

**HERITAGE IMPACT ASSESSMENT:
PROPOSED SAND MINE ON PLOT 2100, CONCORDIA,
NAMAKWALAND MAGISTERIAL DISTRICT,
NORTHERN CAPE**

Required under Section 38(8) of the National Heritage Resources Act (No. 25 of 1999)

SAHRA Case No.: 17746

Report for:

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SUMMARY

ASHA Consulting (Pty) Ltd was appointed by N.J.can Zyl to assess the potential impacts to heritage resources that might occur through the proposed mining of sand from the bed of an unnamed tributary of the Koeresrivier on Plot 2100 in the south-eastern part of the Concordia Communal Reserve. An approximate centre point of the study area is at S29° 30' 54" E18° 02' 12".

The mine will be a very small-scale, open cast mine with a front-end loader removing sand and loading it onto trucks. The is in a river floodplain in a remote, rural area 9 km northeast of the town of Concordia.

The site was inspected and found to be entirely within the modern river floodplain. No archaeological or other heritage resources were seen with the only heritage relevant to the study being the cultural landscape, including its relation to the living heritage of the Namaqua Khoekhoen. Since the site is very remote, has low visibility from the surrounding area and does not impact on any tangible aspects of living heritage, the potential impacts are rated as being of low significance.

It is recommended that the proposed sand mine be authorised, but subject to the following condition which should be incorporated into the conditions of authorisation:

- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

Glossary

Holocene: The geological period spanning the last approximately 10-12 000 years.

Hominid: a group consisting of all modern and extinct great apes (i.e. gorillas, chimpanzees, orangutans and humans) and their ancestors.

Later Stone Age: Period of the Stone Age extending over the last approximately 20 000 years.

Middle Stone Age: Period of the Stone Age extending approximately between 200 000 and 20 000 years ago.

Abbreviations

APHP: Association of Professional Heritage Practitioners

ASAPA: Association of Southern African Professional Archaeologists

BA: Basic Assessment

CRM: Cultural Resources Management

DMRE: Department of Mineral Resources and Energy

EA: Environmental Authorisation

ECO: Environmental Control Officer

EMPr: Environmental Management Program

GP: General Protection

GPS: global positioning system

LSA: Later Stone Age

MSA: Middle Stone Age

NBKB: Ngwao-Boswa Ya Kapa Bokoni

NEMA: National Environmental Management Act (No. 107 of 1998)

NHRA: National Heritage Resources Act (No. 25) of 1999

PPP: Public Participation Process

SAHRA: South African Heritage Resources Agency

SAHRIS: South African Heritage Resources Information System

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1. INTRODUCTION

ASHA Consulting (Pty) Ltd was appointed by N.J.can Zyl to conduct an assessment of the potential impacts to heritage resources that might occur through the proposed mining of sand from the bed of an unnamed tributary of the Koeresrivier on Plot 2100 in the south-eastern part of the Concordia Communal Reserve (Figure 1). An approximate centre point of the study area is at S29° 30' 54" E18° 02' 12".

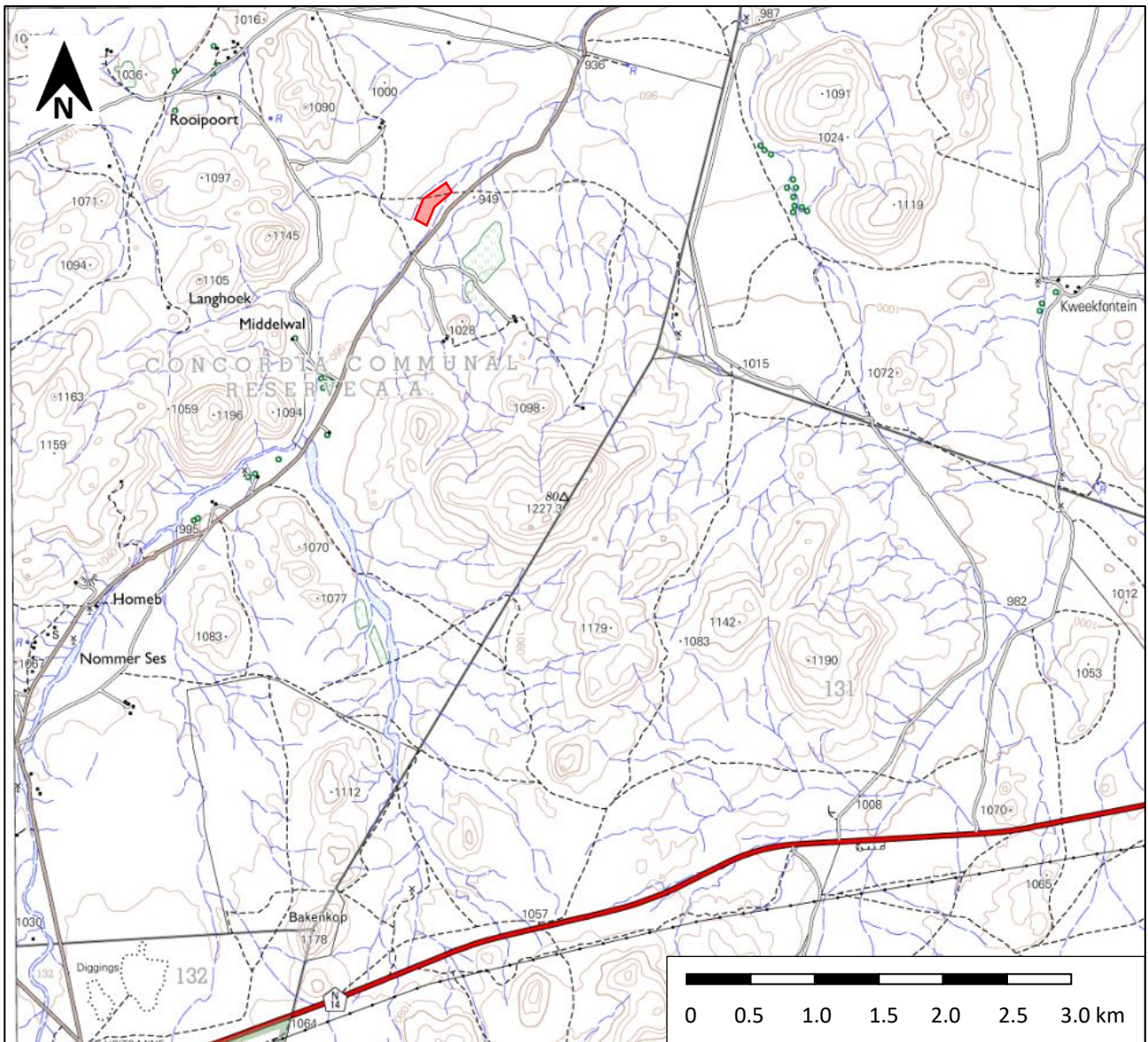


Figure 1: Extract from 1:50 000 topographic map 2918CA showing the location of the site (red shaded polygon). Source of basemap: Chief Directorate: National Geo-Spatial Information. Website: www.ngi.gov.za.

1.1. The proposed project

1.1.1. Project description

Existing farm tracks will be used and upgraded where necessary to provide access to the mining site. A front-end loader and trucks will be used to load and remove sand from the site. No permanent infrastructure is required on site. Mining will proceed to a depth of approximately 2 m and no backfilling will be contemplated.

1.1.2. Identification of alternatives

No alternatives are under consideration as the site is chosen based on the mineral resources present and the activity and methods are the most appropriate to the extraction of sand from the site.

1.1.3. Aspects of the project relevant to the heritage study

All aspects of the proposed development are relevant, since excavations may impact on archaeological and/or palaeontological remains, while all above-ground aspects create potential visual (contextual) impacts to the cultural landscape and any significant heritage sites that might be visually sensitive.

1.2. Terms of reference

ASHA Consulting was asked to assess the potential heritage impacts that the project might have. The assessment was to include both desktop research and a site visit. The results of the work should be used to compile a Heritage Impact Assessment (HIA) that assessed all relevant aspects of heritage and complied with the requirements of the relevant authorities.

1.3. Scope and purpose of the report

A heritage impact assessment (HIA) is a means of identifying any significant heritage resources before development begins so that these can be managed in such a way as to allow the development to proceed (if appropriate) without undue impacts to the fragile heritage of South Africa. This HIA report aims to fulfil the requirements of the heritage authorities such that a comment can be issued by them for consideration by the National Department of Mineral Resources (DMR) who will review the Basic Assessment (BA) and grant or refuse authorisation. The HIA report will outline any management and/or mitigation requirements that will need to be complied with from a heritage point of view and that should be included in the conditions of authorisation should this be granted.

1.4. The author

Dr Jayson Orton has an MA (UCT, 2004) and a D.Phil (Oxford, UK, 2013), both in archaeology, and has been conducting Heritage Impact Assessments and archaeological specialist studies in South Africa (primarily in the Western Cape and Northern Cape provinces) since 2004 (please see curriculum vitae included as Appendix 1). He has also conducted research on aspects of the Later Stone Age in these provinces and published widely on the topic. He is an accredited heritage practitioner with the Association of Professional Heritage Practitioners (APHP; Member #43) and

also holds archaeological accreditation with the Association of Southern African Professional Archaeologists (ASAPA) CRM section (Member #233) as follows:

- Principal Investigator: Stone Age, Shell Middens & Grave Relocation; and
- Field Director: Colonial Period & Rock Art.

1.5. Declaration of independence

ASHA Consulting (Pty) Ltd and its consultants have no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

2. LEGISLATIVE CONTEXT

2.1. National Heritage Resources Act (NHRA) No. 25 of 1999

The NHRA protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: prehistoric and historical material (including ruins) more than 100 years old as well as military remains more than 75 years old, palaeontological material and meteorites;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: “any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith”;
- Palaeontological material: “any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace”;
- Archaeological material: a) “material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures”; b) “rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation”; c) “wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation”; and d) “features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found”;
- Grave: “means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place”; and

- Public monuments and memorials: “all monuments and memorials a) “erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government”; or b) “which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.”

Section 3(3) describes the types of cultural significance that a place or object might have in order to be considered part of the national estate. These are as follows:

- a) its importance in the community, or pattern of South Africa’s history;
- b) its possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage;
- c) its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage;
- d) its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects;
- e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- i) sites of significance relating to the history of slavery in South Africa.

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list “historical settlements and townscape” and “landscapes and natural features of cultural significance” as part of the National Estate. Furthermore, some of the points in Section 3(3) speak directly to cultural landscapes.

Section 38(8) of the NHRA states that if an impact assessment is required under any legislation other than the NHRA then it must include a heritage component that satisfies the requirements of S.38(3). Furthermore, the comments of the relevant heritage authority must be sought and considered by the consenting authority prior to the issuing of a decision. Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended, the project is subject to a BA. The present report provides the heritage component. Ngwao-Boswa Ya Kapa Bokoni (Heritage Northern Cape; for built environment and cultural landscapes) and the South African Heritage Resources Agency (SAHRA; for archaeology and palaeontology) are required to provide comment on the proposed project in order to facilitate final decision making by the DMR.

3. METHODS

3.1. Literature survey and information sources

A survey of available literature was carried out to assess the general heritage context into which the development would be set. The information sources used in this report are presented in Table 1. Data were also collected via a field survey.

Table 1: Information sources used in this assessment.

Data / Information	Source	Date	Type	Description
Maps	Chief Directorate: National Geo-Spatial Information	Various	Spatial	Historical and current 1:50 000 topographic maps of the study area and immediate surrounds
Aerial photographs	Chief Directorate: National Geo-Spatial Information	Various	Spatial	Historical aerial photography of the study area and immediate surrounds
Aerial photographs	Google Earth	Various	Spatial	Recent and historical aerial photography of the study area and immediate surrounds
Cadastral data	Chief Directorate: National Geo-Spatial Information	Various	Survey diagrams	Historical and current survey diagrams, property survey and registration dates
Background data	South African Heritage Resources Information System (SAHRIS)	Various	Reports	Previous impact assessments for any developments in the vicinity of the study area
Palaeontological sensitivity	South African Heritage Resources Information System (SAHRIS)	Current	Spatial	Map showing palaeontological sensitivity and required actions based on the sensitivity.
Background data	Books, journals, websites	Various	Books, journals, websites	Historical and current literature describing the study area and any relevant aspects of cultural heritage.

3.2. Field survey

The site was subjected to a detailed foot survey on 21 November 2021. This was during early summer but, in this very dry area, the season makes no meaningful difference to vegetation covering and hence the ground visibility for the archaeological survey. Other heritage resources are not affected by seasonality. During the survey the positions of finds and survey tracks were recorded on a hand-held Global Positioning System (GPS) receiver set to the WGS84 datum (Figure 3). Photographs were taken at times in order to capture representative samples of both the affected heritage and the landscape setting of the proposed development.

It should be noted that the amount of time between the dates of the field inspection and final report do not materially affect the outcome of the report.

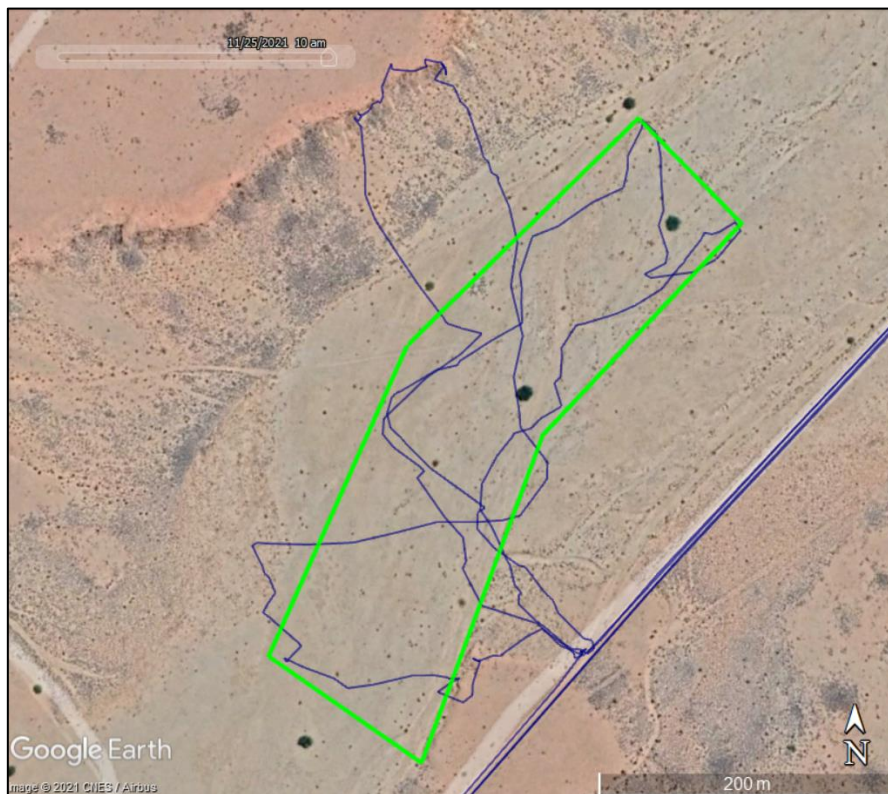


Figure 3: Aerial view of the study area (green polygon) showing the survey tracks (blue lines).

3.3. Specialist studies

A separate specialist palaeontological desktop study was commissioned to assess the potential palaeontological impacts. This report is submitted separately with the HIA.

3.4. Grading

S.7(1) of the NHRA provides for the grading of heritage resources into those of National (Grade I), Provincial (Grade II) and Local (Grade III) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade I and II resources are intended to be managed by the national and provincial heritage resources authorities respectively, while Grade III resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading.

It is intended under S.7(2) that the various provincial authorities formulate a system for the further detailed grading of heritage resources of local significance but this is generally yet to happen. SAHRA (2007) has formulated its own system¹ for use in provinces where it has commenting authority. In this system sites of high local significance are given Grade IIIA (with the implication that the site should be preserved in its entirety) and Grade IIIB (with the implication that part of the site could

¹ The system is intended for use on archaeological and palaeontological sites only.

be mitigated and part preserved as appropriate) while sites of lesser significance are referred to as having 'General Protection' (GP) and rated as GP A (high/medium significance, requires mitigation), GP B (medium significance, requires recording) or GP C (low significance, requires no further action).

3.5. Consultation

The NHRA requires consultation as part of an HIA but, since the present study falls within the context of an EIA which includes a public participation process (PPP), no dedicated consultation was undertaken as part of the HIA. Interested and affected parties would have the opportunity to provide comment on the heritage aspects of the project during the PPP.

3.6. Assumptions and limitations

The field study was carried out at the surface only and hence any completely buried archaeological sites would not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface. The site was open and fully accessible and there were no other restrictions.

4. PHYSICAL ENVIRONMENTAL CONTEXT

4.1. Site context

The site is in a remote, rural area used by the community of Concordia for small stock grazing, as evidenced by occasional stock posts in the surrounding area. A gravel road running from southwest to northeast from the N14 runs past the south-eastern edge of the site, but the N14 is 6 km south of the site. The towns of Concordia and Okiep lie 9 km and 17 km southwest of the site respectively.

4.2. Site description

The site lies within the floodplain of a broad, sandy river channel. There is minimal vegetation both within the channel and in the surrounding area. Figures 4 to 8 show the nature of the study area and its surroundings. The sand itself is granite-derived and contains many large grains. There is no evidence of any stone in the area that would be suitable for the manufacture of stone artefacts and there are no rock outcrops anywhere in the immediately surrounding area. From aerial photography, the nearest granite outcrops are 700 m to the northwest and 700 m to the south of the site.



Figure 4: Panoramic view towards the northwest across the south-western half of the site. The river channel runs from left to right across the middle of the image (arrows).



Figure 5: View towards the northeast from the south-western corner of the site showing the target sand body.



Figure 6: View towards the northwest across the centre of the site.



Figure 7: View towards the south over the site which is within the least vegetated area.



Figure 8: View towards the south through the centre of the site showing the target sand body.

5. FINDINGS OF THE HERITAGE STUDY

This section describes the heritage resources recorded in the study area during the course of the project.

5.1. Palaeontology

The SAHRIS Palaeosensitivity Map shows the site to be of low palaeontological sensitivity (Figure 9). Nevertheless, a small possibility of finding buried fossils might exist and a desktop assessment has been commissioned. This study has been written by Prof. Marion Bamford (2021) and is submitted separately with the present report. Her assessment finds only a small chance of transported fossils being present. Being out of context and relatively recent in age, their significance would be low.

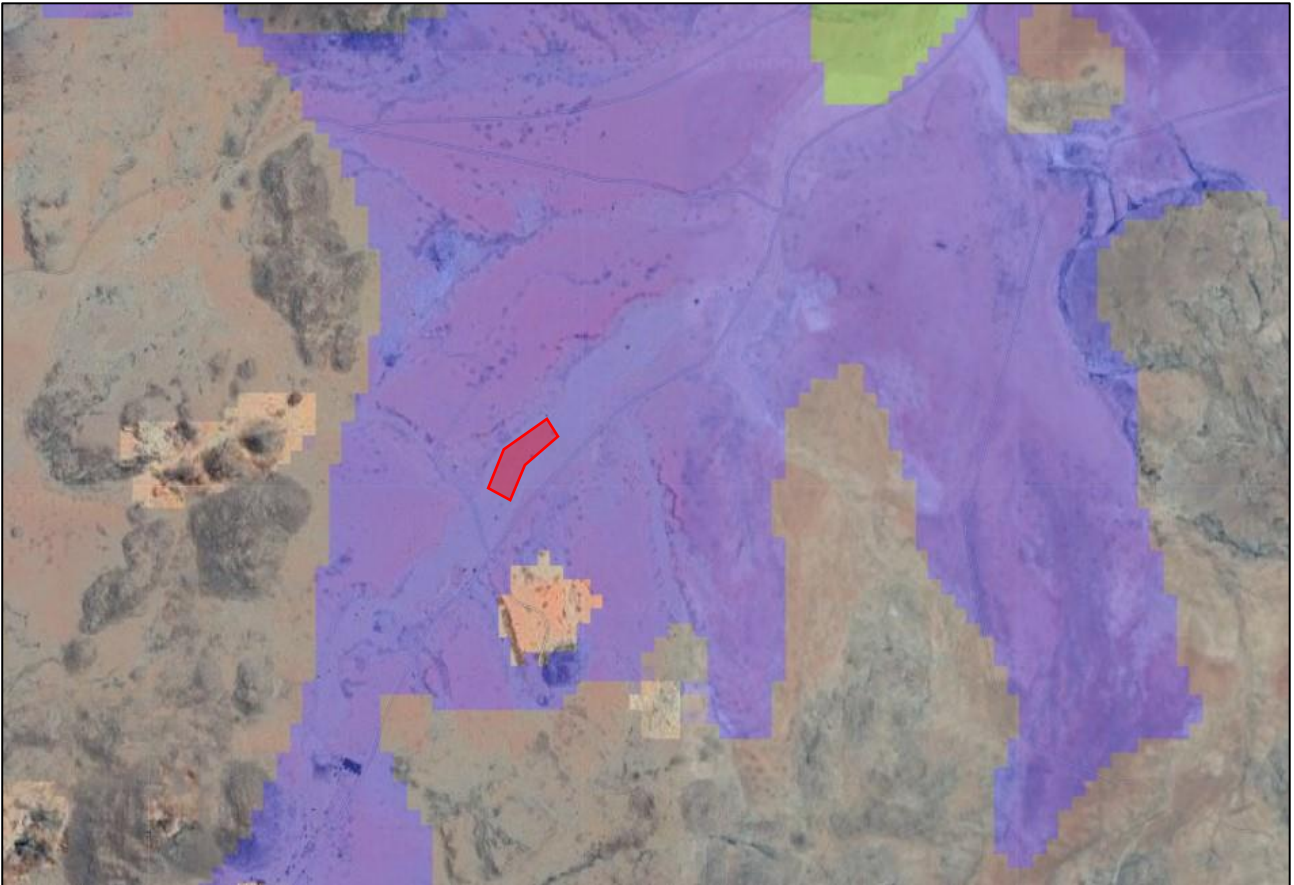


Figure 9: Extract from the SAHRIS Palaeosensitivity Map showing the site to be of low sensitivity (blue shading).

5.2. Archaeology

5.2.1. Desktop study

Other studies in the area have revealed that Stone Age archaeological resources tend to be rare and comprised mainly of isolated artefacts from the Middle (MSA) and Later (LSA) Stone Ages (e.g. Kaplan 2008, 2010, 2016; Morris & Henderson 2018; Smith 2013; Orton 2019; Webley 2014). To the east of Springbok, Morris (2012) located a small rock shelter with artefacts, some fragments of an ostrich eggshell water flask, and possibly a small deposit. It was a low shelter that had been walled in (presumably during historical times) and the roof was blackened with soot. Kaplan (2010) reported a faded rock art site on the overhanging face of a large boulder. He saw four flakes and an ostrich eggshell fragment in the dripline, and a layer of dung at the foot of the wall. This is the only known painted site known from the vicinity of Okiep and Concordia. Orton (2019) revisited this site and found it to have at least seven geometric paintings, four lower grindstones, a walled enclosure and an extensive talus slope with probably thousands of stone artefacts, almost all in quartz. There was also a light scattering of historical glass and ceramics present. Whether the stone walling was historical or older was indeterminate, but the former seems more likely. Rock art is generally rare in the Kamiesberg Mountains, though a few painted sites are on record (Orton 2013). There are from the late Holocene.

Archaeological traces of historical occupation in the form of the remnants of structures, stone walling, threshing floors, scatters of glass and ceramics and occasional graves are also reported from the region (Kaplan 2010, 2016; Morris 2012; Morris & Henderson 2018; Orton 2018, 2019, 2021).

5.2.2. Site visit

No archaeological materials of any sort were found in the study area.

5.3. Graves

No graves were seen in the study area or anywhere nearby. While it is possible that unmarked precolonial graves may occur in the unconsolidated sediments of the area, they will definitely not be within the sand body. It is very remotely possible that isolated human bones that might have come from a burial upstream exposed through erosion could be found, but the chances are virtually zero.

5.4. Historical aspects and the Built environment

5.4.1. Desktop study

The beginnings of Concordia appear to be uncertain. JC Botha Hotel Group (n.d.) and Wikipedia (n.d.) consider it to have been founded as a Rhenish Mission Station in 1852², while SA History Online (2017) suggests 1863. Shaeffer (2008) notes that Concordia became a separate Rhenish Mission Station in 1863 but does not say what it became separate from. Examination of survey diagrams suggests that it was originally part of the Steinkopf Mission Station. The switch in name from Tweefontein to Concordia is obviously not connected to the mission, since Bain's comment indicates that the new name was already in use in about 1852.

Andrew Geddes Bain visited Concordia in about 1852. He wrote (quoted in Schaefer 2008:16):

I next visited the mines of Prince, Collison, Watson, and Co at a place near Tweefontein, now called Concordia. [...] For miles around this favoured spot, strong indications of copper everywhere appear; and a large village is in the course of construction, in which hundreds of happy families may yet reside. Much activity prevails here, as well as at Philips and King's mines, but more in the way of building than of mining, as transport to the coast is not at present to be obtained, even at very high prices.

John Blades Currey was appointed manager of the Namaqua Mining Company in 1854 and stationed at Concordia. He described the village as follows (quoted in Smallberger 1975:96):

The buildings occupied three sides of a quadrangle, my house being at one end while the other was left open. On one side were the quarters of the white miners and artizans, and on the other the officers' rooms, stores, blacksmith's shop and kitchen. The Hottentot labourers had their huts at the back on one side and the coloured workmen lived in the back on the other side.

Shaeffer (2008) says in a footnote that the village of Concordia was built mainly for the Cornish miners who were brought in by Albert von Schlich in 1872 (see text below on copper mining).

² It is quite likely that one of these pages derived their information from the other and both are thus probably incorrect.

In 1877 an anonymous text (thought by Schaeffer [2008] to be written by a Mr Hardy) we find the following description of Concordia:

Concordia is but a very small village consisting chiefly of the houses and buildings belonging to the Copper Mining Company; at present (1877) the mine is not at work, it having been sold in England to a new company, which will commence its operations during December, 1877. The remaining buildings are soon told off on the fingers of one hand, being three shops and two houses – there is then but the church, parsonage, and school; the latter is considered one of the best managed in the country, the Government Inspector having very highly complimented the chief of the Mission – for Concordia is one of the stations of the Rhenish Mission Society. The church has just been built by the congregation, and is highly creditable to their industry and willingness to assist their pastor; it is built of stone, and is large enough to seat 300 persons.

Smallberger (1975) notes that little is known of the history of Concordia before the 20th century but he provides a photograph of the village dating from about 1880 (Figure 10).

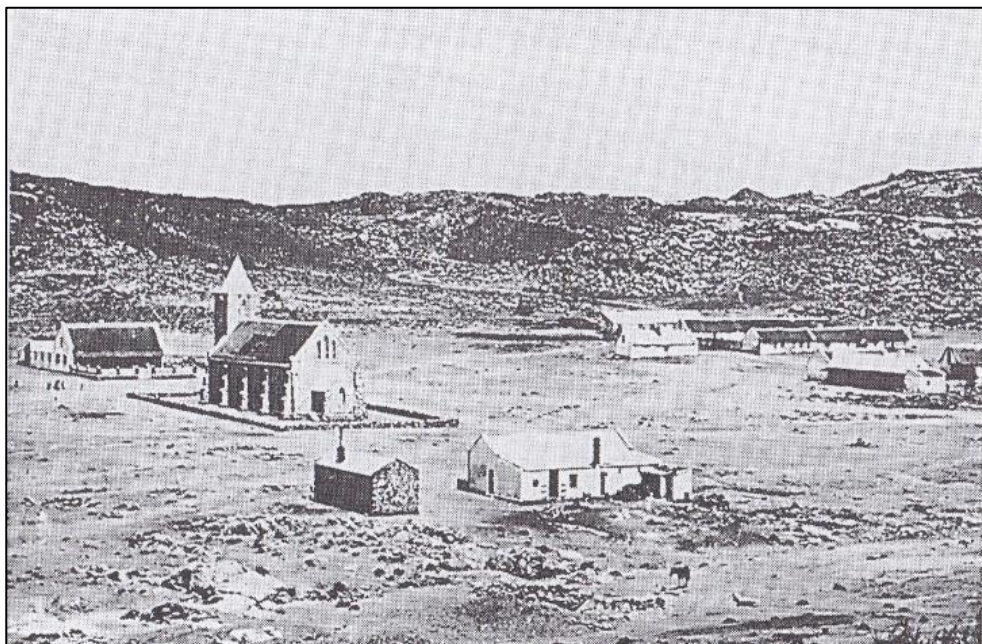


Figure 10: View of Concordia c. 1880 looking towards the northwest (Source: Smallberger 1975: fig. 29).

Webley (2014) has highlighted the importance of the historical copper mining landscape, although it is likely that many historical features have been lost due to the continued 20th century working of the mines. A key aspect of this mining history is the remnants of the historical railway that was built between the copper mines of the region and Port Nolloth. Originally using wagons drawn by mules, the service was upgraded to employ steam locomotives. The tracks have since been removed and the line is represented only by the raised berm on which the tracks once lay (Orton 2019). It ran through the same valley as the present access road to Concordia, about 1.5 km northwest of the study area. The remains of various structures associated with the line also occur in places. The importance of copper mining in the region is underscored by the inclusion of the Namaqualand Copper Mining Landscape on the South African list of tentative World Heritage Sites in 2009, although the site was withdrawn in 2015 (Stoltz 2015).

The Anglo-Boer War (aka Second South African War) played a large part in the history of this region with Okiep having been besieged by the Boers. The remnants of the War include fortifications,

graves and artefacts. Concordia was very poorly fortified with just two blockhouses located on koppies (exact locations unknown) near the village (Von Zeil & Thomas 2011). Okiep, by contrast had fifteen (Grobler 2004). Because of this, British orders were that if Concordia was attacked the men were to move to Okiep. Concordia would then be abandoned. However, when Concordia was attacked by the Boers on 4th April 1902, Captain Phillips, manager of the Concordia mine, surrendered to General Smuts. The surrender was possibly because the men did not want to abandon their families to the mercy of the Boers (Von Zeil & Thomas 2011). The Boers made use of explosives stored at the copper mine to capture some of the Okiep blockhouses and to destroy sections of the railway line to Port Nolloth.

Figure 11 shows a map dating to the early 20th century. The map is not entirely accurate with the brown contour-like lines seemingly being more a schematic representation of where mountains lie and not a true reflection of their form. Just to the northeast of the area where the site is assumed to lie, is a ‘halting place’ called “Kwerkfontein” and which is said to have two dams fed by underground springs. ‘Native huts’ are also shown in that area.

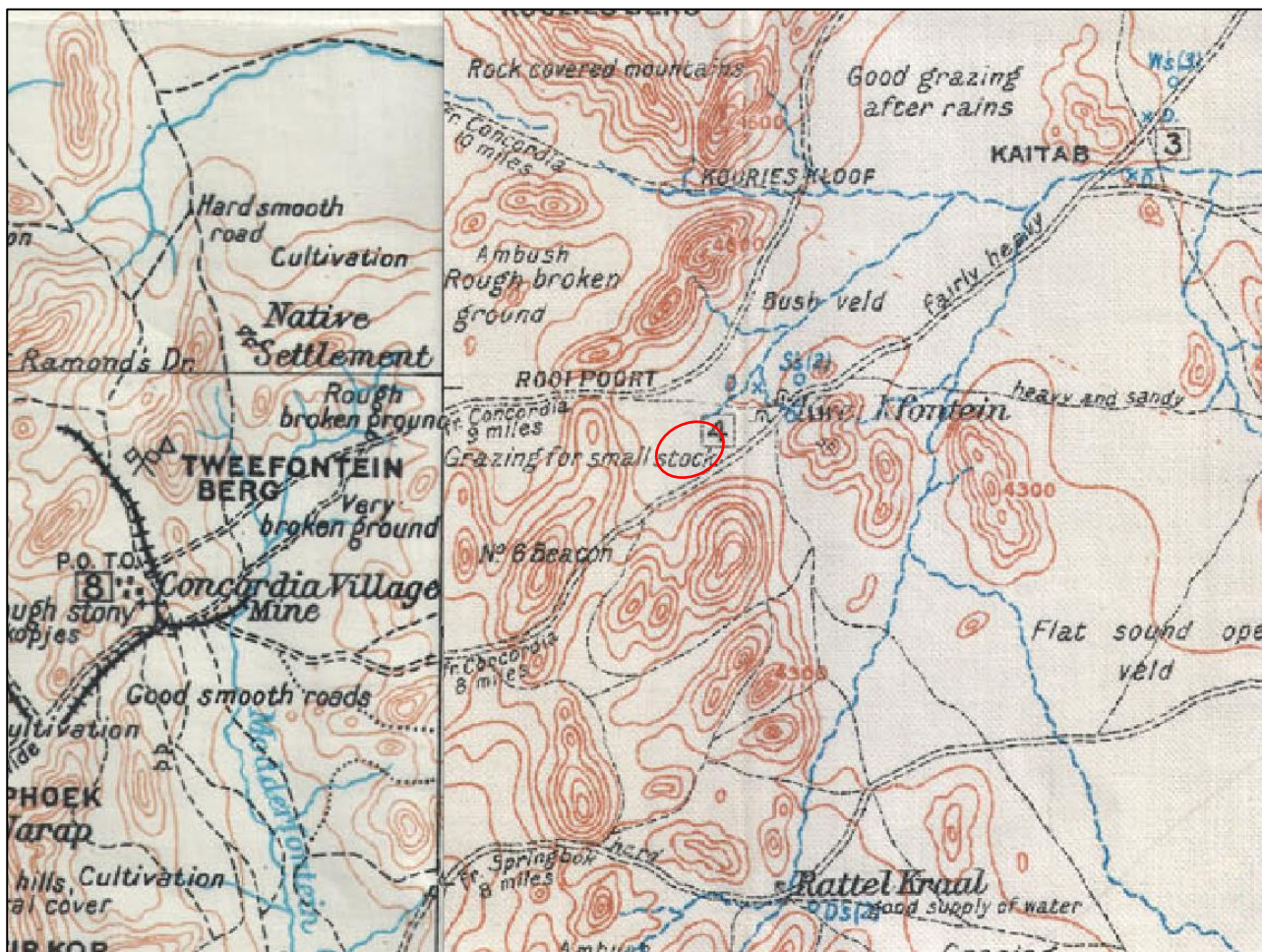


Figure 11: Extract of a 1907 topographic map of the area showing the presumed location of the study area (red circle). Location 4 is named Kwerkfontein.

Figure 12 shows a historical aerial view from 1958. Aside from the roads, there is no obvious sign of any activity. This does not preclude activity – and we know that small stock grazing has been

prevalent in the area for a few centuries – but there is no proper settlement evident. In fact, the only stock post visible on the equivalent modern view was not present yet in 1958.



Figure 12: 1958 (Job 408_008_08708) and modern (Google Earth) aerial photograph showing the study area to have been vacant in 1958. The arrow marks the location of a stock post visible on modern aerial photography.

5.4.2. Site visit

Aside from the gravel roads and sand tracks, no historical features of any sort were seen on the site or in the immediate surroundings.

5.5. Cultural landscapes and scenic routes

The Concordia area has many historical archaeological resources scattered throughout the surrounding countryside. These include small kraals and scatters of historical artefacts, as reported above, as well as house foundations and ruins, water wells, graves and other evidence of the

historical use of the landscape. Together these items give a cultural layer to the landscape. The site forms part of this layer, but bears no physical traces of this historical land use.

The natural landscape, which has aesthetic value, is still fairly intact in the area and new mining would compromise this landscape to a degree. The Kamiesberg Mountains and Namaqualand region in general are highly appreciated by many, especially during the famous Namaqualand flower season. The present site is, however, well away from the commonly frequented areas and mining will not be visible except from the local gravel road adjacent to the site. The site is not visible from the N14.

5.6. Living heritage

Although living heritage itself is not protected under the NHRA, places associated with that heritage are. Many of the local people are direct descendants of the Namaqua Khoekhoen who lived in the area prior to colonial incursion and it is well-known that the local small-stock herding tradition is a direct continuation of traditional Namaqua herding. As such, the many small stock posts and related features occurring away from the towns are all related to this living heritage. The continuation of traditional practices shows that, although life has changed considerably for the local populations, their living heritage remains alive in the area. Much modern evidence of these traditions was recorded by Orton 2019, but nothing related to this heritage occurs in close proximity to the study area – the nearest being the modern stock post mentioned above and which lies some 700 m away from the site.

5.7. Statement of significance and provisional grading

Section 38(3)(b) of the NHRA requires an assessment of the significance of all heritage resources. In terms of Section 2(vi), “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. The reasons that a place may have cultural significance are outlined in Section 3(3) of the NHRA (see Section 2 above).

No archaeological resources, graves or other physical features were found to occur. The only heritage resource is the landscape which has high cultural significance for its aesthetic value and also for its historical, social and spiritual values as seen in its connection to living heritage.

5.8. Summary of heritage indicators

The cultural landscape is the only heritage resource potentially under threat.

- Indicator: The proposed mine should not dominate the landscape from multiple publicly accessible viewpoints.

6. ASSESSMENT OF IMPACTS

6.1. All Phases

6.1.1. Impacts to the cultural landscape

This includes the impacts to the aesthetic value as well as the impacts to the historical, social and spiritual value of the place for its association with living heritage. Direct impacts would occur during all phases and be connected to both the mining itself as well as by the presence of mine vehicles in the area. Only a very small number of vehicles are expected to be present at any one time (e.g. an excavator and perhaps two trucks) so the impact will be very localised and low intensity. It would, of course, definitely happen if mining were to proceed. The impact is temporary and would cease in the medium term after the completion of mining and closure of the site. The potential impact before mitigation is rated as **low negative** (Table 2). Because the mine will be a very small-scale operation, the only mitigation measure suggested is to ensure effective rehabilitation of the site after the completion of mining. Although “mitigation” would occur naturally in the event of a large flood, such events are rare and this should not be relied upon to redistribute sand across the study area. An effective rehabilitation plan should thus be in place. With mitigation the impact will still be at the **low negative level**. There are no fatal flaws.

Table 2: Assessment of impacts to the cultural landscape.

Potential impacts on the cultural landscape	
Nature and status of impact:	Direct, negative
Extent and duration of impact:	Local, Medium term
Intensity	Low
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Rehabilitate site after mining
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

6.2. Cumulative impacts

Google Earth aerial photography dated December 2018 reveals that another small-scale sand mine was in operation some 400 to 700 m to the southwest of the study area. It too was located in the bed of the stream and no impacts other than those identified here would likely have occurred.

6.3. Evaluation of impacts relative to sustainable social and economic benefits

Section 38(3)(d) of the NHRA requires an evaluation of the impacts on heritage resources relative to the sustainable social and economic benefits to be derived from the development.

While the project will be very small-scale and will provide only a very limited number of jobs, and for the construction industry is an important part of economic development in general and for this reason it can be said that the socio-economic benefits outweigh the impacts to heritage resources.

6.4. Existing impacts to heritage resources

There are currently no obvious threats to heritage resources on the site. The impacts are thus regarded as **neutral**.

6.5. The No-Go alternative

If the project were not implemented then the site would stay as it currently is (impact significance of **neutral**). Although the heritage impacts with implementation would be greater than the existing impacts, the loss of socio-economic benefits is more significant and suggests that the No-Go option is less desirable.

6.6. Levels of acceptable change

Any impact to an archaeological or palaeontological resource or a grave is deemed unacceptable until such time as the resource has been inspected and studied further if necessary. Impacts to the landscape are difficult to quantify but in general a development that visually dominates the landscape from many publicly accessible vantage points is undesirable. None of these impacts is expected.

7. INPUT TO THE ENVIRONMENTAL MANAGEMENT PROGRAM

The actions recorded in Table 3 should be included in the environmental management program (EMPr) for the project.

Table 3: Heritage considerations for inclusion in the EMPr.

Impact	Mitigation / management objectives & outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
Impacts to archaeology and graves					
Damage or destruction of archaeological sites or graves	Rescue information, artefacts or burials before extensive damage occurs	Reporting chance finds as early as possible, protect in situ and stop work in immediate area	Inform staff and carry out inspections of excavations	Ongoing basis	Construction Manager or Contractor
Impacts to the cultural landscape					
Visible landscape scarring	Minimise landscape scarring	Ensure disturbance is kept to a minimum and does not exceed project requirements. Rehabilitate the site after closure.	Monitoring of surface clearance relative to approved layout	Ongoing basis	Construction Manager or Contractor

8. CONCLUSIONS

This assessment has shown that no significant impacts to any type of heritage resource will occur with implementation of the proposed project.

8.1. Reasoned opinion of the specialist

Given the negligible impacts to heritage resources expected from this project, it is the opinion of the heritage specialist that the proposed sand mine can be authorised in full.

9. RECOMMENDATIONS

It is recommended that the proposed sand mine be authorised, but subject to the following condition which should be incorporated into the conditions of authorisation:

- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

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APPENDIX 1 – Curriculum Vitae



Curriculum Vitae

Jayson David John Orton

ARCHAEOLOGIST AND HERITAGE CONSULTANT

Contact Details and personal information:

Address: 23 Dover Road, Muizenberg, 7945
Telephone: (021) 788 1025
Cell Phone: 083 272 3225
Email: jayson@asha-consulting.co.za

Birth date and place: 22 June 1976, Cape Town, South Africa
Citizenship: South African
ID no: 760622 522 4085
Driver's License: Code 08
Marital Status: Married to Carol Orton
Languages spoken: English and Afrikaans

Education:

SA College High School	Matric	1994
University of Cape Town	B.A. (Archaeology, Environmental & Geographical Science) 1997	
University of Cape Town	B.A. (Honours) (Archaeology)*	1998
University of Cape Town	M.A. (Archaeology)	2004
University of Oxford	D.Phil. (Archaeology)	2013

*Frank Schweitzer memorial book prize for an outstanding student and the degree in the First Class.

Employment History:

Spatial Archaeology Research Unit, UCT	Research assistant	Jan 1996 – Dec 1998
Department of Archaeology, UCT	Field archaeologist	Jan 1998 – Dec 1998
UCT Archaeology Contracts Office	Field archaeologist	Jan 1999 – May 2004
UCT Archaeology Contracts Office	Heritage & archaeological consultant	Jun 2004 – May 2012
School of Archaeology, University of Oxford	Undergraduate Tutor	Oct 2008 – Dec 2008
ACO Associates cc	Associate, Heritage & archaeological consultant	Jan 2011 – Dec 2013
ASHA Consulting (Pty) Ltd	Director, Heritage & archaeological consultant	Jan 2014 –

Professional Accreditation:

Association of Southern African Professional Archaeologists (ASAPA) membership number: 233

CRM Section member with the following accreditation:

- Principal Investigator: Coastal shell middens (awarded 2007)
Stone Age archaeology (awarded 2007)
Grave relocation (awarded 2014)
- Field Director: Rock art (awarded 2007)
Colonial period archaeology (awarded 2007)

Association of Professional Heritage Practitioners (APHP) membership number: 43

- Accredited Professional Heritage Practitioner

➤ **Memberships and affiliations:**

South African Archaeological Society Council member	2004 – 2016
Assoc. Southern African Professional Archaeologists (ASAPA) member	2006 –
UCT Department of Archaeology Research Associate	2013 –
Heritage Western Cape APM Committee member	2013 –
UNISA Department of Archaeology and Anthropology Research Fellow	2014 –
Fish Hoek Valley Historical Association	2014 –
Kalk Bay Historical Association	2016 –
Association of Professional Heritage Practitioners member	2016 –

Fieldwork and project experience:

Extensive fieldwork and experience as both Field Director and Principle Investigator throughout the Western and Northern Cape, and also in the western parts of the Free State and Eastern Cape as follows:

Feasibility studies:

- Heritage feasibility studies examining all aspects of heritage from the desktop

Phase 1 surveys and impact assessments:

- Project types
 - Notification of Intent to Develop applications (for Heritage Western Cape)
 - Desktop-based Letter of Exemption (for the South African Heritage Resources Agency)
 - Heritage Impact Assessments (largely in the Environmental Impact Assessment or Basic Assessment context under NEMA and Section 38(8) of the NHRA, but also self-standing assessments under Section 38(1) of the NHRA)
 - Archaeological specialist studies
 - Phase 1 archaeological test excavations in historical and prehistoric sites
 - Archaeological research projects
- Development types
 - Mining and borrow pits
 - Roads (new and upgrades)
 - Residential, commercial and industrial development
 - Dams and pipe lines
 - Power lines and substations
 - Renewable energy facilities (wind energy, solar energy and hydro-electric facilities)

Phase 2 mitigation and research excavations:

- ESA open sites
 - Duinefontein, Gouda, Namaqualand
- MSA rock shelters
 - Fish Hoek, Yzerfontein, Cederberg, Namaqualand
- MSA open sites
 - Swartland, Bushmanland, Namaqualand
- LSA rock shelters
 - Cederberg, Namaqualand, Bushmanland
- LSA open sites (inland)
 - Swartland, Franschhoek, Namaqualand, Bushmanland
- LSA coastal shell middens
 - Melkbosstrand, Yzerfontein, Saldanha Bay, Paternoster, Dwarskersbos, Infanta, Knysna, Namaqualand
- LSA burials
 - Melkbosstrand, Saldanha Bay, Namaqualand, Knysna
- Historical sites
 - Franschhoek (farmstead and well), Waterfront (fort, dump and well), Noordhoek (cottage), variety of small excavations in central Cape Town and surrounding suburbs
- Historic burial grounds
 - Green Point (Prestwich Street), V&A Waterfront (Marina Residential), Paarl

Awards:

Western Cape Government Cultural Affairs Awards 2015/2016: Best Heritage Project.

APPENDIX 2 – Site Sensitivity Verification

A site sensitivity verification was undertaken in order to confirm the current land use and environmental sensitivity of the proposed project area. The details of the site sensitivity verification are noted below:

Date of Site Visit	21 November 2021
Specialist Name	Dr Jayson Orton
Professional Registration Number	ASAPA: 233; APHP: 043
Specialist Affiliation / Company	ASHA Consulting (Pty) Ltd

- Provide a description on how the site sensitivity verification was undertaken using the following means:

- (a) desk top analysis, using satellite imagery;
- (b) preliminary on -site inspection; and
- (c) any other available and relevant information.

Initial work was carried out using satellite aerial photography in combination with the author's accumulated knowledge of the local landscape. This was used to locate any sensitive areas. Subsequent fieldwork served to ground truth the site, including areas identified as potentially sensitive. Desktop research was also used to inform on the heritage context of the area. This information is presented in the report (Sections 5.2.1 and 5.4.1).

- Provide a description of the outcome of the site sensitivity verification in order to:

- (a) confirm or dispute the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.; and
- (b) include a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity.

Map 1 below is extracted from the screening tool report and shows the archaeological and heritage sensitivity to be low. The site visit showed that the site is indeed of low sensitivity. A photographic record and description of the relevant heritage resource is contained within the impact assessment report.

Map 2 below shows the screening tool sensitivity for palaeontology. The site is indicated as being of low sensitivity, a finding concurred with by the palaeontological specialist.



Map 1: Archaeology and cultural heritage theme map.



Map 2: Palaeontology theme map.