



SOUTH AFRICAN HERITAGE RESOURCES AGENCY
111 HARRINGTON STREET, CAPE TOWN, 8001
PO BOX 4637, CAPE TOWN, 8000
TEL: 021 462 4502 FAX: 021 462 4509

FOR OFFICIAL USE ONLY:

File No.:
Date received:
Date approved:
Applicant:
Site / Object:
Permit No.:

**APPLICATION FOR PERMIT:
ARCHAEOLOGICAL AND PALAEOONTOLOGICAL SITES AND METEORITES**

Please note: Permit Applications expire one year after the date of receipt.

In terms of Section 35 (4) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) no person may, without a permit issued by the relevant heritage resources authority, destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or material or any meteorite; or bring onto, or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

Other application forms are available for shipwrecks (303), heritage objects, export of archaeological and palaeontological material (304); burials (305), the built environment and landscape (307) or the registration of private collections (402).

Applicants are advised that without full details no permit may be issued.

A. APPLICANT'S DETAILS

1. Name and address of applicant:

Dr MM van der Ryst
Department Anthropology and Archaeology
PO Box 392
UNISA 0003

Phone: (H) **082 4954420** (W) **012 429 6477**
Fax: **012 429 6091** E-mail: **vdrysmm@unisa.ac.za**
Identity number of applicant (or passport): **5010140107081**

2. Academic qualifications of applicant: **PhD (Archaeology Wits)**

3. Previous relevant experience of applicant: *see ADDENDUM E*

4. Name and address of a person who can serve as a reference, i.e. a qualified archaeologist, palaeontologist or geologist, as relevant:

Prof JCA Boeyens
Head Archaeology Division
Department Anthropology and Archaeology
UNISA

5. Name and address of the South African scientific institution with which the applicant collaborates:

Department of Anthropology and Archaeology
P O Box 392
UNISA 0003

6. Name and address of the South African scientific institution that will curate the material recovered:

Museum of Anthropology and Archaeology
Curator: FP Coetzee
PO Box 392
UNISA
0003

B. DETAILS OF SITE(S) OR OBJECT(S)

7. Name(s) of site:

Portion 2 ZANDKOPSDRIFT 357 (see ADDENDUM A Location maps)

8. Nature of site or object(s) e.g. archaeological, palaeontological, meteorite*:

** Please supply a short description of the site, including, type and approximate date on a separate sheet of paper*

Archaeological (see ADDENDUM B Nature of sites and purpose of application)

9. Period, era, age or date of site or object(s)

Middle Stone Age (see ADDENDUM B Nature of sites and purpose of application)

10. Geographical situation of site / object MARK POSITION OF SITE ON A PHOTOSTAT OF A 1:10 000 or 1:50 000 MAP:

(see ADDENDUM A Location maps)

Province: Northern Cape

Magisterial district: Namaqualand 1:50 000 Map number: KOTZESRUS 3017 DD

Latitude & Longitude: S30°52'04.83" E17°57'17.60".

Recording method (GPS, Trig., Other): GPS Farm Name and No.: Portion 2 Zandkopsdrift 357 Town: Garies

Nearest Town: Garies Street address & Erf # : Zandkopsdrift 357

11. If it is a national or provincial heritage site / object, the number and date of the notice in the *Government Gazette*

NA

C. PURPOSE OF APPLICATION

12. Purpose of and reasons for application*.

An application for a destruction permit following on a Phase 1 AIA, (see SAHRA Review report and recommendation on the Phase 1 AIA by Dr M Galimberti 9/2/066/0001 dated 10 October 2010 for recommendations as to mitigation) and the ensuing Phase 2 archaeological mitigation and Specialist Study on the Middle Stone Age of Portion 2 Zandkopsdrift 357. A Phase 2 report reviewed by Frontier Rare Earths SA (Pty) Ltd and AGES (Pty) Ltd was submitted to SAHRA (see ADDENDUM B Nature of sites and purpose of application).

* PLEASE SUPPLY FULL MOTIVATION OR RESEARCH PROPOSAL

13. Nature of activity. *Please circle the appropriate activities below*

Destruction permit or Damage* for: Analysis / Dating / Restoration / Security /

Other* Excavation or disturbance*

Alteration*

Removal from original site*

Exhumation and re-interment*

Explore with a metal detector or other equipment**

Other (e.g. removal of graffiti at rock art site)*

Please supply extra details on a separate sheet of paper:* (see ADDENDUM B Nature of sites and purpose of application)

14. Period for which permit is required. *Permits are not normally issued for periods longer than three years:*

From 2012/06/01 (or as soon as destruction permit is approved) to 2015/06/01.

15. Have you consulted the landowner about this project? Please supply documentation.

Note that the application for the destruction permit is made on behalf of the landowner, namely Sedex Minerals (Pty) Ltd, wholly owner of Prospecting Right No. 869/2007 PR (see ADDENDUM C).

16. Institutional support (as relevant):

I, JCA Boeyens, Head of the Archaeology Division of the Department of Anthropology and Archaeology, UNISA hereby state that I support the application.

Signature: 

Date: 24 May 2012

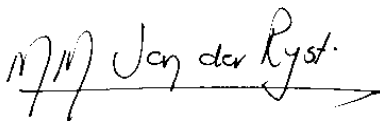
I, JCA Boeyens, Head of The Archaeology Division of the Department of Anthropology and Archaeology, UNISA has undertaken to store in our institution the material and records from the Phase 2 mitigation (SAHRA Permit No. 80/11/12/003/51). The current application is for a destruction permit and it is not envisaged that more material will be generated. In the event that archaeological material should be uncovered during future construction or other activities, the material will be stored in the UNISA Museum of Anthropology and Archaeology.

Signature: 

PRETORIA

Date 24 May 2012

I, MM van der Ryst, applicant for the destruction permit, undertake strictly to observe the terms, conditions, restrictions, regulations and guidelines under which the Council may issue the permit to me.

Signature: 

PRETORIA

Date 24 May 2012

From May 2006, certain permit applications submitted to the South African Heritage Resources Authority, SAHRA, in terms of the National Heritage Resources Act (Act No 25 of 1999) must be accompanied by payment of the appropriate fee.

Permit Applications made on SAHRA APM Permit Form No 302 will carry the following fees:

ii. Permits issued by the SAHRA Archaeology, Palaeontology and Meteorite Unit (APM) Unit for Grade I archaeological or palaeontological heritage resources or meteorites; and for Grade II & III and generally protected heritage resources, on an	Fee	*Permit Code
i. Application fee for destruction, damage, excavation, alteration or disturbance in terms of s.35(4) for research and conservation;	CEO to determine	*AP302REC
ii. Application fee for destruction, damage, excavation, alteration or disturbance in terms of s.35 (4) for mitigation or development;	R150	*AP302DES

iii. Application fee for filming by commercial film by commercial film crews in terms of s.35 (4);	CEO to determine	*AP302FIL
2. Permits issued by the SAHRA Maritime Archaeology Unit:		
i. Application fee for destruction, damage, excavation, alteration or disturbance (s.35 (4))	R150	*MA302RES
ii. Application fee for filming by commercial film by commercial film crews (s.35 (4))	CEO to determine	*MA302FIL
ii. Application fee for filming by commercial film by commercial film crews (s.35 (4))	CEO to determine fee	*MA302FIL

Kindly ensure that you supply the Application Code (see table above*) followed by the surname of the permit applicant, in the reference section of the bank deposit slip.

For example: Charges may be waived, at the discretion of SAHRA Chief Executive Officer, for certain permit applications.

It should be NOTED that SAHRA may, in terms of section 3 of the SAHRA permitting regulations, require that a financial deposit be lodged with SAHRA to safeguard a heritage resource until satisfactory completion of the action for which the permit is required.

PAYMENT may be made by depositing the relevant amount into the SAHRA bank account and faxing or producing the proof of payment (i.e., stamped deposit slip, internet banking confirmation, etc.), OR through Internet Banking and emailing or faxing proof of payment, OR by cheque, on application.

(see ADDENDUM D for proof of payment: Application for a Destruction Permit: MM van der Ryst, Portion 2 Zandkopsdrift 357.

PLEASE TAKE NOTE THAT APPLICATIONS NOT ACCOMPANIED BY A PAYMENT OR PROOF OF PAYMENT MAY NOT BE PROCESSED UNLESS EXEMPTED ABOVE OR BY SAHRA.

SAHRA banking details: South African Heritage Resources Agency, ABSA Bank, Adderley Street; Cape Town Bank Code: 632005; Account Number: 40-6416-0070.

Should you have any queries please contact the appropriate unit via: SAHRA, PO Box 4637, Cape Town 8000; or by email at info@sahra.org.za; or Tel: 021 462 4502; Fax: 462 4509.

ADDENDUM A: Location maps

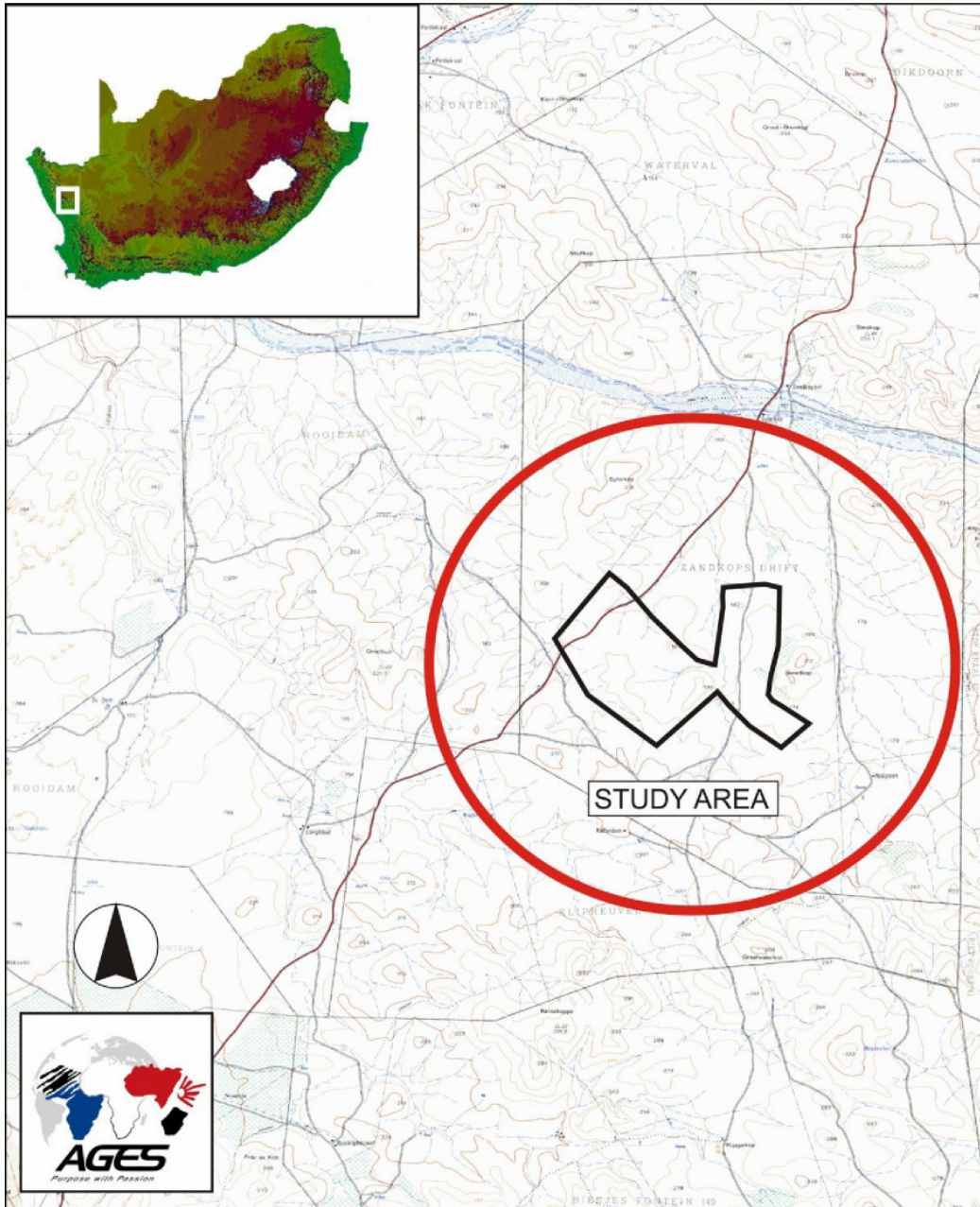


Figure 11:50 000 Map Reference indicating Zandkopsdrift area and general location of the Phase 1 AIA and Phase 2 mitigation and specialist study area (3017DD).

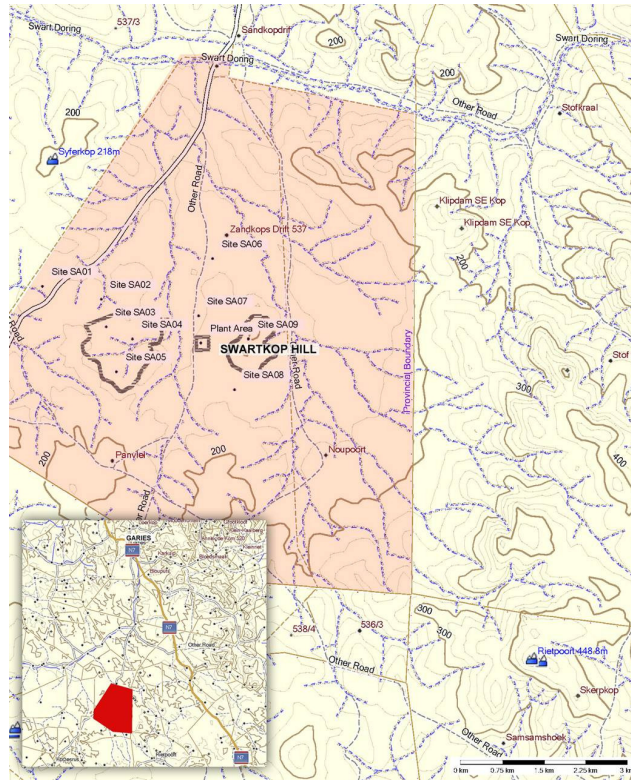


Figure 2 The Zandkopsdrift study area.

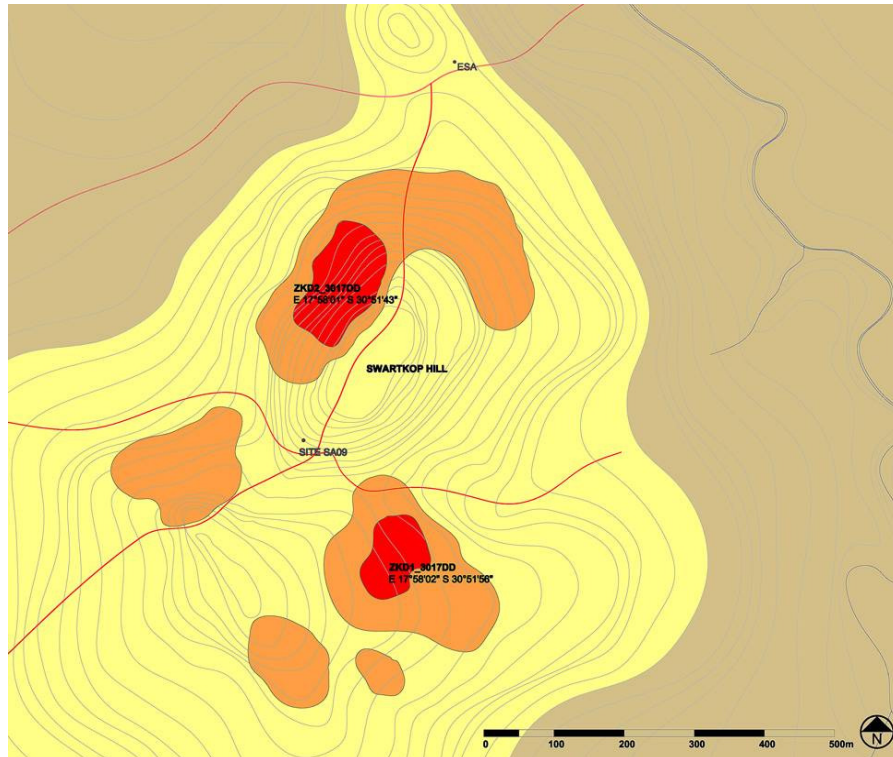


Figure 3 Indicative contour map of Swartkop Hill. Arrows indicate the main sampled localities. Yellow represents low concentrations of lithics, orange medium and red high densities.

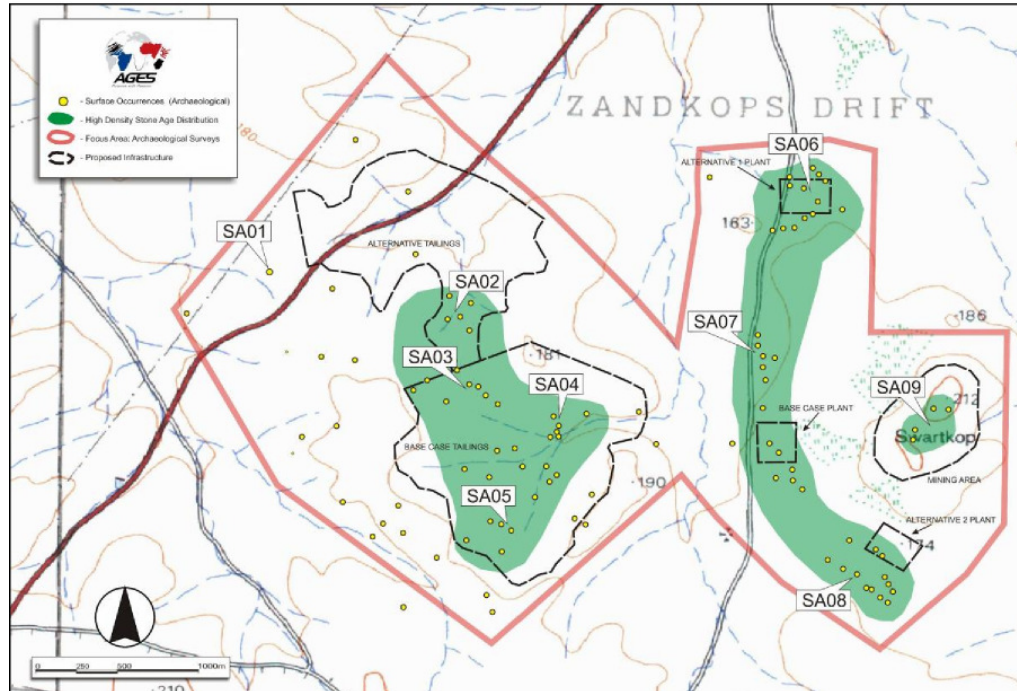


Figure 4: Map indicating Zandkopsdrift Phase 2 specialist study area detailing some areas with MSA lithics:

SA01 (S30°51'12.9" E17°55'48.5"): Quartzite MSA lithic scatter

SA02 (S30°51'30.3 E17°56'23.9"): Source

rock for lithics Site SA03 (S30°51'43.1

E17°56'28.1"): MSA lithic scatters.

Site SA04 (S30°51'51.3 E17°56'45.7"): MSA lithic scatters

Site SA05 (S30°52'05.2 E17°56'40.9"): Possible

Ceramic LSA Area Site SA06 (S30°51'03.3

E17°57'37.9"): MSA lithic scatters.

Site SA07 (S30°51'42.2 E17°57'26.2"): MSA

lithic scatters. Site SA08 (S30°52'20.4

E17°57'44.1"): MSA lithic scatters.

Site SA09 (S30°52'09.4" E17°58'23.5" & S30°51'49.3" E17°58'23.5"): MSA lithic scatters and

source rock for lithics

NOTE that whereas all areas affected by the proposed mining operations (sites SA01 – 09) were investigated and reassessed during the Phase 2 mitigation the most important and extensive MSA stone extraction and lithic activities were centred on Swartkop Hill. This is also the location of the main Zandkopsdrift carbonatite pipe where Sedex intends to mine Rare Earth Elements (REE) (Portion 2 of the farm Zandkopsdrift 357). The most extensive sampling and excavation of lithics during the Phase 2 mitigation were therefore focussed on Swartkop.

ADDENDUM B: Nature of sites and purpose of application

1 Nature and description of sites:

During the **Phase 1** survey significant archaeological occurrences were identified that will be impacted upon by a proposed rare earth minerals mine. The heritage assessments of Portion 2 Zandkopsdrift (hereafter ZKD) primarily focussed on an area covering about 300 ha proposed for prospecting and the development of mining infrastructure.

Relatively high densities of Middle Stone Age (MSA) artefact scatters were identified in the survey area along drainage lines and in particular around outcrops of rocks sourced for lithic material on Swartkop Hill. The initial study suggested that the larger ZKD area probably acted as a factory site for stone tool manufacture. Medium to high significance was assigned to these localities in view of the densities of Stone Age material. In addition, the identification of a highly weathered proto-handaxe signals an ephemeral Earlier Stone Age (ESA) presence. Later Stone Age (LSA) artefactual material was also noted as well as a single fragment of a clay vessel that can be attributed to a LSA hunter-gatherer/herder occupation.

The **Phase 2** investigations confirmed the presence of substantial MSA assemblages, ephemeral utilization during the ESA and a transient LSA of low significance. Visits to the area by MSA populations over a long period of time created an overlay of episodic events that resulted in high-density scatters of artefacts centred on outcrops of flakeable stone material. The raw materials used in the production of the MSA sequence demonstrate a focus on siliceous material exposed by weathering of the Swartkop Volcano. A very minor use of quartz was identified at lithic scatters located at some distance from the main quarrying areas. The LSA lithic scatters exhibit the use of a greater range of materials that include the local chalcedoneous rock with lesser frequencies of quartz and other cryptocrystalline silicas (CCS).

The methodology applied in the Phase 2 at sites ZKD1_3017DD and ZKD2_3017DD on Swartkop Hill was based on two probabilistic sampling strategies, namely systematic and stratified random sampling (Richardson and Gajewski 2003). The aim was to establish a spatial distribution pattern and assess the density of lithics to ensure that the sampling process delivered a representative collection and reliable data. Within the extant grid at site 1, ZKD1_3017DD, an excavation was carried out in two 1-metre squares within square D of the grid. At other MSA localities the assessment comprised survey transects while ESA and LSA lithic clusters were subjected to random sampling.

The survey established the main archaeological occurrences to be centred on rock outcrops that served as good sources of raw material for the manufacture of stone tools. Outcroppings of fine-graded chalcedonies within the lithological zones that developed through alteration, supergene weathering and metasomatism are eminently suitable for the manufacture of stone tools.

The focus of stone procurement and knapping activities during the MSA correspond to areas of high concentrations of rare earth elements that will be targeted for extraction in the first phases of the mine development. The archaeological investigations accordingly focussed on areas with key outcrops. Two major sites, namely ZKD1_3017DD and ZKD2_3017DD, were extensively sampled with another seven localities subjected to less intensive sampling. Representative probabilistic sampling of surface material was undertaken at the two major localities comprising an area of 85 and 25 square metres respectively. In addition an area within the extant grid at ZKD1_3017DD was excavated up to a plinthic horizon. The excavation aimed to determine the depth of the deposit, to document changes in the stratigraphy and to assess the typomorphological and technological attributes of lithics from a likely subsurface deposit. It was established that the archaeological strata consist of a built-up of lithics and also sediments associated with natural erosion along the hillside. No other cultural materials were present in the deposit.

The characteristics of the ZKD assemblages point to a long period of procurement of flakeable stonetool material sourced from surface outcrops that contained high-grade chalcedoneous deposits. All major outcrops at ZKD were evidently investigated by prehistoric people as is apparent from the extensive knapping activities but only specific localities were targeted to take advantage of deposits and pockets of more homogeneous fine-grained stone. The full chain of operation (*chain opératoire*) was carried out including sourcing, knapping of suitable material and the manufacture of a range of formal tool types. Evidently extractive activities at sources of high-quality stone material would have influenced the settlement and mobility patterns of the groups involved in these activities (Bamforth 2006:522). Acquiring good flakeable material and to transport end products involve organizational and behavioural strategies. It is commonly accepted that stone tool assemblages reflect aspects of human behaviour. The characteristics of lithic resources, their spatial distribution across the landscape and other organizational processes should feature in any such reconstruction of behavioural particulars (Wilson 2011:163).

There is a clear spatial pattern in lithic distribution at ZKD. Artefact densities differ according to distance from raw material sourced. At the preferred source outcrops the largest concentrations of lithics are near the source with markedly lesser densities on the periphery. Whereas deposits undoubtedly also built up through hill wash, the highest densities always cluster around good sources of flakeable material. Lithic materials are not predictable regarding flaking properties and fracture toughness (Webb and Domanski 2008). The outcrops at ZKD comprise differential-grained lithologies and high levels of waste material are present at localities that were extensively exploited. Outcrops that could not deliver suitable material exhibit low levels of debitage concomitant with stone tool production.

The total (n = 10 617) of sampled lithics produced indices of 46% for debitage (discarded material from the reduction process and from the shaping of tools), 2%

cores (or objective pieces), 46% flaked blanks (detached pieces) and 6% formal stone tools. The range of tool types and the relative frequencies between surface-collected samples and the excavated subsurface deposits from ZKD are comparable. The presence of formal tools such as awls and scrapers in the subsurface deposit suggests that quarried chunks of material were subjected to initial stages of flaking and immediate tool production close to the source of stone extraction. The main differences between the two collections are in the higher numbers of waste material recovered from the subsurface deposit and a higher relative mass for the excavated material in relation to the number of lithics. The lithics from the lower levels of the excavation also become exponentially larger and have a more robust appearance. It is likely that this trend may reflect earlier phases of utilization of the ZKD resources. From the analysis of the extensive ZKD sequence it is inferred that the surface material at this locality and at least the upper levels of the excavation can most probably be assigned to a MSA3 sequence dating to approximately 60 000 to 25 000 years ago (Mitchell 2008:52).

Debitage in the form of waste from stone tool production dominates the lithics. Whereas core types include typical MSA prepared Levallois and radial cores the multi-directional cores are more numerous. Cores were used to deliver flake and blade blanks and the characteristic MSA convergent flakes produced from prepared cores. The flake and blade blanks were frequently expediently utilized. Appreciable numbers of flaked blanks were shaped through retouch to produce formal stone tool types that mainly include a range of scrapers and a surprisingly high number of awls. MSA pressure-flaked points are rare. The characteristics of the ZKD MSA assemblage suggest a landscape-use pattern centred on the procurement of raw materials that were eminently suitable material for the manufacture of stone tools. Such visits were probably scheduled to also take advantage of seasonal locally-available food resources. In view of the probable low population densities during the MSA the scale of extractive and stone tool manufacturing processes at ZKD is remarkable.

2 Purpose of Application

Based on the directives of The National Heritage Resources Act (NHRA) (Act No. 25 of 1999), SAHRA document (2007:4) *APM Guidelines: Minimum Standards for the Archaeological and Palaeontological Components of Impact Assessment Reports* and SAHRA *General Guidelines to Archaeological Permitting Policy* (2.2 Permits for Mitigation) we now request that a destruction permit should be issued to **Sedex Minerals (Pty) Ltd, a subsidiary of Frontier Rare Earths SA (Pty) Ltd** in view of the **Phase 1 and Phase 2 AIA investigations that recommended as follows:**

- The archaeologists who conducted the Phase 1 AIA and HIA recommended mitigation, and therefore a Phase 2 AIA, of MSA sites on Swartkop Hill that will be destroyed through mining for REE:

'No mitigation is required with the standard drilling procedures used during prospecting. However, it is recommended that surface

collections of artefacts are made prior to commencement of mining operations as it seems likely that the mining will result in the destruction of the archaeological material on the kopje' (Webley and Halkett 2010:15-16).

- A Phase 2 mitigation was subsequently undertaken and a report compiled and submitted to SAHRA with the following recommendation:

The major MSA localities identified at ZKD during the Phase 1 AIA were extensively investigated during the Phase 2 mitigation and Specialist Study. Within the context of the above the Swartkop Hill MSA assemblage and associated sites are deemed of high cultural significance (NHRA 1999: Act 25:2(vi)) at the local to regional scale. Unfortunately, as with most other open-air MSA localities, the ZKD MSA assemblages are not associated with organic cultural materials or with markedly well-developed stratified archaeological deposits.

It is the considered opinion of the heritage team that the substantial sample of more than 10 000 pieces of lithics obtained through the Phase 2 assessment is representative and that further mitigation will not add more qualitative data. No additional archaeological mitigation is accordingly recommended as this will merely increase the volumetric sample that has to be curated and stored.

Subject to the approval by the South African Heritage Resources Agency (SAHRA) of this Phase 2 mitigation and specialist report it is accordingly recommended that SAHRA should approve an application for a destruction permit for Portion 2 Zandkopsdrift 357 in order for infrastructural developments and mining of the Zandkopsdrift Rare Earth Elements Project to proceed.

NOTE that two sites along the Swartdoring River (030 and 031) (see SAHRA Review report and recommendation on the Phase 1 AIA by Dr M Galimberti 9/2/066/0001 dated 10 October 2010) will not be impacted by the proposed mine development and have not been further investigated during the Phase 2. The two sites are exempted from this application for a destruction permit for Portion 2 Zandkopsdrift 357.

ADDENDUM C: Landowner Letter of Approval: Application for a Destruction Permit**Sedex Minerals (Pty) Ltd**

(A subsidiary of Frontier Rare Earths Ltd)

9th Floor, Metropolitan Life Centre, 7 Coen Steytler Avenue, PO Box 8399, Foreshore, Cape Town, 8012
Tel.: +27 21 446 6040 Fax: +27 21 446 6050 E-mail: admin@yolaniminerals.co.za

To Whom it May Concern

Landowner Letter of Approval of Application for a Destruction Permit

Sedex Minerals (Pty) Limited (“Sedex”) confirms we are the wholly owner of a Prospecting Right No. 869/2007 PR granted by the South African Department of Mineral Resources (“DMR”) that covers all minerals other than diamonds, kaolin and heavy minerals. The Prospecting Right was issued over several farms and farm portions, including portion 2 of the farm Zandkopsdrift 357, which is known as the farm Pan Vlei and is wholly owned by Sedex as per the Deed of Transfer No. T36198/2001, on which the Zandkopsdrift carbonatite is located.

Sedex furthermore confirms our support for the application by Dr MM van der Ryst for a destruction permit to be issued by South African Heritage Resources Agency (“SAHRA”). The Phase 2 archaeological mitigation and a specialist assessment of the Middle Stone Assemblages at Zandkopsdrift 357 in the Garies area, Namaqualand, have been completed and a report on the findings and recommendations submitted to SAHRA to which Sedex has had sight and we have no objections to the findings and recommendation as presented in this report.

Please do not hesitate to contact me with any queries or concerns regarding the above.

Regards,



Derick R. de Wit
Vice President Project Development

Company Registration Number :2006/003993/07 Vat Number :4100258294
Directors: Mr HCD Jenner-Clarke, Mr M van Zyl, Mr J Kenny, Mr JF Kenny

ADDENDUM D PROOF OF PAYMENT**Begunstigdebesonderhede**

Begunstigde	SAHRA
Begunstigderekening	4064160070 - ABSA (632005)
Beskrywing op begunstigdestaat	AP302DES MM vdRyst

Betalingsbesonderhede

Beskrywing op jou staat	Destruction Permit
Van-rekening	1015012036 - CHEQUE ACC
Bedrag	R 150.00
Betalingdatum	2012-05-24
Betaling debiet tyd	Huidig

Kennis van Betaling

Begunstigde se Kennis van Betaling	Geen
My Kennis van Betaling	Geen

ADDENDUM E: Archaeological experience of applicant and references

CURRICULUM VITAE**MARIA MAGDALENA VAN DER RYST**

Department of Anthropology and Archaeology
 University of South Africa TvW-Building 4-163
 PO Box 392 UNISA South Africa 0003
 Tel. 012 429 6477
 Cell 082 4953420
vdrysmm@unisa.ac.za

Personal particulars

Date of birth: 14 October 1950
 ID Number: 5010140107081
 UNISA Personnel number: 1987844
 Nationality: South African

Current position

Senior Lecturer Archaeology Division
 Department of Anthropology and Archaeology, College of Human Sciences, University of South Africa

A Employment record

2008	UNISA	Senior Lecturer
1992 – 2007	UNISA	Lecturer
1989-1992	UNISA	Junior Lecturer
1988	UNISA	Contract worker: Junior Lecturer
1987	University of Pretoria	Research Assistant
1967-1975	Oilseeds Control Board	Senior Administrative Officer

B Academic qualifications

2006 PhD University of the Witwatersrand, Johannesburg (Supervisor: Prof. Lyn Wadley)
 Title: *Seeking shelter: hunter-gatherer-fishers of Olieboomspoort, Limpopo, South Africa*

1996 MA (with distinction) University of the Witwatersrand, Johannesburg (Supervisor: Prof. Lyn Wadley)
 Title: *The Later Stone Age prehistory of the Waterberg, with special reference to Goergap*

1992 Anthropology I UNISA Non-degree purposes

1989 BA (Hons) (Archaeology) (with distinction) University of Pretoria
 Research project: *An archaeological investigation into the 19th century outbuildings of the Pioneer Museum, Pretoria*

1975 BA University of Pretoria

1967 Secretarial Diploma Pretoria Technicon

1966 Matriculated with 6 distinctions

C Teaching experience

- Various undergraduate archaeology modules since 1989, including Introduction to archaeology, The prehistory of South Africa, Archaeological fieldwork techniques and analytical methods, Archaeology and fossils: the study of human evolution, African archaeology, The interpretation of archaeological data, Applied archaeology: heritage conservation, cultural resource management and archaeotourism, World prehistory and Prehistoric rock art.
- Level coordinator for AGE2006.
- Jointly coordinated curriculum development which led to the introduction of Archaeology III as a BA and a BSc major at UNISA in 2000, as well as the introduction of an Honours degree course in Archaeology in 2007.
- Teaching Honours papers: Theory and interpretation in archaeology (HARCH1E), Hunters, gatherers and herders in Africa (HARCH2F), Early African farming communities and complex societies (HARCH3G), Historical archaeology (HARCH4H), and Archaeology in practice (HARCH6K).
- Served as discipline leader of the Archaeology Division for extended periods in the absence of the current head (when, e.g. away on R&D leave)

- Co-ordinator of several archaeology field schools, including the 2007 school conducted at Melora in the Waterberg Biosphere Reserve. At these events undergraduate and post-graduate students undergo training in fieldwork surveys, excavation methodology, mapping and analyses, as well as training by specialists in the various sub-fields of archaeology.
- Initiated and developed, jointly with FP Coetzee (curator), JCA Boeyens and SM Miller, an archaeological exhibition aimed at students, school learners and the general public, titled *Discovering our past: the archaeology of Southern Africa*. Museum of Anthropology and Archaeology, UNISA.

D Skills development

- 2009 An Introduction to the identification of ceramics and glass excavated from 18th- and 19th-Century archaeological sites. Workshop co-ordinated by Dr Antonia Malan, Historical Archaeology Research Group, UCT.
- 2007 Zooarchaeological faunal classification: Workshop presented by Dr Ina Plug, Research Associate, University of South Africa.
- 2005 Colonial period ceramics: Workshop presented by Dr Antonia Malan, University of Cape Town.
- 2004 Lithic analyses: Prof. Lyn Wadley, Wits.
- 2002 Iron Age ceramics: Workshop presented by Prof T. Huffman, Wits.

E Academic citizenship

1 Departmental/University Committees and External Involvement

- Departmental Executive Committee: Member
- Departmental Museum Committee: Member
- Departmental Budget Committee: Co-ordinator
- Departmental Research Committee: Co-ordinator
- School of Humanities, Social Sciences & Theology: Tuition Committee Member
- Standards Generating Body for SAQA: Association of Southern African Professional Archaeologists: Representative for Distance Teaching Universities

2 Community participation

- Co-responsible for the development of a heritage management plan for the Melora Hilltop and Saddle Sites, Lapalala Wilderness, Limpopo. Lapalala Wilderness forms part of the Waterberg Biosphere, which was officially proclaimed by UNESCO and the South African government in 2001. Clive Walker, then managing director of Lapalala Wilderness, requested our department to become more actively involved in research in the reserve. Consequently, a memorandum of agreement was drawn up which opened up new doors for archaeological and anthropological research in the area. Growing interest in the educational use and tourism potential of archaeological sites such as Melora Hilltop, a 17th-century African farmer settlement, will no doubt ensure that the Waterberg research also benefits the district's local communities.
- Ad hoc investigations of archaeological sites to promote the conservation of the archaeological heritage. Services include the assessment of archaeological occurrences, setting out guidelines and procedures to ensure the conservation and sustainable use of archaeological sites, providing assistance with proposed developments of heritage sites for tourism, the training of guides and compiling brochures or posters, and the publication of articles in *The Digging Stick*.
- As one of a small number of Stone Age archaeologists in the Limpopo Province, inputs and assessments as to CRM and mitigation recommendations are on occasion required.

3 Professional activities

- Association of Southern African Professional Archaeologists (ASAPA), Member No. 158
- Cultural Resource Management section of ASAPA
- South African Archaeological Society (ARCHSOC)
- Society of Africanist Archaeologists (SAFA)
- Pan-African Archaeology Association for Prehistory and Related Studies
- Five Hundred Years Research Group and member of UNISA and UCT African Origins Platform (AOP) project
- CRM accreditation (ASAPA Professional Member 158):
 - Principal Investigator (PI) Stone Age,

- PI Iron Age
- Field Director (FD) Colonial history
- Member: SAHRA Archaeology, Palaeontology, Meteorites, Heritage Objects and Burials Permit Committee

F Research

1 Articles in peer-reviewed journals

Prinsloo, LC, Boeyens, JCA, **van der Ryst, MM**, Webb, G. 2012. Raman signatures of the modern pigment (Zn,Cd)S_{1-x}Se_x and glass matrix of a red bead from Magoro Hill, an archaeological site in Limpopo Province, South Africa, recalibrate the settlement chronology. *Journal of Molecular Structure*. Available online 29 March 2012. In Press, Corrected Proof.

Boeyens, JCA, **Van der Ryst, M**, Coetzee, FP, Steyn, M & Loots, M. 2009. From uterus to jar: the significance of an infant pot burial from Melora Saddle, an early nineteenth-century African farmer site on the Waterberg Plateau. *Southern African Humanities* 21:213-238.

Van der Ryst, MM & Boeyens, JCA. In prep. "You have found your Master!": traditional beliefs and practices concerning the rhinoceros among indigenous communities.

Van der Ryst, M, Lombard, M & Biemond, W. 2004. Rocks of potency: rock engravings and cupules from the Dovedale Ward, southern Tuli Block, Botswana. *The South African Archaeological Bulletin* 59(179):1-11.

Lombard, M, Parsons, I & **Van der Ryst, M**. 2004. The process of Middle Stone Age lithic point experimentation for macroscopic and microscopic analyses. *The South African Journal of Science*. March/April: 100:3/4:159-166.

Van der Ryst, M. 2003. The so-called *Vaalpense* or *Masele* of the Waterberg: the origins and emergence of a subordinate class of mixed descent. *Anthropology Southern Africa* 26(1&2):42-52.

Miller, D, Boeyens, JCA & **Küsel [van der Ryst], MM**. 1995. Metallurgical analyses of slags, ores and metal artefacts from archaeological sites in the North-West Province and Northern Transvaal. *South African Archaeological Bulletin* 50(160):39-45.

Küsel [van der Ryst], MM. 1992. A preliminary report on settlement layout and gold smelting at Thulamela, a Late Iron Age site in the Kruger National Park. *Koedoe* 35(1):55-64.

Verhoef, J & **Küsel [van der Ryst], M**. 1992. Thulamela se goudsmelters [The gold smelters of Thulamela]. *Custos* 21(5):38-46.

2 Books

Van der Ryst, Maria M. 1998. The Waterberg Plateau in the Northern Province, South Africa, in the Later Stone Age. *British Archaeological Reports, International Series* 43. Oxford: Oxford University Press.

Van der Ryst, MM. 1998. Die Ystertydperk, Hoofstuk 3:96-100. Met kaarte 2.2a, 2.2b. In Bergh, JS (red.) *Geskiedenisatlas van die noordelike streke* [History atlas for the northern areas: The Iron Age]. Pretoria: Van Schaik.

Van der Ryst, MM. 1998. Prehistoriese mynbou, Hoofstuk 4:100-102. Met kaart 2.3. In Bergh, JS (red.) *Geskiedenisatlas van die noordelike streke* [History Atlas for the northern areas: Prehistoric mining]. Pretoria: Van Schaik.

Korsman, S & **Van der Ryst, MM**. 1998. Die vroegste inwoners, Hoofstuk 2:93-96, met Kaarte 2.1a, 2.1b. In Bergh, JS (red.) *Geskiedenisatlas van die noordelike streke*. [History Atlas for the northern areas: the earliest inhabitants]. Pretoria: Van Schaik.

3 Popular articles

- Lombard, M, Parsons, I & Van der Ryst, MM. 2003. "Lentswe la Badimo": stone of the ancestors. *The Digging Stick* 20(1):5-7.
- Boeyens, JCA & Van der Ryst, MM. 1992. Current research in the Waterberg. *The Digging Stick* 9(1)

4 Book reviews

- 2008 Section 1 *Disciplinary identities: Methodological considerations*. 6 papers reviewed for publication in a forthcoming book: FYI.
- 2006 Lee, RB & Daly, R. (Eds). 1999. *The Cambridge encyclopedia of hunters and gatherers*. Cambridge: Cambridge University Press. Reviewed for *South African Archaeological Bulletin* 50(160):39-45.
- 2006 Lindholm, K-J. 2006. Wells of experience. A pastoral land-use history of Omaheke, Namibia. Reviewed for *Kleio*.
- 2000 MacRae, C. 1999. *Life etched in stone: fossils of South Africa*. Johannesburg: Geological Society of South Africa. Reviewed for Beeld.

5 Papers and posters presented at conferences

- 2011 *Mbwenda, the nineteenth-century stronghold of the Venda of Magoro on the Zoutpansberg frontier*. Conference of the Southern African Association of Archaeologists, Swaziland. Co-authored.
- 2010 *The entangled past: history and archaeology at Mbwenda, the nineteenth-century stronghold of the Venda of Magoro on the Zoutpansberg frontier*. Five Hundred Years Research Group Conference, 22-23 October, University of the Witwatersrand, Johannesburg
- 2008 *Intrasite spatial patterning: The last 2000 years at Olieboomspoort Shelter Limpopo South Africa*. The Society of Africanist Archaeologists (SAfA) 2008, Frankfurt/Main, Germany: September 7-11.
- 2006 *The Bambata ceramic assemblage from Olieboomspoort Shelter, near Lephalale (Ellisras), Limpopo Province*. Co-authored with WM Biemond. Biennial Conference of the Southern African Association of Archaeologists, National Cultural History Museum, Pretoria, April.
- 2005 *A place of power: engravings and cupules from Riverslee, Botswana*. Co-authored with WM Biemond & P Snyman. 12th Congress of the Pan African Archaeological Association for Prehistory and Related Studies. Botswana. July 2005.
- 2004 *Rocks of potency: engravings and cupules from the Dovedale Ward, southern Tuli Block, Botswana*. Co-authored with WM Biemond & M Lombard. Biennial Conference of the Southern African Association of Archaeologists. Kimberley: McGregor Museum, April.
- 2004 *Middle Stone Age lithic point experimentation for macroscopic and microscopic analyses: an introduction*. Co-authored with M Lombard & I Parsons. Biennial Conference of the Southern African Association of Archaeologists. Kimberley: McGregor Museum, April.
- 2002 *Hunter-gatherer ceramics from Olieboomspoort in the western Waterberg, south of the Limpopo River*. Biennial Conference of the Southern African Association of Archaeologists. Cape Town: South African Museum, July.
- 2000 *Seeking Shelter: The Stone Age of the Waterberg, Northern Province*. SA3. University of the Witwatersrand.
- 1999 *The Stone Age of the Waterberg, Northern Province*. World Archaeological Congress 4. Cape Town.
- 1998 *Stone Age research on the Waterberg Plateau and in the lower-lying bushveld, Northern Province*. Biennial Conference of the Southern African Association of Archaeologists. Venda.
- 1995 *The Later Stone Age of the Waterberg Plateau, Northern Transvaal* 10th Congress of the Pan African Association for Prehistory and Related Studies. Harare, Zimbabwe.
- 1994 *Skeurkrans, a Late Iron Age site in the Waterberg*: Biennial Conference of the Southern African Association of Archaeologists. Pietermaritzburg.
- 1994 *Schoemansdal 1848-1867: The archaeology of a historic frontier town*: Biennial Conference of the Southern African Association of Archaeologists. Pietermaritzburg.
- 1992 *The Later Stone Age of the Waterberg, northwestern Transvaal*. Biennial Conference of the Southern African Association of Archaeologists. Cape Town.

6 Exhibitions

Discovering our past: The archaeology of southern Africa.

The prehistory of the Waterberg. Waterberg Cultural History Museum, Melkrievier.

Skeurkrans, a Late Iron Age site in the Waterberg. Emaweni Game Lodge.

Northern American civilizations: The ceramics, textiles and metallurgy. Research undertaken for an exhibition by African Window, NCHM.

7 Excavation experience

- 2011 **Late Iron Age and Historical:** *Mbwenda Hill, Giyani.* UNISA Field School
- 2010 **Late Iron Age and Historical:** *Mbwenda Hill, Giyani.* UNISA Field School
- 2009 **Late Iron Age and Historical:** *Maremani, Limpopo Province.* UNISA Field School
- 2008 **Late Iron Age and Historical:** *Maremani, Limpopo Province.* UNISA Field School
- 2007 **Late Iron Age and Historical:** *Melora, Limpopo Province.* UNISA Field School
- 2006 **Late Iron Age and Historical:** *Pilanesberg, North West Province.* UNISA Field School
- 2005 **Historical:** *Town: Schoemansdal, Limpopo* UNISA Field School
- 2004 **Stone Age:** Main research project at Olieboomspoort, Limpopo and at rock art localities
- 2004 **Iron Age:** Marothodi North West. Joint project UCT and UNISA
- 2003 **Iron Age:** Marothodi North West. Joint project UCT and UNISA
- 2003 **Iron Age:** *Melora Saddle, Limpopo*
- 2003 Experimental archaeology project: **MSA** spear hunting. PAST
- 1990-2003 **Iron Age:** Various sites in North West Province, including Orion, Kaditshwene and Pilanesberg
- 1989-2003 **Stone Age** main research project for 5 years at the Goergap shelter, other nearby shelter sites and rock art localities.
Stone Age, Iron Age and Historical: Various sites in Limpopo including Emaweni, Kirstenbos, Tafelkop, Masebe, Melora Hilltop and Melora Saddle
- 1990-1992 **Stone Age:** Rose Cottage, Free State (Member excavation team: University of the Witwatersrand)
- 1980-1990 Numerous **Iron Age, Stone Age and Historical sites** in the Kruger National Park, including **co-directing** the **Iron Age** Thulamela project
- 1975-1980 Member of various excavation teams at mainly **Iron Age** but also **Historical** sites in Limpopo and Mpumalanga, including the sites of Mapungubwe, Masorini, Shikumbu, Letaba, Schoemansdal
- 1989 to present: Co-directing the UNISA Annual Field Schools: Stone Age, Iron Age and Historical research

8 Archaeological assessments

- 2012 PI Phase 2 mitigation and specialist study of Middle Stone Age localities on the farm Zandkopsdrift 357, Garies District, Northern Cape Province. Commissioned by Sedex and AGES (Gauteng) (Pty) Ltd.
- 2012 PI Phase 2 mitigation of the Boikarabelo Coal Mine project: the Iron Age. Commissioned by Digby Wells.
- 2012 PI and specialist report on the Phase 2 of the transitional ESA/MSA at SM002 and the Earlier Stone Age at SM003 Spitskop – Marang 400kv Project Rustenburg, Northwest Province. Commissioned by Professional Grave Solutions.
- 2012 PI and specialist report on Middle Stone Age Lithic Inventory DS001. Dinaledi-Spitskop400KV Project, Brits, Northwest Province DS001 (Tower DN217), Portion 4 of the farm Nietgedacht 242 JQ, Lethlabile, Rustenburg. Commissioned by Professional Grave Solutions.
- 2011 Specialist report on the Iron Age rock engravings at the Nkomati Power Line Project. Commissioned by Professional Grave Solutions.

- 2011** PI report on the Mahalapye-Kudumatse Road Construction Project Central District Botswana. Commissioned by Professional Grave Solutions Botswana (Pty) Ltd (PGSB).
- 2011** Specialist Stone Age report on the Mahalapye-Kudumatse Road Construction Project Central District Botswana. Commissioned by Professional Grave Solutions Botswana (Pty) Ltd (PGSB).
- 2009** PI report on the Archaeological Management Plan for the rock art site 36-D1-12.Mmamabula Energy Project (MEP). Central District, Botswana. Commissioned by WM Biemond.
- 2009** Specialist report on the Stone Age of the Waterberg. Heritage Assessment for the Mokopane Integration Project. Commissioned by JCC Pistorius.
- 2009** Specialist report on the Stone Age of the Northern Cape. Ntsimbintle Mining (Pty) Ltd on Portions 1, 2, 3 and 8 of the farm Mamatwan 331 and the farm Moab 700 in the Kgalagadi District Municipality of the Northern Cape Province. Commissioned by Professional Grave Solutions (Pty) Limited.
- 2009** PI report. Preliminary report of the Phase 2 archaeological mitigation for the railway link and services corridor and the amendment to the railway link and services corridor. Mmamabula Energy Project (MEP). Central District Botswana. September 2009.Bnmmag Permit No: Bnmmag 12/9 Xxiii (67). Commissioned by Lentswe. With JCA Boeyens.
- 2009** Specialist report on the Stone Age of the Northern Cape Phase 1 Heritage Assessment for Asmang. Commissioned by African Heritage Consultants.
- 2009** Archaeological Impact Assessment of potential heritage resources on Portion 61 of the farm Olievenhoutbosch 389 JR. Centurion Gauteng Province. Commissioned by Ecotone Environmental Planning and Design.
- 2009** Specialist report on the Stone Age of the Northern Cape. Phase 1 Heritage Assessment for York. Commissioned by African Heritage Consultants.
- 2009** Specialist report on the Stone Age. Phase 1 Heritage Assessment for Port Nolloth, the western Sandveldt. Commissioned by African Heritage Consultants.
- 2008** Analysis of and report on stone tools from two mitigated sites: The Mmamabula Energy Project. Mining and Power Station Development Central District, Botswana. Commissioned by W Biemond.
- 2008** Assessment on the Stone Age of the Eastern and Northern Cape for Archaic Heritage Project Management of the Scoping Survey and Preliminary Assessment prepared for Environmental Resource Management Southern Africa: The Transnet Freight Line EIE, Eastern Cape and Northern Cape.
- 2008** PI report. The Mmamabula Energy Project. Mining and Power Station Development Central District, Botswana. July. Commissioned by Lentswe. With JCA Boeyens.
- 2008** PI report. The Mmamabula Energy Project. Mining and Power Station Development Central District, Botswana. October. Commissioned by Lentswe. With JCA Boeyens.
- 2008** Second phase Middle Stone Age (PI). Maandagshoek 254KT, Burgersfort 2430CA. Proposed mining development. With Nelius Kruger.
- 2007** Specialist assessment undertaken as required by SAHRA: Middle Stone Age. Maandagshoek 254KT, Burgersfort 2430CA. Proposed mining development. With Nelius Kruger.
- 2006** Iron Age and Stone Age. Cultural Heritage Survey of the proposed Thaba Lesodi Golf and Game Estate Development, Modimolle Local Municipality, Waterberg District, Limpopo Province. Triviron Inc. With Francois Coetzee
- 2006** Stone Age. Specialist assessment of an open-air Stone Age collection from the southern Cape and compilation

of a report for Archaeology Africa. With Francois Coetzee.

- 2003** Stone Age specialist assessment: Doornvallei site visit to assess Stone Age archaeology and compilation of a report for Archaeology Africa.
- 2003** Anthropology. Socio-cultural profile of the indigenous communities of East and Southern Africa. With CJ van Vuuren.
- 2002** Iron Age. AIA of the proposed Hatherley Cemetery, Tshwane Metropolitan Municipality, Gauteng. With Francois Coetzee.
- 2002** Iron Age and Stone Age. AIA of proposed residential development Leopard Rock, Bela Bela, Limpopo for Uys & White. With Francois Coetzee.
- 2001** Historical. AIA proposed development of Holdings 231 and 232, Lyttelton Agricultural Holdings Extension 1 for Uys & White. With S Miller.
- 2000** Iron Age and Stone Age. AIA of proposed development on Mabalingwe Nature Reserve, Bela-Bela. With Francois Coetzee.
- 2000** Historical. AIA Premier Mine, Cullinan, Gauteng Province. With Jan Boeyens, Francois Coetzee.

G Bursaries and awards

- 2002-2005** National Research Foundation grant: PhD studies
- 2003** Palaeo-Anthropological Scientific Trust (PAST): Funding for archaeological experimental research project with M Lombard and I Parsons
- 2001** UNISA research grant: Stone Age project
- 2000** Swan Foundation, Oxford University, U.K: award for hunter-gatherer studies
- 1997** National Research Foundation grant: MA studies
- 1988** University of Pretoria and the Trans-Vaal Branch of the South African Archaeological Society: Hanisch Award, best graduate in Archaeology

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