Agency for Cultural Resource Management
Specialists in Archaeological Studies and Heritage Resource Management

17 October 2025

Ms. Boitshepo Motsodisa
South African Heritage Resources Agency
PO Box 4637
Cape Town
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bmotsodisa@sahra.org.za

Dear Ms Motsodisa,

RECOMMENDED EXEMPTION FROM FURTHER ARCHAEOLOGICAL STUDIES, PROPOSED ZULU ALPHA TELESCOPE ON PORTION 2 OF THE FARM MATJES RIVIER NO. 80, NEAR SUTHERLAND, KAROO HOOGLAND MUNICIPALITY, NORTHERN CAPE

1. Introduction

The proposed ZuluAlpha telescope (S 32°21'20.55" E 20°38'50.30") is a remote observatory comprising a modular telescope-hosting facility and associated infrastructure located on Portion 2 of the Farm Matjes Rivier No. 80, about 3.5kms northwest of the town of Sutherland, Karro Hoogland Municipality in the Northern Cape (Figure 1).

Figure 1. Google Earth Satellite Map showing the location of the Study Site northwest of Sutherland.

Three sites have been identified for the location of the telescopes and its associated infrastructure (Figure 2).

Enviroafrica cc is the appointed independent environmental assessment practitioner (EAP) responsible for facilitating environmental authorization for the project.

An Environmental Basic Assessment (BA) process will be followed in this application.

The applicant is ZuluAlpha (Pty) Ltd.

Figure 2. Google Earth Map of the proposed three sites/compounds for the ZuluAlpha telescope on the Farm Matjes Rivier No. 80/2.

2. Description of the proposed activity

The applicant (ZuluAlpha Pty Ltd) wishes to establish a small private observatory on the Farm Matjes River No. 80/2, which was specifically bought for this purpose.

The proposed development comprises a remote observatory, a modular telescope-hosting facility, and associated infrastructure. Each facility will be enclosed within three separate compounds, measuring 50m x 100m (or 0.5ha), surrounded by a security fence. The telescope buildings will be located close to existing farm roads.

The three compounds will include the following infrastructure:

- 3 x 4m high telescope houses, each measuring 216m², on a shallow concrete pad.

- 4 x rows of solar arrays, measuring 480m².

- 1 x generator of approximately 20kVA

Clients will access their equipment remotely (there is no need for the client to visit the site) and human presence and impact will be minimal once construction is completed. The telescope houses and solar arrays will be constructed in phases as the need expands. The development will not require any municipal services.

3. Environmental context

Matjes Rivier No. 80/2 (1300ha in extent) is located on the Roggeveld Escarpment a few kms northwest of Sutherland, off the R354. The farm supports natural vegetation that was until recently still used for livestock grazing. The three proposed sites were chosen because they are located on a level area, high up on a plateau, with existing access next to a farm track. There are no significant landscape features such as rocky outcrops, kopjes or, heuweltjies on the site, nor any igneous rock intrusions of dolerite, which are a source of raw material for making stone tools. There are no buildings or structures within the proposed development footprint. No stone-built kraals, ruins or stone walling was noted either (Peet Botes pers. comm. August 2025). The vegetation is low growing, on a rocky and stony substrate with open patches of sand occurring (Figures 3-10). Agriculture/livestock (sheep) farming is the primary land-use in the Roggeveld.

Figure 3. The receiving environment. View facing west.

Figure 4. The receiving environment. View facing north.

Figure 5. The receiving environment. View facing northeast.

Figure 6. The receiving environment. View facing east.

Figure 7. The receiving environment. View facing southwest.

Figure 8. The receiving environment. View facing west.

Figure 9. The receiving environment. View facing north.

Figure 10. The receiving environment. View facing southwest.

4. Archaeological context

Despite the Karoo's bleakness and challenging winters, the area had a high carrying capacity and teamed with game long before European colonization. Bushman/San hunter gatherers successfully occupied the central interior of South Africa during the last 4500 years, subsisting on the large herds of grazing animals that occurred during that time (Sampson et al 1989).

Later Stone Age (LSA) archaeological sites dating to the late Holocene (within the last 2000 years) are surprisingly common. Although the Karoo is presently more suited to the keeping of small stock such as sheep and goats, research in the Eastern Karoo has revealed that, at about 1200 – 1400 AD, a climatic fluctuation (known as the mini-ice age) may well have caused an increased rainfall in the central Karoo resulting in the area being more suitable for grazing of cattle and occupation by Khoekhoen pastoralist groups (Hart 2005). Using sophisticated dating methods Sampson (2008) determined that Khoekhoen herders and San with flocks of sheep were present in the eastern Karoo until the advent of European colonization. They left behind an archaeological legacy that consists of stone *kraal* complexes of which several hundred have been recorded in the Zeekoe Valley in the eastern Karoo and the Riet River area in the Northern Cape (Hart 1989; Sampson 2008).

The Indigenous people of the Karoo waged a bitter war against colonial expansion as they gradually lost control of their traditional land. With the implementation of the commando system in the late 18th and early 19th centuries, the Karoo "Bushmen" were eventually destroyed or indentured into farm labour (Hart 1989).

Until quite recently, little archaeological work had been done in the Sutherland area. Evans *et al* (1985) excavated a small rock shelter on the grounds of the South African Astronomical Observatory in the mid 1980's. The site generated a LSA assemblage with a high number of small scrapers, potsherds, ostrich eggshell, and marine shell beads. The presence of the

marine shell beads points to cultural ties with people along the Cape coast while the small scrapers can be assigned to the Wilton industry between 2000 and 1000 years ago.

Hart (2005) undertook a survey for a golf course to the south of the Sutherland urban edge. The most significant find he made was a complex of 13 stone enclosures which are typical of the Khoekhoen kraals that were mapped and described by the author in the Eastern Karoo (Hart 1989; Sampson 2008). A highly dispersed artefact scatter consisting of waste material (flakes made from hornfels/indurated shale) was also found. Hart (2005) also reported finding a dense artefact scatter associated with a shallow rock shelter outside the study area indicating that such material may be found in areas that were sheltered from the wind.

A few dispersed scatters of Middle Stone Age (MSA) and LSA flakes and chunks, and remnants of stone walled ruins were documented by Kaplan (2009) during a study for a proposed resort development southwest of Sutherland. Isolated tools in quartz, quartzite and indurated shale were recorded among several borrow pits alongside R354 south of Sutherland (Kaplan 2015a, b).

In the last 15 years, a number of HIAs for wind energy farms, covering a vast expanse of terrain around Sutherland (mostly on the escarpment) have recorded a mix of archaeological heritage, that include mostly isolated scatters of Early, Middle and Later Stone Age remains (Halkett *et al* 2011; Booth 2012, 2015a, b, c; Hart & Kendrick 2014; Hart *et al* 2010). A rare Early Stone Age (ESA) workshop site with incomplete and refined handaxes was recorded on the farm Klipfontein (Hart *et al* 2010).

The surveys conducted so far suggest that pre-colonial archaeological heritage `tends to occur in the valley bottoms close to watercourses and springs, which may explain why the high ridges and escarpments contains little evidence for pre-colonial occupation' (Hart & Kendrick 2014).

Historical archaeology also abounds in the area with many ruined stone-built structures being present (e.g. Hart *et al*. 2010; Hart & Kendrick 2014; Halkett & Webley 2011; Kaplan 2009; Orton 2021, 2017). Clusters of herder kraals dating to between 1000 and 300 years ago were recorded during one of these studies (Hart *et al* 2010). These typically consist of dry, stone piled wall enclosures in a roughly circular configuration, sometimes interlocking but not more than half a meter high, and ranging from 3-4m, to 9m in diameter. In the past they are likely to have been associated with reed mat huts or brush shelters which were erected a few meters away from the main kraal where sheep and goats were kept. Thin-walled pottery and ostrich eggshell is sometimes found within these walled ruins.

A study for a solar energy facility on the Farm Jakhals Valley 99 in the valley bottom encountered a diverse selection of archaeological heritage, including remains dating to the Anglo-Boer War, scatters of historic and pre-colonial artefacts, historic and pre-colonial stone walled sites, rock art, and a rare late 18th/early 19th Century shelter with abundant remains including stone implements, ostrich eggshell, pottery and colonial-era items (Orton & Halkett 2011).

Below the escarpment, another form of archaeological site has been identified. These are what have been interpreted to be open Khoekhoen herder encampments situated among *Kameeldoring* trees along the dry river beds in the bottom of valleys. The sites are typically quite large (60–80m in diameter); rich with fine, thin walled and burnished Cape Coastal pottery. There are numerous stone features, informal stone artefacts, grinding surfaces as well as several graves, some of which have broken grinding stones placed on top. Also evident were discreet ash middens and animal bone. One or two of the sites has evidence of

European goods (19th century glass and ceramics) which may indicate some form of continuous use of the sites by Khoekhoen herders into the colonial period (Hart *et al* 2010).

Rock art is sparse in the Sutherland area, but some sites have been recorded. One site lies along a farm road close to the intersection with the R354 north of the town (Orton & Halkett 2011), while two others lie southwest of Sutherland just below the escarpment edge (Halkett & Webley 2011). Orton (2017) also recorded a site southeast of the town at the base of the escarpment. The images are of indeterminate human figures and finger smears and appear to be quite recent, possibly dating to the last 300-400 years ago.

5. Anticipated impacts

The desktop study has shown that the high ridges of the Roggeland escarpment contains little evidence for pre-colonial occupation (Hart & Kendrick 2014). ESA, MSA and LSA pieces (i. e. discarded flakes & flake debris) may occur, but these are likely to be isolated finds spread very thinly and unevenly across the landscape. It is unlikely that any sites of human settlement or activity will be, located in the study area. There are no rocky outcrops or kopjes within the proposed development footprint(s), and it is therefore unlikely that any overhangs, shallow shelters, or rock art would occur.

No stone-built enclosures/kraals, ruins, stone walling, or stone built cairns (graves) were observed during a site visit by the biodiversity specialist in October (Peet Botes pers. comm), who was briefed by the archaeologist prior to his fieldwork being conducted.

The anticipated impact of the proposed ZuluAlpha telescope on important archaeological resources is therefore likely to be very low.

6. Conclusion

Proposed development of a telescope/s and associated infrastructure on the Farm Matjes River No. 80/2 northwest of Sutherland is not considered to pose a significant threat to local archaeological heritage because of the following considerations:

- The combined (hard) development footprint for all three sites is 3384m².

- The 3 telescope buildings will be located close to existing access farm roads, and therefore no new roads will need to be built.

- The solar arrays will be placed on pedestals located above the ground.

- No clearing of vegetation will take place.

- The site will be operated remotely with rare owner visits, resulting in minimal human activity/impact.

- As noted by Hart and Kendrick (2014), studies conducted suggest that pre-colonial archaeological heritage tends to occur in the valley bottoms close to watercourses and springs, which may explain why the high ridges and escarpments (location sites for the proposed ZuluAlpha Telescope) `*contains little evidence for pre-colonial occupation'*.

- No stone ruins/kraals/stone walling, or stone built cairns (graves) were encountered during the site visit conducted by the biodiversity specialist.

• Rocky areas have been avoided in the final site layout as recommended by the biodiversity specialist (Botes 2025).

7. Recommendations

Regarding the proposed ZuluAlpha telescope and associated infrastructure on Portion 2 of the Farm Matjes River No. 80 near Sutherland, the following recommendations are made:

1. On archaeological grounds, there are no objections to the development proposal.

2. It is recommended that exemption from further specialist archaeological studies be granted, as it is considered unlikely that important archaeological resources will be impacted by the proposed activities.

Yours sincerely

Jonathan Kaplan
Director: Agency for Cultural Resource Management

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8. References

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Declaration of Independence

Archaeological Impact Assessment for the proposed ZuluAlpha telescope(s), on Portion 2 of the Farm Matjes Rivier No. 80 near Sutherland, Northern Cape Province, Phase 1 desktop study

This report has been compiled by **Jonathan Kaplan**, Director of the Agency for Cultural Resource Management, an independent Heritage Practitioner registered with the Association of Southern African Professional Archaeologists (ASAPA), CRM Membership No. 64.

The views expressed in this report are entirely those of the author and no other interest was displayed during the decision-making process for the Project.

I further declare that I: **Jonathan Kaplan**

- act/ed as the independent specialist in the compilation of the above report.
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do 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 any vested interest in the proposed activity proceeding.
- have disclosed to the EAP any material information that has 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.
- have provided the EAP with access to all information at my disposal regarding the application, whether such information is favorable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.

Signature of the specialist

Date: 17 OCTOBER 2025

CURRICULUM VITAE

Name: Jonathan Michael Kaplan

Profession: Archaeologist/Heritage Practitioner

Date of Birth: 23-09-1961

Name of Company: Agency for Cultural Resource Management (ACRM)

Position: Director

Nationality: South African

ID Number: 6109235177089

Marital status: Married with two children

Languages:
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Other: Afrikaans

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Qualifications:
- MA (Archaeology) University of Cape Town, 1989.

Professional registration:
- Association of Southern African Professional Archaeologists (ASAPA) Membership No. 64
- Registered with the South African Heritage Resources Agency (SAHRA)

Company profile:
ACRM was founded by Jonathan Kaplan in 1992 and is one of the oldest heritage consultancies in the country. Jonathan has completed nearly 3000 Archaeological and Heritage Impact Assessments (HIA & AIAs), specialising in Stone Age, coastal shell middens, rock art and herder studies. He has undertaken baseline studies on large infrastructure projects, including the Lesotho Highlands Water Project, Maguga Dam (Swaziland), Namibia/Botswana Water Transfer Project, Sasol/ACO Gas Pipeline (South Africa & Mozambique), Corridor Sands (Mozambique) and numerous utility projects for Eskom, the Department of Transport and Public Works, local and provincial authorities, as well as private developers. Since 2010, ACRM has conducted baseline studies (Scoping and full EIA) on alternative energy (Wind, PV Solar, Gas & Battery Energy Storage) projects in the Western Cape, Northern Cape and Free State Provinces. Jonathan was recently appointed as a specialist consultant for archaeological collections for the Master Plan for the new Lesotho National Museum and Art Gallery, currently under construction in Maseru.

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Countries of work experience:
South Africa
Lesotho
Swaziland
Namibia
Botswana
Mozambique

Publications:

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Services offered:
- Archaeological Impact Assessments
- Heritage Impact Assessments
- Heritage Management Plans
- Heritage tourism
- Rock art recording
- Excavation and data analysis
- Monitoring of construction activities

Declaration:

I confirm that the above CV is an accurate description of my experience and qualifications.

Signature **Date**: 01 January 2024

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