Archaeological Impact Assessment

For the Mining Right Application on the Farm Dikpens 182 Portions 2 and 4 situated in the District of Calvinia (Northern Cape Province)

Prepared For

Site Plan Consulting

By

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5 August 2013

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Professional Member of the Association of Southern African Professional Archaeologist (#159)

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 the client was appointed as Environmental Assessment practitioner, other than fair remuneration for work performed on this project.

SIGNATURE: _____

EXECUTIVE SUMMARY

Site name and location: The Proposed Gypsum mine is located on the Farm Dikpens 182 Portions 2 and 4 situated in the District of Calvinia (Northern Cape Province).

Purpose of the study: Phase 1 Archaeological Impact Assessment to determine the presence of cultural heritage sites and the impact of the proposed project on these resources within the areas demarcated for the mining development.

1:50 000 Topographic Map: 3019 AB & BA

EIA Consultant: Site Plan Consulting

Heritage Consultant: Heritage Contracts and Archaeological Consulting CC (HCAC).

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Date of Report: 5 August 2013

Findings of the Assessment:

No sites of archaeological significance were identified during the survey. This is consistent with other studies in the area who also recorded a lack of archaeological sites (Morris 2007; van Schalkwyk 2011; van der Walt 2012; Morris 2013). Morris (1996) conducted a study on the farm Dikpens (present study) and recorded no significant sites. A re-evaluation of portion 2 & 4 of this farm formed the focus of the current study and yielded the same results.

From an archaeological point of view no red flags were identified and there is no reason why the development cannot commence work (based on approval from SAHRA) if the recommendations made in the AIA and PIA are adhered by. If during construction any archaeological finds are made (e.g. stone tools, skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the find.

An independent paleontological study by Dr Barry Millsteed (2013) was conducted and is included as Annexure A. Dr Millsteed recommended that the area, including excavations, should be assessed.

General

Due to extensive sand and grass cover, ground visibility was low on portions of the site during survey. The possible occurrence of unmarked or informal graves and subsurface finds can thus not be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

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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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 (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently,100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 BACKGROUND INFORMATION

Kind of study	Archaeological Impact Assessment
Type of development	Gypsum Mine
Rezoning/subdivision of land	Rezoning
Consultant:	Site Plan Consulting
Farm owner:	Bertie Nel (Ptn 2) and Willie Louw (Ptn 4).

Heritage Contracts and Archaeological Consulting CC was contracted by Site Plan Consulting to conduct an Archaeological Impact Assessment for the proposed Bushmanland Gypsum Mine. The Proposed project is located on the farm Dikpens 182 Portions 2 and 4 situated in the District of Calvinia, in the Northern Cape. The Archaeological Impact Assessment report forms part of the EIA for the proposed project.

The aim of the study is to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard 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. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, a review of the heritage scoping report that includes collection from various sources and consultations; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey no heritage sites were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to the appropriate SAHRA provincial office for peer review.

1.1 Terms of Reference

Field study

Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

1.2. Archaeological Legislation And Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of heritage specialist input is to:

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources;
- Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2)(b) of the NEMA and sections 39(3)(b)(iii) of the MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of

the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

1.3 Description of Study Area

1.3.1 Location Data

The study area is located on Farm Dikpens 182 Portions 2 and 4 situated in the District of Calvinia (Northern Cape Province). The study area falls within the bioregion described by Mucina *et al* (2006) as the Trans-Escarpment Succulent Karoo Bioregion and within the Succulent Karoo Biome. The vegetation type which occurs on the site is described as Hantam Karoo. Land use in the study area is characterized by agriculture, dominated by sheep farming, however, the carrying capacity of the region is very low. The study area is flat with rolling topography. Larger hills are present at a distance from the site to the South-west. The climate can be described as arid to semi-arid with rainfall occurring from November to April.

1.3.2. Location Map

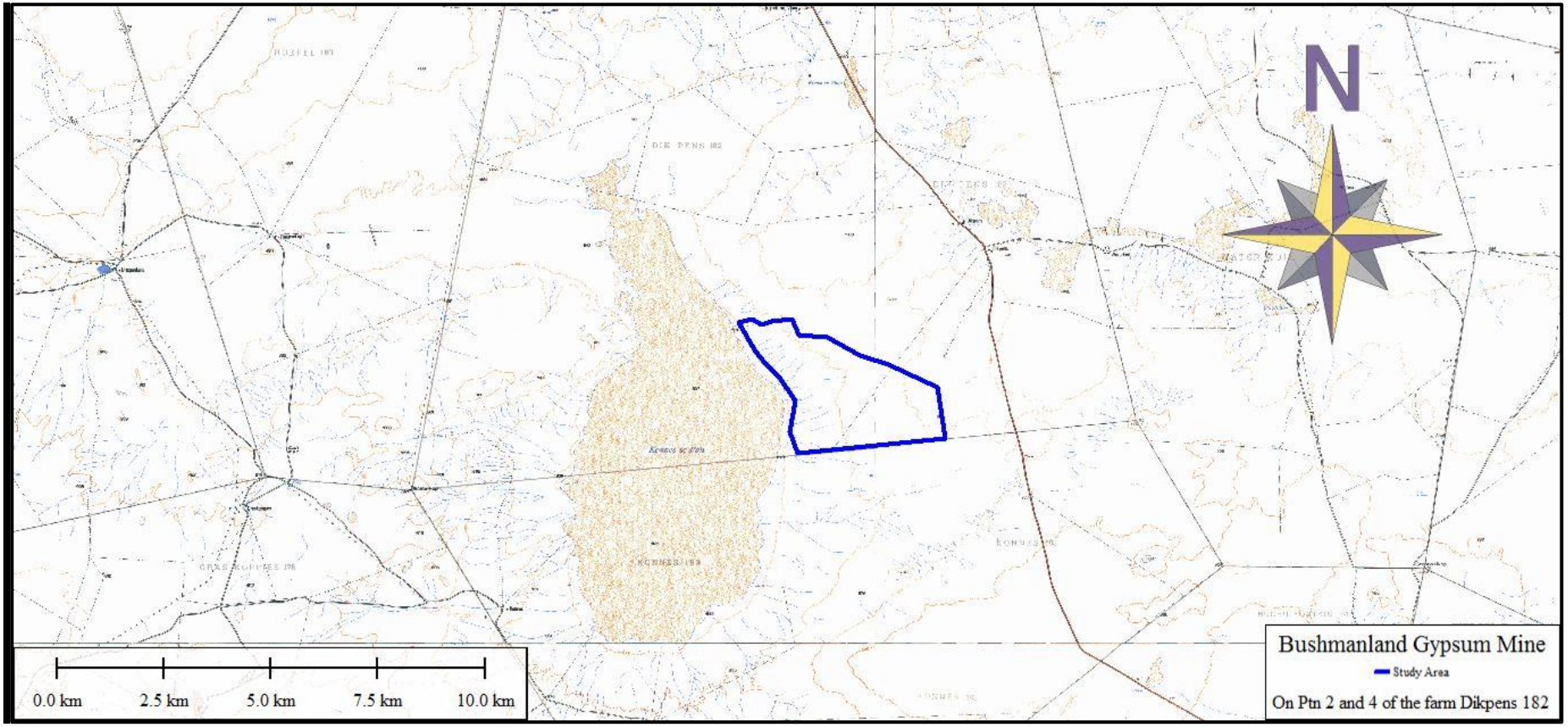


Figure 1: Location map

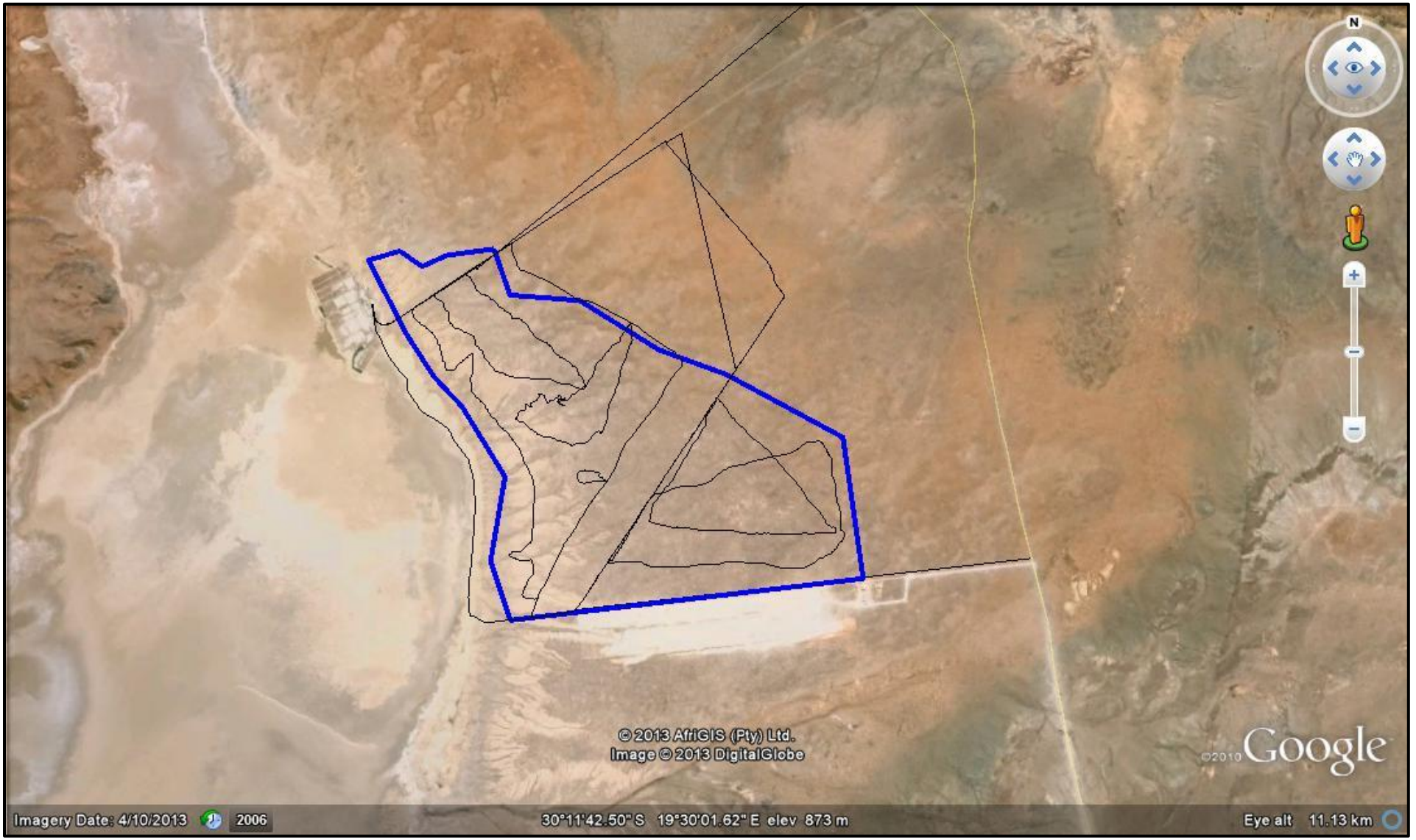


Figure 2: Google Image showing the study area (blue) and track log (black) of the areas that were covered during the survey.

2. APPROACH AND METHODOLOGY

The aim of the study is to cover archaeological databases and historical sources to compile a background history of the study area followed by field verification; this was accomplished by means of the following phases.

2.1 Phase 1 - Desktop Study

The first phase comprised a desktop study scanning existing records for archaeological sites, historical sites, graves, architecture (structures older than 60 years) of the area.

2.1.1 Literature Search

Utilising data for information gathering stored in the National Archives and previous CRM reports done in the area. The aim of this is to extract data and information on the area in question.

2.1.2 Information Collection

The SAHRA report mapping project (Version 1.0) and South African Heritage Information System were consulted to collect data from previously conducted CRM projects in the region to provide a comprehensive account of the history of the study area.

2.1.3 Consultation

Heritage Contracts and Archaeological Consulting CC (HCAC) conducted brief consultations with Mr J. Nel, a CRM practitioner who conducted work in the area, as well as farm owners Mr Bertie Nel of Portion 2 and Mr Willie Louw of Portion 4.

2.1.4 Google Earth and Mapping Survey

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

2.1.5 Genealogical Society of South Africa

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

2.2 Phase 2 - Physical Surveying

A field survey of the study area of 724 ha was conducted; focussing on drainage lines, hills and outcrops, high lying areas and disturbances in the topography. The study area was surveyed by means of vehicle and extensive surveys on foot by a professional archaeologist from 23 to 25 July 2013.

All sites discovered inside the proposed development area was plotted on 1:50 000 maps and their GPS co-ordinates noted. Digital photographs were taken at all the sites.

2.3. Restrictions

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. Low ground visibility of parts of the study area is due to sand and grass cover, and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Only the surface infrastructure footprint areas were surveyed as indicated in the location map, and not the entire farm. This study did not assess the impact on the palaeontological component of the project. Although Heritage Contracts and Archaeological Consulting CC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

3 NATURE OF THE DEVELOPMENT

- The mining method that will be employed at this site is the tried and tested method (with some amendment) in use at the existing mine and consists of the following:
- Bulldozer and self-elevating scrapers are used to remove the vegetation and approximately 50cm topsoil over an area of about 1ha.
- Topsoil must be transported to previously mined out areas as soon as possible and should be used in rehabilitation of that mined out area.
- Actual mining of the Gypsite takes place using the Wirtgen continuous surface milling miner. The machine operates by cutting gypsite strips of 1.9m wide to a cutting depth of 0.2m.
- The strips are between 200 and 600m long and mined in blocks 19m wide (i.e. 10 passes of the Wirtgen).
- The Wirtgen cuts and crushes the Gypsum to 20mm (or less).
- The Wirtgen leaves the Gypsum material in windrows along each cut. Such material is collected by self-elevating scrapers and taken to central stockpile, loaded on trucks and dispatched to market.
- No electricity is required. No water is used in the process.

The applicant’s main logistical facility site is an existing facility located on the adjacent property. That site has large supply of stores and workshop facilities. As a result no stores or workshop facility will be required at this site.

4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

4.1 Databases Consulted

Wits and McGregor Museum Archaeological Data Bases

No previously recorded sites are on record for the study area.

SAHRA Report Mapping Project

The SAHRA Report Mapping project (version 1) and SAHRIS have some surveys on record for the wider study (e.g., Fourie 2011, van Schalkwyk 2011, Webley & Halkett 2012, Morris 2013). Apart from the study by Webley and Halkett who documented MSA scatters and LSA sites (45 km to the south of the study area) none of the other studies found any sites of heritage significance in the respective study areas. Morris (1996) conducted a study on the farm Dikpens including the current mining area and also recorded no significant sites. He did however note low densities of ostrich eggshell fragments.

Genealogical Society and Google Earth Monuments

Neither the Genealogical Society nor the monuments database at Google Earth (Google Earth also include some archaeological sites and historical battlefields) have any recorded sites in the study area.

Public Consultation

Both the farm owners that were consulted indicated that they are aware of sites (including stone tools, ostrich eggshell containers, ceramics and ostrich eggshell beads). These sites are all located well away from the current study area where fresh water and focal points like small hills are found. For the study area they were aware of ostrich eggshell fragments but attributed these to ostriches that occurred in the area.

4.2 Archaeological and Historical Information Available on the Study Area

The following section will endeavour to give an account of the history of the farm Dikpens and also a brief overview of the history of the area and district in which it is located. This section has been divided into several sub 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 farm

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 farm Dikpens No. 182 is located. Sources included secondary source material, maps and archival documents. While it was possible to compile a more detailed history of the Loeriesfontein area, only limited information was available on the history of the farm under investigation. No documents could be found in the National Archives of South Africa that specifically refer to this farm. Information gathered from online sources, maps and references to documents in the Cape Town Archive repository were however used to give some information on the farm.

This study is by no means all-inclusive, and there are doubtlessly still sources to be found on the history of the property and area researched in this study. Owing to the constraints in time and resources, this study should be viewed as an introduction to the history of the area and the specific farm under investigation.

4.2.2. Maps Of The Area Under Investigation

Figure 3: A Google Earth image showing the outline of Dikpens No. 182. The farm is located in a largely undeveloped area. (Google Earth 2011)

Figure 4: Google Earth Image showing Dikpens No. 182 in relation to the towns Loeriesfontein (80 kilometres to the south) and Pofadder (114 kilometres to the north). These are the two towns located closest to this farm. (Google Earth 2011)

Figure 5: Map of the Cape Colony in 1901. This map was compiled from information supplied by the Attorney General's Department at the time. The lighter areas, including the Calvinia District, were occupied at this stage of the Anglo-Boer War. (National Archives of South Africa 1901)

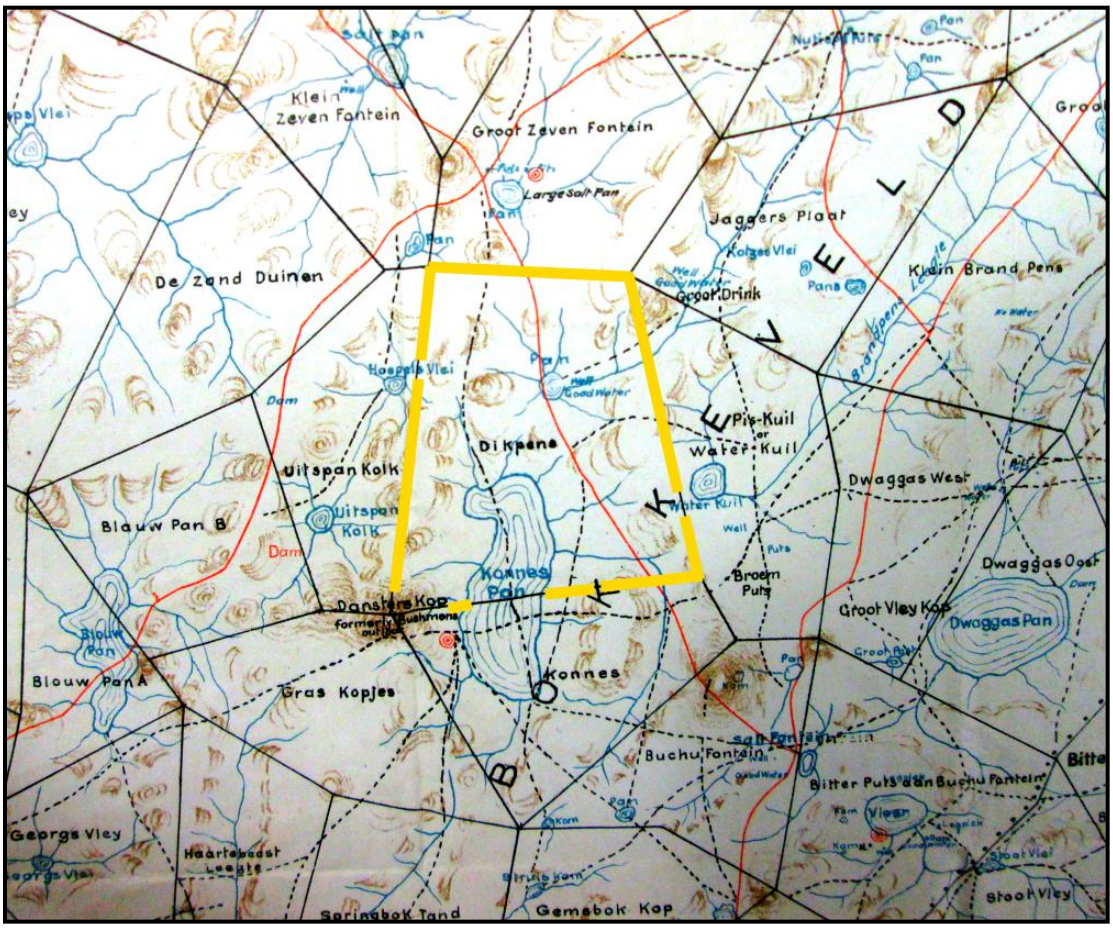
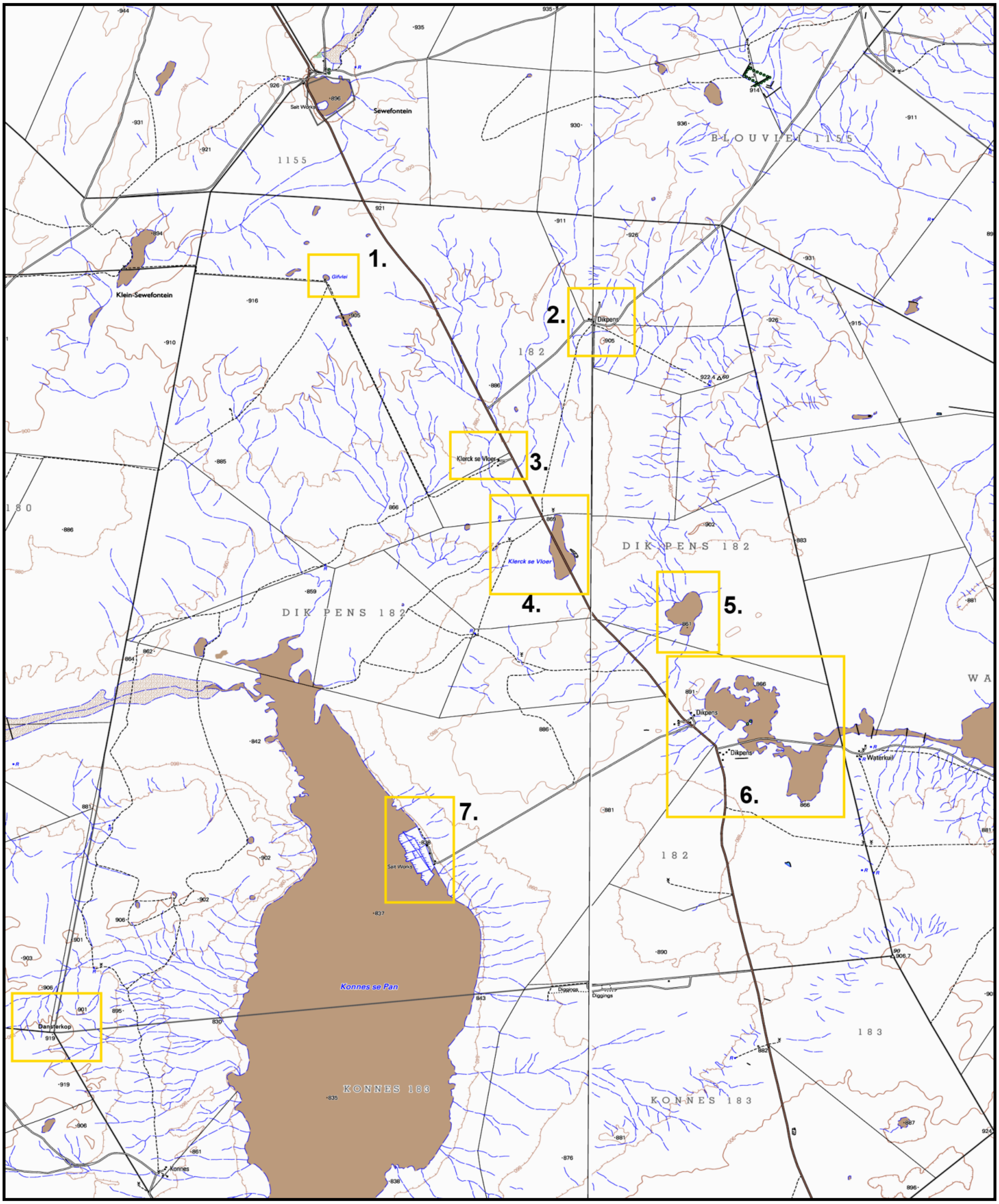


Figure 6: A 1901 map of the Salt Pan district. One can see that a main road intersected the farm Dikpens from north to south. Three farm roads also intersect the property. One can see a pan in the northern half of the property. It is indicated that a well with “good water” was located close to the pan. A number of rivers branch from the pan. Another large body of water called Konnes Pan was located in the southern half of the farm, and stretched into the adjacent farm. Several hills can be seen on the property, and the large hill Dusters Kop is located in the southwestern corner of Dikpens. It is indicated that this hill was formerly a “Bushmen’s outlook”. (NASA *SAB, Maps: 3/541*)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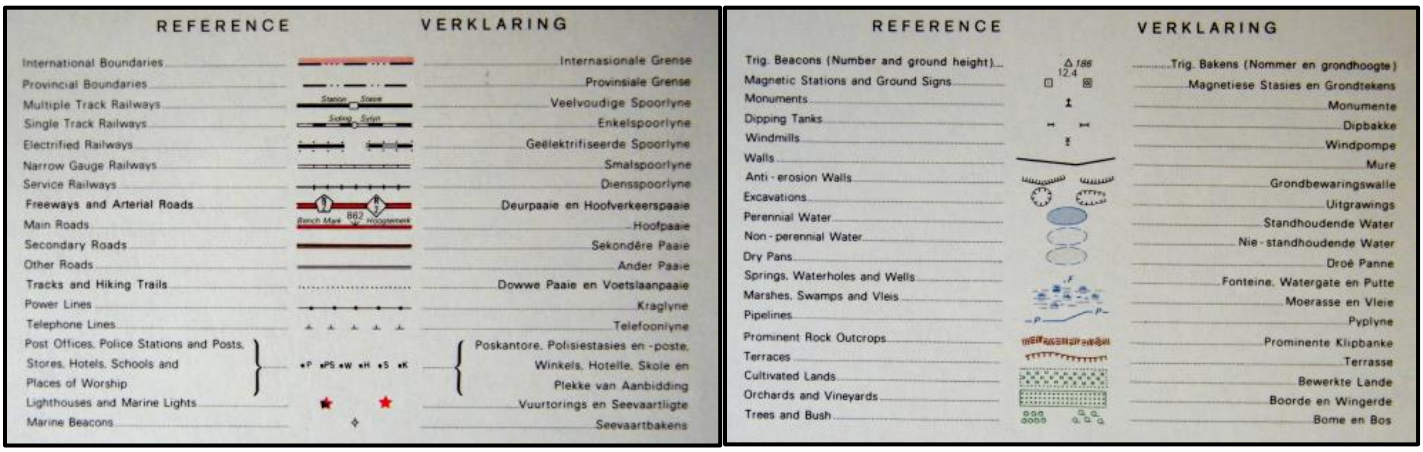

Figure 7: A 2003 topographical map of the farm Dikpens No. 182. Due to the size of the farm, it is not easy to see sites of interest on this map. Places of interest were therefore marked and numbered. 1. One can see a dry pan at this site, known as Gavle. Five other small dry pans can be seen in close vicinity of Gavle. 2. Two small roads intersect at the site of Dikpens. About four buildings can be seen at the site. 3. The Site of Klerch se Vloer is indicated. Two buildings can be seen. 4. Another dry pan is visible, as well as two windmills. This site is also known as Klerck se Vloer. 5. A dry pan is visible. 6. Two sites known as Dikpens are indicated close to the secondary road. Five buildings and a windmill can be seen at the first site, and five buildings are visible at the second site. Al large salt pan can be seen. 7. Konnes se Pan is a large dry pan that forms a part of the southern section of the property. Salt Works are visible in the eastern part of the pan. A small road connects this area with the secondary road. (Topographical Map 2003 [*2019BA & 2019AB*])

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

In order to understand the historical context of a certain area, it is necessary to consider the geographic and climatic nature of the region in question. The Calvinia District, in which Loeriesfontein and the farm Dikpens No. 182 is situated, received an average of five to ten inches of rain per square mile annually by the early 1900s. During the months of December to March, the area received less than 2 inches of rain per square mile on average. This area is therefore very dry, and this fact is reflected in the very sparse population in the area up until the present (Burton 1903: p. 40).

Some of the writings of the early history of Loeriesfontein are based on oral accounts of the coloured population who used to live in the area. A valuable source of information is a number of oral testimonies that were recorded at Calvinia between the years 1888 and 1892, due to a serious dispute regarding the ownership of property at Loeriesfontein. In 1892, an elderly coloured man called Piet Beukes testified that Loeriesfontein was originally a “kraal” where the ‘Hottentot’ (Khoikhoi) Chief Ruyter Philander ruled over a tribe of coloured people. Beukes noted that Loeriesfontein was already known by that name at the time. Philander and his following then apparently moved to the Orange River, and transferred his right to the land to the remaining

coloured and Khoikhoi population. If this account is accurate, it seems that coloured people may have been the first inhabitants in this area. (Möller 1988: pp. 2-3)

In 1859, 38 coloured individuals applied to the District Council at Calvinia for crown land to settle on at Loeriesfontein. In 1860, a 3000 hectare piece of land was ceded by “Ticket of Occupation” to the coloured population in the area. The settlement on the land was subject to conditions and rules that could be changed by the Calvinia District Council, as they saw fit and “connected with the advancement of civilization”. By 1989, a Civil Commissioner investigated the situation in the area where these people used to live, and found that the all of the land had been leased out to white farmers. Furthermore, the coloured population was described as being unemployed and giving refuge to vagrants and thieves. The original crown land was sold by auction in the 1893, and the coloured population had to move to plots of land designated to them at Loeriesfontein. (Möller 1988: pp. 4-7) Unfortunately, almost all of the 37 families who received plots of land eventually moved out of the area. This was partly due to years of heavy drought, as well as debt and bad investments. Only one or two families remained on the plots that were acceded to their ancestors. Some of the other families lived in poor conditions in a location at Loeriesfontein. (Möller 1988: pp. 7-11)

The Anglo-Boer War was an event that had a great role to play in shaping South Africa’s history. This conflict took place between 1899 and 1902, and did not only affect the lives of white South Africans, but had a very important impact on the country’s black and coloured populations. As Bill Nasson puts it, “Despite the gaps in our knowledge, we are now beginning to appreciate the full and complex dimensions of black involvement in 'the white man's war'. (Nasson 1988: p. 239)

Though no information could be found regarding the impact of the Anglo-Boer War on the farm Dikpens No. 182, some information could be found on how the nearby town, Loeriesfontein, as well as the more distant town of Calvinia were impacted. A rather well-known incident is that of the execution of Abraham Esau in 1901. The life and death of Esau had a major impact on the formation of social relations and political and cultural identities in the small rural town of Calvinia. (Nasson 1988: p. 240) As Esau had a special and close relationship with his employer, the English landowner William Seton, his family adopted the English language and joined the Anglican Church. Having achieved some mild prosperity as a blacksmith in Calvinia, Abraham Esau rose as a leader of Calvinia’s coloured population. (Nasson 1988: p. 240-244) The Republican Boer forces occupied Calvinia in January 1901, and Esau became very outspoken against these military occupiers. The Boer Governor, Field Cornet C. van der Merwe, had Esau arrested and given 25 lashes, causing him to faint. His persecution continued in the following weeks, as the British forces advanced on the town in February 1901. Esau was arrested again, put in leg-irons and eventually shot at the outskirts of the town. (Evans 2000: 92) One can conclude that the coloured population in the Calvinia area had an active part to play in this conflict, and were in many instances severely affected by it.

Though the town of Loeriesfontein is situated 80 kilometers from the farm Dikpens, this is the town located closest to the property. The history of this town is therefore of importance. There are various theories as to where the name “Loeriesfontein” had its origin. The most likely of these is that the town is named after the Grey Loerie, a bird species that was apparently abundant in the area in the past. It is not known when this name first came into use. (Möller 1988: pp. 1-2)

One of the earliest white travelers who surveyed and drew maps of the area in which Loeriesfontein is today situated, was the secretary of Lord McCartney, John Barrow. In the late 1790s, Barrow drew up a map of the Northern Cape area. Place names like Kubiskow, Kamdani, Hantam River and Onder-Bokkeveld were indicated on the map, but Loeriesfontein was not yet present. Loeriesfontein was, in fact, first indicated on a map in 1860. In that year, the Land Surveyor, J. M. Wentzel received an order to measure and draw up the crown land farm known as Loeriesfontein. (Möller 1988: pp. 2-3)

In 1899, the first police station and police cells were erected at Loeriesfontein. By January 1904, when Loeriesfontein elected its first Town Council, there were 643 white and 436 coloured individuals living there. The first white church in the town was established in 1916. (Möller 1988: pp. 7-8) The town received municipal status in 1958, and hereafter several other developments took place. Loeriesfontein was provided with electricity in June 1960, and in 1972 the town got its own coat of arms. In 1985, the town had a population of 357 whites, 1538 coloureds and 15 blacks. (Möller 1988: p. 12)

In 1968, a certain specific portion of Loeriesfontein was cordoned off as a white area, whereas another portion was demarcated to be a coloured area. This was done following a proclamation by the State President of South Africa, according the provisions of sections 16 to 23, as well as 29 to 37 and 47 of the Community Development Act of 1966. (National Archives of South Africa 1968)

4.2.4. Historical Overview Of The Ownership And Development Of The Farm Dikpens 182

Unfortunately, no documents referring to this farm could be found at the National Archives of South Africa. It is however possible to draw some conclusions with bits and pieces of information that could be found elsewhere.

In 1887 one C. J. Kotze applied for the extension of a lease that he had on the properties Wolfskop and Dikpens in the Calvinia district. It is likely that this is the farm under investigation.

It seems that a portion of the farm Dikpens was transferred to one DJ Laubscher in 1911. He would be joined by C. Lombard as a co-principal debtor. (Cape Town Archives: KAB, T: 1266 1195)

The farm Dikpens No. 182 is used mainly for the purpose of agriculture at the present. Here is a list of the current owners of the property, as listed on the General Valuation roll for the period 1 July 2013 to 30 June 2017 by the Khâi-Ma Municipality in the Northern Cape Province. (DDP Valuers 2013)

Farm name	**Portion**	**Landowner**	**Activities on the property**	**Farm size**	**Market value**
Dikpens 182	RE	Nel Jacobus Hendrik Louw, Nel Susanna Maryna	Farming	3 965.7458	1 780 000
Dikpens 182	2	Nel Nicolaas Daniel Lombard	Farming	449.6773	200 000
Dikpens 182	3	Louw Willem Steenkamp En Ander	Farming	153.7860	110 000
Dikpens 182	4	Louw Willem Steenkamp	Farming	1 832.9008	820 000
Dikpens 182	8	Lombard Gert Johannes	Farming	3 427.9591	1 540 000
Dikpens 182	9	Nel Nicolaas Daniel Lombard	Farming	1 792.8067	810 000
Dikpens 182	10	Lombard Gert Johannes	Farming	2 084.4561	940 000
Dikpens 182	11	Louw Hermanus Albertus	Farming	2 101.5899	950 000
Dikpens 182	12	Louw Willem Steenkamp	Farming	96.9416	110 000

Information could be found on one mine that was situated on the property Dikpens No. 182 by 2006. On Portion 2 of the farm, a surface salt mine is operated by United Salt (Pty) Ltd. (Infomine 2006: 83)

5. PALAEONTOLOGY

A Paleotological desktop study by Dr Barry Milsteed was conducted on the project area and is included as Annexure A to the report. He noted the following "*The project area is underlain by rocks of the Prince Albert Formation, Karoo Dolerite Suite and various Cenozoic regolith sedimentary units. It is known that elsewhere in the South Africa the Prince Albert Formation and sediments coeval with the regolith are fossiliferous. The potential for a negative impact on the fossil heritage of the area can be quantified in the following manner. The probability of a negative impact on the palaeontological heritage of the Prince Albert Formation and the Cenozoic regolith is low due to the general scarcity of fossils within these units. However, the vertebrate faunas contained within the Cenozoic regolith are potentially significant, amongst other reasons, for documenting the palaeoecology and palaeoclimate of the an otherwise sparsely recorded preceding 15-16 Ma of South African history; so any negative impact may have high significance. The fossils within the Prince Albert Formation are potentially significant, but this unit will suffer minimal impact from the mining operation. The dolerites are igneous, intrusive rocks and are unfossiliferous and, as such there will be nil impact of any significance. Thus, the probability of any significant negative impact upon the fossil assemblages contained within these geological units is restricted to the Cenozoic regolith*." (Milsteed 2013).

It is important to note that the AIA and PIA are not stand alone reports and should be read in conjunction with each other.

5. 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, or a representative sample, depending on the nature of the project. In the case of the Gypsum Mine the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. 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. The following criteria were used to establish site significance:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposits;
- 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/is known);
- The preservation condition of the sites;
- Potential to answer present research questions.

Furthermore, The National Heritage Resources Act (Act No 25 of 1999, Sec 3) distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

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

5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and approved by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 9 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	Grade 3A	High significance	Conservation; mitigation not

(LS)			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

6. BASELINE STUDY

It is important to note that the entire Dikpens farm was not surveyed but only the mining footprint on portion 2 and 4 as indicated in Figure 1. Although the study area measures 725ha in extent the area to be disturbed measures 162ha within the 725ha as a series of non-contiguous mining blocks. The landscape comprises relatively flat or gently undulating terrain where the succulent Karoo vegetation is sparse so that archaeological visibility is high (Figure 7 & 8). The study area slopes westwards to Konnes Pan (Figure 11) with Aeolian sand capping the Gypsum deposits. Konnes Pan is a salt pan and gypsum deposits are commonly found with salt pans. Close to Konnes pan (between 600 and 900 meters) the sand capping is shallow and the Gypsum is exposed to the surface (Figure 9 & 10). In this exposed “band” ostrich eggshell fragments (Figure 12) are found at regular intervals. These occurrences are too regular and over such a wide area (Figure 13) that it is doubtful that they were part of containers, but rather remnants of ostriches that occurred in the area. Concurring with Morris (1996) who also mentioned these low density occurrences we recorded low density scatters of less than 4 fragments per 2m² at the recorded find spots (Table 1). None of these showed any traces of being reworked into beads etc. The total lack of suitable raw material for stone tool manufacture in the area was also noted.

No sites of significance were recorded during the survey.

Figure 8: Western view of the study area with the salt pan in the background

Figure 9. General Site conditions in Eastern portion of the study area.

Figure 10. Exposed gypsum in the western portion of the study area.

Figure 11. Western view of eroded “band” exposing the gypsum.

Figure 12: Exposed gypsum with the salt pan in the background

Figure 13. Ostrich eggshell fragments found in areas where the gypsum is exposed.

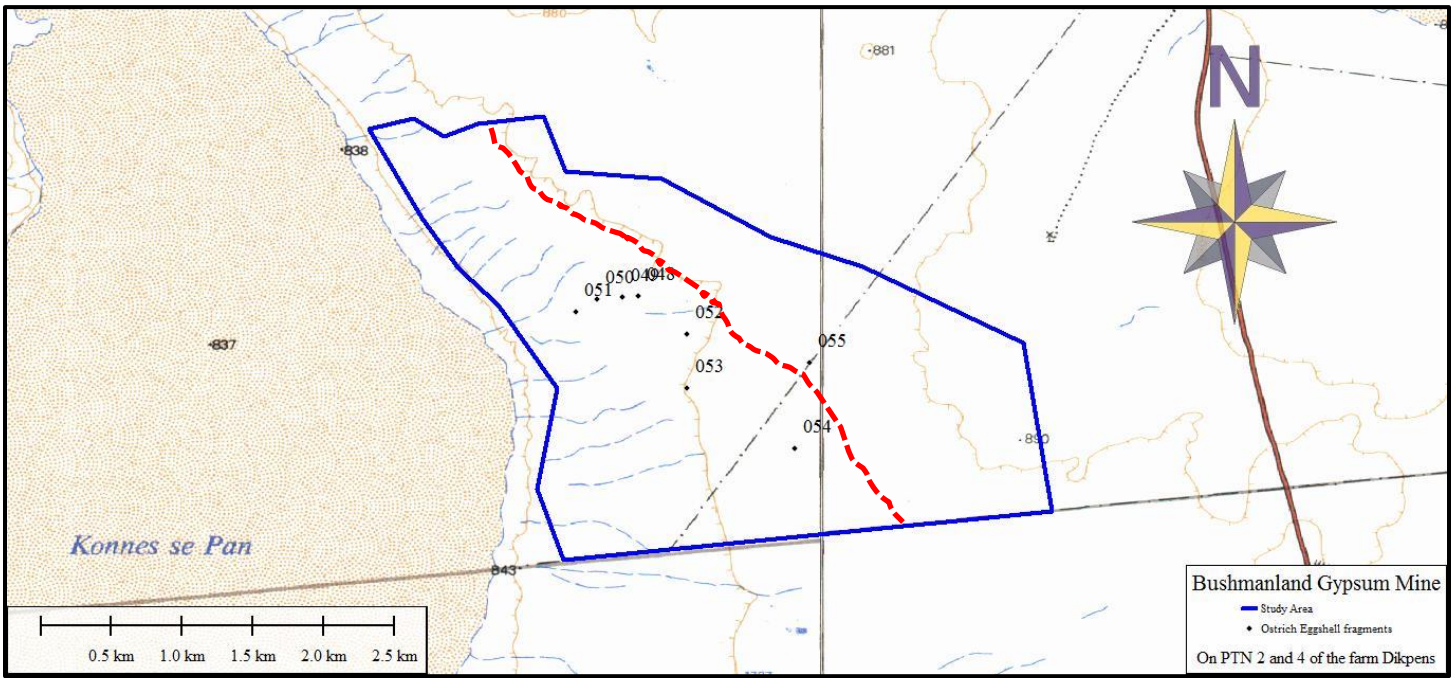

Figure 14: Distribution of ostrich eggshell fragments. The red dotted line indicates the edge of the exposed gypsum. Towards the east of the line is Aeolian sand.

Table 1: Description of locations of find spots

Field Number	Finds	Discussion	Co ordinates	Extent of find spot
48	Ostrich Eggshell Fragments	Low density scatter of less than1 fragment per 2m²	S30.19350 E19.48780	Approximately 2m²
49	Ostrich Eggshell Fragments	Low density scatter of less than1 fragment per 2m²	S30.19356 E19.48675	Approximately 2m²
50	Ostrich Eggshell Fragments	Low density scatter of less than1 fragment per 2m²	S30.19369 E19.48515	Approximately 3m²
51	Ostrich Eggshell Fragments	Low density scatter of less than1 fragment per 2m²	S30.19452 E19.48379	Approximately 4m²
52	Ostrich Eggshell Fragments	Low density scatter of less than1 fragment per 2m²	S30.19589 E19.49087	Approximately 3m²
53	Ostrich Eggshell Fragments	Low density scatter of less than2 fragments per 1m²	S30.19933 E19.49086	Approximately 2m²
54	Ostrich Eggshell Fragments	Low density scatter of less than4 fragment per 1m²	S30.20320 E19.49769	Approximately 3m²
55	Ostrich Eggshell Fragments	Low density scatter of less than2 fragment per 2m²	S30.19773 E19.49865	Approximately 5m²

8. CONCLUSION AND RECOMMENDATIONS

No sites of archaeological significance were identified during the survey. This is consistent with other studies in the area who also recorded a lack of archaeological sites (Morris 2007; van Schalkwyk 2011; van der Walt 2012; Morris 2013). This can be attributed to a featureless highly eroded undulating surfaces and plains which lack features that might have formed a focal point for past human activity. Together with the lack of fresh water in the study area and the lack of suitable raw material for stone tool manufacture. At areas like Klawervlei (Beaumont & Morris 1985) and Flamink (Morris 1996) in the wider region Stone Age sites are found on dunes and at the fringes of pans. Towards the south Webley and Halkett (2012) recorded LSA sites on little koppies as well as along a stream. Morris (1996) conducted a study on the farm Dikpens (present study) and recorded no significant sites. A re-evaluation of portion 2 & 4 of this farm formed the focus of the current study and yielded the same results.

During the Archaeological Impact Assessment no sites of archaeological significance was identified. A PIA (Milsteed 2013) for the project recommended that a paleontological site visit should be done and the open excavations should be assessed. From an archaeological point of view no red flags were identified and there is no reason why the development cannot commence work (based on approval from SAHRA) if the recommendations made in the AIA and PIA are adhered by. If during construction any archaeological finds are made (e.g. stone tools, skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the find. Table 2 summarises the impact of the proposed project on the heritage resources in the area.

Table 2: Impact evaluation of the proposed project on heritage resources

Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.
Mitigation: No archaeological sites were identified during the survey. However, if any archaeological material is uncovered during construction or operation a qualified archaeologist must be contacted to verify and record the find. Mitigation will then include documentation and sampling of the material. For the palaeontological component the specialist recommended that the area should be assessed including excavations (Millsteed 2013).
Cumulative impacts: Archaeological sites are non-renewable and impact on any archaeological context or material will be permanent and destructive.
Residual Impacts: Depletion of archaeological record of the area.

9. PROJECT TEAM

Jaco van der Walt, Project Manager

Liesl Bester, Archival Specialist

Dr. Barry Milsteed; Palaeontological Assessment

10. STATEMENT OF COMPETENCY

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also valid for/acknowledged by SAHRA and AMAFA.

Currently, I serve as Council Member for the CRM Section of ASAPA, and have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique and Tanzania as well as the DRC; having conducted more than 300 AIAs since 2000.

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