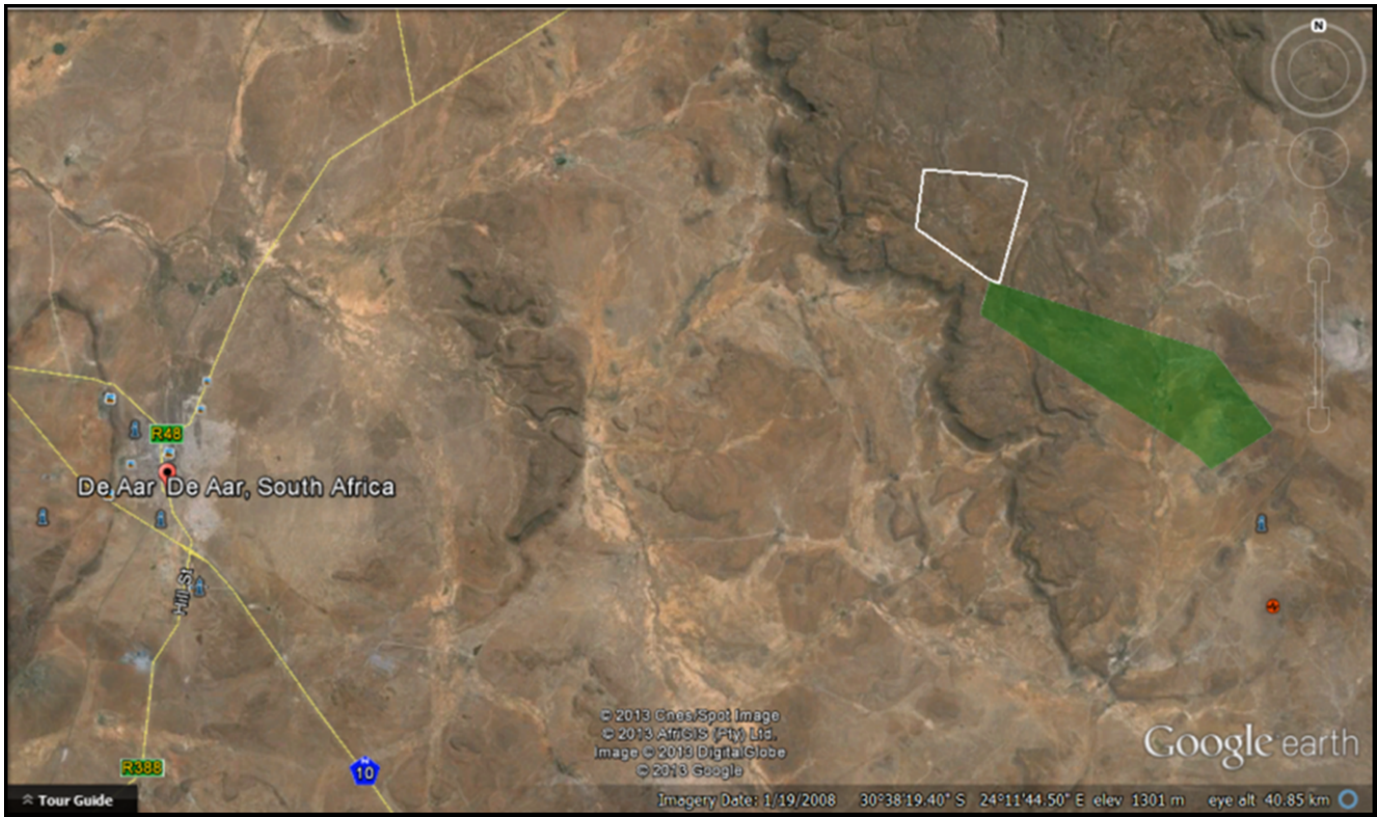

Figure 3: Google Earth image showing the farm areas under investigation (white & green border) in relation to the town of De Aar. The closest farm is located some 26 kilometres from De Aar. A closer view of these farms shows that these properties are basically undeveloped. (Google Earth 2013)

Figure 4: Close-perspective view of the farm Vendussie Kuil. No developments are visible, apart from a large structure in the westernmost corner of the farm. (Google Earth 2013)

Figure 5: Close-perspective view of the farm Knapdaar. No developments are visible, except for what seems to be a building with a large rectangular roof in the south eastern half of the property. (Google Earth 2013)

Figure 6: Map of the Cape Colony by December 1901. This map was compiled from information supplied by the Attorney General's Department at the time. The lighter areas were occupied at this stage of the Anglo-Boer War. De Aar was probably located in the Britstown area at the time. This area was not occupied. (National Archives of South Africa *SAB, Maps: 3/1044*)

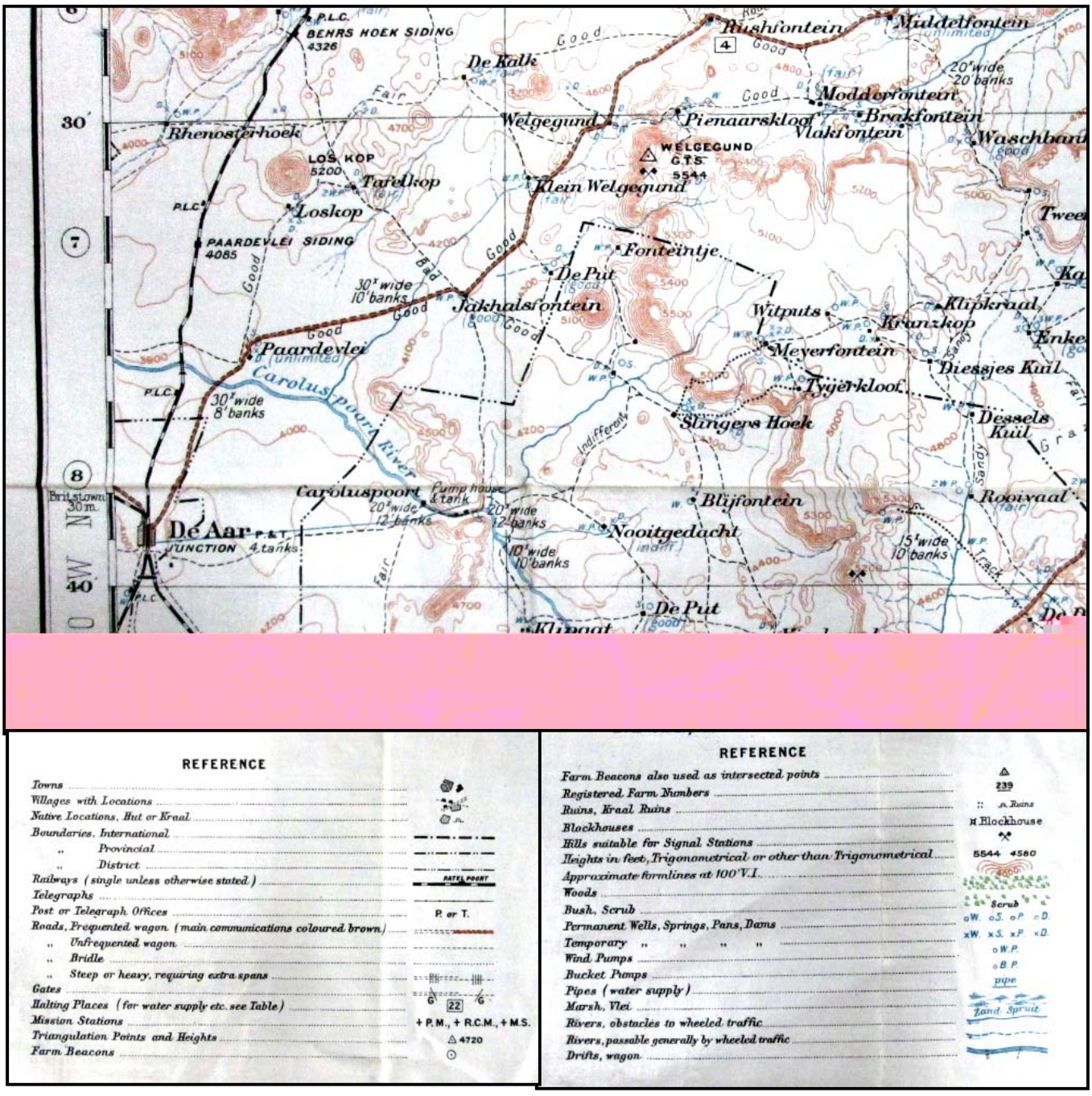

Figure 7: 1913 map of the Philipstown district. Knapdaar and Vendussie Kuil would later be located on the eastern border of the farm Slingers Hoek. Some temporary springs and dams can be seen to the east of Slingers Hoek. A small river and some tracks can also be seen. No other signs of development are visible. (NASA *Maps: 3/677*)

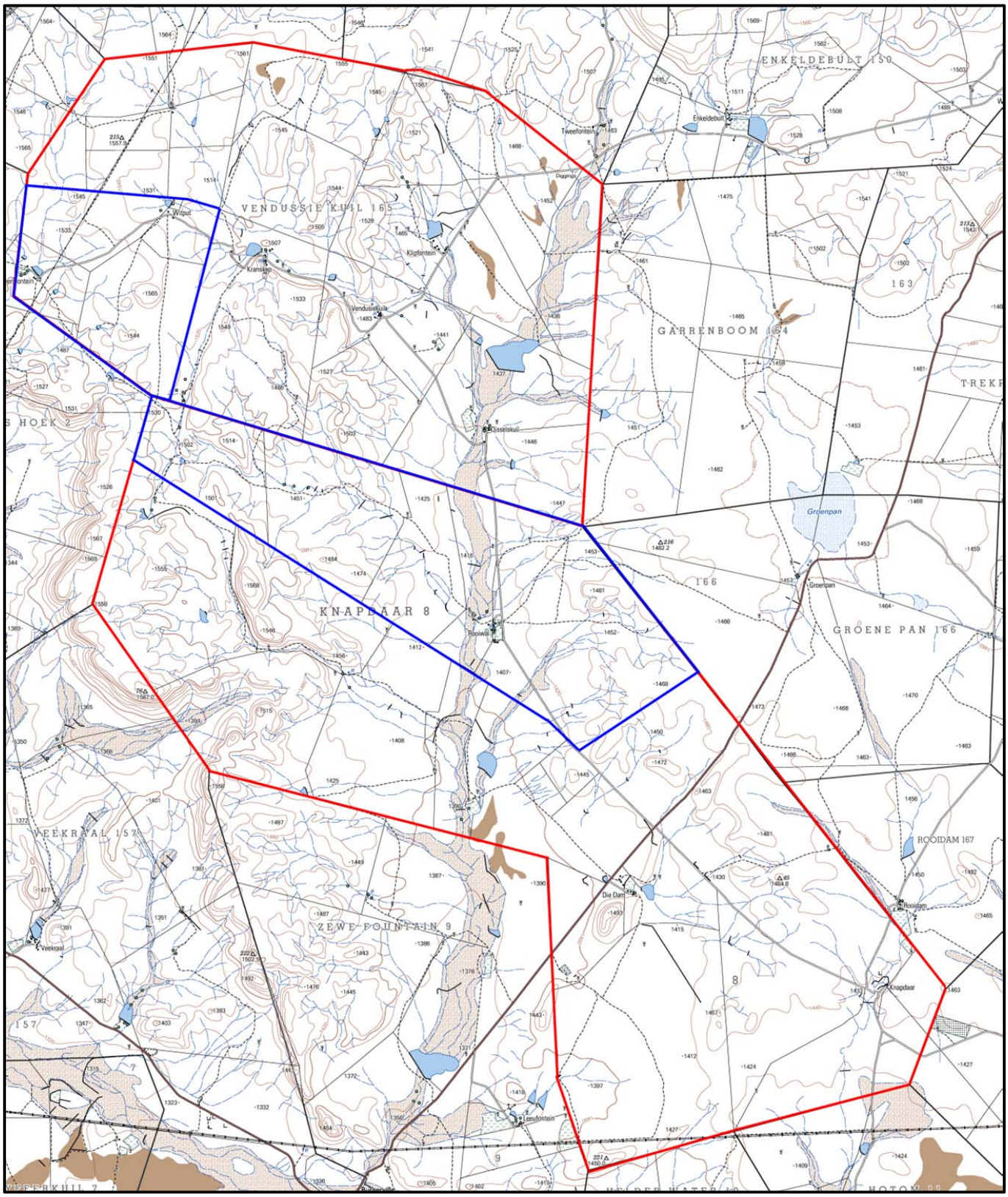

Figure 8: 2005 Topographical map of the study area. The red border indicates the area of both farms under investigation: Knapdaar 8 and Vendusie Kuil 165. The blue border indicates the specific areas of study for the purposes of this report.

4.2.3. A Brief History Of Human Settlement And Black And White Interaction In The De Aar Area

Evidence has been found that the predecessors of today's Khoi-San Bushmen lived in the area thousands of years ago. According to the source of Hocking, the Khoikhoi, nomadic cattle herders, had their forbears in East Africa and lived in the Northern Cape for at least 3000 years and dominated the region until the eighteenth century when the Tswana tribe arrived from the west. The Tswana tribe settled around the present day Kuruman. Evidence of the Khoikhoi's existence in the Cape can for instance be seen in the form of Bushmen drawings at the Damfontein and Brandfontein sites in the Karoo. (Hocking 1983: 2; Marais 1977: 1)

It was in the early nineteenth century that the Griqua frontiersmen of the old Cape Colony crossed the Orange River from the south. The Griquas were half white and half Khoikhoi. These people dressed like Europeans and lived aboard wagons, much like the *Trekboere* who migrated northward from the Cape Colony. (Hocking 1983: 2)

The *Trekboer* movement had already begun by the end of the seventeenth century, as the quest for land, grazing and hunting inspired farmers to move into the central spaces of South Africa. These people were semi-nomadic, moving from fountain to fountain by ox wagon, without any desire to build a house or improve the land in which they were living. For more than a generation before the Great Trek, the first migration led to settlement across the Orange River. Trekboer families were however discouraged by the scarcity of surface water in the Northern Cape, and therefore advancement into the area was slow. The first Europeans to settle in the Northern Cape were missionaries, but there was a larger influx of white men into the province during the 1860s and 1870s when diamonds were discovered in Griqualand. (Wagenaar 1984: 122, 128; Hocking 1983: 2)

When Willem Adriaan van der Stel issued grazing licences to stock farmers and lifted the ban on the bartering of cattle in the early eighteenth century, this opened up a new world of possibilities for white farmers. A new attitude was acquired among the stock farmers; he was able to occupy greater areas of land, and would need more land to obtain farms for his children. (Wagenaar 1984: 122, 125)

By the late 1820's, a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek. This migration resulted in a massive increase in the extent of that

proportion of modern South Africa dominated by people of European descent. (Ross 2002: 39) As can be expected, the movement of whites into the northern provinces would have a significant impact on the black people who populated the land. By 1860, the population of whites in the central Transvaal was already very dense and the administrative machinery of their leaders was firmly in place. Many of the policies that would later be entrenched as legislation during the period of apartheid had already been developed. (Geskiedenisatlas van Suid-Afrika 1999: 170)

The discovery of diamonds and gold in the northern provinces had very important consequences for South Africa. After the discovery of these resources, the British, who at the time had colonized the Cape and Natal, had intensions of expanding their territory into the northern Boer republics. This eventually led to the Anglo-Boer War, which took place between 1899 and 1902 in South Africa, and which was one of the most turbulent times in South Africa's history. Even before the outbreak of war in October 1899 British politicians, including Sir Alfred Milner and Mr. Chamberlain, had declared that should Britain's differences with the Z.A.R. result in violence, it would mean the end of republican independence. This decision was not immediately publicized, and as a consequence republican leaders based their assessment of British intentions on the more moderate public utterances of British leaders. Consequently, in March 1900, they asked Lord Salisbury to agree to peace on the basis of the status quo ante bellum. Salisbury's reply was, however, a clear statement of British war aims. (Du Preez 1977)

De Aar was a very important town during the time of the Anglo-Boer war. Due to its strategic position it was very well suited for a distribution and reception depot of military provisions and animals. At times about 10 000 horses, easels and donkeys were kept at this site at once. The town also served as a hospital site for the sick and wounded at Magersfontein, Modderfontein, Graspan and other battlefields. (Marais 1977: 4)

In 1837 the first farms were surveyed in the Upper Karoo. One of the early farms to be given to the first white inhabitants of the area was the property De Aar, first owned by Jan Gabriel Vermeulen, nicknamed "Swart Jan". There was such a ready supply of water on the farm that this became a communal watering area for farmers' sheep in the area. Another milestone for the area was when the railway reached De Aar in 1881. The town of De Aar developed around the De Aar railway station. The town was officially proclaimed on 23 December 1903. (Marais 1977: 1-2, 6)

4.2.4. Historical Overview Of The Ownership And Development Of The Farms Under Investigation

A search on the database of the National Archives of South Africa revealed that almost no sources are available on the history of the two farms under investigation, and those that are available are kept at the Cape Town Archives. It was however possible in some instances to

use clues from the references of files to draw conclusions regarding the history of the properties under investigation. A discussion on each of these farms will now be given. Maps dating from 1919 and more recent topographic map images of each of the properties will also be used to draw a clearer picture of the history of the farms.

Vendussie Kuil 165:

No online sources or archival documents concerning this property could be found.

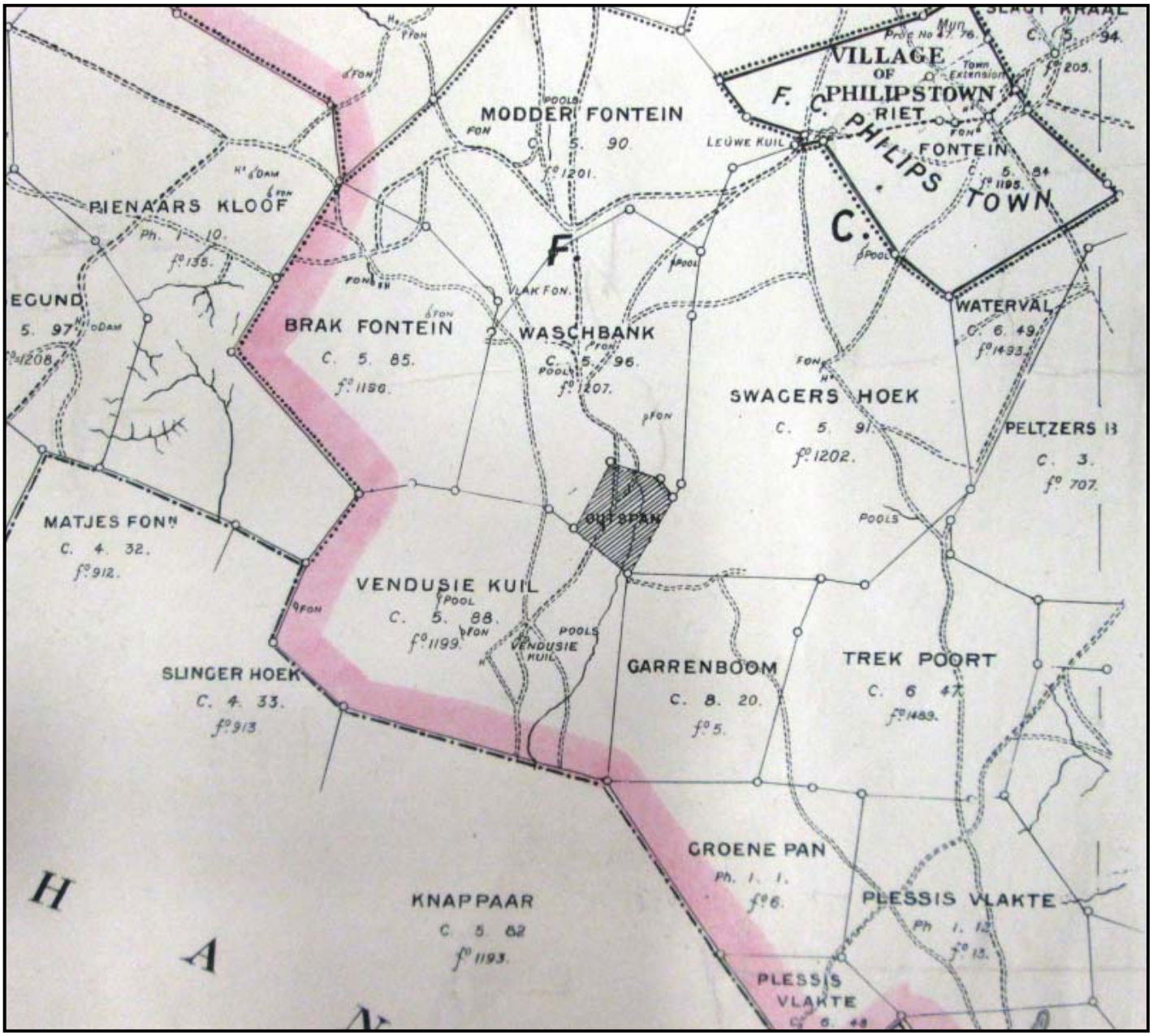

Figure 9: 1919 Map of the Philips Town district. One can see that the farm Vendusie Kuil was located in this district at the time. Some pools and fountains are visible on the property. Developments on the site include three secondary roads that vertically intersect the eastern half of the farm. A hospital site can be seen near one of these roads.

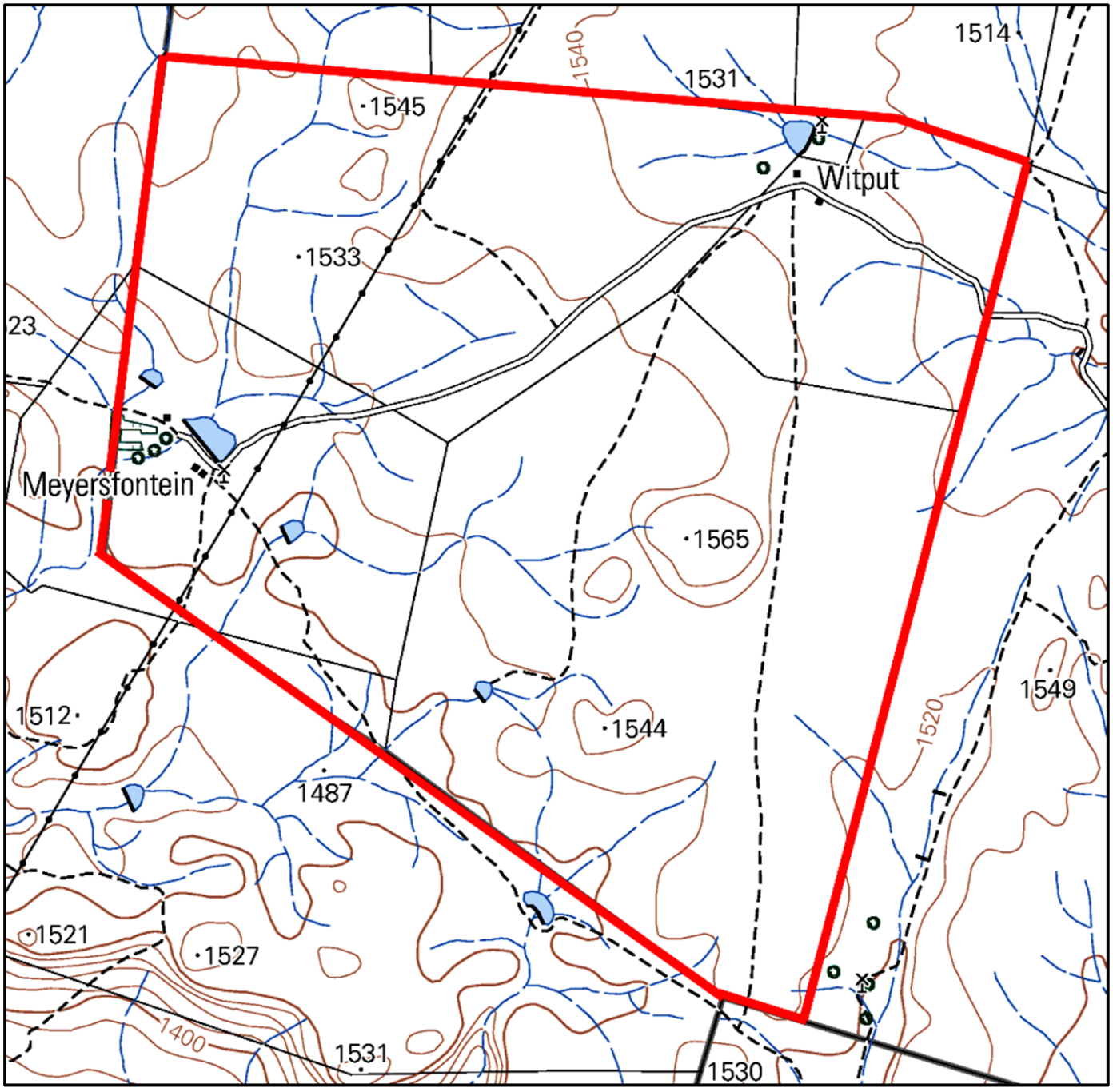

Figure 10 : 2005 Topographical map of the portion of the farm Vendussie Kuil 165. One can see that a power line runs across the northern and southern border of this portion. Also, three bodies of perennial water and buildings are indicated in the south western corner of the land. This site is known as Meyersfontein. A lane of trees and some cultivated areas of land are also situated here. Two buildings are located close to the north eastern corner with some trees. (Topographical Map. 2005)

Knapdaar 8:

The only information that could be found in archival sources regarding the farm Knapdaar, is that one DF van der Merwe lodged a complaint in 1917 with regards to the matter of roads intersecting his farm. It is also not certain that this document refers to the farm under investigation. (KAB *PAS: 4/495 A18*)

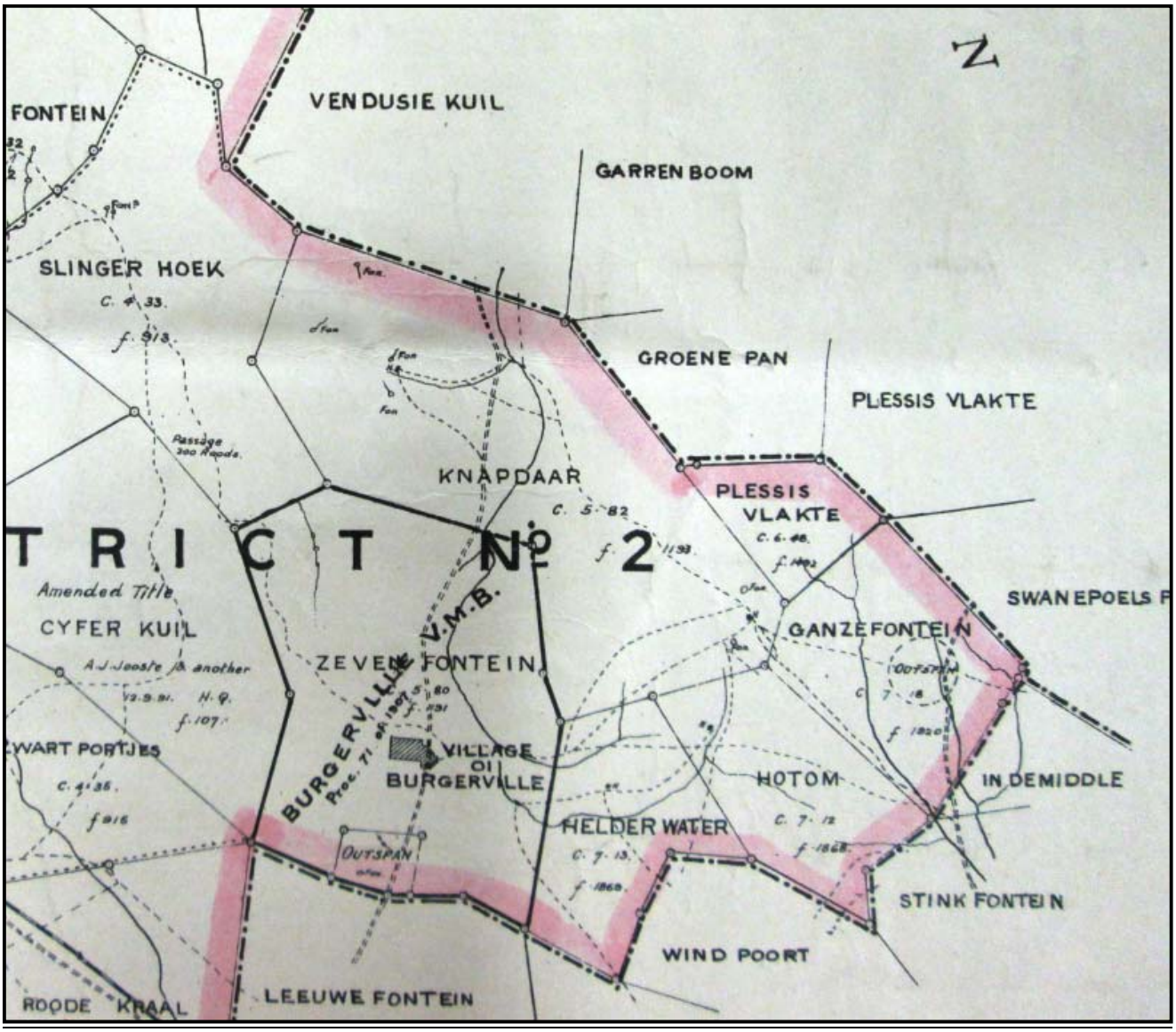

Figure 11: 1919 Map of the De Aar district, showing the farm Knapdaar. The sites for four fountains are indicated in the northern section of the map. Two fountains can also be seen close to the southernmost corner of the farm. Some small and secondary roads intersect the property. What seems to be two hospitals (building marked with an “H”) were located on the property – one near the most south eastern border of the farm, and the other in the north western half of the farm.

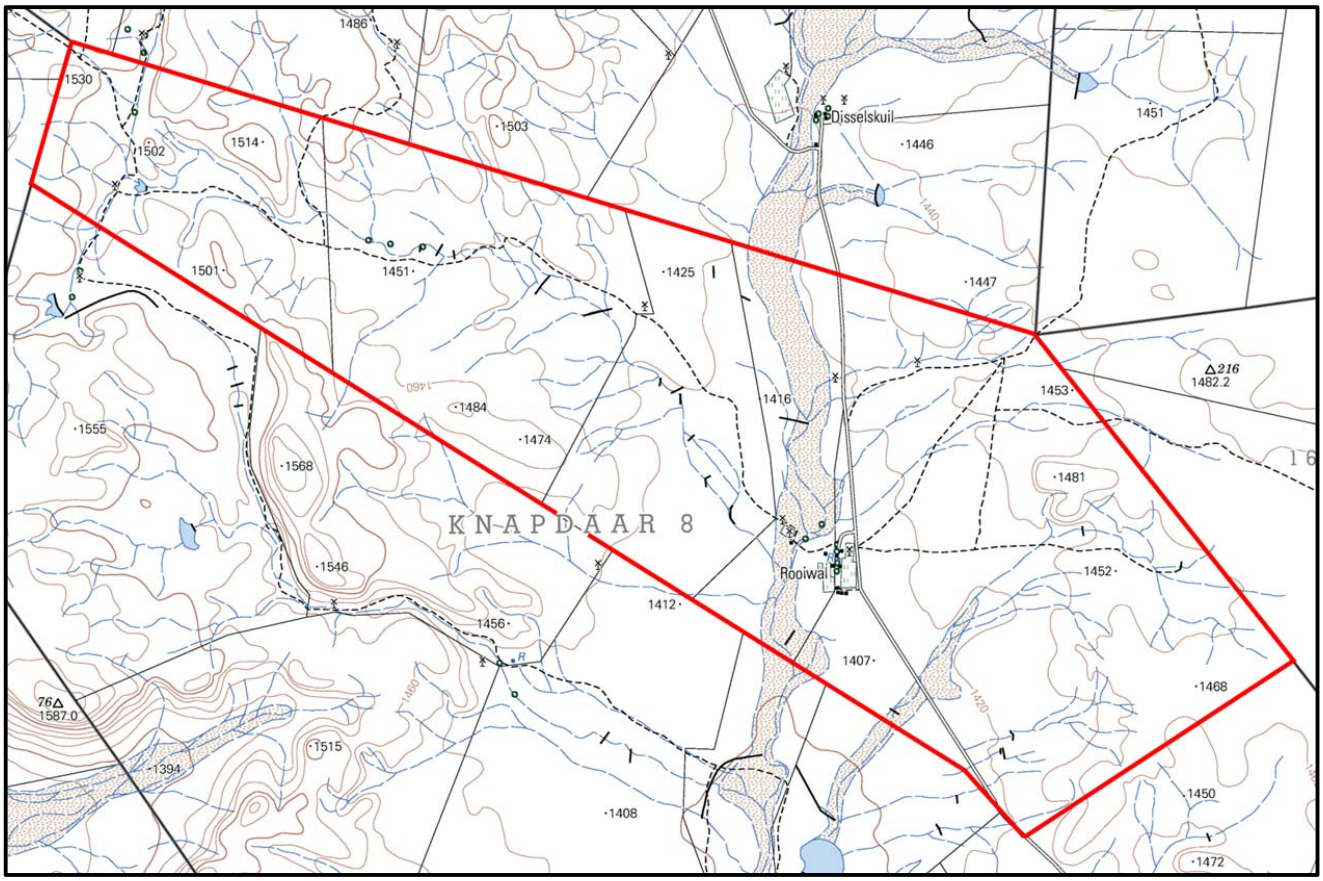

Figure 12: 2005 Topographical map of the specific area of study on the farm Knapdaar 8. Several bodies of perennial water are scattered across the portion, as well as some buildings and cultivated land. The latter are located close to the south eastern corner of the farm. Some hiking trails which run across the length of the portion are also visible. (Topographical Map. 2005)

4.3. Archaeological background

Occupation by early humans would probably date to at least the Middle Stone Age although Earlier Stone Age sites are known in the wider region (Morris 2011b). Sites consist of open

sites near stream beds or hills and outcrops (van der Walt 2011). Raw material sources would have attracted Stone Age people who later on occupied rock shelters where available, as well as open sites. During the LSA they also produced rock engravings, of which some are known to occur on the farm Tafelkop north of the study area, as well as rock paintings, some of which occur on the farm Veekraal east of the study area and others on Jakkalsfontein north of the study area (van Schalkwyk 2011). Dolerite koppies in the region are known to have rock engravings (Fock & Fock 1989; Morris 1988.

5. PALAEONTOLOGY

A desktop assessment of the palaeontology of the area was conducted by Dr John Almond. His report is included as Annexure A and he concluded:

“The Castle Wind Energy Facility to the northeast of De Aar, Northern Cape, is underlain by Middle Permian fluvial sediments of the Lower Beaufort Group (Karoo Supergroup) as well as Early Jurassic igneous intrusions of the Karoo Dolerite Suite. The Lower Beaufort rocks in this area contain a sparse fossil biota of mammal-like reptiles, true reptiles, vertebrate and invertebrate trace fossils (*e.g.* scratch burrows), petrified wood and other plant fossils that are assigned to the *Pristerognathus* Assemblage Zone. Several important new vertebrate fossil sites just to the west and east of the Castle WEF study area were recorded in a recent palaeontological field assessment for a large wind energy project (Almond 2012a). Further Palaeozoic fossil remains are unlikely to be encountered in the western portions of the study area on Vendussie Kuil 165 and the western half of Knapdaar 8 since the bedrocks here are largely unfossiliferous dolerite and the Beaufort Group country rocks have been intensely baked. In the central, and especially the eastern, parts of Knapdaar 8, however, valuable vertebrate and other fossil heritage may be present both at surface and beneath the ground. Fossiliferous exposures of the Beaufort Group sediments here are likely to be limited by the cover of Late Caenozoic superficial sediments (colluvium, alluvium *etc*) that are generally of low palaeontological sensitivity.

The construction phase of the WEF development may entail substantial surface clearance and excavations into the superficial sediment cover as well as locally into the underlying bedrock, notably for wind turbine installations, underground cables, administrative buildings, onsite substation and new access roads. In addition, sizeable areas of bedrock may be sealed-in or sterilized by infrastructure such as lay-down areas, construction camps. All these developments may adversely affect fossil heritage preserved at or beneath the surface of the ground within the study area by destroying, disturbing or permanently sealing-in fossils that are then no longer available for scientific research or other public good. Once constructed, the operational and decommissioning phases of the wind energy

facility are unlikely to involve further adverse impacts on palaeontological heritage, however.

It is therefore recommended that a specialist palaeontological field study of the Castle WEF be undertaken as part of the EIA phase, focusing mainly on the eastern portion of the study area (farm Knapdaar 8). The field study should (1) document and map fossil remains observed here, (2) delineate any areas of high palaeontological sensitivity, and (3) make specific recommendations for any necessary monitoring or mitigation measures for the pre-construction and construction phases of the Castle Wind Energy Facility development." (Almond 2013)

6 PROBABILITY OF OCCURRENCE OF SITES

Based on the above information, it is possible to determine the probability of finding archaeological and cultural heritage sites within the study area to a certain degree. For the purposes of this section of the report the following terms are used – low, medium and high probability. Low indicates that no known occurrences of sites have been found previously in the general study area, medium probability indicates some known occurrences in the general study area are documented and can therefore be expected in the study area and a high probability indicates that occurrences have been documented close to or in the study area and that the environment of the study area has a high degree of probability having sites.

» Palaeontological landscape

Fossil remains. Such resources are typically found in specific geographical areas, e.g. the Karoo and are embedded in ancient rock and limestone/calcrete formations exposed by road cuttings and quarry excavation: *Medium to High.*

» Archaeological And Cultural Heritage Landscape

NOTE: *Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface*.

*Archaeologica*l remains dating to the following periods can be expected within the study area:

» Stone Age finds

ESA: *Low-Medium Probability*
MSA*: Medium-High Probability*
LSA: Medium-High Probability
LSA –Herder: Medium-High Probability

» Iron Age finds

EIA: *Not applicable*
MIA*: Not applicable*
LIA: Not applicable

» Historical finds

Historical period: *-Medium Probability*

Historical dumps: *Medium Probability*
Structural remains: *Medium Probability*
Cultural Landscape*: low probability*

» Living Heritage
For example rainmaking sites: *Low Probability*

» Burial/Cemeteries

Burials over 100 years: *Medium Probability*
Burials younger than 60 years*: Medium Probability*

Subsurface excavations including ground levelling, landscaping, and foundation preparation can expose any number of these.

7. ASSUMPTIONS AND LIMITATIONS

The study area was not subjected to a field survey as this will be done in the EIA phase. It is assumed that information obtained for the wider area is applicable to the study area.

8. FINDINGS

The heritage scoping study revealed that the following heritage sites, features and objects can be expected within the study area.

8.1. Palaeontological

There is a high likelihood of finding fossil remains on the eastern portion of the study area (farm Knapdaar 8).

8.2. Archaeology

8.2.1 Archaeological finds

There is a high likelihood of finding MSA sites scattered over the study area. Following other studies in the area these sites will consist mostly of open sites near stream beds or hills and outcrops (van der Walt 2011). Later Stone Age sites were also recorded in the larger area (e.g Kaplan 2010) and especially shelters with archaeological deposit could be of high significance. Rock art is also expected in the area as recorded in the wider study area (e.g Fock & Fock 1989; Morris 1988 and van Jaarsveld 2006).

8.2.2 Nature of Impact

The construction phase of the project could directly impact on surface and subsurface archaeological sites.

8.2.3 Extent of impact

The project could have a low to medium impact on a local scale.

8.3. Historical period

8.3.1 Historical finds: I

Historical finds include middens, structural remains and cultural landscape. The study area has been used for farming in the past and features dating to this period associated with farming can occur and can include houses and other structures older than 60 years, farming infrastructure such as wind mills, etc.

Remains dating to the Anglo-Boer War were also recorded in the wider region (van der Walt 2011, Orton 2012) and remains dating to this period could occur in the study area.

8.3.2 Nature of Impact

The construction of the project can directly impact on both the visual context and sense of place of historical sites.

8.3.3 Extent of impact

The construction of the project could have a medium impact on a local scale.

8.4. Burials and Cemeteries

8.4.1 Burials and Cemeteries

Graves and informal cemeteries can be expected anywhere on the landscape.

8.4.2 Nature of Impact

The construction and operation of the proposed project could directly impact on marked and unmarked graves.

8.4.3 Extent of impact

The project could have a low to medium impact on a local scale.

9. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES

Based on the current information obtained for the area at a desktop level it is anticipated that any sites that occur within the proposed development area will have a Generally Protected B (GP.B) field rating and all sites should be mitigatable and no red flags are identified.

10. CONCLUSIONS AND RECOMMENDATIONS

This scoping study revealed that a range of heritage sites occur in the larger region and similar sites can be expected within the study area. Every site is relevant to the Heritage Landscape, but it is anticipated that few sites in the study area could have conservation value. The following conclusions are applicable to the following sites:

» Palaeontology

There is a high likelihood of finding fossil remains on the eastern portion of the study area (farm Knapdaar 8) and if possible no wind turbines should be located on this portion. If this is not possible any fossil remains in this area could be mitigated either in the form of conservation of the sites with in the development or by a Phase 2 study where the sites will be recorded and sampled before the client can apply for a destruction permit for these sites prior to development.

» Archaeological sites

All sites could be mitigated either in the form of conservation of the sites with in the development or by a Phase 2 study where the sites will be recorded and sampled before the client can apply for a destruction permit for these sites prior to development.

» Historical finds and Cultural landscape

It is not anticipated that the built environment will be severely impacted upon as few structures occur within the study area (based on Google Earth). This assumption will how ever have to be verified in the field. If any sites dating to the Anglo Boer War occur in the study area it is recommended that these sites are conserved.

» Burials and cemeteries

Formal and informal cemeteries as well as pre-colonial graves occur widely across Southern Africa. It is generally recommended that these sites are preserved with in a development. These sites can how ever be relocated if conservation is not possible, but this option must be seen as a last resort and is not advisable. The presence of any grave sites must be confirmed during the field survey and the public consultation process.

» General

It is recommended that as part of the public consultation process the presence of graves, archaeological and historical sites should be determined.

From an archaeological viewpoint the proposed Castle wind energy project is viable.

11. PLAN OF STUDY

In order to comply with the National Heritage Resources Act (Act 25 of 1999) a Phase 1 Archaeological Impact Assessment must be undertaken. During this study sites of archaeological, historical or places of cultural interest must be located, identified, recorded, photographed and described. During this study the levels of significance of recorded heritage resources must be determined and mitigation proposed should any significant sites be impacted upon, ensuring that all the requirements of SAHRA are met.

Dr John Almond assessed the study area at a desktop level for paleontological resources; he recommended that a specialist palaeontological field study of the Castle WEF be undertaken as part of the EIA phase, focusing mainly on the eastern portion of the study area (farm Knapdaar 8). The field study should (1) document and map fossil remains observed here, (2) delineate any areas of high palaeontological sensitivity, and (3) make specific recommendations for any necessary monitoring or mitigation measures for the pre-construction and construction phases of the Castle Wind Energy Facility development. His report is included as Annexure A.

12. LIST OF PREPARERS

Jaco van der Walt (Archaeologist and project manager)

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Liesl Bester (Archival Specialist)

Derick Griessel (Archival Specialist)

13. STATEMENT OF COMPETENCY

The author of the report is a member of the Association of Southern African Professional Archaeologists and is also accredited in the following fields of the Cultural Resource Management (CRM) Section, member number 159: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. Jaco is also an accredited CRM Archaeologist with SAHRA and AMAFA.

Jaco has been involved in research and contract work in South Africa, Botswana, Mozambique, Zimbabwe, Tanzania and the DRC and conducted well over 300 AIAs since he started his career in CRM in 2000. This involved several mining operations, Eskom

transmission and distribution projects and infrastructure developments. The results of several of these projects were presented at international and local conferences.

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