

ARCHAEOLOGICAL/HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED NOUS WEST IVORY GRANITE MINE ON A PORTION OF NOUS WEST 76

**SAHRIS CASE:
12075**

**DMR CASE:
NC 30/5/1/3/2/10133MR**

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act (No. 25 of 1999) as part of a S&EIR Assessment)

Prepared on behalf of
Demaqua Trading (Pty) Ltd

December 2017



Prepared by
Dave Halkett and Jess Robinson

ACO Associates cc

Physical: Unit D17, Prime Park, 21 Mocke Rd, Diep River
Postal: 8 Jacobs Ladder St James, 7945
david.halkett@aco-associates.com
Tel: 021 7064104
Cell: 0731418606
Fax to e-mail: 086 603 7195

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1. INTRODUCTION

1.1 Scope and purpose of report

ACO Associates cc has been requested by Klaas Van Zyl on behalf of Demaqua Trading (Pty) Ltd to prepare an archaeological scoping report, pertaining to the proposed expansion of a granite mine (**Figure 1**), on a portion of Portion 1 Nous West 76, Northern Cape Province (**Figure 2**). An archaeological survey was undertaken to assess the existing and proposed quarry and establish what heritage resources exist that may be impacted by quarrying activities.



Figure 1: Map showing Mining Area in its local context. The town of Pofadder can be seen to the south west and Kakamas to the north east.

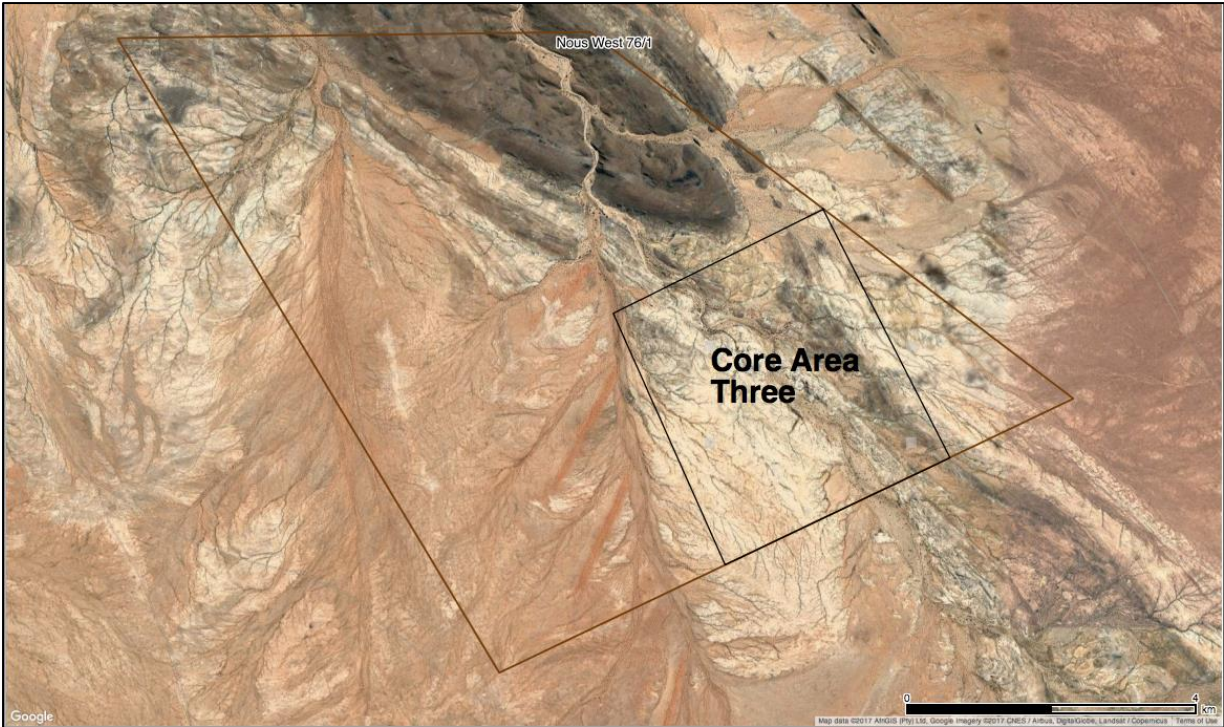


Figure 2: The extent of the Mining Area (black square) within Portion 1 Nous West 76.

1.2 Project details

The extent of this granite mining area referred to as Nouis West Ivory consists of a quarry, known as Ivory, which is active and looking to expand. The locations of the current quarry and proposed expanded quarry area are shown in Table 1 and on **Figure 3** below.

Table 1: Granite quarries in Mining Area

Quarry name	Lat	Lon	Status
Ivory	-28.672978°	19.769519°	Active

Note: coordinates represent the logical centre point of quarry.

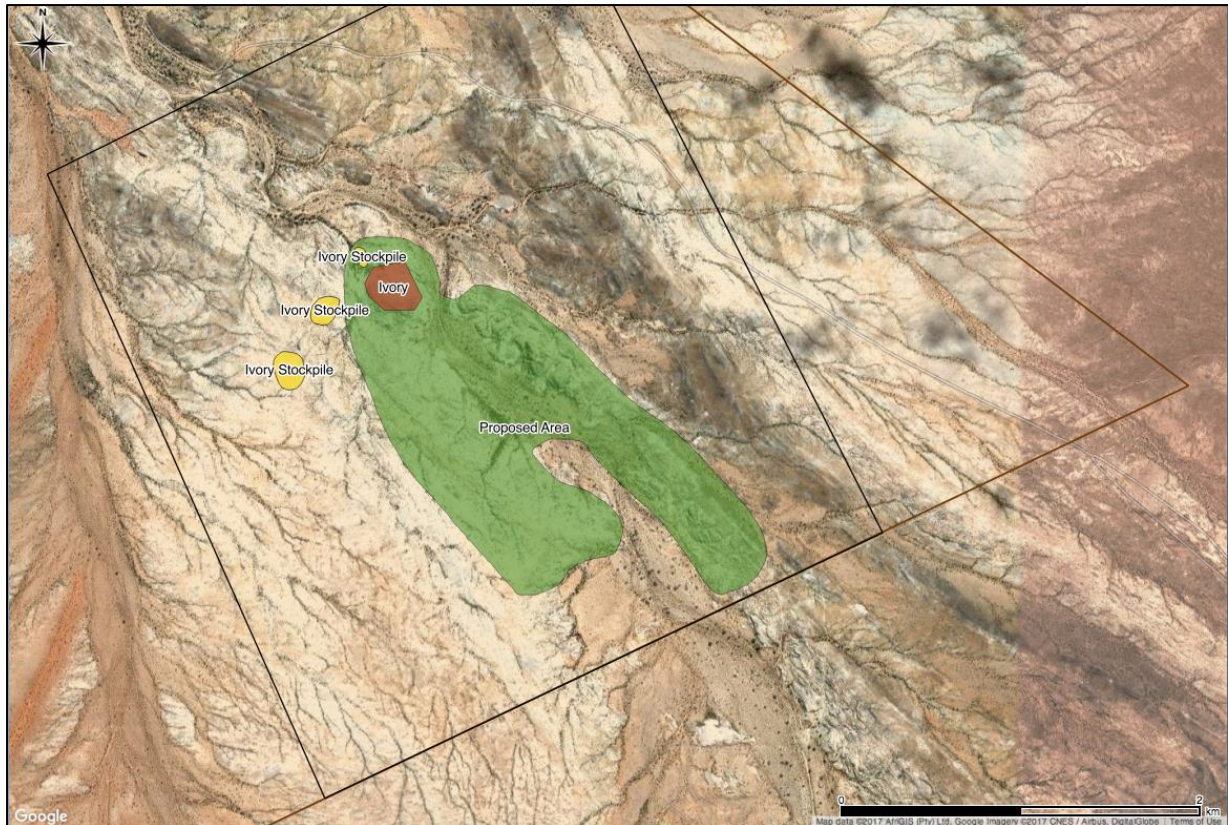


Figure 3: A detail of the granite mine (black square), showing the active quarry, Ivory (red) and proposed quarry expansion area (green). Stockpiles are illustrated in yellow.

1.3 Season, date and duration of site investigation

An archaeological scoping field survey was conducted from the 23rd to 26th October 2017. The season had no impact on the outcome of the assessment as surface visibility was good due to the rocky terrain and succulent Karoo vegetation. The general area is composed of granite hills surrounded by wide open plains. The study area was largely within the granite hills and was generally very rocky. In places sandy plains extend up to the base of the granite outcrops and in other areas dry stream beds cut through the outcrops or flow past them leaving alluvial fans in places.

1.4 Background

The Demaqua Ivory Quarry is situated on a portion of Portion 1 of the farm Nous West 76. Operations are carried out under mining permit MP 03/2013 File reference NC30/5/1/3/2/10204MP issued to Demaqua Trading (Pty) Ltd. The active quarry borders Prospecting Right 850/2007PR File reference NC 30/5/1/1/2/10508 PR issued in the name of the same company over a 990ha portion of Portion 1 of the farm Nous West 76.

The quarry is situated in the ZF Mgcawu District Municipality and Kai! Garib local authority of the Kenhardt administrative district of the Northern Cape.

2. METHODOLOGY

2.1 Details of base data

A survey of available literature was carried out to assess the general heritage context of the area in which the proposed prospecting was to be undertaken. The information gained was used to inform the field survey.

The SAHRIS¹ database was queried to determine if any previous archaeological assessments of the property were available. This indicated that a previous Heritage Impact Assessment was done by Jayson Orton and Lita Webley of ACO Associates in 2012/2013, (Orton and Webley 2013). The results of that previous survey have been integrated into this report wherever pertinent, and those data used to complement the information collected during the site visit in October 2017.

A desktop palaeontological assessment of the Area was provided by Professor Marion Bamford, Director of the WITS Evolutionary Studies Institute for ACO Associates (see Appendix 4). Professor Bamford states that given the nature of the Little Namaqualand and Eendoorn Granite suites that predominate in Core Area Three “there is no possibility of finding fossils in the affected area”. The extraction of granite and associated hard rocks will therefore not impact on any fossil heritage and no further palaeontological impact assessment is required.

2.2 Field assessment procedure

The farm access points, routes across the active quarry and proposed extended quarry area, and other points of interest relevant to the field assessment, were loaded onto handheld GPS devices to assist with accurately identifying the extent and detail of the survey area. In addition to the GPS guidance, the extent of the site was mapped on GIS and hard copy printouts of this mapping taken into the field to assist with survey position fixing.

The field assessment consisted of a combination of foot and vehicle based surveying of the active quarry and proposed quarry expansion to identify archaeological resources. The GPS tracks recorded for the entirety of the survey are shown on **Figure 4**. Waypoints were entered into the GPS at the location of any identified heritage resources, observation notes were written for the relevant findings, and photographs were taken of the resources and surrounding context and landscape.

¹ A database maintained by the South African Heritage Resources Agency containing, inter alia, information about development-led heritage projects

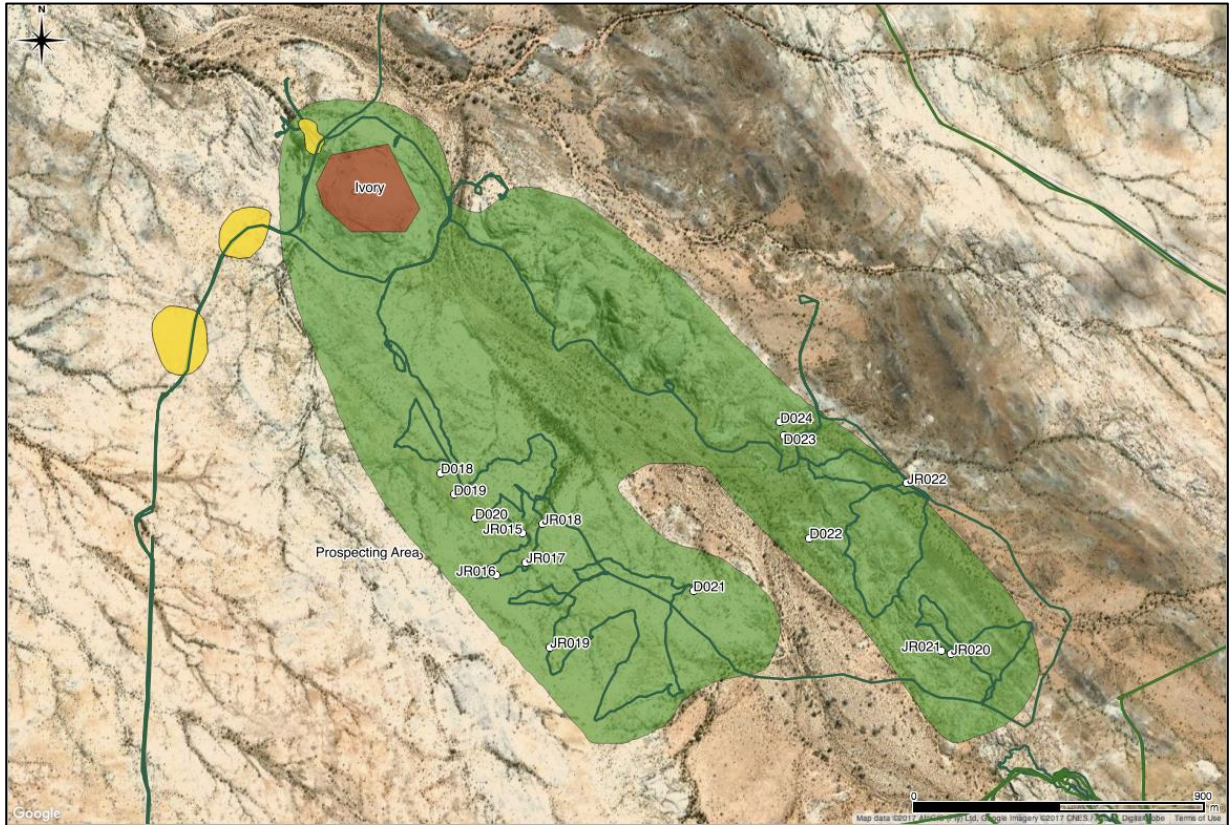


Figure 4 : GPS recorded tracks (green) and waypoints of heritage resources within the active quarry (Ivory) and proposed quarry expansion area.

3. OBSERVATIONS

3.1 Identified sensitivities and heritage resources

In general, the heritage resources observed, mainly in the form of artefact scatters of Middle Stone Age (MSA) and Later Stone Age (LSA) were isolated and ephemeral. The observed resources are described below.

3.1.1 Ivory

Centre point: S28.672978° E19.769519°

Ivory is a large, partially active quarry (224.29 ha in extent) located in the northern part of the mining area. The land is largely undisturbed, except for the active part of the quarry in the north of the mining area, shown as the roughly circular red polygon in **Figure 4**.

The northern and eastern portions of the mining area were surveyed by Orton and Webley in 2012, who reported the following archaeological sites and occurrences and suggested mitigation (see Table 1 below and **Figure 5**).

Table 1: Mining Area Survey Observations 2012

Site number 2012 survey	Field number (Area) 2012	Location	Type	Description	Significance
NSW2012/001	075	S28 40 18.5 E19 46 14.2	Artefact scatter	Large artefact scatter at the foot of the cliff below the mine. In a 'bay' below the cliff. Very disturbed but probably could still be rescued as the original context (i.e. surface scatter) has not been changed – spatial data will have been lost though. Qtz, Qz, CCS, pottery, bone, OES. Two MSA flakes.	Medium-high Mitigate Current: HEAVILY DISTURBED, BLOCK TIPPING ONTO SITE
NSW2012/002	076	S28 40 18.9 E19 46 15.0	Artefact scatter	Quartz and CCS scatter as above but smaller and much less disturbed.	Low-medium Mitigate
NSW2012/003	077	S28 40 20.0 E19 46 16.9	Artefact scatter (deposit)	Qtz, CCS, Qz, FGB, bone, OES. Possibly a small deposit at the foot of the cliff.	Medium-high Mitigate
	078	S28 40 21.7 E19 46 04.8	bedrock grinding groove	One clear and at least two possible grinding hollows in bedrock.	Low Current: HEAVILY DISTURBED
	079	S28 40 22.0 E19 46 04.0	bedrock grinding groove	One large grinding hollow.	Low Current: HEAVILY DISTURBED,
	080	S28 40 20.5 E19 46 03.2	bedrock grinding groove	One probably grinding hollow.	Low Current: HEAVILY DISTURBED
	081	S28 40 19.8 E19 46 03.2	bedrock grinding groove	One clear and four probable grinding hollows.	Low Current: HEAVILY DISTURBED
NSW2012/004	082	S28 40 19.4 E19 46 03.3	Artefact scatter	Qtz, Qz, CS, agate, pigment, pottery, tooth fragment.	Low-medium Mitigate Current: HEAVILY DISTURBED
NSW2012/005	083	S28 40 18.6 E19 46 03.4	Artefact scatter	Qtz, Qz, CCS, OES, pottery (lots including a complete externally applied lug). A small ashy deposit seems to be present at foot of small cliff. Excellent site, undisturbed.	High Mitigate Current: HEAVILY DISTURBED
	084	S28 40 17.6 E19 46 03.3	bedrock grinding groove	About nine grinding hollows.	Low-medium Current: HEAVILY DISTURBED
	085	S28 40 16.9 E19 46 03.5	bedrock grinding groove	About seventeen grinding hollows.	Low-medium Current: HEAVILY DISTURBED
NSW2012/006	090	S28 40 37.3 E19 46 43.5	Artefact scatter	Quartz scatter in open area alongside granite outcrop. SE-facing	Low Current: HAS BEEN AVOIDED
NSW2012/007	091	S28 40 36.1 E19 46 44.0	Artefact scatter	Quartz (LSA) and quartzite (MSA) scatter in open area in front of outcrop/boulders. SE-facing.	Low

NSW2012/008	092	S28 40 35.9 E19 46 43.2	Artefact scatter	Quartz and quartzite (LSA) and quartzite (MSA) scatter in open area in front of outcrop/boulders. N-facing.	Low
NSW2012/009	093	S28 40 34.3 E19 46 42.2	Artefact scatter	Quartz and CCS (LSA) and quartzite (MSA) scatter in open area in front of outcrop/boulders. NW-facing. LSA tends to be higher on slope and MSA in/near erosion gully at base of slope.	Low
NSW2012/010	094	S28 40 35.2 E19 46 40.2	Artefact scatter	Quartz (LSA) and quartzite (MSA) scatter in open area in front of outcrop/boulders. SE-facing	Low
NSW2012/012	095	S28 40 31.4 E19 46 39.9	Artefact scatter	Quartz and FGB (LSA) and quartzite (MSA) scatter.	Low
NSW2012/013	096	S28 40 26.2 E19 46 26.9	Artefact scatter	Long, low shelter with qtz, qz, CS, FGB, HF on huge talus in front of shelter.	Low-medium Mitigate
NSW2012/014	097	S28 40 24.6 E19 46 25.3	Rock shelter / artefact scatter	Tiny cave in gully with light artefact scatter outside. Qtz, qz, FGB, OES, UG.	Low
NSW2012/016	L004	S28 40 23.2 E19 46 24.8	Historic grave	Roughly packed grave of large weathered granite. A possible headstone. 2 x 1.5m in dimension	High Avoid
NSW2012/017	L005	S28 40 23.3 E19 46 24.8	Historic grave/stone cairn	Some 3m from L004 is a circular (80cm – 1m) diameter pile of rocks. Its proximity to the grave suggests it may be a grave too?	High Avoid

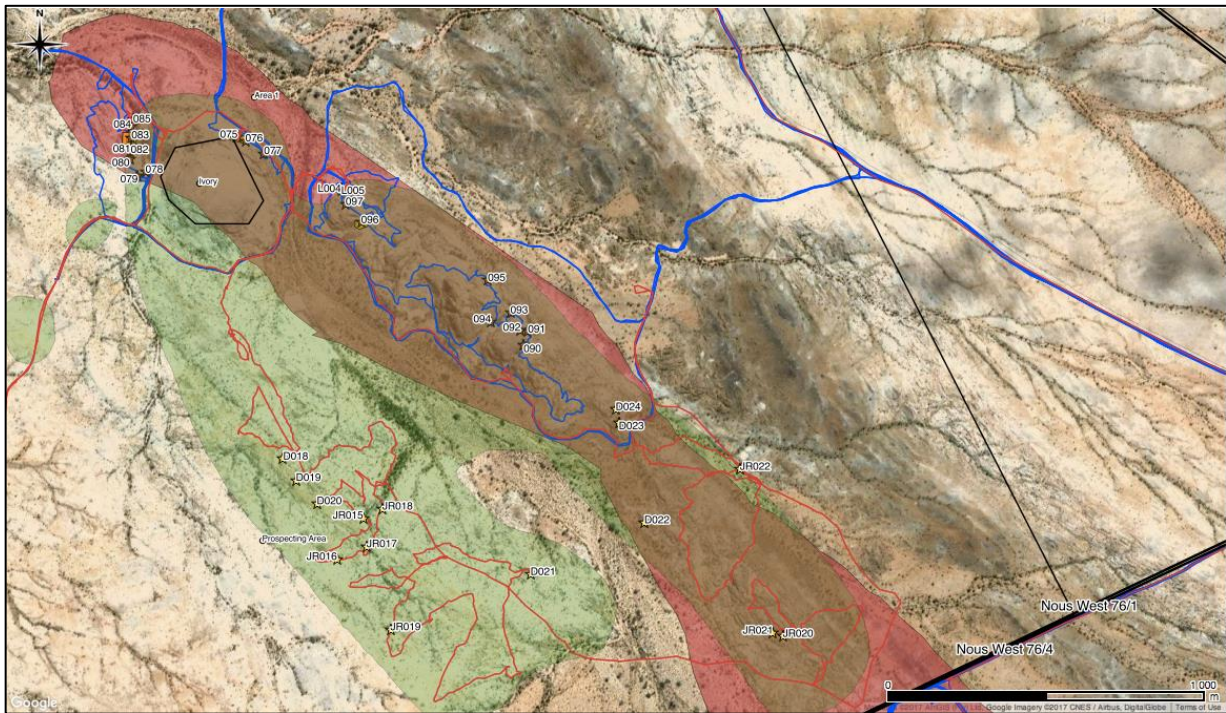


Figure 5: The 2012 survey (blue tracks) of the initial proposed mining area (red polygon), in relation to the 2017 survey (red tracks) in extended proposed mining area (green polygon).

During the 2017 survey a total of 15 archaeological sites and occurrences were recorded in an area that did not form part of the area requiring survey in 2012:

- D018: Isolated rose quartz (MSA) on a small flat area between rocky ridges;
- D019: An ephemeral quartz scatter (MSA and LSA) comprising chunky cores and chunks and a few flakes near a riverbed;
- D020: An ephemeral quartz scatter (MSA and LSA) comprising cores and chunks and a few flakes near a riverbed;
- D021: A small rock shelter in a rock ledge with artefacts on the talus. Quartz flakes, banded ironstone and hornfels (see Plate 1 and Plate 2);
- D022: A small shelter with a quartz scatter in front comprising MSA cores and flakes and some large quartz broken up chunks;
- D023: An isolated, patinated MSA hornfels core;
- D024: A quartz scatter comprising large core chunks and a few flakes on the front of the outcrop;
- JR015: A small scatter of artefacts - hornfels and quartz - in a shady hollow against a set of boulders;
- JR016: An ephemeral scatter of quartz flakes on a flat, sandy area;
- JR017: A small round hollow in the granite rock with a sandy floor and a scatter of MSA quartz flakes (see Plate 3 and Plate 4);
- JR018: A small scatter of MSA quartz flakes on a flat, sandy area;
- JR019: A small scatter of MSA quartz flakes on a flat, sandy area;
- JR020: A small flat sandy area between boulders containing a scatter of MSA quartz artefacts.
- JR021: An isolated patinated MSA hornfels core;
- JR022: A small scatter of quartz on a sandy, flat area.
- Two possible graves recorded by Orton and Webley in 2012 (Field numbers L004 and L005) were re-visited during the 2017 survey. These features lie in the northern part of the mining area straddling the extreme north-eastern perimeter of Ivory quarry (Figure 6 and Plate 5). L004 is a roughly packed stone feature of large weathered granite pieces with a possible headstone. The feature measures 2 x 1.5m. L005 is some 3m from L004 and is a circular pile of rocks 0.8 – 1m in diameter. Its proximity to L004 suggests that it could also be a grave.



Plate 1: D021: Rock shelter containing stone artefacts of quartz, rose quartz and banded ironstone.



Plate 2: Selection of artefacts from rock shelter D021



Plate 3: JR017: Small hollow in granite rock with a sandy floor containing quartz and rose quartz flakes.



Plate 4: Selection of artefacts from JR017.



Figure 6: Location of possible graves (L004 and L005) in Core Area Three (circled in red).



Plate 5: Possible graves L004 (centre left) and L005 (right).

Table 2: Archaeological observations in Core Area Three

Quarry	Waypoint	S	E	Description	Grading
Ivory	D018	28,67986	19,77191	Isolated pink quartz (MSA) on small flat area between rocky ridges.	NCW*
	D019	28,68039	19,77227	Ephemeral quartz MSA? LSA scatter. Chunky cores and chunks, few flakes near riverbed.	NCW
	D020	28,68098	19,77287	Ephemeral quartz MSA? LSA scatter. Chunky cores and chunks, few flakes near riverbed.	NCW
	D021	28,68275	19,77895	Small shelter in rock ledge with artefacts on the talus, quartz, banded ironstone, hornfels.	NCW
	D022	28,68145	19,78219	Small shelter with quartz scatter in front. MSA cores and flakes, some big quartz chunks broken up.	NCW
	D023	28,67895	19,78147	Isolated patinated hornfels core. MSA.	NCW
	D024	28,67863	19,78138	Quartz scatter, big chunks of core, some flakes on front of outcrop.	NCW
	JR015	28,68134	19,77419	Small artefact scatter, hornfels, quartz, sandy hollow against rocky set of boulders. MSA.	NCW
	JR016	28,68237	19,77345	Ephemeral scatter, quartz, flat sandy area.	NCW
	JR017	28,68205	19,77429	Small round hollow in rock, sandy floor, few quartz flakes	NCW
	JR018	28,68111	19,77474	Small scatter, sandy flat area, quartz. MSA.	NCW
	JR019	28,68412	19,77497	Small scatter, sandy flat area, quartz. MSA.	NCW
	JR020	28,68429	19,78614	Small flat sandy area between boulders, small artefacts scatter of quartz and rose quartz.	NCW
	JR021	28,68421	19,78586	Isolated patinated hornfels core. MSA	NCW
JR022	28,68012	19,78492	Small scatter of quartz on sandy flat area.	NCW	

* **Note:** NCW - Not conservation worthy. A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate (see Appendix 3 for grading categories)

3.2 Existing impacts and related observations

During the 2017 survey the sites that Orton and Webley recommended for avoidance and mitigation in 2012 were revisited. It was apparent that of the six sites recommended for mitigation, four have since been damaged by the dumping of granite blocks on, and in the vicinity of the sites. These sites are: NSW2012/001 (75), NSW2012/002 (76), NSW2012/004 (82), and NSW2012/005 (83) (detailed in Table 1).

The remaining two sites recommended for mitigation (NSW2012/003 (77) and NSW2012/013 (96)) appear undisturbed by quarrying activities, as do the two possible graves (L004 and L005) on the edge of the Ivory quarry area.

4. CONCLUSIONS

4.1 Acceptability of the proposed activity with respect to heritage resources

The archaeological resources identified during the 2012 and 2017 field assessments provide evidence of a human presence in the area going back to the Middle Stone Age. The ephemeral and scattered nature of the bulk of this material however indicates that it is not highly significant.

The 2012 survey recommended the mitigation of six sites. It is not clear whether this mitigation took place and four of the sites in question appear to have been damaged by quarrying activities since then.

The geology of the area means that there is no possibility of finding fossils in the affected area.

Subject to the mitigation of the remaining two sites identified in 2012 taking place, it is our assessment that the current and proposed activities in the proposed mining area may be authorised.

5. RECOMMENDATIONS

The following recommendations are made:

- The possible graves (L004 and L005) on the edge of Ivory quarry are protected by the National Heritage Resources Act (Act 25 of 1999) and can and should be avoided during mining operations and related activities. These must be fenced and be clearly marked. No disturbance is permitted. Should the need to remove the graves ever arise then a full public participation process will be required under the terms of the NHRA. This can be a time-consuming process and it is thus certainly best to avoid all graves completely;
- In light of the damage to the four sites proposed for mitigation in 2012, the mitigation of the remaining two sites (NSW2012/003 and NSW2012/013) must take place;
- Beyond this, no further archaeological studies or mitigation is required for the areas examined for this report; and
- No further palaeontological studies or mitigation is required for Core Area Three.
- If the areas assessed in this report should change, or new areas be added, they must be assessed for heritage resources.

6. REFERENCES

Orton, J. and Webley, L. 2013. *Heritage Impact Assessment for the proposed granite prospecting near Pofadder, Northern Cape*. Unpublished report prepared for Sizisa Ukhanyo Trading 830 cc. ACO Associates cc. Diep River.

APPENDIX 1: SPECIALIST CV

PERSONAL DETAILS

Name: Halkett, David John
Home Address: 6 Overton Court
151 High Level Road
Green Point
Cape Town 8005
Telephone: 073 141 8606

Previous work Address: **Archaeology Contracts Office**
Department of Archaeology, University of Cape Town, Private Bag
Rondebosch, 7701

Current work address: **ACO Associates cc**
Unit D17, Prime Park, 21 Mocke Road, Diep River 7800
Telephone (w): (021) 706 4104
Fax to e-mail (w): 086 603 7195

Date of Birth: 23.07.1958
Marital Status: Married
Nationality: South African
Home Language: English
Other Languages: Afrikaans
ID Number: 5807235148080

FORMAL QUALIFICATIONS

Matriculated	Pinelands High (matric exemption)	1976
Graduated	B.A. University of Cape Town	1980
	B.A. (Hons) (Archaeology) University of Cape Town	1982
	M.A. (Archaeology) University of Cape Town	1991

EXPERIENCE

Employment

Part time research asst	South African Museum (archaeology)	Nov-Feb 1978,1979
Student Ranger	Cape of Good Hope Nature Reserve	Dec-Feb 1980
National Service	SA Navy Rank: Sub-Lieutenant	1982-1984
Part time research asst	Spatial Archaeology Research Unit, UCT	1984
Junior Research Officer	Paleoanthropology Research Unit, Wits	1997(part time appt.)
Principal Investigator	Archaeology Contracts Office, UCT	1988-2012
Director	ACO Associates cc.	2008-present

Other experience and professional memberships

- Secretary, Archaeology Field Club, UCT. 1979
- Chairperson, Archaeology Field Club, UCT. 1980
- Co-organizer of the Spatial Archaeology Research Unit workshop: Environments and Prehistory in the western Cape. 1984
- Archaeological advisor, National Monuments Council, Western Cape Regional Plans Committee. 1993 -1999
- Member: Association of Southern African Professional Archaeologists (ASAPA)
- Member: Association of Southern African Professional Archaeologists (ASAPA): CRM section (PI level with accreditation for Stone Age, Coastal Shell Middens, Colonial Period, Rock Paintings, Industrial, Bone Accumulations)
- Committee member: Archaeology Standards Generating Body (SGB) for SAQA
- Member: South African Archaeological Society

- Committee member: Heritage Western Cape, Archaeology, Palaeontology and Meteorites Committee
appointed 2003 - 2007, re-appointed 2007 – 2013
- Member: Heritage Western Cape, Integrated Assessment Review Committee, 2009 - 2013
- Forensic consultant: Missing Persons Unit: National Prosecuting Authority 2007

Awards

Dept. of Cultural Affairs and Sport award for the Best Heritage Impact Assessment in the Western Cape for 2013/14.

Long term commercial projects

1997-2008 Directed all ACO cultural resource management activities for De Beers Namaqualand Mines

Peer Reviews

1997 Archaeological report prepared for Alpha Saldanha Cement project.

1999 Archaeological reports prepared for Namdeb.

Published Articles (relevant selection)

Avery, G., Halkett, D., Orton, J., Steele, T. & Klein, R. 2009. The Ysterfontein 1 Middle Stone Age Rock shelter and the Evolution of Coastal Foraging. *South African Archaeological Society Goodwin Series* 10: 66–89

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Presentations and lectures (recent)

2007. In at the deep end. Lecture presented at the annual one-day lecture series of the Archaeological Society of the Western Cape and the Friends of the Stellenbosch Museum.

2008. The landscape of early colonial burial in Cape Town: a walking tour of excavation sites and buildings of interest in Green Point. Presented during the ASAPA, Mid-conference excursion. With a guidebook compiled by Dave Halkett, Tim Hart, Liesbet Schietecatte, Erin Finnegan & Katie Smuts.

2009-2016. In at the deep end. Contract archaeology: a case study of mitigation a pre-colonial heritage site to be impacted by development. Presented as part of APG5066F - Conservation Disciplines and Practices, MPhil in Conservation of the Built Environment, University of Cape Town.

2009/2010. "In at the deep end" and "Middens of steel". Contract archaeology: case studies of mitigation of stone age and colonial heritage sites to be impacted by development. Presented as part of APG5066F - Conservation Disciplines and Practices, MPhil in Conservation of the Built Environment, University of Cape Town.

2009/2010/2011. Surveying, Measuring and Recording Archaeological Resources. Presented as part of APG5066F - Surveying, Measuring and Recording Heritage Resources, MPhil in Conservation of the Built Environment, University of Cape Town.

2011. ...Blowing in The Wind: Renewable energy projects - Challenges and opportunities for heritage resource management. Lecture presented at the annual one-day lecture series of the Archaeological Society of the Western Cape and the Friends of the Stellenbosch Museum.

2012 "My Career in Archaeology". Part of the Centre for Higher Education and Development series on careers, UCT.

Referees

Prof. J. E. Parkington

Dept of Archaeology
University of Cape Town
Private Bag
Rondebosch 7701
E-mail: john.parkington@uct.ac.za

Prof. R. G. Klein

Dept of Anthropology
Stanford University
Stanford
CA 94305-2145
E-mail: rklein@stanford.edu

Field/Consulting/Heritage Management Experience (relevant selection)

Halkett, D., Hart, T. & Parkington, J. 1994. Phase 2 archaeological excavations at the Namakwa Sands Project (first phase), Vredendal district, Namaqualand. Unpublished report prepared for Namakwa Sands. Archaeology Contracts Office, UCT.

Halkett, D. & Hart, T. 1997 An archaeological assessment of the coastal strip and a proposed heritage management plan for De Beers Namaqualand Mines, Vol 1&2. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Halkett, D. & Lanham, J. 1998. Report on an initial visit to assess the impact of mining on archaeological sites in the Richtersveld. Prepared for Trans Hex Mining Ltd. Archaeology Contracts Office, UCT.

Halkett, D. 1999. A phase one archaeological assessment of heritage resources in the Trans Hex diamond concession Richtersveld. Prepared for Trans Hex Group Ltd. Archaeology Contracts Office, UCT.

Halkett, D. & Hart, T. 2000. Heritage sites in De Beers Namaqualand Mines: A conservation and management handbook. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Halkett, D. 2000. An initial assessment of heritage resources within the Trans Hex West Coast Diamond Concessions. Prepared for Trans Hex Mining Ltd. Archaeology Contracts Office, UCT.

Halkett, D. 2001. A report on archaeological excavations on the Orange River floodplain between Jakkalsberg and Sendelingsdrift: Richtersveld. Prepared for Trans Hex Mining Ltd. Archaeology Contracts Office, UCT.

Halkett, D. 2001. An inspection and assessment of specific archaeological sites on De Beers owned properties – Namaqualand. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Halkett, D. 2002. Phase 1 archaeological survey: assessment of mining blocks in the BMC and KN areas, Namaqualand. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Halkett, D. 2003. A report on the archaeological mitigation program at De Beers Namaqualand Mines, March 2002 to June 2003. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Orton, J. & Halkett, D. 2005. A report on the archaeological mitigation program at De Beers Namaqualand Mines, August to September 2004. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Orton, J. & Halkett, D. 2005. A report on the archaeological mitigation program at De Beers Namaqualand Mines, August to September 2004. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Orton, J. & Halkett, D. 2006. Mitigation of archaeological sites within the Buffels Marine and Koingnaas Complexes, Namaqualand, September 2005 To May 2006. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Webley, L. & Halkett, D. 2014. Baseline heritage assessment: proposed aquaculture development at Brand Se Baai, Matzikama Municipality, Western Cape. Prepared for SRK Consulting (South Africa) (Pty) Ltd. ACO Associates cc.

Halkett, D. & Webley T. 2015. Heritage Impact Assessment: Elandsfontein Phosphate mining right on a Portion of Portion 2 And Portion 4 of the farm Elandsfontein 349, Saldanha. Prepared for Billet Trade (Pty) Ltd T/A Braaf Environmental Practitioners on behalf of Elandsfontein Exploration and Mining (Pty) Ltd. ACO Associates cc.

Halkett, D. & Webley, L. 2016. Heritage Impact Assessment of the proposed extension of the Tormin mine, west coast, South Africa. Prepared for SRK Consulting (South Africa) (Pty) Ltd. ACO Associates cc.

APPENDIX 2: SPECIALIST DECLARATION

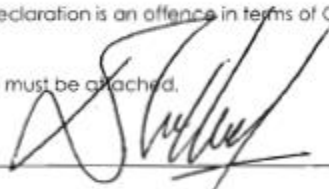
THE INDEPENDENT PERSON WHO COMPILED A SPECIALIST REPORT OR UNDERTOOK A SPECIALIST PROCESS

J.J. HALKETT as the appointed independent specialist hereby declare that I:

- act/ed as the independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 (specifically in terms of GN No. R. 982, as amended) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of GN No. R. 982, as amended.

Note: The terms of reference must be attached.

Signature of the specialist:



Name of company:

ACO ASSOCIATES CC.

Date:

14 DECEMBER 2017.

APPENDIX 3: GRADING CATEGORIES

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Robben Island	May be declared as a National Heritage Site managed by SAHRA.	Highest Significance
II	Heritage resources with special qualities which make them significant in the context of a province or region, but do not fulfil the criteria for Grade I status. Current examples: St George's Cathedral, Community House	May be declared as a Provincial Heritage Site managed by HWC.	Exceptionally High Significance
III		Such a resource contributes to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register. These resources are currently managed by HWC <i>unless the local authority has been found competent and has been granted delegated authority.</i>	
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. These are heritage resources which are significant in the context of an area .	This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration, both internal and external, is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive maximum protection at local level.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree. These are heritage resources which are significant in the context of a townscape , neighbourhood, settlement or community.	Like Grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be rare, but less so than Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at local level.	Medium Significance
IIIC	Such a resource is of contributing significance to the environs These are heritage resources which are significant in the context of a streetscape or direct neighbourhood .	This grading is applied to buildings and/or sites whose significance is contextual, i.e. in large part due to its contribution to the character or significance of the environs. These buildings and sites should, as a consequence, only be regulated if the significance of the environs is sufficient to warrant protective measures, regardless of whether the site falls within a Conservation or Heritage Area. Internal alterations should not necessarily be regulated.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant and approved by the authority. Section 34 can even be lifted by HWC for structures in this category if they are older than 60 years.	No research potential or other cultural significance

APPENDIX 4: PALAEOONTOLOGICAL LETTER



Palaeosciences Centre, East Campus, 1 Jan Smuts Avenue, Braamfontein, Johannesburg
Private Bag 3, WITS 2050, Johannesburg, SOUTH AFRICA Tel: 011 717 6682

Marion.bamford@wits.ac.za

14 September 2017

Dr Ragna Redelstorff
SAHRA
111 Harrington Street
Cape Town 8001

Dear Ragna

**RE: Palaeontological Impact assessment for proposed new quarries,
Northern Cape Province**

On behalf of ACO Associates cc I have completed a desktop Palaeontological Impact assessment for the project and found that there is no possibility of finding fossils in the affected area.

The Little Namaqualand Suite rocks are granite to adamellite and the Eendoorn Granite has augen gneisses. Other volcanic rocks in the area are the pink gneisses of the Hoogoor Suite. Fossils do not occur in igneous rocks such as granites and gneisses because the rocks originate in the molten core and cool when reaching the earth's surface and are further metamorphosed in the case of gneisses. This is not a suitable environment for preserving fossils. Furthermore, only microfossils were present around 2000 – 1000Ma but the organisms did not live such settings. Macrofossils are much younger than this, ca 800 Ma. Along the Orange River and to the south are the alluvial and Aeolian sands of the Quaternary Kalahari sediments but these do not contain fossils either. These however will not be affected by the quarrying as they are not granites.

The extraction of granites and associated hard rocks will, therefore, not impact on any fossil heritage and no further palaeontology impact assessment is required.

Yours faithfully

A handwritten signature in blue ink that reads 'M Bamford'.

Prof Marion Bamford
Director: Evolutionary Studies Institute