
Archaeological Scoping Report for the Proposed Oryx Solar Energy Facility

Prepared for

Savannah Environmental (Pty) Ltd

By



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Contracts and Archaeological Consulting

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VERSION 1.0

8 MAY 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: The proposed Oryx Solar Facility will have a maximum export capacity of 75 MW. The site is located on Portion 2 of Farm Kalkoenkrans 225, Free State Province.

1: 50 000 Topographic Map: 2826 BA & 2826BB

EIA Consultant: Savannah Environmental (Pty) Ltd.

Developer: FRV Energy South Africa (Pty)

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: 8 May 2013

Findings of the Assessment:

This report endeavoured to give an account of the history of the Kalkoen-krans No. 225 farm area in the Free State Province. The general history of human settlement in the farm area was discussed. Finally, all available information on the area was taken into account to write up a short history of the developments that had taken place there.

Based on the results of the desktop study no sites of archaeological significance are expected in the study area, although pans could be archaeologically sensitive. The archival study indicated that some historical buildings exist on the farm that are older than 60 years and protected by legislation. Historical sites like these are associated with informal cemeteries and a single cemetery/grave site is on record for the study area and if it still exists should be considered as a no go area in the development. The presence of any other cemeteries can only be verified during the impact assessment phase of the EIA process.

Every site is relevant to the heritage landscape, but it is anticipated that few if any have conservation value, and apart from graves no fatal flaws are expected.

A Palaeontological desktop study by Dr Barry Millsteed also indicated that the development will probably have no impact on the fossil record of South Africa; Dr Millsteed recommended that certain mitigation measures should be taken into account to ensure this.

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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Addendum

Palaeontology Desktop Dr B Millstead

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 Oryx Solar Energy Facility, south west of Virginia, Free State Province.

FRV Energy South Africa (Pty) Ltd is proposing to develop a photovoltaic facility and associated infrastructure on Portion 2 of Farm Kalkoenkrans 225, Free State Province (Figure 1). The project will have an export capacity of up to 75 MW.

The heritage scoping report forms part of the EIA for the proposed project.

The aim of the 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.

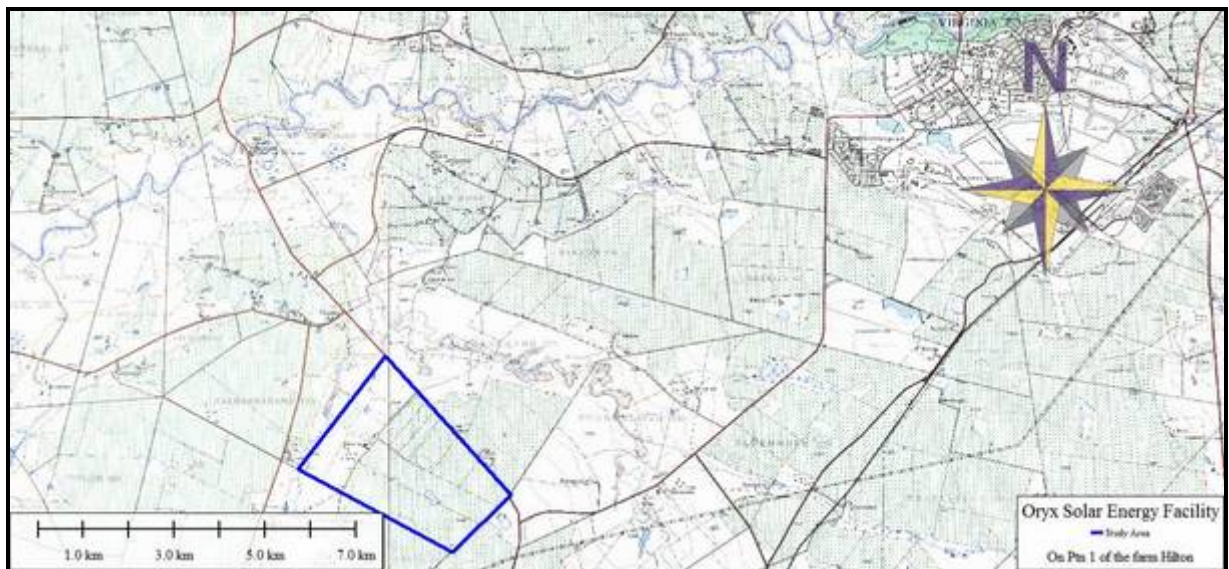


Figure 1: Locality Map

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.
- » Compile a 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 Oryx solar energy facility is proposed to accommodate Photovoltaic (PV) panel technology and include the following infrastructure:

- » Mounting structures for the solar panels to be either rammed steel piles or piles with pre-manufactured concrete footings to support the PV panels.
- » Cabling between the project components, to be laid underground where practical.
- » A new on-site substation to evacuate the power from the facility into the Eskom grid (loop in loop out connection to the 132kv line on the farm and this connects to the Oryx 132/44/11 kV substation)
- » Internal access roads and fencing.
- » Workshop area for maintenance, storage, and offices.

»

1.4 The receiving environment

The topography of the area is relatively flat and is utilized for extensive agricultural purposes. Three “clusters” of buildings exist on site associated with farm houses and outbuildings. Several pans and dams are found in the eastern portion of the farm. A power line from Oryx substation traverses the property in a south west – north easterly direction and will be used for connection into the grid.

The study area falls within the bioregion described by Mucina *et al* (2006) as the Dry Highveld Grassland Bioregion with the vegetation described as Vaal-Vet Sandy Grassland within a Grassland Biome. Land use in the general area is characterized by mining and agriculture, dominated by crops and cattle farming. The study area is characterised by deep sandy to loamy soils based on the extensive agricultural activities. The farm measures approximately 857ha while the area that will be utilised for the photovoltaic facility will not be more than 200ha.



Figure 2: Google earth image showing extensive agricultural activities and pans in the study area. The area marked in red is a no go area and the PV farm lay out is indicated by the orange and brown 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. The background study is done 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 & 5 of this report):

2.1 Literature search

Utilising data for information gathering stored in the archaeological database at Wits University, National Archives and 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) 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. The South African Heritage Information System was also used to collect information.

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 of 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.

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

Due to time constraints the database at the National Museum Bloemfontein could not be assessed however through CRM reports on the area together with secondary source material, primary sources, maps and online sources the study area is contextualised. No CRM projects were conducted within a 10km radius of the study area (SAHRIS & SAHRA report mapping version1). Just outside of this radius three studies were conducted that is relevant to the study area (Dreyer 2005 & 2006, van Vollenhoven 2012). None of these studies recorded any heritage resources apart from van Vollenhoven (2012) who recorded historical structures and a cemetery.

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological and historical sites might be located. From the archival maps it seems as if the three clusters of buildings on the farm date to before 1948 (Figure 5) and these structures are therefore older than 60 years and protected by legislation. The database of the Genealogical Society of South Africa indicated no known grave sites within the study area.

4.2 Archaeological Background

The archaeological background and timeframe of the study area can be divided into the Stone Age and Iron Age.

4.2.1. Stone Age

The Stone Age is divided in Early; Middle and Late Stone Age and refers to the earliest people of South Africa who mainly relied on stone for their tools.

Early Stone Age: The period from \pm 2.5 million yrs. - \pm 250 000 yrs. ago. Acheulean stone tools are dominant. No Acheulian sites are on record near the project area, but isolated finds may be possible. However, isolated finds have little value. Therefore, the project is unlikely to disturb a significant site. The presence and significance of finds can be determined by a field investigation.

Middle Stone Age: The Middle Stone Age includes various lithic industries in SA dating from \pm 250 000 yrs. - 25 000 yrs. before present. This period is first associated with archaic Homo sapiens and later Homo sapiens sapiens. Material culture includes stone tools with prepared platforms and stone tools attached to handles. Isolated MSA artefacts especially around pans can be expected but it is not anticipate that these finds will have conservation value.

Late Stone Age: The period from \pm 25 000-yrs before present to the period of contact with either Iron Age farmers or European colonists. This period is associated with Homo sapiens sapiens. Material culture from this period includes: microlithic stone tools; ostrich eggshell beads and rock art. Sites in the open are usually poorly preserved and therefore have less value than sites in caves or rock shelters. Since there are no caves in the study area no LSA sites of significance is expected although isolated finds can be expected around pans.

4.2.2. Iron Age (general)

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the pre-Historic and Historic periods. It can be divided into three distinct periods:

The Early Iron Age: Most of the first millennium AD.

The Middle Iron Age: 10th to 13th centuries AD

The Late Iron Age: 14th century to colonial period.

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living.

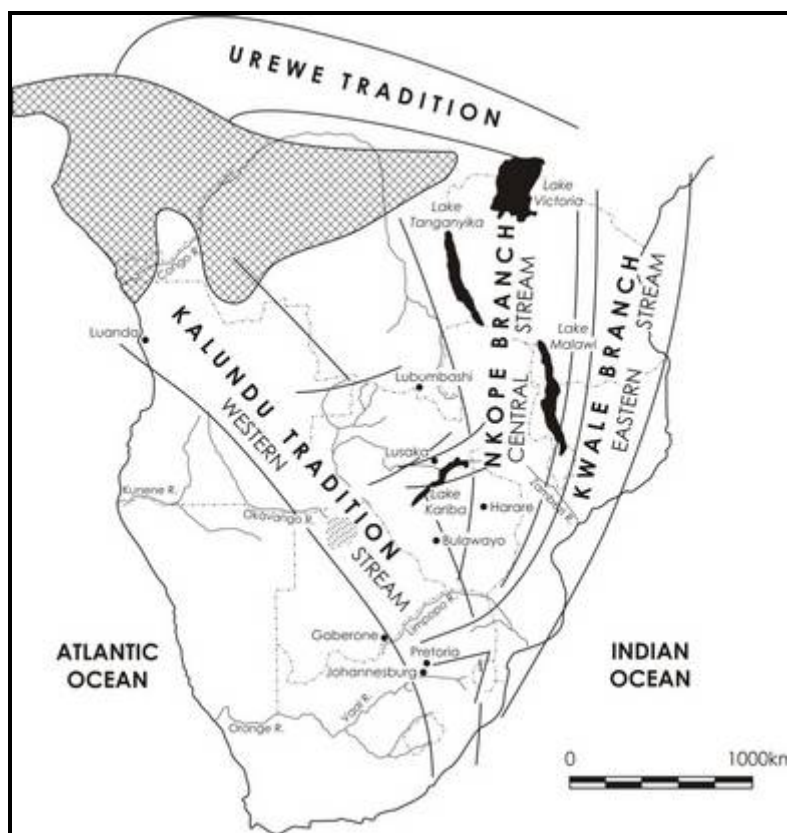


Figure 3: Movement of Bantu speaking farmers (Huffman 2007)

No Sites dating to the Early or Middle Iron Age have been recorded or is expected for the study area. The same goes for the Later Iron Age period where the study area is situated outside the western periphery of distribution of Late Iron Age settlements in the Free State. To the east Makgwareng ceramics belonging to the Blackburn Branch of the Urewe tradition was recorded (Dreyer 1992 and Maggs 1976). There is however a low likelihood of finding sites dating to this period in the study area.

4.3 Palaeontology

A palaeontological desktop study was conducted by Dr. Barry Millsteed (2013) on the study area and is included as Addendum A. Dr. Millsteed noted that two stratigraphic units are identified as underlying the project site, these being the Cainozoic regolith and the Adelaide Subgroup. Both are potentially fossiliferous and their stratigraphic equivalents are known to contain fossils elsewhere in South Africa and he therefore expects that scientifically and culturally significant fossils may be present within the project area. Based on various factors (deep sand cover, superliferous surface impact of the proposed project and the extensive agricultural activities) he concludes that there is a low likelihood that the proposed project will have a negative impact on the palaeontological heritage of the area. Dr. Millsteed recommended some mitigation measures to minimize any potential impact (Millsteed 2013).

5. HISTORICAL BACKGROUND

The report has been divided into a number of sections that will focus on the following aspects:

- General history of human settlement in the area
- The history of black and white interaction
- A history of the development of the farm Kalkoen-krans No. 225, where this could be traced

5.1. Historiography and Methodology

It was necessary to use a range of sources in order to give an account of the history of the area. Sources included secondary source material, primary sources, maps and online sources. Unfortunately, almost no information specifically dealing with the history of the property could be found at the National Archives of South Africa. Therefore, owing to the constraints in time and resources, this study should be viewed only as an introduction to the history of the Kalkoen-krans No. 225 farm area.

The following documents could not be retrieved for incorporation into this report, as they are kept at the Free State Archives Repository. These documents could however be of value if a more in-depth study of the area is done in the future.

DEPOT VAB
SOURCE PAO
TYPE LEER
VOLUME_NO 1/1/182
SYSTEM 01
REFERENCE W2482
PART 1
DESCRIPTION PROVINCIAL SECRETARY'S OFFICE. ORANGE FREE STATE. SUPERINTENDENT OF ROADS, AND LOCAL WORKS. BERGPLAATS - HILLSIDE - KALKOENKRANS **AND** OTHER. CLOSING OF ROAD BY F SMITH.
STARTING 19260000
ENDING 19260000

DEPOT VAB
SOURCE PAO
TYPE LEER
VOLUME_NO 1/1/202
SYSTEM 01
REFERENCE W2753
PART 1
DESCRIPTION PROVINCIAL SECRETARY'S OFFICE. ORANGE FREE STATE.
 SUPERINTENDENT OF ROADS, AND LOCAL WORKS. KALKOENKRANS - **KLIPFONTEIN** AND
 KNELLSPOORT ETC. DISTRICT WEPENER.CLOSING BY J VAN BEKKER AND OTHER.
STARTING 19270000
ENDING 19270000

DEPOT VAB
SOURCE PAO
TYPE LEER
VOLUME_NO 1/1/325
SYSTEM 01
REFERENCE W4058
PART 1
DESCRIPTION PROVINCIAL SECRETARY'S OFFICE. ORANGE FREE STATE.
 SUPERINTENDENT OF ROADS, AND LOCAL WORKS.KALKOENKRANS - **DISTRICT**
 THEUNISSEN.
 DEVIATION BY JC HUMAN.
STARTING 19310000
ENDING 19310000

DEPOT VAB
SOURCE PAO
TYPE LEER
VOLUME_NO 1/1/782
SYSTEM 01
REFERENCE W8074
PART 1
DESCRIPTION PROVINCIAL SECRETARY'S OFFICE. ORANGE FREE STATE.
 SUPERINTENDENT OF ROADS, AND LOCAL WORKS. SLUITING VAN STILLEWONING -
 KALKOENKRANS **DEUR** JP BRITZ. THEUNISSEN.
STARTING 19550000
ENDING 19550000

DEPOT VAB
SOURCE RRB
TYPE LEER
VOLUME_NO 12
SYSTEM 01
REFERENCE 515
PART 1
DESCRIPTION J BOOYSEN. **KALKOENKRANS**.(NOW SUPPOSED RESIDING
 JAGERSFONTEIN).
STARTING 19050000
ENDING 19110000

DEPOT VAB
SOURCE RRB
TYPE LEER

VOLUME_NO 12
SYSTEM 01
REFERENCE 520
PART 1
DESCRIPTION P BOOYSEN SENIOR. **KALKOENKRANS.**(NOW SUPPOSED RESIDING JAGERSFONTEIN).
STARTING 19050000
ENDING 19110000

DEPOT VAB
SOURCE GS
TYPE LEER
VOLUME_NO 1780
SYSTEM 01
REFERENCE R1322/98
PART 1
DESCRIPTION LANDDROST WEPENER RC DU PLESSIS APPLICATIE SCHUTHOK TE **KALKOENKRANS**
STARTING 1898
ENDING 1898

DEPOT VAB
SOURCE GS
TYPE LEER
VOLUME_NO 2026
SYSTEM 01
REFERENCE R2405/99
PART 1
DESCRIPTION WJ BUTLER, SMITHFIELD. RESTITUTIE BOETEN RECOGNITIE BETAALD OP
KALKOENKRANS 187 OVER 1898 ZIJNDE \$1 (1 EN 2).
STARTING 1899
ENDING 1899

5.1.1. Maps of the Area under Investigation

By 1891 the present-day Kalkoenkrans No. 225 was located in the Winburg district (NASA *Maps: S. 3/1675*). By 1910 the farm area was located in the Winburg North district. (NASA *Maps: 1/54*) by 1948 the farm was located in the Odendaalsrus district. (NASA *Maps: 1/271*) Today the farm Kalkoenkrans falls under the jurisdiction of the Matjhabeng Local Municipality. (South African Government 2009)

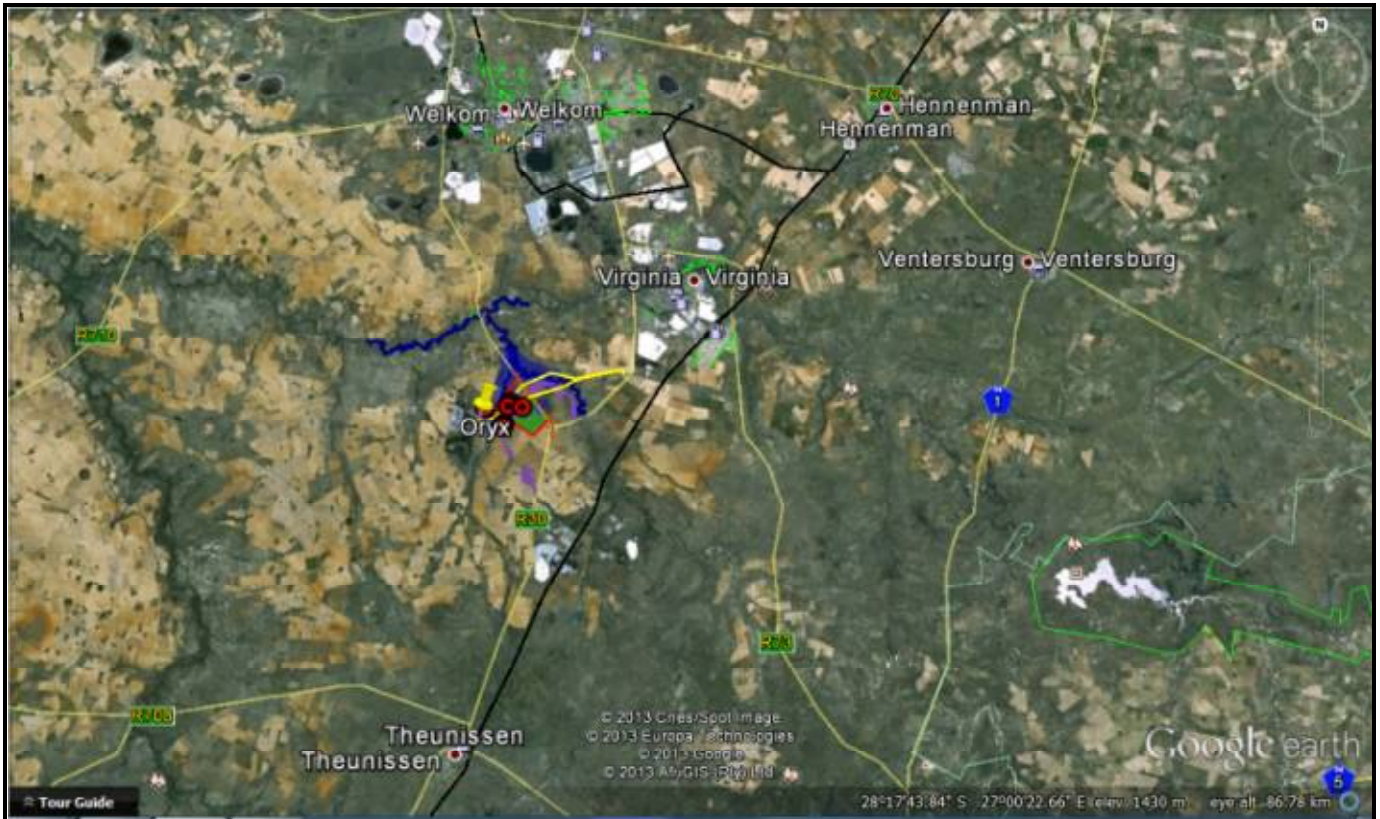
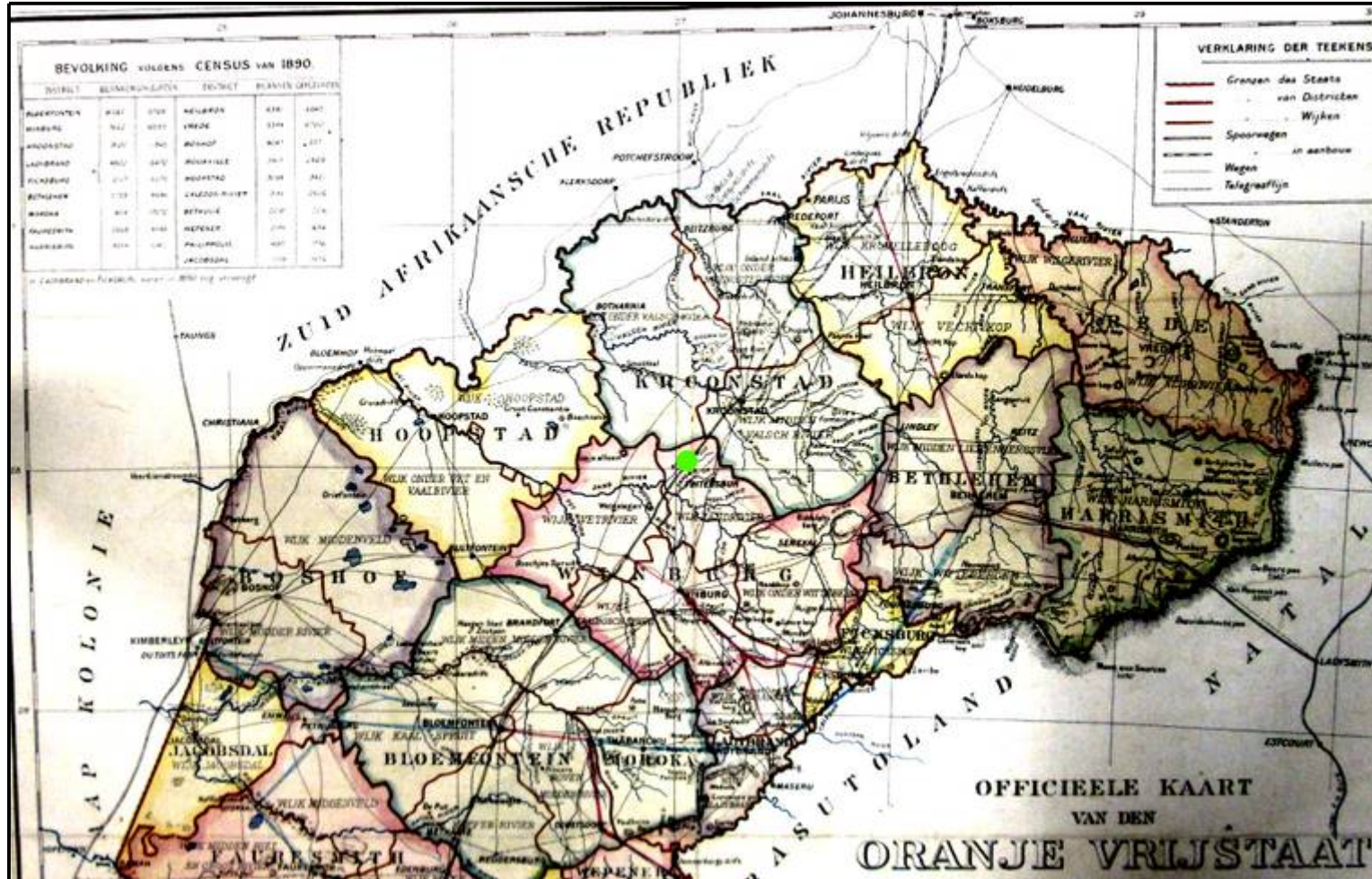


Figure 4 : Google Earth Image showing the location of the Oryx site, where the farm Kalkoenkrans No. 225 is situated, as well as some of the surrounding towns, including Welkom, Hennenman, Virginia, Ventersburg and Theunissen. (Google Earth 28°17'43.84" S 27°00'22.66" E elev 1430m)

Figure 5: 1891 Map of the Free State, indicating the different districts. The green dot indicates the area in which Kalkoen-krans No. 255 was more or less located.



255 was more or less located. One can see that the farm fell under the jurisdiction of the Winburg district. (NASA Maps: S. 3/1675)

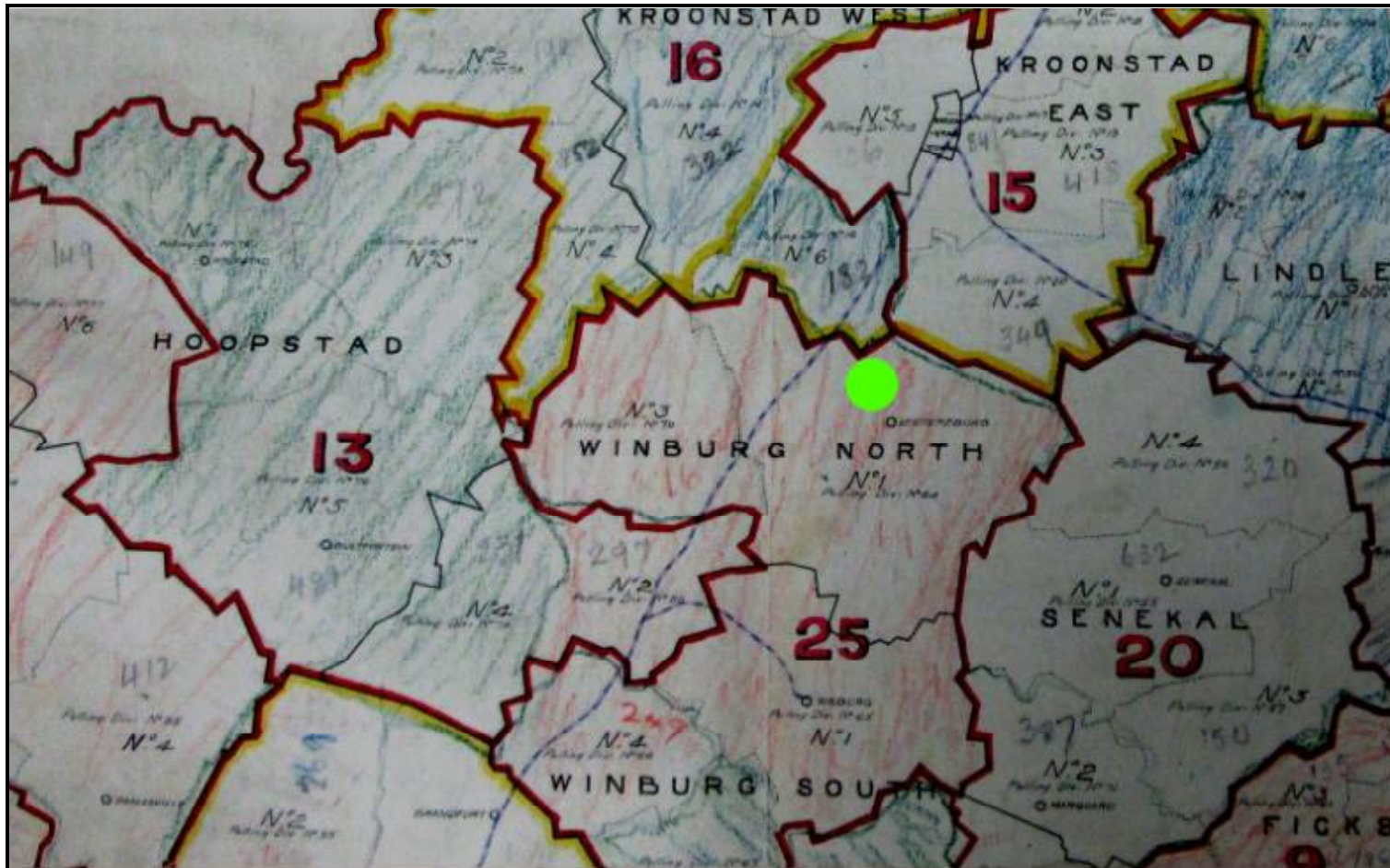


Figure 6: 1910 Map of the districts of the Orange Free State. The farm area is located in the area of the green dot, in the Winburg North District. (NASA Maps: 1/54)

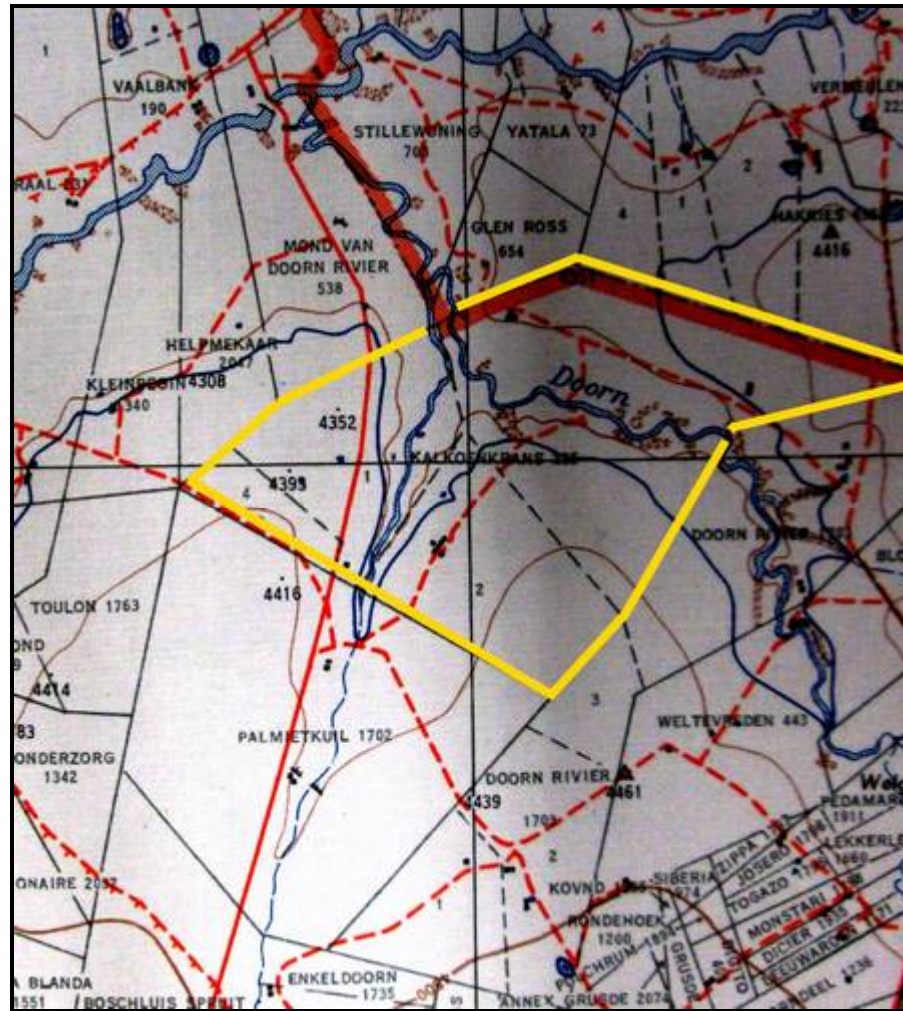


Figure 7: 1948 Map of the Odendaalsrus District in the Orange Free State. The farm Kalkoen-kran No. 225 is indicated by the yellow border. One can see that the Doorn River runs through this farm. Some secondary and smaller roads also run across the property. About four sites with buildings can be seen. These are indicated as small black squares. It cannot be ascertained from the map what these buildings were used for. (NASA Maps: 1/271)

5.1.2. A Brief History of Human Settlement And Black And White Interaction In The Farm Area

The farm Kalkoen-krans No. 225 is located within the northern part of the Free State province. The land surface of South Africa can be divided into 22 physiographic regions, depending on the altitude and surface form. The farm area forms part of the Highveld zone. Together the Upper Karoo and the Highveld cover most of the interior of the country. For about 10% to 15% of the year, the northern Highveld area experiences rainfall of less than 75% of the average. This means that rains are frequent enough that only a small percentage of farmland in the area is under irrigation. The main agricultural produce of the northern Free State is cereals, and the farm area under investigation falls under some of the main wheat and maize producing districts in South Africa. (Readers Digest 1984: 13, 21, 62-63)

In order to understand the history of an area, one should seek knowledge regarding its early inhabitants. The Bushmen were the earliest inhabitants of the Northern Free State, where Kalkoen-krans No. 225 is located. These people were aboriginal foragers, as well as hunters, and roamed the area for hundreds of years. Bantu-speaking tribes later moved into the area and the combined stress of white and black migration led to the expulsion of the Bushmen from this area over time. (Coplan 2008: 118, 130-131)

The first Europeans arrived in the Cape in 1652, and expansion to the north only started in the late 1820s. The Great Trek of 1837, as this northern movement of white people from the Cape Colony was called, resulted in a mass migration of white people into the northern areas of South Africa. (Ross 2002:39) By 1941 the farm area was located in the Boer republic of Winburg, which was established in 1837. The black tribe that was prominent in that area at the time was the Tlokwa. In 1848 the new British Governor at the Cape, Sir Harry Smith, annexed the independent Boer territories between the Orange and the Vaal rivers and called it the Orange River Sovereignty. (Readers Digest 1984: 31)

The discovery of diamonds and gold in the northern provinces between 1867 and 1886 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 intentions of expanding their territory into the northern Boer republics. This eventually led to the Anglo-Boer War, which took place between 1899 and 1902, 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)

The northern Free State is located within the area where some of the main operations of the Boer General, Christiaan De Wet, took place between 1899 and May 1900 when the war ended. De Wet, among the other Boer generals, realized that they could not win the war by conventional means, and spread out into small hit-and-run groups that inflicted serious casualties on the British armies. This is known as Guerrilla warfare. The British Commander-In-Chief, Lord Kitchener, consequently turned to the destruction of Boer crops and built concentration camps where the wives and children of the Boer soldiers were interned. This

"scorched earth" policy of the British finally resulted in the demoralisation of the Boers. (Readers Digest 1984: 33) Peace talks between the Boers and the British had started around April 1902, and culminated in the Peace of Vereeniging treaty on 31 May 1902. This event signalled the end of the Anglo-Boer War, as well as the temporary end of the Boer Republics' independence. (Geskiedenisatlas van Suid-Afrika 1999: 251)

According to the source of De Bruin, the railway station of Hennenman was occupied by British troops on 11 May 1900. This town is located in the vicinity of Kalkoen-kran No. 225. (De Bruin 1960: 52)

Though segregation and apartheid would later be rife in South Africa, black and white relations were nonetheless at times also interdependent in nature. After the Great Trek, when white farmers had settled in various areas, wealthier farmers were often willing to lodge needy white families on their property in exchange for odd jobs and commando service. This *bywoner* often arrived with a family and a few cows. He would till the soil and pay a minimal rent to the farmer from the crops he grew. The farmer did not consider him a laborer, but mostly kept black workers for hard labour on the farm. After the Anglo-Boer War, many families were left destitute. Post war years of severe droughts and locust plagues did not ameliorate this state of affairs. All of these factors resulted in what became known as the 'poor white problem'. On the advent of commercial farming in South Africa, white landowners soon found bywoners to be a financial burden, and many were evicted from farms. In many cases, wealthier landlords found it far more profitable to rent their land to blacks than to bywoners. This enabled them to create reservoirs of black labour (for which mine recruiting agencies were prepared to pay handsome commissions), while it was also possible to draw more rent from their black tenants. This practice was outlawed by the 1913 Natives Land Act, which forbade more than five black families from living on white farms as peasant squatters. (Readers Digest 1992: 329-332)

Since the time that the early pioneers, or Voortrekkers, crossed the Orange River, the Free State developed steadily to the stage where it became an important contributor to South Africa's food supplies. Some of the commodities that are produced here is maize, wheat, oil-bearing seeds, dairy products and meat. The Free State has however only more recently become important for its mining potential. The goldfields in this province lie in the north western Free State, some 240 kilometres southwest of Johannesburg. These gold deposits are of the same geological age as those of the Witwatersrand and occur in the same geological system. It is believed that the reefs in which the Free State gold is found is an extension of the reefs of the Witwatersrand. (Anon 1954: 16)

The discovery of gold transformed the landscape of the north western Free State. By the 1954 three of the six mines surrounding Welkom had reached the production stage. These were Welkom, Western Holdings and St. Helena. The rest were expected to produce by the end of 1954. By 1941, when it became apparent that important gold discoveries had been made in the Free State, the Union Government established the Natural Resources Development Council, whose function it was to coordinate the development of new industrial areas. This was to ensure that the area would not develop haphazardly, as it did in the Witwatersrand. One of the first principles laid down was that several relatively small towns would be developed rather than one large city. As a result of this, Allanridge, in the north, served the Jeannette and Loraine mines; Odendaalsrus, nine miles south of Allanridge, served the two Freddie's mines; Welkom, a further nine miles south, served the six mines surrounding it and Virginia, twelve miles south of Welkom, served the three mines in the south eastern portion of the goldfield. (Anon 1954: 18-19)

A farm does not exist in isolation, and it is important to understand the social history of the surrounding area. Since the farm under investigation is located in proximity to Odendaalsrus, Welkom, Hennenman, Ventersburg and Theunissen the history of these towns will be of interest for this report. Short discussions on each will be given.

Odendaalsrus

The town Odendaalsrus is located some 17 kilometres from Allanridge, in the heart of the Free State gold fields. The farm on which the town was originally established was owned by the Odendaal family, and hence the name of the town. Odendaalsrus was already established in 1899, and had municipal status by 1912. It however started out as a poor and struggling town. This however changed when gold was discovered in the area, and Odendaalsrus had developed into a well-developed modern complex by the 1980s. The town was serviced by a railway line that was extended from Allanridge to Odendaalsrus in 1953. (Niehaber et al. 1982: 74; Oberholser et al. 1954: xx)

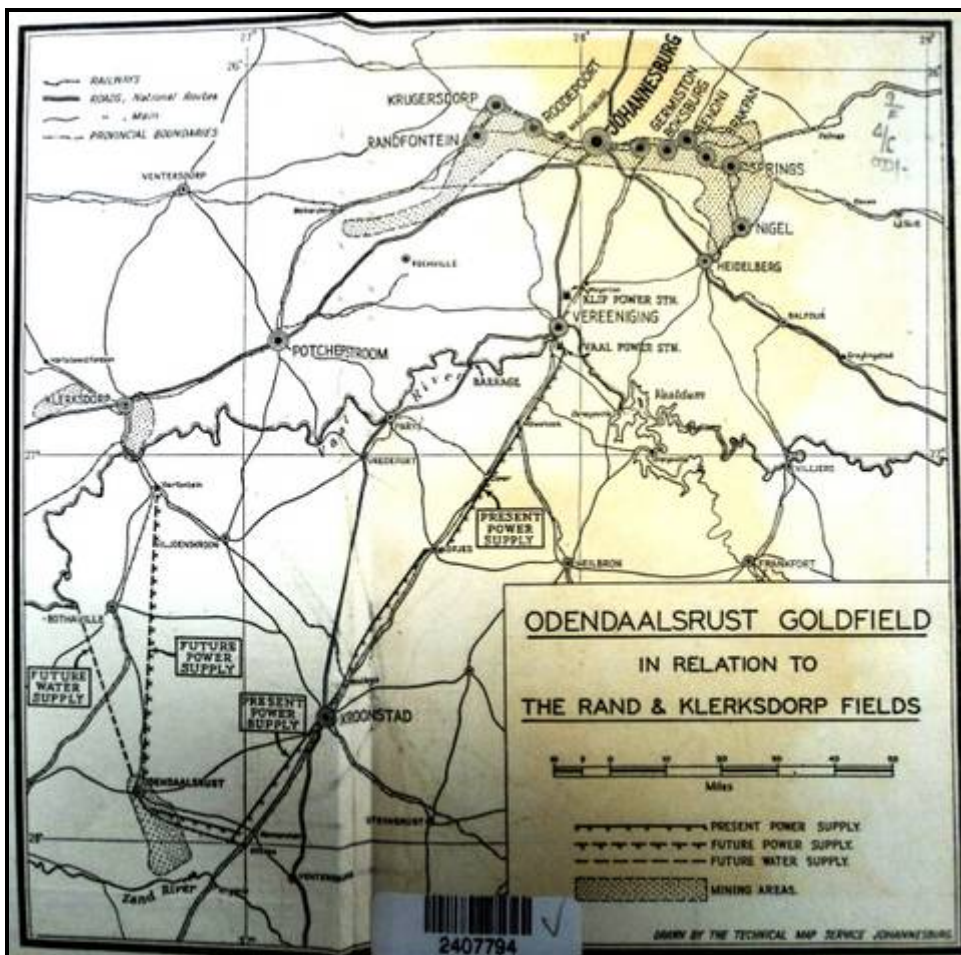


Figure 8: Odendaalsrus Goldfield in relation to the Rand & Klerksdorp Fields. (Jacobsson 1882)



Figure 9: An aerial view of Odendaalsrus (looking south-east) taken in October, 1946. The outstanding building towards the right of the picture is the Dutch Reformed Church: two blocks away to the left is the market square with the municipal offices (the small building in front of the line of trees. (Jacobsson 1882)

Welkom

One of the earliest monuments at Welkom is located at the place where the Voortrekkers established a lookout post on the bank of the Sand River in the 1800s. This was in order to protect the Voortrekkers from Matabele cattle marauders. The establishment of the town was approved in 1946, and it developed very quickly thereafter. The town was named after one of the farms on which it was established. By the 1980s Welkom was a well-developed city. By 1982 13 large goldmines were located in a circumference of 23 kilometres from Welkom. (Niehaber et al. 1982: 71-72)



Figure 10: Welkom in the 1950s. (Oberholser et al. 1954: 153)

Ventersburg

Long before the establishment of the town of Ventersburg, people had already settled in this area. It is known that the Ventersburg area was historically used as a meeting point for the members of the Reformed Church, where they held services. In 1859, when *Dominee* D. Postma arrived in South Africa from Holland, he established a second Reformed Church Congregation on the farm Kromfontein in the Free State. The farm was at that time owned by the Voortrekker P. A. Venter, and the town would eventually be named after him. In 1872 Venter decided to have plots measured on his farm, to be sold for the establishment of a town. By 1976 Venter's land was officially recognized as a town. One of the interesting historical sites in this area is Venter's grave, which is located on the western boundary of the town. (Niehaber et al. 1982: 70)

Ventersburg was not spared during the Anglo-Boer War. The Boer commandos used the town as a military base from which they attacked the railway to Johannesburg. For this reason the British general, Bruce Hamilton, made a proclamation on 1 December 1900 that all means of life would be removed from Ventersburg, and that the remaining Boer wives and children would have to get food from the Boer commandos. Shortly hereafter the entire town was destroyed, including every house and the Reformed Church building. Only the church bell was left intact. The latter still stands in the town today, next to a new church building that was constructed in 1913. (Niehaber et al. 1982: 71)

Theunissen

There was some resistance to the establishment of the town Theunissen. In 1906 a group of Boer settlers, under the leadership of Commandant HelgaardtTheunissen, sent a request to the Free State government to establish a town on the farm Smaldeel and a portion of Poortjie (measuring a total of 1158 hectares). A railway station had been established on the farm Smaldeel by that time. There was however another group of settlers in the town of Winburg and the surrounding district who set up a petition against the establishment of a town in such close proximity to Winburg. 67 Persons signed the petition, arguing that the establishment of a town on Smaldeel would negatively affect trade and business in the area. The government however found that there was sufficient motivation for the town to be established, and permission for the establishment of a town was therefore granted in 1907. The new settlement was first known as Smaldeel or Winburgweg, but in 1909 became known as Theunissen. Commandant Helgaardt Theunissen was regarded to be the "father" of the town. (Niehaber et al. 1982: 68)

Buildings of historical value in the town is the house of Sir Pierre van Ryneveld and a small fort, both located close to the original train station, on the eastern border of the town. The fort was constructed by the British forces during the Anglo-Boer War, when Lord Roberts occupied Van Ryneveld's house and used it as his military headquarters. The fort was built to protect the house. (Niehaber et al. 1982: 68-69)

5.1.3. Historical Overview of the Development of the Area under Investigation

Various inquiries were done on the database of the National Archives of South Africa, but unfortunately no documents could be located that deal with the history of the farm Kalkoenkrans No. 225.

Some information regarding the ownership of the farm could however be found online. This will now be discussed.

The G. M. Fourie Family Trust sold a portion of Kalkoen-krans 225, measuring 261 hectares, to J. D. Human in 2000. (Landbouweekblad 2000).

In 2003 Beatrix Mining Ventures Limited held all rights to gold and other precious and base metals and minerals, precious stones and diamonds, and mineral substances of every kind whatsoever, including coal, shale mineral oil excepted on Portion 3 of Kalkoen-krans No. 225 (known as Welkom). This portion measured 942.1852 hectares. (South African Government N/d [2])

In the same year Beatrix Mining Ventures Ltd. also held the servitude for a pipe line with related rights on Portion 2 (known as Beverley) on Kalkoen-krans. This portion measured 856.532 hectares. Beatrix Mining Ventures Ltd also held the servitude for a water pipe line with related rights to the Remaining Extent (known as Irene) of the farm. This portion measured 626.8749 hectares. (South African Government N/d [2])

Beatrix Mining Ventures Limited (Beatrix Mines) had a servitude for Portion 2 (known as Beverley) and the Remaining Extent (known as Irene) of Kalkoen-krans No. 225 for a year ending on 20 June 2003. (South African Government N/d. [1])

Beatrix Mining Ventures furthermore held Portions 4 (known as Johannes) and the Remaining Extent (known as Irene) of Kalkoen-krans No. 225 as freehold farms for a year ending on 30 June 2003. (South African Government N/d. [1])

In 2009 the company Tshikovha Environmental & Communication Consulting was involved in a project entailing the construction of solar panels on the farms Kalkoen-krans 225, Palmietkuil 382 (Beatrix Mine Shaft 4, Oryx Mine) and Leeubult 52 (Beatrix Mine Shaft 2, Virginia, Free State). (Tshikovha Environmental & Communication Consulting 1999)

In 2010 a portion of Kalkoen-krans 225, measuring 856 hectares, was sold to the William Peter du Plessis Family Trust by Gold Prize Investments (Pty.) Ltd. for the sum of R4 500 000. In the same year another portion of this farm, measuring 294 hectares, was sold to R. Du Plessis by Water Leaf Properties (Pty.) Ltd. for the sum of R6 000 000. (Landbouweekblad 2010)

In 2011 a portion of the farm Kalkoen-krans No. 225, measuring 216 hectares, was sold to A. V. Du Plessis by the William Peter du Plessis Family Trust for the amount of R 2 500 000. (Landbouweekblad 2011)

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: *Low -medium*.

» 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.

Archaeological remains dating to the following periods can be expected within the study area:

» Stone Age finds

ESA: Low Probability

MSA: Medium -High Probability

LSA: Medium-High- Probability

LSA –Herder: Low Probability

» Iron Age finds

EIA: *Low Probability*

MIA: *Low Probability*

LIA: *Low -Medium Probability*

» Historical finds

Historical period: *Medium Probability*

Historical dumps: *Medium Probability*

Structural remains: *Medium Probability*

Cultural Landscape: *Low -Medium probability*

» Living Heritage

For example rainmaking sites: *Low Probability*

» Burial/Cemeteries

Burials over 100 years: *Medium Probability*

Burials younger than 60 years: *High 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 that can be expected within the study area.

8.1. Archaeology

8.1.1 Archaeological finds

There is a low-medium likelihood of finding MSA artefacts and a medium likelihood of finding LSA finds around pans. No Iron Age sites have been recorded in the wider study area and there is a low likelihood of finding sites of this period in the study area.

8.1.2 Nature of Impact

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

8.1.3 Extent of impact

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

8.2. Historical period

8.2.1 Historical finds: I

Historical finds include middens, structural remains and cultural landscape. The desktop study highlighted that the three clusters of structures is older than 60 years and features dating to this period associated with farming can occur (wind pumps etc).

8.2.2 Nature of Impact

The construction of the project can directly impact on both the visual context and sense of place of historical sites. There are some structures older than 60 years identified in the study area.

8.2.3 Extent of impact

As it is not anticipated that the project will have a direct impact on any buildings on site, the construction of the project could have a low – medium impact on a local scale.

8.3. Burials and Cemeteries

8.3.1 Burials and Cemeteries

Graves and informal cemeteries can be expected anywhere on the landscape. A single cemetery is indicated on the 1: 50 000 maps of the area (Figure 11) at co-ordinates S28°10' 6.8375" E26° 44' 50.1201"



Figure 11: Grave site indicated on the 2826 BA sheet

8.3.2 Nature of Impact

The construction and operation of the proposed project could directly impact on marked and unmarked graves. The known grave site should be avoided.

8.3.3 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 archaeological sites should be mitigatable. This assumption will have to be tested by a field visit. A single cemetery/grave site exist on the property and should be considered as a no go area (if the site still exists) in the development.

10. CONCLUSIONS AND RECOMMENDATIONS

This report endeavoured to give an account of the history of the Kalkoen-krans No. 225 farm area in the Free State Province. The general history of human settlement in the farm area was discussed. Finally, all available information on the area was taken into account to write up a short history of the developments that had taken place there.

This scoping study revealed that very few heritage sites occur in the larger region. No archaeological sites are known for the study area and no significant sites are expected, although pans could be archaeologically sensitive and best avoided, based on archival maps structures older than 60 years are expected as well as associated infrastructure. A single cemetery/grave site is understood to occur and should be considered a no go area. Every site is relevant to the Heritage Landscape, but it is anticipated that few if any could have conservation value (apart from graves). The following conclusions are applicable to the following sites:

» Palaeontology

There is a low likelihood that the proposed project will have a negative impact on the palaeontological heritage of the area (Millstead 2013). The possibility of any negative impact on the palaeontological heritage of the project area could be minimised by an examination of any excavations by a palaeontologist while excavations are being done.

» 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 there are very few buildings. The archival study indicated that the buildings are older than 60 years and protected by legislation. It is not envisaged that the buildings will be directly impacted on by the solar development. This can only be confirmed during the impact assessment stage.

» 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 within a development. These sites can however be relocated if conservation is not possible, but this option must be seen as a last resort and is not advisable. A single grave site is understood to occur and the presence of any other 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.

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.

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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 serves as a council member for the CRM Section of the Association of Southern African Association Professional Archaeologists and 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 as well as the Democratic Republic of the Congo 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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