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**CK 2006/014630/23** **VAT NO.: 4360226270**

**A PHASE 1 HIA REPORT  
FOR THE COROBRIK RIETVLEI QUARRY MINING RIGHT AMENDMENT APPLICATION IN  
TERMS OF SECTION 102 OF MPRDA  
ON REMAINING EXTENT PORTIONS 26 (A PORTION OF PORTION 1) & 27 (A PORTION OF  
PORTION 26) OF THE FARM WITKOPPIES 393JR  
IN THE CITY OF TSHWANE & EKURHULENI METROPOLITAN MUNICIPALITIES  
OF GAUTENG**

For:

***Licebo Environmental and Mining (Pty) Ltd***

REPORT: **APAC023/73**

by:

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## SUMMARY

APelser Archaeological Consulting (APAC) was appointed by Licebo Environmental and Mining (Pty) Ltd, on behalf of the Applicant (Corobrik (Pty) Ltd), to conduct a Phase 1 Heritage Impact Assessment for their Rietvlei Quarry Mining Right Amendment Application in terms of Section 102 of MPRDA. The study and application Area is situated in the City of Tshwane and Ekurhuleni Metropolitan Municipalities, in the Province of Gauteng. Remaining Extent of Portions 26 (A Portion of Portion 1) & Portion 27 (A Portion of Portion 26) of the original farm Witkoppies 393 JR forms part of the study and application area.

Background research indicates that there are several cultural heritage (archaeological & historical) sites and features in the larger geographical area within which the study area falls, but no known ones in the study area and specific farm portions. None were identified during the field-based survey in the area. This report discusses the results of the background research and field-based assessment, and provides recommendations on the way forward at the end.

From a Cultural Heritage point of view, it is recommended that the Mining Right Amendment Application in terms of Section 102 of MPRDA be allowed to continue, taking into consideration the recommendations put forward at the end.

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## **1. INTRODUCTION**

APelser Archaeological Consulting (APAC) was appointed by Licebo Environmental and Mining (Pty) Ltd, on behalf of the Applicant (Corobrik (Pty) Ltd) to conduct a Phase 1 Heritage Impact Assessment for their Rietvlei Quarry Mining Right Amendment Application in terms of Section 102 of MPRDA. The project area is situated in the City of Tshwane and Ekurhuleni Metropolitan Municipalities, in the Province of Gauteng on Remaining Extent of Portion 26 (a portion of Portion 1) & Portion 27 (a Portion of Portion 26) of the original farm Witkoppies 393 JR

Background research indicates that there are several cultural heritage (archaeological & historical) sites and features in the larger geographical area within which the study area falls, but no known ones in the study area and specific farm portions. None were identified during the field-based survey in the area.

The client indicated the location and boundaries of the study area and the assessment focused on this. Representatives of the client (Licebo) accompanied the Heritage Specialist Team member during the field survey.

## **2. TERMS OF REFERENCE**

The Terms of Reference for the study was to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the mining activities;
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
5. Review applicable legislative requirements;

## **3. LEGISLATIVE REQUIREMENTS**

Aspects concerning the conservation of cultural resources are dealt with mainly in two Acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

### **3.1. The National Heritage Resources Act (Act 25 of 1999)**

According to the Act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, 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 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. Sites of Archaeological and paleontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed coal mining activities thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m<sup>2</sup> or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m<sup>2</sup>
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

### **Structures**

Section 34 (1) of the Act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

### **Archaeology, palaeontology and meteorites**

Section 35(4) of the Act deals with archaeology, palaeontology and meteorites and states that no person may, without a permit issued by the responsible heritage resources authority (National or Provincial):

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite;
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites;
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

**The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.**

### **Human remains**

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister

- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- a. destroy, damage, alter, exhume or remove from its original position of otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b. destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated to) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

### **3.2. The National Environmental Management Act (Act 107 of 1998)**

This Act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

The specific requirements that specialist studies and reports must adhere to are contained in Appendix 6 of the EIA Regulations.



## **4. METHODOLOGY**

### **4.1. Review of literature**

A review of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography. These include Bergh (1999), Huffman (2007) & Lombard et.al (2012).

### **4.2. Field survey**

The field assessment section of the study is normally conducted according to generally accepted HIA practices and aimed at locating all possible objects, sites and features of heritage significance of the mining right area. The location/position of all sites, features and objects is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

### **4.3. Oral histories**

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

### **4.4. Documentation**

All sites, objects, features and structures identified are documented according to a general set of minimum standards. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

## **5. DESCRIPTION OF THE AREA & PROJECT**

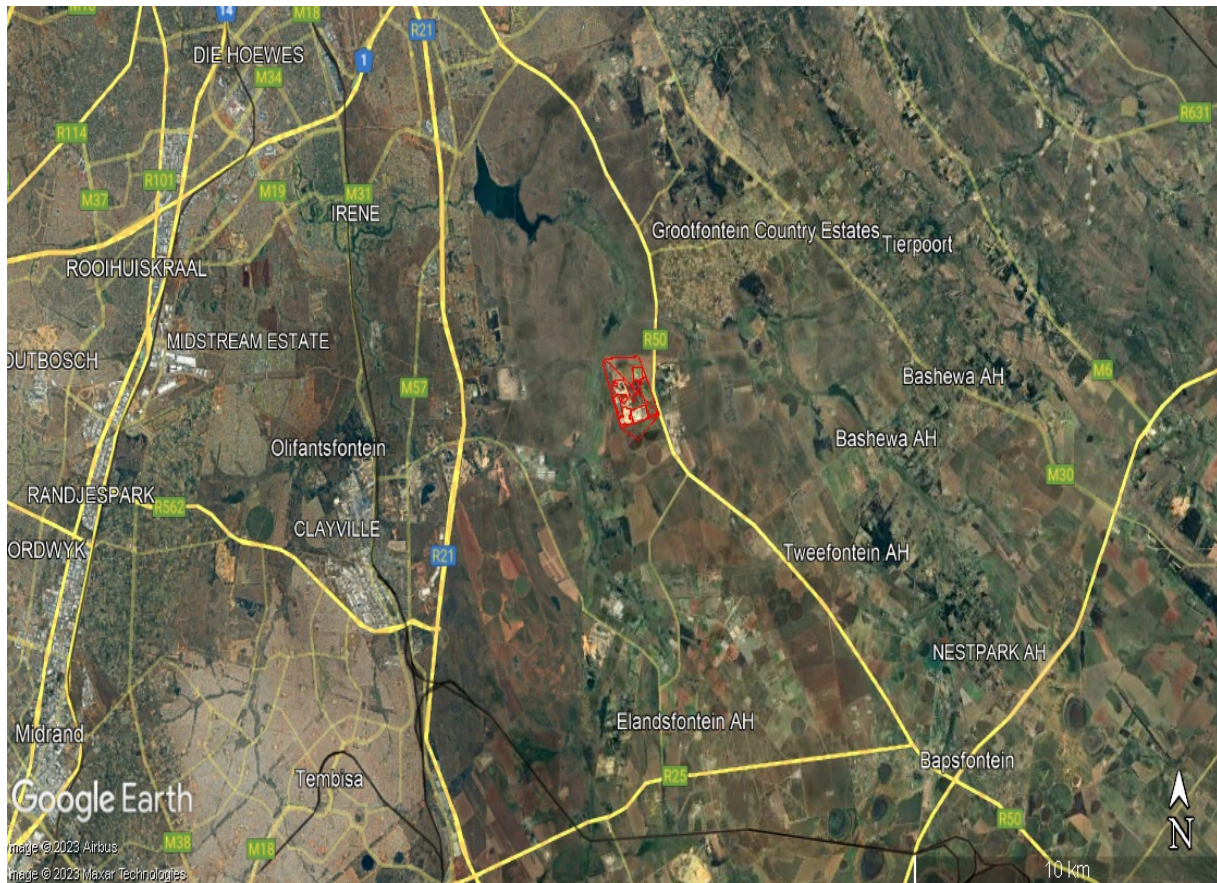
Licebo Environmental and Mining (Pty) Ltd ('LEM') as appointed by Corobrik (Pty) Ltd (Hereafter referred as 'Corobrik') to undertake the amendment of the mining right in terms of the Section 102 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA). This process will be undertaken in accordance with Section 24 (G) read together with Section 24 (F) of National Environmental Management Act (Act 107 of 1998) (NEMA) as amended in respect of undertaking listed activities without the required Environmental Authorisation in respect to coal mining activities which was discovered on Portion 26 (Portion of Portion 26) and Portion 27 (Portion of Portion 27) the farm Witkoppies 393 JR.

This application process will include compilation of required environmental authorisation application documents which will involve the Basic Assessment Report (BAR) and the Environmental Management Programme report (EMPr) as required in terms of the National Environmental Management Act (Act 107 of 1998) as amended and the Environmental Impact

Assessment (EIA) regulations as amended (Government Notice Regulation 982 as amended) and the applicable environmental Listing Notice 1 – GNR 983 and Listing Notice 3 – GNR 985.

The Corobrik Rietvlei Factory/Quarry is located approximately at S25°55'20" E28°19'00. The study area measures approximately 2,11km<sup>2</sup>. The eastern border of the site is the R50/Delmas Road. The western and southern boundaries border privately owned farms while the northern boundary borders the Rietvlei Nature Reserve.

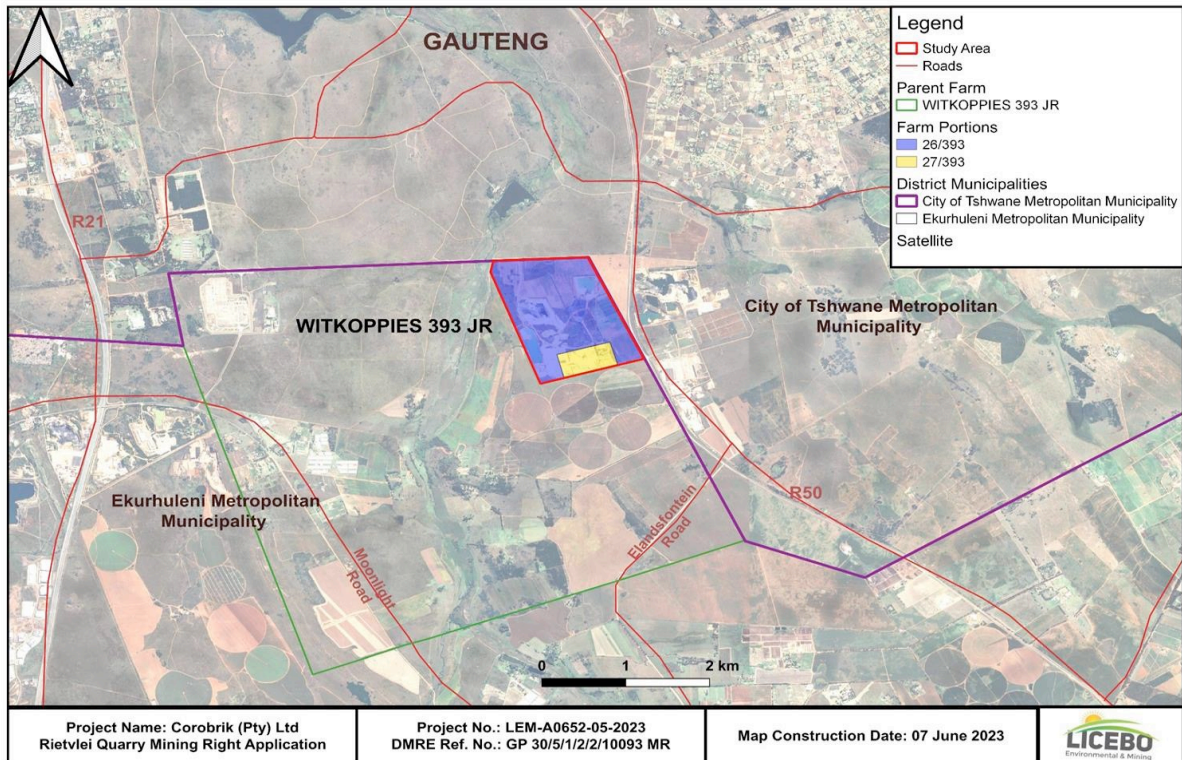
The geology of the area is mostly clay-rich soils that can be seen inside and outside the quarries. The surrounding farms suggest that the topsoil contain minerals that support agricultural development. The study area is in the Moderate Eastern Plateau climatic region which consists mostly of grasslands. The vegetation in the area is long grass with sparse amounts of thickets, characteristic of the grasslands of South Africa. The topography of the region is reasonably flat except for the quarries and the soil heaps that have been created during the mining processes. On the North-western corner a gradual decline can be noted towards the "Sesmyspruit" river that is located in the Rietvlei Nature Reserve.



**Figure 1: General location of the study & application area indicated by the red polygon (Google Earth 2023).**



**Figure 2: Closer view of study & application area location and extent/footprint (Google Earth 2023).**



**Figure 3: Locality Map (courtesy Licebo Environmental and Mining (Pty) Ltd).**

## 6. DISCUSSION

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. In South Africa the Stone Age can be divided in basically into three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago

Middle Stone Age (MSA) less than 300 000 – 20 000 years ago

Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

There are no known Stone Age sites or features in the specific study area, and no material were identified during previous assessments in the larger area by the author of this document (Pelser 2013, 2018 & 2020). The closest known Stone Age sites in then larger geographical area are located at Zwartkops, at the Hennopsrivier, Glenferness, Pietkloof and Zevenfontein. These sites are all dated to the Later Stone Age (Bergh 1999: 4).

***If any Stone Age artifacts are to be found in the area, then it would more than likely be single, out of context, stone tools.***

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts. In South Africa it can be divided in two separate phases (Bergh 1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D

Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.

Middle Iron Age (MIA) 900 – 1300 A.D.

Late Iron Age (LIA) 1300 – 1840 A.D.

The closest known Iron Age sites to the area are those of Melville Koppies and Bruma Lake (Bergh 1999: 7) dating to the Late Iron Age. There are no known Early Iron Age sites in the larger area (Bergh 1999: 6-7).

Bantu-speaking groups such as the Transvaal Ndebele, Northern and Southern Sotho's, and Tswana were also present in the area. The Transvaal Ndebele were present in the area somewhere between 1600 and 1700 C.E. (Horn 1996: 23) and the Sotho and Tswana in 1827 while they were fleeing Mzilikazi during the difaqane (Bergh 1999: 106).

Van Schalkwyk (2007) identified some stone-walled settlements located near the “Sesmyspruit” river to the South-West of the study area. Van Schalkwyk describes the walls to be built in a typical Iron Age manner consisting of a large inner circle that is surrounded by scalloped walls. Van Schalkwyk suggests the enclosure might have been a cattle outpost. The enclosure is then dated to be Late Iron Age (1500 C. E. or later) (van Schalkwyk 2007: 9).

***No Iron Age sites, features or material have been identified in the larger geographical area during earlier assessments by the author of this report (Pelser 2013, 2018 & 2020).***

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people who could read and write (European travellers, missionaries, the Voortrekkers). The first Europeans to move into and close to the study area were the groups of Moffat & Archbell in 1829, followed by Cornwallis Harris in 1836 and then by David Livingstone in 1847 (Bergh 1999: 12-13). They were followed closely by the Voortrekkers and European farmers (p. 14).

During the Anglo-Boer War (1899-1902) there was a skirmish between Boer and British forces in the general area (near Olifantsfontein), while there was also a Black Concentration Camp built by the British near Olifantsfontein station/railway (Bergh 1999: 51; 55).

Pelser (2019) also conducted a Heritage Impact Assessment of an area nearby for the development of a suggested filling station. In this assessment he looked at numerous historical accounts of the larger geographical area. The area was visited by white settlers and missionaries as early as 1829 (Rasmussen 1978: 69; Changuion 1999: 119) and again in 1932 (Van Vollenhoven 2010: 156). Several houses dating to the historic period were also identified nearby the study area (van Schalkwyk 2007: 9). During a conversation with one of the farm owners next to the study area, she said that old graves are located on her property, but no reports or literature was found supporting the claim.

The Chief Surveyor General’s data base ([www.csg.dla.gov.za](http://www.csg.dla.gov.za)) was utilized to obtain old maps of the farm Witkoppies 393JR, and the farm portions that constitute the application area. The oldest map is for Portion 0, and dates to 1876 (**CSG Document 10H9QZ01**). The farm was then numbered as No.105, and was located in the District of Pretoria and the then Zuid-Afrikaansche Republiek (Z.A.R). The farm was originally owned by and surveyed for one J.E. Erasmus in 1876. For Portion 1 the map dates to 1930 (**CSG Document 10H9R90**). The farm was then located in the Pretoria District of the Province of Transvaal. Portion 1 was surveyed in August & November 1930. For Portion 26 the map dates to 1982(**CSG Document 10H9UK01**). This portion was surveyed in January 1981, October 1981 and again in October 1982. No historical sites or features are indicated on these two maps. Portion 27’s map dates to 1983 (**CSG Document 10HEKG01**). This portion was surveyed in December 1983.

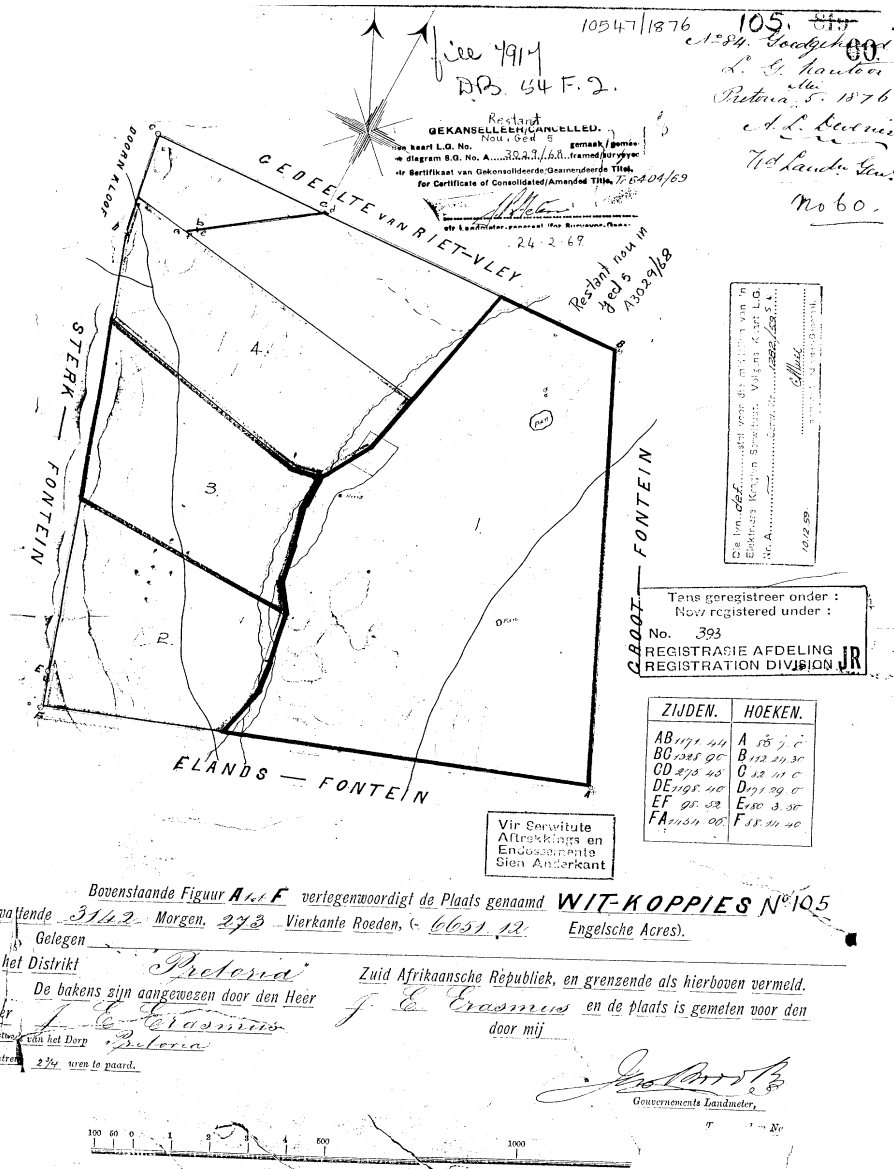


Figure 4: The 1876 map of Portion 0 of Witkoppies 393JR ([www.csg.dla.gov.za](http://www.csg.dla.gov.za)).

S. G. OFFICE COPY

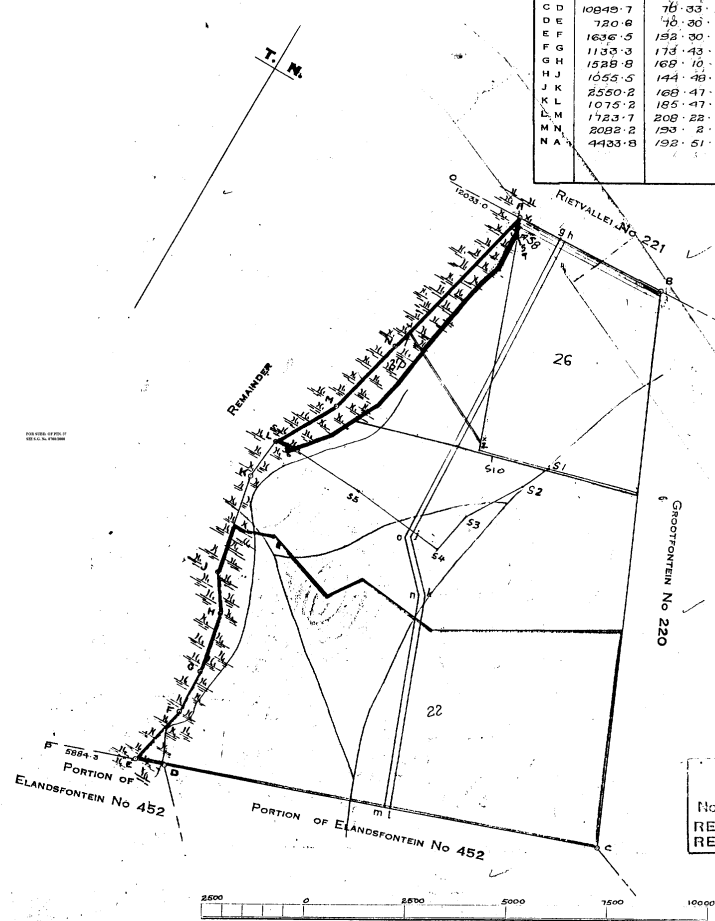
Diagram Form for a farm or portion of a farm.

S.G. No. A. 3020/30

Approved  
*N. Snyman*  
 Surveyor-General.

31 JAN 1931

SIDES Cape Feet	ANGLES OF DIRECTION	CO-ORDINATES	
		System	Lo. 27
A B	3915.5	268° 17' 30"	- 26072.3 + 107528.8
B C	14057.4	335° 37' 26"	- 25928.5 + 107193.7
C D	10898.7	70° 33' 26"	- 35785.5 + 130528.8
D E	120.6	40° 26' 10"	- 25594.6 + 124210.3
E F	1636.5	152° 30' 00"	- 24875.2 + 124460.8
F G	1133.3	173° 43' 10"	- 25229.8 + 122853.2
G H	1528.8	168° 10' 0"	- 25105.8 + 121726.7
H J	1655.5	144° 48' 0"	- 24792.3 + 120230.4
J K	2550.2	168° 47' 40"	- 24183.9 + 119267.9
K L	1075.2	165° 47' 00"	- 23689.3 + 116865.3
L M	1723.7	208° 22' 00"	- 23796.9 + 115793.6
M N	2022.2	193° 2' 00"	- 24616.1 + 114280.0
N A	4433.8	192° 51' 0"	- 25026.2 + 112231.6
			- 14046.5 + 108343.5
			- 13328.3 + 106414.8



DESCRIPTION OF BEACONS  
 A D E F G STANDARD & CAIRN  
 H J L M N  
 B CAIRN OF STONES  
 K PEG & CAIRN  
 C P MONOLITH  
 O IRON PIPE

For Servitudes  
 Dispositions and  
 Endorsements  
 See Over.

For Servitudes  
 Dispositions and  
 Endorsements  
 See Over.

These plans are under  
 the jurisdiction of  
 No. 393  
 REGISTRARSE AFDELING  
 REGISTRATION DIVISION JR

The figure A B C D E F G H J K L M N  
 1439 Morgen 17434 Square Feet of land called PORTION A

**WITKOPPIES NO. 105**

situate in the DISTRICT of PRETORIA

Surveyed in AUGUST 1930 by US  
 NOVEMBER 1930 by US

PROVINCE of TRANSVAAL

*J. A. Schmal*  
*M. Wessels*  
 Land Surveyors.

This diagram is annexed to Deed of  
 No. 1321/04 dated  
 in favour of

The original diagram is No.  
 annexed to Deed of Cert. of Reg. Title  
 No. 9078/04 dated  
 in favour of

S.G. File No. 1917  
 Survey Records No. 943-30  
 Compilation 14/24 + 17-7/26 JR-70-17  
 Lat. South 26° 56' Long. East 28° 49'

Published by authority—Greco & Steyn, P.O. Box 264, Johannesburg—1933.

28842

JR SW-21

Figure 5: 1930 map of Portion 1 of Witkoppies 393JR ([www.csg.dla.gov.za](http://www.csg.dla.gov.za)).

SUBDIVISIONAL DIAGRAM

Sheet 1 of 2 Sheets

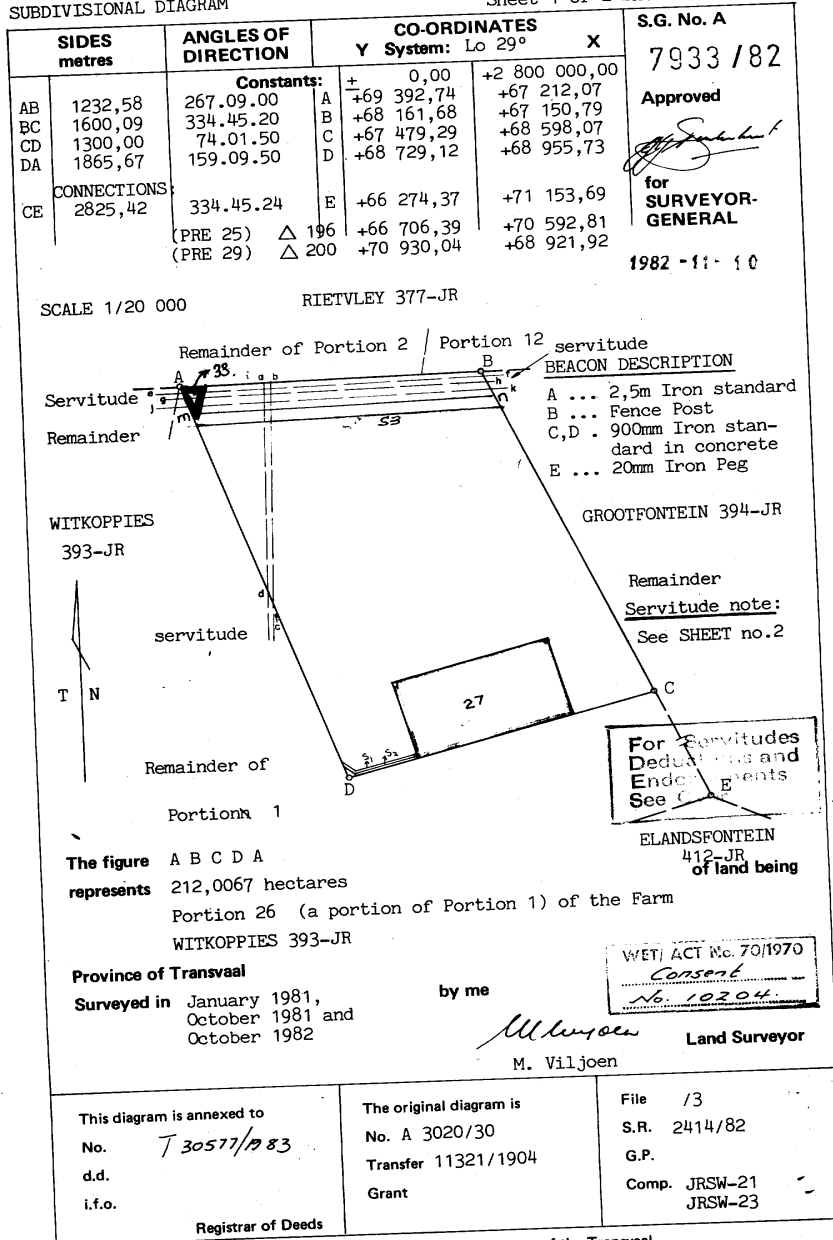


Figure 6: The 1982 map of Portion 26 of Witkoppies 393JR ([www.csg.dla.gov.za](http://www.csg.dla.gov.za)).



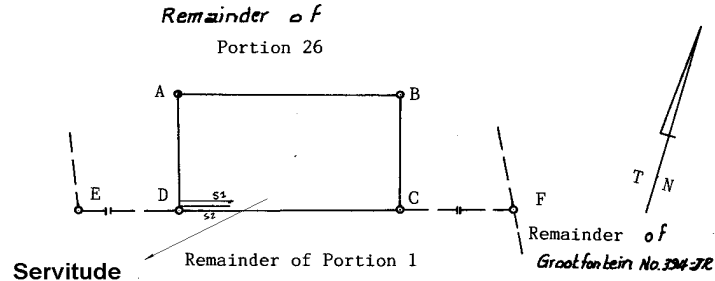
**SUBDIVISIONAL DIAGRAM**



SIDES metres	ANGLES OF DIRECTION	CO-ORDINATES		S.G. No. A  11154/83
		Y System: Lo 29°	X	
AB 660,00	254.01.50	A	+68 539,74	Approved  <i>M. Viljoen</i> for <b>SURVEYOR-GENERAL</b> 1984-01-20
BC 360,00	344.01.50	B	+67 905,21	
CD 660,00	74.01.50	C	+67 806,17	
DA 360,00	164.01.50	D	+68 440,70	
Connections:				
DE 300,00	74.01.50	E	+68 729,12	
CF 340,00	254.01.50	F	+67 479,29	
	(PRE 25) $\Delta$ 196		+66 706,39	
	(PRE 29) $\Delta$ 200		+70 592,81	
			+70 930,04	

**BEACON DESCRIPTION:**  
 A,B,C,D ... 12mm x 450mm Iron peg  
 E,F ..... 900mm Iron standard in concrete

WET/ ACT No. 70/1970  
 10 823  
 1983-08-16



Servitude  
 S.G. No. 7942/2001 SCALE 1/15000

For Servitudes  
 Deductions and  
 Endorsements  
 See Over.

The figure represents A B C D A  
 23,7600 hectares  
 of land being  
 Portion 27 (a portion of Portion 26) of the farm  
 WITKOPPIES NO. 393-JR

Province of Transvaal  
 Surveyed in December 1983 by me  
*M. Viljoen*  
 M. Viljoen  
 Land Surveyor

This diagram is annexed to No. T43617/1984 d.d. i.f.o.  Registrar of Deeds	The original diagram is No. A 7933/82 Transfer 30577/1983 Grant	File 19 S.R. 3300/83 G.P. Comp. JRSW 21 - 23
-------------------------------------------------------------------------------------------	--------------------------------------------------------------------------	----------------------------------------------------------

Printed by the Institute of Land Surveyors of the Transvaal

**Figure 7: The 1983 map of Portion 27 of Witkoppies 393JR ([www.csg.dla.gov.za](http://www.csg.dla.gov.za)).**

**Results of the Field Assessment**

A large part of the study and application area has been extensively disturbed by roads, various quarries, ESKOM Powerline Pylons and several structures buildings associated with the Corobrik activities here. Recent historical agricultural activities (ploughing and crop growing) have also had an impact on large portions of the area. Dense vegetation (grass cover) also limited visibility on the ground.

No cultural heritage (archaeological and/or historical) sites, features or material were identified in the study & application area during the field assessment. If any did exist here in the past, recent activities and developments would have severely disturbed or destroyed any as a result. Aerial images (Google Earth) of the farm portions (dating from 2004 to more recently) that make up the application area clearly shows the impacts of the various developments and activities on the area.



**Figure 8: A view of one of the quarry areas (courtesy H. Visser 2023).**



**Figure 9: A general view of part of the area showing the typical landscape, vegetation & the Eskom Powerlines and pylons (courtesy H. Visser 2023).**



**Figure 10: The study & application area in 2004 (Google Earth 2023). The impacts of agriculture and quarrying is clearly evident already.**



**Figure 11: The same area by 2011 (Google Earth 2023). Expanding quarrying and related developments is clearly visible.**



**Figure 13: The area in 2020 (Google Earth 2023).**

## Impact Assessment and Mitigation Measures

*The significance of impacts is determined using the following criteria:*

**Probability:** describes the likelihood of the impact actually occurring

- **Improbable:** the possibility of the impact occurring is very low, due to the circumstances, design or experience.
- **Probable:** there is a probability that the impact will occur to the extent that provision must be made therefore.
- **Highly probable:** it is most likely that the impact will occur at some stage of the development.
- **Definite:** the impact will take place regardless of any prevention plans and there can only be relied on mitigation measures or contingency plans to contain the effect.

**Duration:** the lifetime of the impact

- **Short Term:** the impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
- **Medium Term:** the impact will last up to the end of the phases, where after it will be negated.
- **Long Term:** the impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
- **Permanent:** the impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

**Scale:** the physical and spatial size of the impact

- **Local:** the impacted area extends only as far as the activity, e.g., footprint
- **Site:** the impact could affect the whole or measurable portion of the abovementioned property.
- **Regional:** the impact could affect the area including the neighboring residential areas.

**Magnitude/Severity: Does the impact destroy the environment, or alter its function**

- **Low:** the impact alters the affected environment in such a way that natural processes are not affected.
- **Medium:** the affected environment is altered, but functions and processes continue in a modified way.
- **High:** function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

**Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.**

- **Negligible:** the impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.
- **Low:** the impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.
- **Moderate:** the impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
- **High:** The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The significance is calculated by combining the criteria in the following formula:

Sum (Duration, Scale, Magnitude) x Probability

S = Significance weighting; Sc = Scale; D = Duration; M = Magnitude; P = Probability

With no sites, features and material of cultural heritage origin and significance recorded in the area, there will be no impact on any known cultural heritage sites.

Aspect	Description	Weight
<b>Probability</b>	<b>Improbable</b>	<b>1</b>
	Probable	2
	Highly Probable	4
	Definite	5
<b>Duration</b>	<b>Short Term</b>	<b>1</b>
	Medium Term	3
	Long Term	4
	Permanent	5
<b>Scale</b>	Local	1
	<b>Site</b>	<b>2</b>
	Regional	3
<b>Magnitude/Severity</b>	<b>Low</b>	<b>2</b>
	Medium	6
	High	8
<b>Significance</b>	<b>Sum (Duration, Scale, Magnitude) x Probability</b>	
	<b>Negligible</b>	<b>≤20</b>
	Low	>20≤40

	Moderate	>40≤60
	High	>60

**Results: 1+2+2×1 = 5 i.e., ≤20**

Based solely on the desktop research it is clear that there are some cultural heritage sites and features present in the larger geographical area within which the study & application area is located. However, no cultural heritage (archaeological and/or historical) resources are known to occur in the project area and none were identified during the fieldwork. The impact of Mining Right Application Amendment, and any possible future related activities, on cultural heritage resources is therefore deemed as Negligible based on the Impact Assessment Criteria used.

It is evident from the desktop study that archaeological/historical sites and finds do occur in the larger geographical landscape within which the specific study and application area is located, and this aspect needs to be considered during possible future quarrying and related activities in the area. It is therefore recommended that a Chance Find Protocol for future activities in the area be drafted and implemented. This will ensure that if any previously unknown cultural heritage (archaeological and/or historical) sites, features or material are exposed in future, that these could be investigated by a Heritage Specialist, who will then provide recommendation on the way forward in terms of the best suitable mitigation measures required.

## **7. CONCLUSIONS AND RECOMMENDATIONS**

Background research indicates that there are several cultural heritage (archaeological & historical) sites and features in the larger geographical area within which the study area falls, but no known ones in the study area and specific farm portions. A large part of the study and application area has been extensively disturbed by roads, various quarries, ESKOM Powerline Pylons and several structures buildings associated with the Corobrik activities here. Recent historical agricultural activities have also had an impact on large portions of the area.

No cultural heritage sites, features or material were identified in the study & application area during the field assessment. If any did exist here in the past, recent activities and developments would have severely disturbed or destroyed any as a result. Aerial images of the farm portions that make up the application area clearly shows the impacts of the various developments and activities on the area.

The fact that archaeological/historical sites and finds do occur in the larger geographical landscape within which the specific study and application area is located, needs to be considered during possible future quarrying and related activities. It is therefore recommended that a Chance Find Protocol for future activities in the area be drafted and implemented. This will ensure that if any previously unknown archaeological and/or historical sites, features or material are exposed in future, that these could be investigated by a Heritage Specialist, who will then provide recommendation on the way forward in terms of the best suitable mitigation measures required.

*It should be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.*

Finally, from a Cultural Heritage point of view, it is recommended that the Mining Rights Application amendment be allowed to continue, taking into consideration the recommendations provided above.

## 8. REFERENCES

General and Closer views of the Study & Application Area location and footprint: Google Earth 2023.

Location Map and Application Area footprint: Provided by Licebo Environmental and Mining (Pty) Ltd. from the Screening Report for Environmental Authorization.

Bergh, J.S. (red.). 1999. **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies**. Pretoria: J.L. van Schaik.

Changuion, L. 1999. Blanke vestiging noord van die Vaalrivier. Vroeë blanke reisigers en besoekers, 1723-ca.1845. Bergh, J.S. (red.). 1999. **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies**. Pretoria: J.L. van Schaik.

Horn, A.C. 1996. Okkupasie van die Bankeveld voor 1840 n.C.: 'n sintese. **Suid-Afrikaanse Tydskrif vir Etnologie**, 19(1).

Huffman, T.N. 2007. Handbook to the Iron Age: **The Archaeology of Pre-Colonial Farming Societies in Southern Africa**. Scottsville: University of KwaZulu-Natal Press.

Knudson, S.J. 1978. **Culture in retrospect**. Chicago: Rand McNally College Publishing Company.

Lombard, M., L. Wadley, J. Deacon, S. Wurz, I. Parsons, M. Mohapi, J. Swart & P. Mitchell. 2012. **South African and Lesotho Stone Age Sequence Updated (I)**. South African Archaeological Bulletin 67 (195): 120–144, 2012.

Pelser, A.J. 2013. **A Report on a Phase 1 HIA for the Clayville Extension 53 Township Development located on a Portion of the farm Olifantsfontein 402JR, Gauteng Province**. Unpublished Report APAC013/37. APelser Archaeological Consulting cc. For: Seaton Thomson & Associates. May 2013.



Pelser, A.J. 2016. **A Report on a Phase 1 HIA for Industrial Development Olifantsfontein 410JR, near Tembisa, Gauteng.** Unpublished Report APelser Archaeological Consulting cc. APAC016/27. For: EcoPartners (Pty) Ltd. May 2016.

Pelser, A.J. 2018. **A Report on a Phase 1 HIA for an Informal Settlement Relocation located on a Portion of the farm Olifantsfontein 402JR, near Clayville, Gauteng Province.** Unpublished Report APelser Archaeological Consulting cc. APAC018/42. For: M&T Development (Pty) Ltd. June 2018.

Pelser, A. J. 2019. **Phase 1 HIA Report for A Proposed Filling Station (Rietvlei Extension 6) On the Remaining Portion of Portion 1 Of the Farm Witkoppies 393JR East of The Rietvleidam Nature Reserve, City of Tshwane, Gauteng.** Unpublished Report APelser Archaeological Consulting cc. APAC019/17. For: Bokamoso Landscape Architects & Environmental Consultants cc. February 2019.

Pelser, A.J. 2020. **A Report on a Phase 1 Heritage Impact Assessment for the Olifantsfontein Landfill Facility Development on the farm Olifantsfontein 410JR near Tembisa, Gauteng.** Unpublished Report APelser Archaeological Consulting cc. APAC020/70. For: EcoPartners (Pty) Ltd. August 2020.

Rasmussen, R.K. 1978. **Migrant kingdom. Mzilikazi's Ndebele in South Africa. London: Rex Collings.**

Republic of South Africa. 1999. **National Heritage Resources Act (No 25 of 1999).** Pretoria: The Government Printer.

Republic of South Africa. 1998. **National Environmental Management Act (no 107 of 1998).** Pretoria: The Government Printer.

Van Vollenhoven, A.C. 2010. **A Cultural Heritage Management Plan for Rietvlei Dam Nature Reserve, City of Tshwane.** Unpublished Report Archaeos cc AE1017. For: The City of Tshwane, Department of Housing, City Planning and Environmental Management, Division Nature Conservation and Resorts. March 2010.

Van Schalkwyk, J. A. 2007. **Heritage Impact Assessment for the Planned Sterkfontein (Junction 21) Development, Pretoria Municipal District, Gauteng Province.**

Chief Surveyor General Database ([www.csg.dla.gov.za](http://www.csg.dla.gov.za)): Documents (1) 10H9QZ01 (2) 10H9R901 (3) 10H9UKO1 & (4) 10HEKG01

## **APPENDIX A: DEFINITION OF TERMS:**

**Site:** A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

**Structure:** A permanent building found in isolation or which forms a site in conjunction with other structures.

**Feature:** A coincidental find of movable cultural objects.

**Object:** Artifact (cultural object).

(Also see Knudson 1978: 20).

## **APPENDIX B: DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE**

**Historic value:** Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.

**Aesthetic value:** Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.

**Scientific value:** Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period

**Social value:** Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

**Rarity:** Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.

**Representivity:** Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

## **APPENDIX C: SIGNIFICANCE AND FIELD RATING:**

### **Cultural significance:**

- Low: A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium: Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High: Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

### **Heritage significance:**

- Grade I: Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II: Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III: Other heritage resources of local importance and therefore worthy of conservation

### **Field ratings:**

- i. National Grade I significance: should be managed as part of the national estate
- ii. Provincial Grade II significance: should be managed as part of the provincial estate
- iii. Local Grade IIIA: should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB: should be included in the heritage register and may be mitigated (high/medium significance)
- v. General protection A (IV A): site should be mitigated before destruction (high/medium significance)
- vi. General protection B (IV B): site should be recorded before destruction (medium significance)
- vii. General protection C (IV C): phase 1 is seen as sufficient recording and it may be demolished (low significance)

## **APPENDIX D: PROTECTION OF HERITAGE RESOURCES:**

### **Formal protection:**

National heritage sites and Provincial heritage sites – Grade I and II

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

Heritage objects – e.g. Archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

### **General protection:**

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

## **APPENDIX E: HERITAGE IMPACT ASSESSMENT PHASES**

1. Pre-assessment or Scoping Phase – Establishment of the scope of the project and terms of reference.
2. Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.
3. Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – If there is no likelihood that any sites will be impacted.
5. Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.