

ARCHAEOLOGICAL/HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED GRANITE MINE ON PORTIONS OF THE FARM NOUS WEST 76 NORTHERN CAPE PROVINCE.

**SAHRIS CASE:
12074**

**DMR CASE:
NC30/5/1/3/2/10131MR**

(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

Sizisa Ukhanyo 830 Trading cc

December 2017



Prepared by

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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 Sizisa Ukhanyo Trading to prepare an archaeological scoping report, for the proposed expansion of a granite mine in Core Area Two (Figure 1), on Portion 1 and Portion 4 of the farm Nous West 76 and a portion the Remainder of the farm Lower Zwart Modder 79, Northern Cape Province (Figure 2). An archaeological survey was undertaken to assess the existing and proposed quarries and establish what heritage resources exist that may be impacted by the proposed quarrying activities.

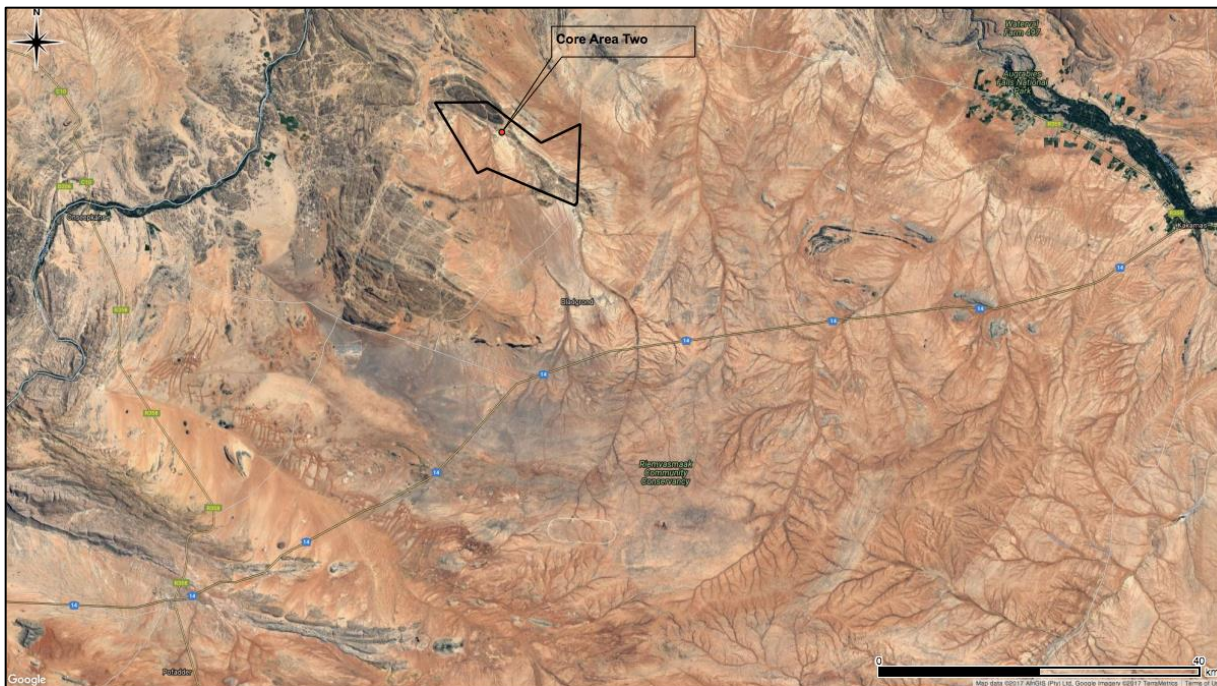


Figure 1: Map detailing Core Area Two in a local context. The town of Pofadder can be seen to the south west and Kakamas to the north east.

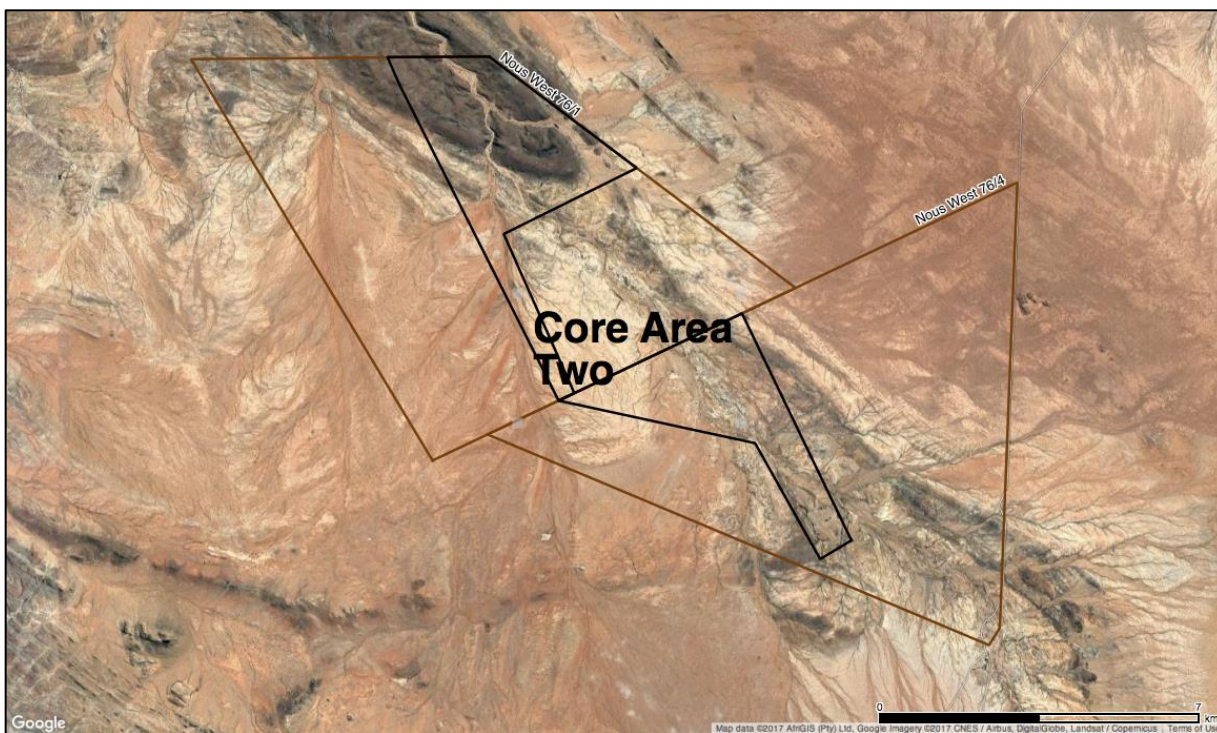


Figure 2: The location of the granite mine and farm portions.

1.2 Project details

The extent of this granite mining operation is referred to as Nous West, and consists of three mining quarries, of which one is active, looking to expand, and two are proposed, where no quarrying has yet been carried out. The locations of the current and proposed quarries are shown in Table 1 and on Figure 3 below.

Table 1: Granite quarries in Core Area Two

Quarry name	Lat	Lon	Status
Cape Spring	S 28.661387°	E 19.754197°	Proposed
Ocean Green	S 28.718330°	E 19.819080°	Proposed
Yellow	S 28.691240°	E 19.790770°	Active

Note: coordinates represent the logical centre point for each quarry.

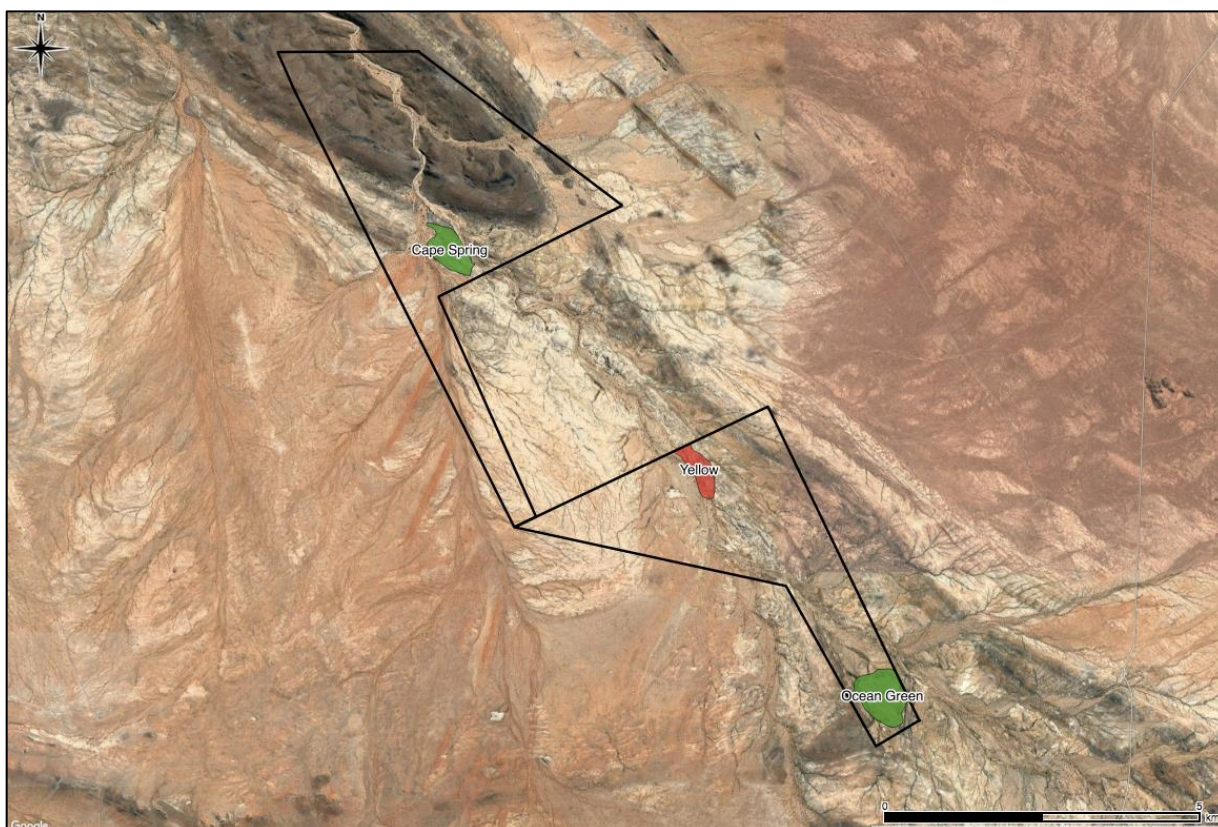


Figure 3: A detail of the granite mine (Black polygon), showing the existing, (red) and proposed quarries, (green).

1.3 Season, date and duration of site investigation

The archaeological scoping field survey was conducted from the 23rd October until the 26th October 2017. The season had no impact on the outcome of the assessment and 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. All the individual study areas were within the granite hills and were generally very rocky. In places the sandy plains extend right up to the base of the rocks, in other places dry stream beds cut through the hills or flow past them leaving alluvial fans in many areas.

1.4 Background

The Nous West Mining Area is situated over portions of Portion 1 and Portion 4 of the farm Nous West 76. The mining operation will include all the previous mining operations carried out under cover of the following permits or prospecting rights:

- Mining permit MP 013/2014 File reference NC30/5/1/3/2/10232MP issued to Million Rise Trading (Pty) Ltd over 5Ha portion of Portion 4 of the Farm Nous West 76;
- Mining permit MP 022/2013 File reference NC30/5/1/3/2/10104MP issued to Sizisa Ukhanyo Trading 830 CC over 5Ha portion of Portion 4 of the Farm Nous West 76;
- Prospecting right MPTRO 29/2015 File reference NC30/5/1/3/2/10610PR issued to Sizisa Ukhanyo Trading 830 CC over the Remainder Farm Lower Zwart Modder 79 and a portion of Portion 1 of the Farm Nous West 76;

The operations are 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 examined to determine if any previous archaeological assessments of the property were available.

Previous Heritage Impact Assessment was done by Jason Orton and Lita Webley of ACO Associates in 2012/2013, (Orton et al 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 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 this area “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, and points of interest of the active and prospective quarries were loaded onto a handheld GPS device 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 printed to assist with general location.

The field assessment consisted of surveying each active and prospective quarry indicated to us, both on foot and in vehicle to identify any indications of surface or sub-surface 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 locations of 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 and waypoints of heritage resources within the vicinity of active and prospecting quarries in Core Area 2.

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, detailed in Table 2 are described below, categorised by associated active and proposed quarries.

3.1.1 Cape Spring

Centre point: S 28.661387° E 19.754197°

Cape Spring is a large, proposed quarry (37.56 ha in extent) located in the northern section of the mining area, (**Figure 5**). The quarry did not form part of the area surveyed by Orton and Webley in 2012.

The land is largely undisturbed, except for some disturbance by farming. During the survey we recorded a total of nine archaeological observations in the proposed quarry area:

- D011: A large rectangular stone kraal, with a lambing section to the one side and a rock outcrop incorporated into the wall of the main kraal. Sandy floor deposit. The kraal seems to still be in use (**Plate 1: D011: Stone Kraal including lambing area**);
- D012: An exposed sloping ledge with rocky soil with few quartz artefacts and one sherd of earthenware with no decoration. The lithic material consists of one quartz crystal flake, and approximately eight to ten LSA chunks and flakes. One brown chert blade, possibly MSA, was noted;
- D013: A small stone ruin, possible a dwelling (±2x2 meters) containing a fair bit of modern, non-archaeological refuse, including ceramics, tin, iron and glass. The structure contains more modern walling too;
- D014: One possible grave;

- D015: Stone walling up against an outcrop, partially in-filled. The shallow infill deposit, which is ~20 cm deep, contained glass, bone, charcoal and earthenware ceramics including Willow pattern and blue with white spongeware;
- JR009: A recess in the rock, approximately six to eight meters wide, containing LSA artefacts. It is a shallow deposit and no rock art is visible on the walls. Stone artefacts consist of hornfels flakes, quartzite blades and flakes, small quartz crystal scrapers and rose quartz flakes. The site has an overlapping colonial period deposit which contains earthenware and sponge ware, white and blue transfer print, aqua glass, and annular ware. A Martini Henry cartridge case (foil type), and some tin was also seen. Overall the deposit is minimal. The site is northeast facing and close to the existing farm house. (**Plate 2** and **Plate 3**);
- JR010: A small rock shelter, facing southwest, containing a small scatter of LSA and late MSA quartz flakes, quartzite flakes and cores. Glass and tin are also present on the site. There is no depth of deposit in the shelter;
- JR011: A single large Earlier Stone Age? (ESA) quartzite flaked piece;
- JR012: A small, ephemeral scatter of stone artefacts alongside a riverbed in the eastern section of Cape Spring, consisting of two quartz flakes and one hornfels core.

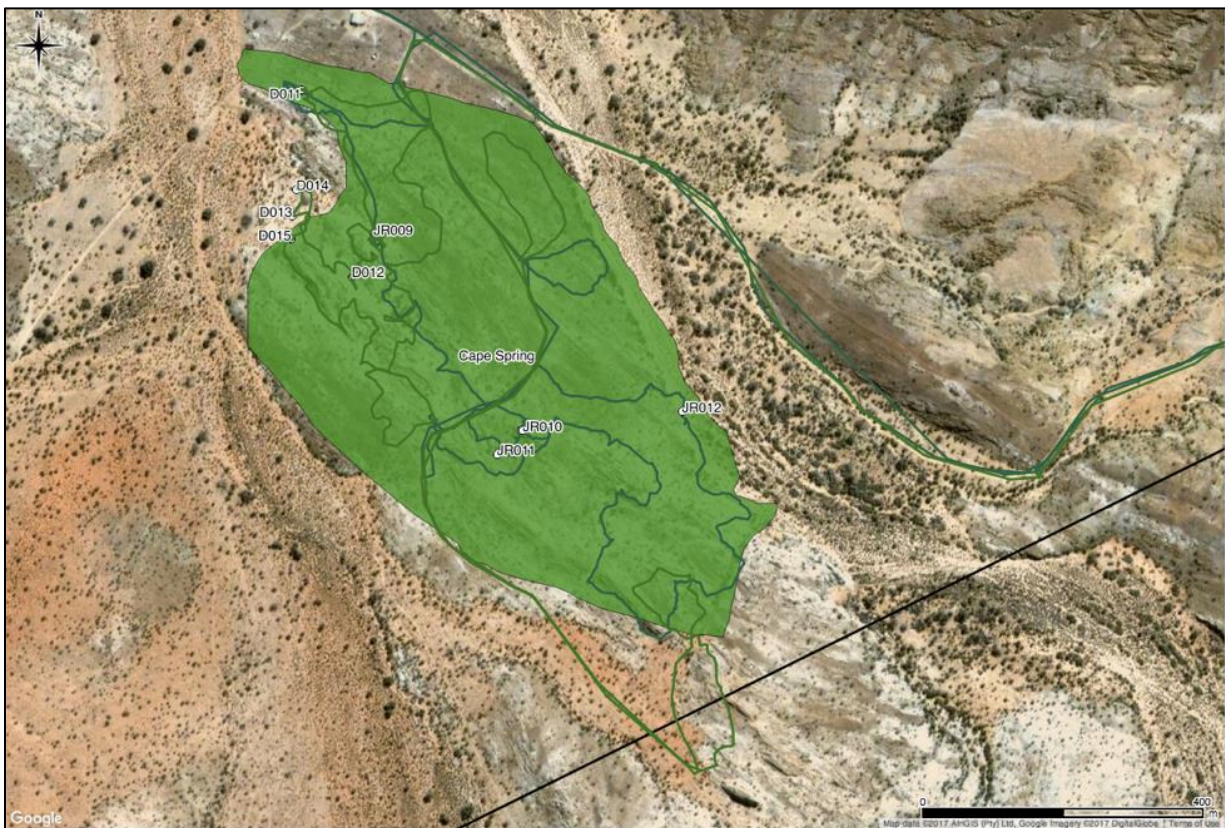


Figure 5: The location and extent of Cape Spring quarry in relation to the archaeological observations mentioned above.



Plate 1: D011: Stone Kraal including lambing area



Plate 2: JR009: LSA and colonial artefacts (scale gradations on book in cm)



Plate 3: JR009: Shallow rock shelter with talus containing stone artefacts and colonial artefacts mentioned above

3.1.2 Ocean Green

Centre point: S 28.718330° E 19.819080°

Please note that ACO Associates was informed after the survey that this quarry has been removed from the project. The results of the survey have been included in this report, however, as a record of the fact that this area has been surveyed.

Ocean Green quarry is a proposed quarry with little to no disturbance other than some indications of prospecting that has been carried out (**Figure 6** and **Plate 4**). The quarry did not form part of the area surveyed by Orton and Webley in 2012. The proposed quarry is a large, smooth batholith (53.68 ha in extent) which contained three archaeological observations:

- D016: An MSA scatter of stone artefacts, predominantly quartz with occasional brown chert flakes and chunks and a few hornfels cores. The scatter is located on a flat sandy surface at the edge of the batholith (**Plate 5**);
- JR013: A low-lying water collection area in the middle of the batholith containing rose quartz flakes and one brown chert flake, probably MSA;
- JR014: A MSA scatter on an open rocky platform near the edge of the granite batholith containing quartz, quartzite and hornfels flakes.

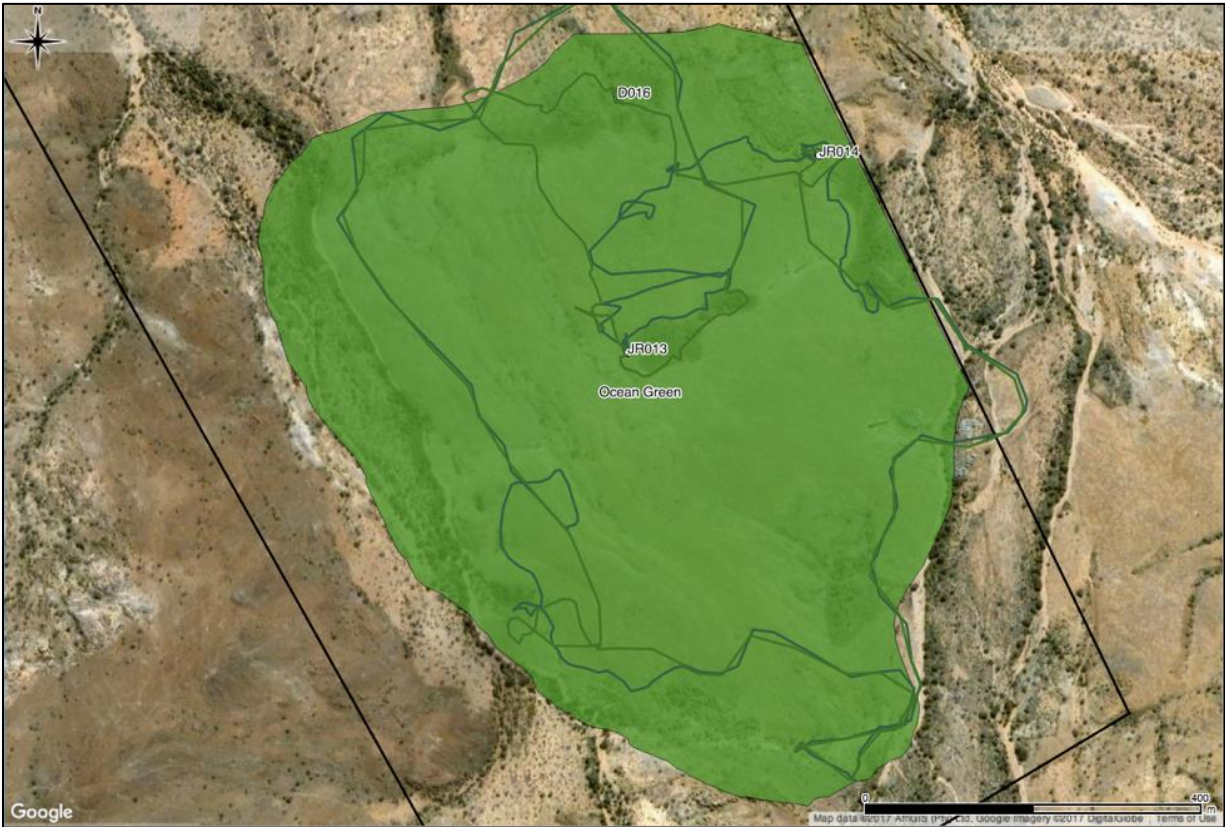


Figure 6: The location and extent of Ocean Green quarry in relation to the archaeological observations mentioned above.



Plate 4: Ocean Green quarry batholith of granite



Plate 5: D016: Quartz and rose quartz stone artefacts (thumb sized)

3.1.3 Yellow

Centre point: S 28.691240° E 19.790770°

Yellow is an existing and active quarry with associated stockpile (**Figure 7** and **Plate 6**). It is the smallest quarry in Core Area Two, but the quarrying is extensive over the whole area. Orton and Webley surveyed this quarry in 2012 but reported no archaeological material.

Quartz is densely scattered across the landscape, but little of this material is archaeological. One archaeological site was observed in the quarry:

- D017: A slope in front of a boulder containing one Khoi pot sherd and one hornfels flake.

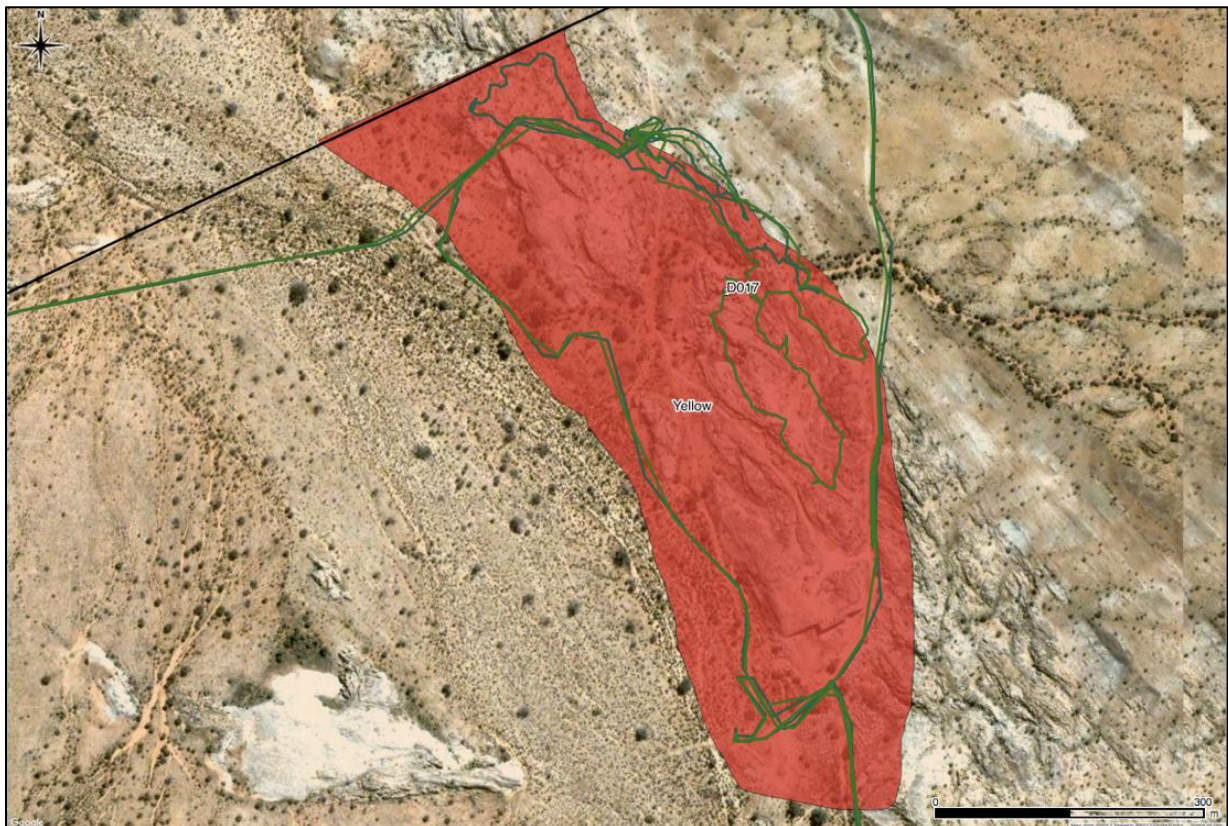


Figure 7: The location and extent of Yellow quarry in relation to the archaeological observations mentioned above.



Plate 6: Yellow Quarry shown with the current quarrying activities and stockpile.

Table 2: Quarries containing archaeological observations in Core Area Two

Quarry	Waypoint	Lat	Lon	Description	Grade
Cape Spring	D011	S 28,65918	E 19,75164	Large rectangular stone kraal with lambing section. Main quarry outcrop incorporated as wall.	IIC
	D012	S 28,66128	E 19,75228	Exposed sloping ledge with rocky soil with few quartz artefacts and one of earthenware ceramic base. No decoration. One quartz crystal, 8-10 LSA chunks and flakes. One brown chert blade, possibly MSA.	NCW*
	D013	S 28,66060	E 19,75152	Small stone ruin, possible dwelling $\pm 2 \times 2$ m, fair bit of refuse around, ceramic, tin, iron, glass. Also some other walling.	IIC
	D014	S 28,66030	E 19,75157	One possible grave	IIIA
	D015	S 28,66086	E 19,75151	Stone walling up against main outcrop, partially in-filled. Ceramics, glass, bone, charcoal. 20cm deposit. Willow pattern ceramics, blue, white sponge.	IIC
Cape Spring	JR009	S 28,83676	E 19,72506	Recess below granite boulder, LSA site. Shallow deposit, no rock art. Hornfels flakes, quartzite blades and flakes, quartz crystal small scrapers, rose quartz flake. Site has overlapped into colonial period. Fine earthenware and sponge ware, white and blue transfer print, aqua glass, annular ware, Martini Henry gun shell with foil case, and some tin. Minimal deposit. NE facing, near to farmhouse.	IIC
	JR010	S 28,66302	E 19,75448	Small rock shelter, facing SW, small scatter of LSA and late MSA, quartz flakes, quartzite flakes and cores, glass, no sedimentary deposit.	IIC
	JR011	S 28,66328	E 19,75415	ESA flake on quartzite.	NCW
	JR012	S 28,66280	E 19,75652	Riverbed. Small scatter of two quartz flakes and a hornfels core.	NCW
Ocean Green	D016	S 28,71510	E 19,81556	MSA scatter, predominantly quartz with occasional brown chert flakes and chunks. Some hornfels and a few cores. On flat soil surface at edge of batholith.	NCW
	JR013	S 28,71750	E 19,81567	Waterbakke type hollow on top of batholith with Rose Quartz flakes. One brown chert flake.	NCW
	JR014	S 28,71565	E 19,81772	MSA scatter on an open rocky platform near the edge of Ocean Green. Quartz, quartzite and hornfels.	NCW
Yellow	D017	S 28,68863	E 19,79004	Slope in front of boulder, One Khoi potsherd and one hornfels flake.	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

The archaeological observations made in this area overall are of low significance, including the small rock shelter JR009.

4. CONCLUSIONS

4.1 Acceptability of the proposed activity with respect to heritage resources

The archaeological resources identified during the field assessment provide evidence of a human presence in this area going back to the Middle Stone Age. This material is ephemeral and scattered and is not assessed to be significant.

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

It is our assessment, therefore, that the current and proposed activities may be authorised.

5. RECOMMENDATIONS

The following recommendations are made:

- The stone walled kraal (D011) should be excluded from quarrying;
- No further archaeological studies or mitigation is required for the areas examined for this report; and
- No further palaeontological studies or mitigation is required.
- 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. 2012. *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

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Department of Archaeology, University of Cape Town, Private Bag
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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

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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.

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APPENDIX 2: SPECIALIST DECLARATION

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

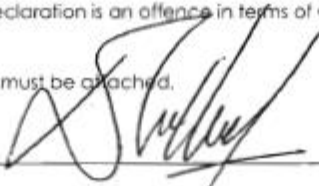
J.J. HALKETT

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 fulfill 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: PALAENTOLOGICAL STUDY 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

Prof Marion Bamford
Director: Evolutionary Studies Institute