

National Heritage Council of Namibia

52 Robert Mugabe Avenue • P/Bag 12043 • Ausspannplatz • Windhoek • Namibia
Tel: (061) 244 375 • Fax: (061) 246 872 • E-mail: johanna@nhc-nam.org



Secretariat

Receipt No. 5948

CASH RECEIPT

Customer

Name MR JOHANNES - DON KUUME ENDJALA

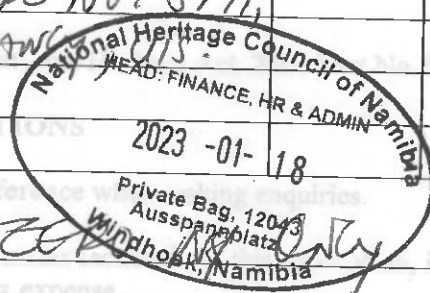
Date 18/01/2023

Address BOX 4355, 1

City WINDHOEK

Phone +264 81 2013 529

Quantity	Description	Unit Price	TOTAL
1X	APPLICATION FOR HIA CONSERVATION LETTER FOR EPL NO: 8799, IN DAUPES CONSERVANCY		N\$ 150-00



Amount in Words: ONE FIVE HUNDRED ONLY

Receipt Issued by: [Signature]

studio print 22253

Applicants must complete the relevant parts of this application.

A. APPLICANT'S DETAILS

1. Name and address of applicant

MR. Johannes - Don Kuume Endjala
P O BOX 4355, WINDHOEK
jendjala@yahoo.com - 081 2013 529

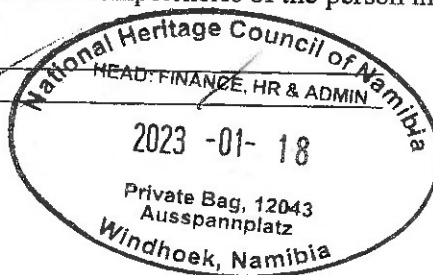
2. Full name and designation of the person in charge of undertaking the works or activities:

Johannes - Don Kuume Endjala

3. Full name and personal details of researcher, contractor or person in charge of the proposed works or activities:

Johannes - Don Kuume Endjala

4. Academic qualifications, skills, occupation and competencies of the person in charge mentioned under A2 above.



**ARCHAEOLOGICAL AND CULTURAL IMPACT
ASSESSMENT REPORT FOR EXCLUSIVE PROSPECTING LICENSE (EPL) NO. 8799,
UIS DISTRICT, ERONGO
REGION, NAMIBIA**

Compiled by:

Henry Nakale [Bachelor of Arts Honours Degree in Archaeology,
Museums and Heritage Studies] (GZU), [Bachelor of Social Science in
Heritage and Museum Studies] (UP), [Masters of Social Science in
Tangible Heritage Conservation & Management] (UP).

&

Dr Mowa Eliot, Maritime Archaeology University of Bristol. PhD
Archaeology (UP).

Compiled for:

Johannes – Don Kuume Endjala

Project Details

Item	Description
Proposed development and location	Johannes – Don Kuume Endjala (The Proponent) is intending to carry out exploration activities on Exclusive Prospecting License (EPL) No. 8799. The EPL is located about 44.60 km Southwest of Uis settlement. The EPL covers a surface area of 19 994 hectares (ha).
Title	ASSESSMENT REPORT FOR EXPLORATION ACTIVITIES ON EXCLUSIVE PROSPECTING LICENSE (EPL) NO. 8799, ERONGO REGION, NAMIBIA
Purpose of the study	The purpose of this document is an Archaeological and Heritage Impact Assessment report that describes the cultural values and heritage factors that may be impacted on by the proposed mining activities.
Coordinates Municipalities	EPL Centered at 21°23'14" S 14°21'33" E Uis District
Predominant land use of surrounding area	Farming and Mining
Heritage Consultant	OTAH & ESM Cultural Heritage Consultants (JV)
Author(s) identification	Dr. Eliot Mowa & Mr. Henry Nakale

In terms of land ownership, the area under study falls on state land between Okombahae reserve area and Cape Cross farm area within the Daures Constituency.

Copyright

Authorship: This A/HIA Report has been prepared by Mr. Henry Nakale and Dr. Eliot Mowa. The report is for the review of the National Heritage Council of Namibia.

Copyright: This report and the information it contains is subject to copyright and may not be copied in whole or part without written consent of the authors.

This report can however be reproduced by IDT and The National Heritage Council of Namibia for the purposes of the Archaeological and Heritage Management in accordance with the National Heritage Act, 27 of 2004

Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

Maps: Maps included in this report use data extracted from the NTS Map and Google Earth Pro.

Disclaimer: The Authors are not responsible for omissions and inconsistencies that may result from information not available at the time this report was prepared.

The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the National Heritage Council Regulations and Guidelines as to the authorisation of proposed exploration project being proposed by Johannes – Don Kuume Endjala.

DECLARATION

We hereby declare that we do:

1. have knowledge of and experience in conducting archaeological assessments, including knowledge of Namibian legislation, specifically the National Heritage Act (27 of 2004), as well as regulations and guidelines that have relevance to the proposed activity;
2. perform the work relating to the application in an objective manner, even if this results in views and findings that are not favorable to the applicant;
3. comply with the aforementioned Act, relevant regulations, guidelines and other applicable laws. We also declare that we have no interests or involvement in:
 - (i) the financial or other affairs of either the applicant or his consultant; and
 - (ii) the decision-making structures of the National Heritage Council of Namibia.

Signed by:

HNakale

Table of Contents

Executive Summary	7
Key Concepts and Terms	8
Introduction	10
1.1 Project Description and Location.....	11
1.2 Project Location	12
2.0 Legislations.....	14
3.0 Approach to study.....	14
3.1 Terms of Reference	14
3.2 Methodology	15
4.0 Assumptions and Limitations	18
5.0 Description of the study area in relation to its heritage and geological setting	18
5.1 Brief heritage setting of the Erongo region	18
5.2 Geological and heritage setting of the localized area	21
6.0 Fieldwork Findings and Observations	22
8.0 Conclusions and Recommendations.....	29
8.1 Management recommendations	30
Appendix 1).....	31
<i>The proponent is advised to implement the following management actions on the way forward:.....</i>	31
8.2 Conclusion	32
References.....	33

Table 1; rating scales for the assessment of archaeological significance and vulnerability developed by the QRN.....	16
Table 2; Assessment criteria for the evaluation of cumulative impacts on archaeological sites developed by the QRN.....	17
Table 3: Reversibility Ratings Criteria.....	18
Figure 1; Figure 2; locality map for EPL 8799 which is located about 44.60 km southwest of Uis settlement (Map credits: Graptus Consulting 2023).....	12
Figure 3; Satellite image for EPL 8799 in relation to the Brandberg Mountain and the Messum Crater (Photo credits: Namibia mining portal 2023).....	13
Figure 4; General distribution of archaeological sites in Erongo region and in relation to Namibia Source: authors. (Rfc. Kinahan 2012).....	20
Figure 5; stones cairn/marker with some of the scattered stone tools within EPL 8799 (Photo credits: Authors 2022).	24
Figure 6; google earth image of the messum crater (Photo credits: Google earth 2022).....	26
Figure 7; field work pictures in relation to the receiving environment of EPL 8799 (Photo credits: Authors 2022).	28
Figure 8; public consultation meeting with the Daures Traditional Daman Authority’s chief and councils (Photo credit: 2022).....	29

Executive Summary

An archaeological impact assessment was carried out for Johannes – Don Kuume Endjala focusing on the proposed prospecting activities on EPL 8799 which is located about 44.60 km South West of Uis settlement in the Erongo region. The assessment therefore reviewed the archaeological records, historical documents from the previous studies surrounding the area, interview with local farmers, GIS spatial data and a field survey as a basis of inference to conclude that damage or disturb sites or materials protected under the National Heritage Act (27 of 2004) is unlikely to occur. However, due to the possibility that buried archaeological remains could come to light in the course of exploration activities the proponent is advised to adopt the Chance Finds Procedure attached as Appendix 1 to this report.

Abbreviations/Acronyms

Abbreviation/Acronyms	Description/Definition
AIA	Archaeological Impact Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
LIA	Late Iron Age
NHA	Nation Heritage Act, Act 27 of 2004
SM	Site Manager
NHCN	National Heritage Council of Namibia
ESA	Later Stone Age
EPL	Exclusive Prospecting License
ECC	Environmental Clearance Certificate
CFP	Chance Find Procedure
EMA	Environmental Management Act

Key Concepts and Terms

Periodization Archaeologists divide the different cultural epochs according to the dominant material finds for the different time periods. This periodization is usually region-specific, such that the same label can have different dates for different areas. This makes it important to clarify and declare the periodization of the area one is studying.

These periods are nothing a little more than convenient time brackets because their terminal and commencement are not absolute and there are several instances of overlap. In the present study, relevant archaeological periods are given below;

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

Early Iron Age (~ AD 200 to 1000)

Late Iron Age (~ AD1100-1840)

Historic (~ AD 1840 to 1950, but a Historic building is classified as over 60 years old)

Definitions Just like periodization, it is also critical to define key terms employed in this study. Most of these terms derive from Namibian National heritage legislation and its ancillary laws, as well as international regulations and norms of best-practice. The following aspects have a direct bearing on the investigation and the resulting report:

Cultural (heritage) resources are all non-physical and physical human-made occurrences, and natural features that are associated with human activity. These can be singular or in groups and include significant sites, structures, features, Eco facts and artefacts of importance associated with the history, architecture or archaeology of human development.

Cultural significance is determined by means of aesthetic, historic, scientific, social or spiritual values for past, present or future generations.

Value is related to concepts such as worth, merit, attraction or appeal, concepts that are associated with the (current) usefulness and condition of a place or an object. Although significance and value are not mutually exclusive, in some cases the place may have a high level of significance but a lower level of value. Often, the evaluation of any feature is based on a combination or balance between the two.

Isolated finds are occurrences of artefacts or other remains that are not in-situ or are located apart from archaeological sites. Although these are noted and recorded, but do not usually constitute the core of an impact assessment, unless if they have intrinsic cultural significance and value.

In-situ refers to material culture and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Archaeological site/materials are remains or traces of human activity that 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. According to the Namibia National Heritage Act (NNHA) (Act No. 27 of 2004), no archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered, moved or destroyed without the necessary authorization from the National Heritage Council or a provincial heritage resources authority.

Historic material are remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

Chance finds means archaeological artefacts, features, structures or historical remains accidentally found during development.

A grave is a place of interment (variably referred to as burial) and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery (contemporary) or burial ground (historic).

A site is a distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

Heritage Impact Assessment (HIA) refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, which requires authorization of permission by law and which may significantly affect the cultural and natural heritage resources. Accordingly, an HIA must include recommendations for appropriate mitigation measures for minimizing or circumventing negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

Impact is the positive or negative effects on human well-being and / or on the environment.

Mitigation is the implementation of practical measures to reduce and circumvent adverse impacts or enhance beneficial impacts of an action.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the pre-historical, historical or the relatively recent past.

Study area or 'project area' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data and limited field walking in order to establish the presence of all possible types of heritage resources in any given area.

Introduction

The Government of Namibia recognizes that the exploration and development of its mineral wealth could best be undertaken by the private sector. The government, therefore, focuses on creating an enabling environment through appropriate competitive policy and regulatory frameworks for the promotion of private sector investment coupled with the provision of national geo-scientific databases essential for attracting competitive exploration and mining (Draft Minerals Policy of Namibia, MME).

It is with this background that Mr. Johannes – Don Kuume Endjala has decided to conduct exploration activities for base and rare metals, dimension stones, industrial minerals, nuclear fuel minerals and precious metals on EPL 8799. The Proponent wants to carry out these exploration activities with the hope that if they yield positive results then a feasibility study and mapping of geological minerals will be conducted at a later stage. At this stage, however, the exploration activity is aimed at establishing the availability and type of minerals likely to be found within EPL 8799 for the purpose outlined above as such no major economic benefits will be derived from the project.

The laws of the Republic of Namibia are clear regarding this in that it requires an Environmental Clearance Certificate. Such a certificate is issued in line with the Environmental Management Act (2007). The proponent has appointed Graptus Consulting to carry out an environmental impact assessment (EIA) study to obtain an environmental clearance certificate as per the requirements of the Ministry of Mines and energy (MME) and the Ministry of Environment, Forestry and Tourism (MEFT) in terms of mining activities and clearance of land.

In this respect, Graptus Consulting has then appointed the undersigned OTAH and ESM Cultural Heritage Consultants (**JV**) to provide an archaeological/heritage assessment as envisaged under the provisions of the National Heritage Act (27 of 2004). This report presents the results of an archaeological/heritage field survey of the area, focusing on EPL 8799. The report suggests mitigation measures that would be in keeping with the applicable laws and policies governing the preservation of archaeological remains in Namibia. The exclusive prospecting license is located about 44.60 km southwest of Uis settlement in the Erongo Region. The EPL covers a surface area of 19 994 hectares (ha).

Due to the destructive tendency of such exploration activities, which may include earth-moving/land alteration operations, it is a pre-requisite to conducting an Archaeological and/ or Heritage Impact Assessment (AIA) as obligated by the National Heritage Act, Act No. 27 of 2004 and, in part, by the Environmental Management Act, Act No. 7 of 2007. The main thrust of the provisions of the aforementioned legislation is to protect and salvage cultural/ archaeological and environmental resources from potential destruction resulting from mining activities.

It was against this backdrop that an Archaeological Impact Assessment (AIA) was carried out on EPL 8799 to fulfil the following objectives:

- a) To identify and document cultural/ archaeological materials and sites occurring in the area within and around the EPL.
- b) To assess the nature and scale of archaeological impact of the exploration activities on heritage resources within the EPL.
- c) To suggest some conservation strategies for the cultural heritage resources that might occur in the area proposed for explorations which can be potentially destroyed in the course of such activities.

1.1 Project Description and Location

The proposed exploration activities by Mr. Johannes – Don Kuume Endjala on EPL 8799 will involve both non-invasive and invasive exploration methods. Non-invasive exploration methods usually include remote sensing, geological field mapping, ground geophysical survey, surface soil sampling and etc. whereas invasive exploration methods include more destructive methods of

exploration such as reverse circulation or diamond drilling and pitting/trenching. Non-invasive exploration activities will be undertaken first in order to define the need for more invasive activities. Should the results from the non-invasive activities be positive the detailed site-specific drilling, trenching, and sampling will be undertaken (Graptus Consulting 2023).

1.2 Project Location

The Exclusive Prospecting Licence (EPL No. 8799) is located in the central western part of Namibia, about 44.60 km southwest of Uis settlement and approximately 68.58 km north of Henties Bay coastal town, in the Erongo Region (See figure.1). The EPL is situated southwest of Namibia’s spectacular and morphological Brandberg Complex, the highest mountain in Namibia. The EPL forms an irregular geometry that encloses an area of 19994.8079 hectares (ha) and is demarcated by nine corner coordinates as shown below.

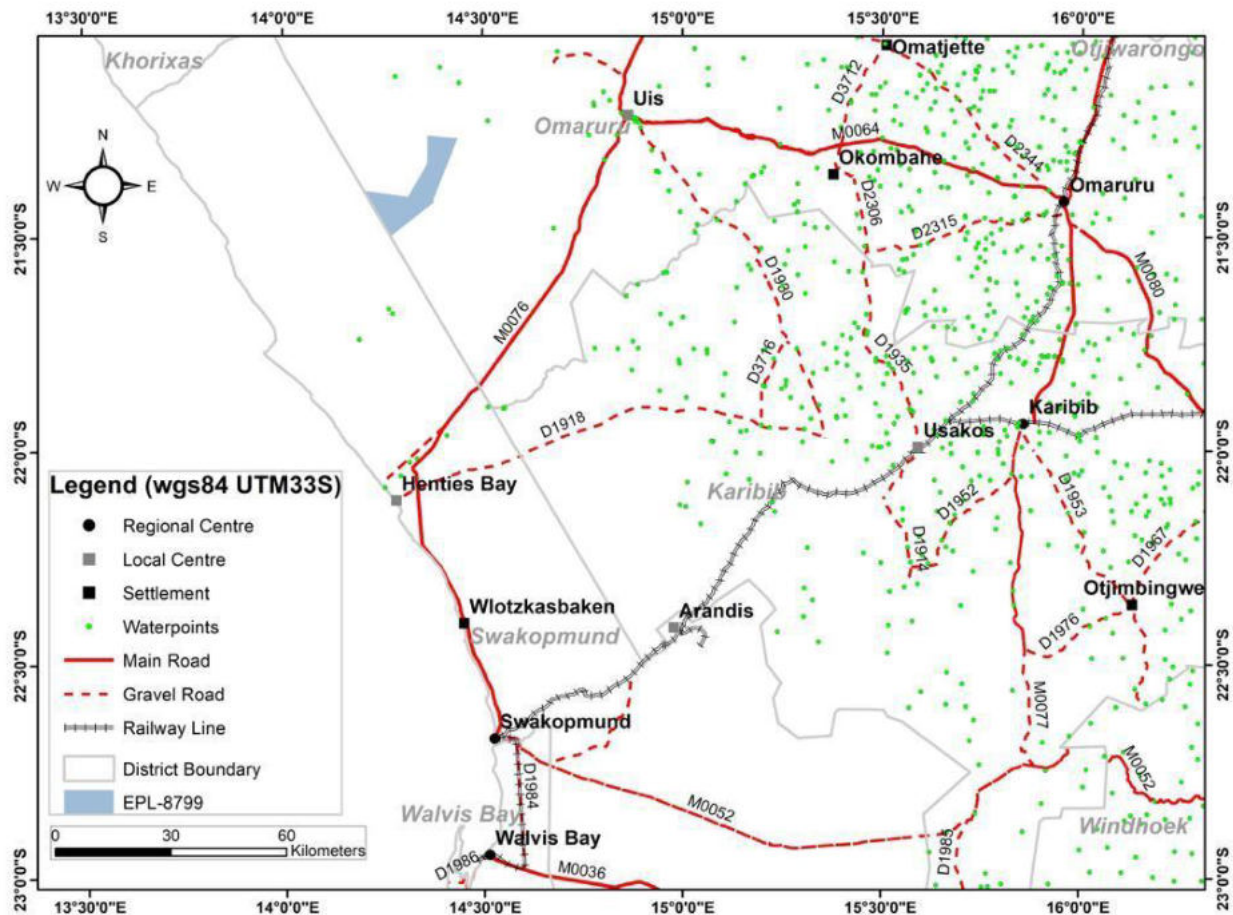


Figure 1; Figure 2; locality map for EPL 8799 which is located about 44.60 km southwest of Uis settlement (Map credits: Graptus Consulting 2023).

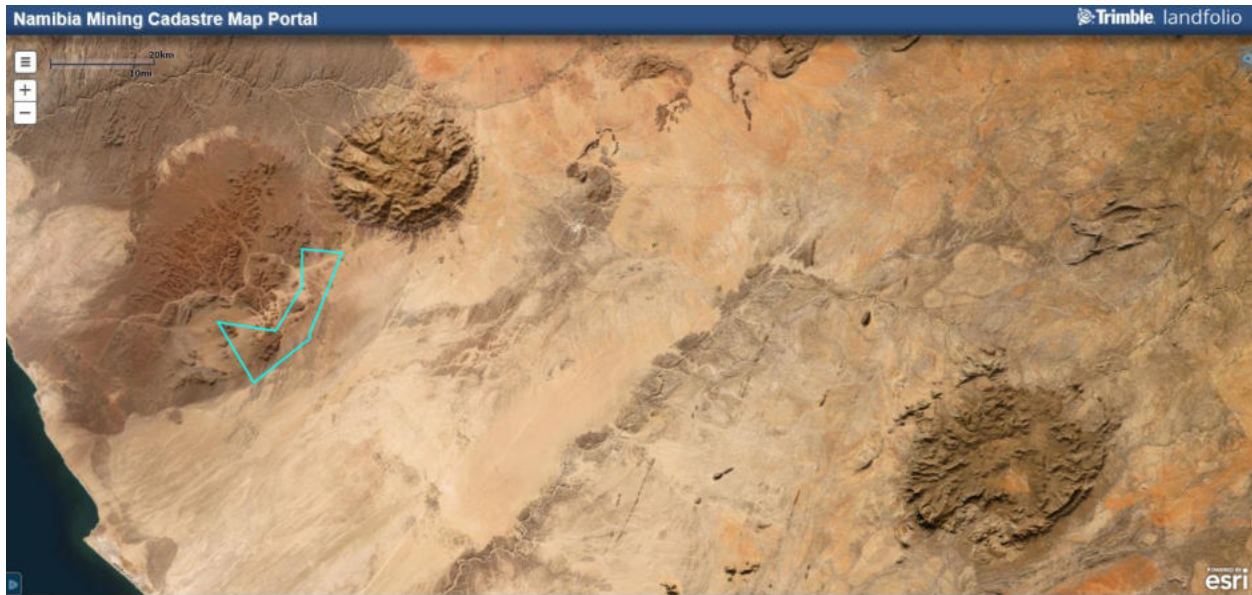


Figure 3; Satellite image for EPL 8799 in relation to the Brandberg Mountain and the Messum Crater (Photo credits: Namibia mining portal 2023).

UTM corner coordinates (Zone J33) of EPL 8799 boundaries

Corner	Latitude	Longitude
1	14.269963	-21.498604
2	14.203851	-21.393047
3	14.312186	-21.407492
4	14.360798	-21.330824
5	14.361631	-21.264434
6	14.437188	-21.270823
7	14.376631	-21.411936
8	14.376353	-21.421381
9	14.269963	-21.498604

2.0 Legislations

In most cases where the aspect of mining is involved, cultural and archaeological evidence located within areas earmarked for development or mining usually faces the danger from complete destruction. The legal instrument for the protection of heritage sites and objects in Namibia is the National Heritage Act (No. 27 of 2004).

To ensure that this unique heritage of our past is protected and well documented, the National Heritage Act 27 of 2004 and EIA Terms of Reference concerning the assessment of impacts of the proposed development on the cultural and heritage resources associated with the receiving environment shall be used to guide the exploration exercise. The statutory mandate of heritage impact assessment studies is to encourage and facilitate the protection and conservation of archaeological and cultural heritage sites, following the provisions of the National Heritage Act, Act 27 of 2004 and Environmental Management Act (EMA) No. 7 of 2007 and its 2012 EIA Regulations. The National Heritage Act (Section 1 of 2004) defines heritage resources as those of geological and rare objects; paleontological; archaeological; ethnographic objects; historical objects/sites; maritime heritage; built monuments; mining sites as well as objects of scientific interests.

3.0 Approach to study

3.1 Terms of Reference

The main essence of the archaeological survey and assessment was to identify and record all sensitive archaeological sites within the limits of EPL 8799 that could negatively be affected by the above-mentioned project. The assessment is also intended to establish the heritage significance of possible resources and assess their vulnerability, estimate the extent of the possible impacts and establish the site and project-specific mitigation measures. This study is intended to satisfy the requirements of the Environmental Management Act (7 of 2007), and those of the National Heritage Act (27 of 2004).

3.2 Methodology

This Heritage & Archaeological Impact Assessment followed a desktop-based assessment, and a field survey. These methodologies are standards for environmental and heritage assessment in Namibia, which are in line with international best practices. Desktop information was fashioned from current and existing heritage archives. These were taken from existing heritage records comprising those from the National Heritage Council, archaeological GIS spatial data and record that has been substantially exposed during the last decades, by a series of detailed archaeological assessments carried out during the mineral investigation and mining operations, and the development of infrastructure required by these operations. These sources were then supplemented by site visit fieldwork within the boundaries of EPL 8799.

Sensitivity and susceptibility rating scales, aimed at establishing the nature of vulnerability and sensitivity of heritage resources that are likely to be impacted by the exploration activities, were adopted as per assessment objectives. Their vulnerability to the disturbance in the course of exploration that includes drilling was evaluated according to parallel 0-5 scales, abridged in Table 1.

Table 1; rating scales for the assessment of archaeological significance and vulnerability developed by the QRN.

Significance Rating	
0	No heritage significance
1	Disturbed or secondary context, without diagnostic materials
2	Isolated minor finds in undisturbed primary context, with diagnostic materials
3	Archaeological and paleontological site (s) forming part of an identifiable local distribution or group
4	Multi-component site (s), or central site (s) with high research potential
5	Major archaeological or paleontological site (s) containing unique evidence of high regional significances
Vulnerability Rating	
0	Not vulnerable
1	No threat posed by current or proposed development activities
2	Low or indirect threat from possible consequences of development (e.g., soil erosion)
3	Probable threat from inadvertent disturbance due to proximity of development
4	High likelihood of partial disturbance or destruction due to close proximity of development
5	Direct and certain threat of major disturbance or total destruction

Concerning each specific source of impact risk to heritage resources, the assessment methodology estimated the extent of the impact, the magnitude of impact, and the duration of these impacts. The scales of estimation are set out and explained in Table 2.

Table 2; Assessment criteria for the evaluation of cumulative impacts on archaeological sites developed by the QRN.

CRITERIA	CATEGOR Y	DESCRIPTION
Extent or spatial influence of impact	National Regional Local	Within Namibia Within the Region On site or within 200 m of the impact site impact
Magnitude of impact (at the indicated spatial scale)	High Medium Low Very Low Zero	Social and/or natural functions and/ or processes are severely altered Social and/or natural functions and/ or processes are notably altered Social and/or natural functions and/ or processes are slightly altered Social and/or natural functions and/ or processes are negligibly altered Social and/or natural functions and/ or processes remain unaltered
Duration of impact	Short Term Medium Term Long Term	Up to 3 years 4 to 10 years after construction More than 10 years after construction

Table 3: Reversibility Ratings Criteria

Reversibility Ratings	Criteria
Irreversible	The impact will lead to an impact that is permanent.
Reversible	The impact is reversible, within a period of 10years

4.0 Assumptions and Limitations

This heritage impact assessment described here relies on desktop studies and is supported by field assessments undertaken. It is possible to predict the likely occurrence of further archaeological sites with some accuracy and to present a general statement of the local archaeological site distribution. Nevertheless, it is critical as a precautionary measure and best practice, we are recommending the proponent to strictly follow the chance find procedure as the project progresses should any archaeological objects be found during drilling and trenching. The Chance finds procedure is outlined in the National Heritage Council booklet, (2017) and the proponent will be supplied with a copy. Failure to follow and implement such a procedure will result in appropriate action being taken against the proponent as per the Heritage Act of 2004.

5.0 Description of the study area in relation to its heritage and geological setting

5.1 Brief heritage setting of the Erongo region

The western part of Namibia is arid and presents a harsh environment for human habitation. However, these harsh environmental condition still retains some attractive attributes that led to the habitation of the Erongo Mountains, Brandberg mountains, Spitzkoppe and Twyfelfontein. According to Nankela (2020) these areas accorded humans minimum basic needs such as water and wild game since under the mountain topography enables orographic rainfall that forms localized micro-climates to meet the basic needs of the early settlers. Available archaeological evidence is characterized by short periods of relatively intense occupation, and long periods in

which there appears to have been little or no human presence (Kinahan 2011). This is apparent as observed by the early researchers within the greater Erongo, it has been theorized that such evidence of human occupation and subsequent desertion by the original artists of the many rock paintings and engravings in the Erongo region, is a consequence of environmental and climatic changes. Resulting in the movement and migration of wildlife northward, which was subsequently pursued by humans resulting in the desertion of the rock paintings and engravings by the original artists.

The Erongo region has been the focus of several archaeological surveys and assessments during the last two decades. These surveys have helped to determine the local archaeological sequence and to establish the relationship between archaeological sites and the types of terrain that characterize the area, including gravel outwash fans, granite outcrops and the many dolerite ridges that crisscross the landscape. However, archaeological surveys for mining and infrastructure projects are highly focused on a specific localized area of particular projects and do not therefore as a rule reflect the wider archaeology of the entire spatial area that shares similar topography and geologic composition characteristics. Cumulative results of earlier surveys indicate the archaeological importance of this general area, although the intensity of the survey varies considerably and large parts of the area are archaeologically unknown (Kinahan 2020).

According to Kinahan (2011) the general sequence and archaeological characteristics of the area under consideration, based on current knowledge, are as follows:

a. Early to mid-Pleistocene (ca. 2my to 0.128my; OIS 6, 7, 19 &c): represented by surface scatters of stone tools and artefact debris, usually transported from original context by fluvial action, and seldom occurring in sealed stratigraphic context.

b. Mid- to upper Pleistocene (ca. 0.128my to 0.040my; OIS 3, 4 & 5a-e): represented by dense surface scatters and rare occupation, evidence in sealed stratigraphic context, with occasionally associated evidence of food remains.

c. Late Pleistocene to late Holocene (ca. 0.040my to recent; OIS 1 & 2): represented by increasingly dense and highly diverse evidence of settlement, subsistence practices and ritual art, as well as gravesites and other remains.

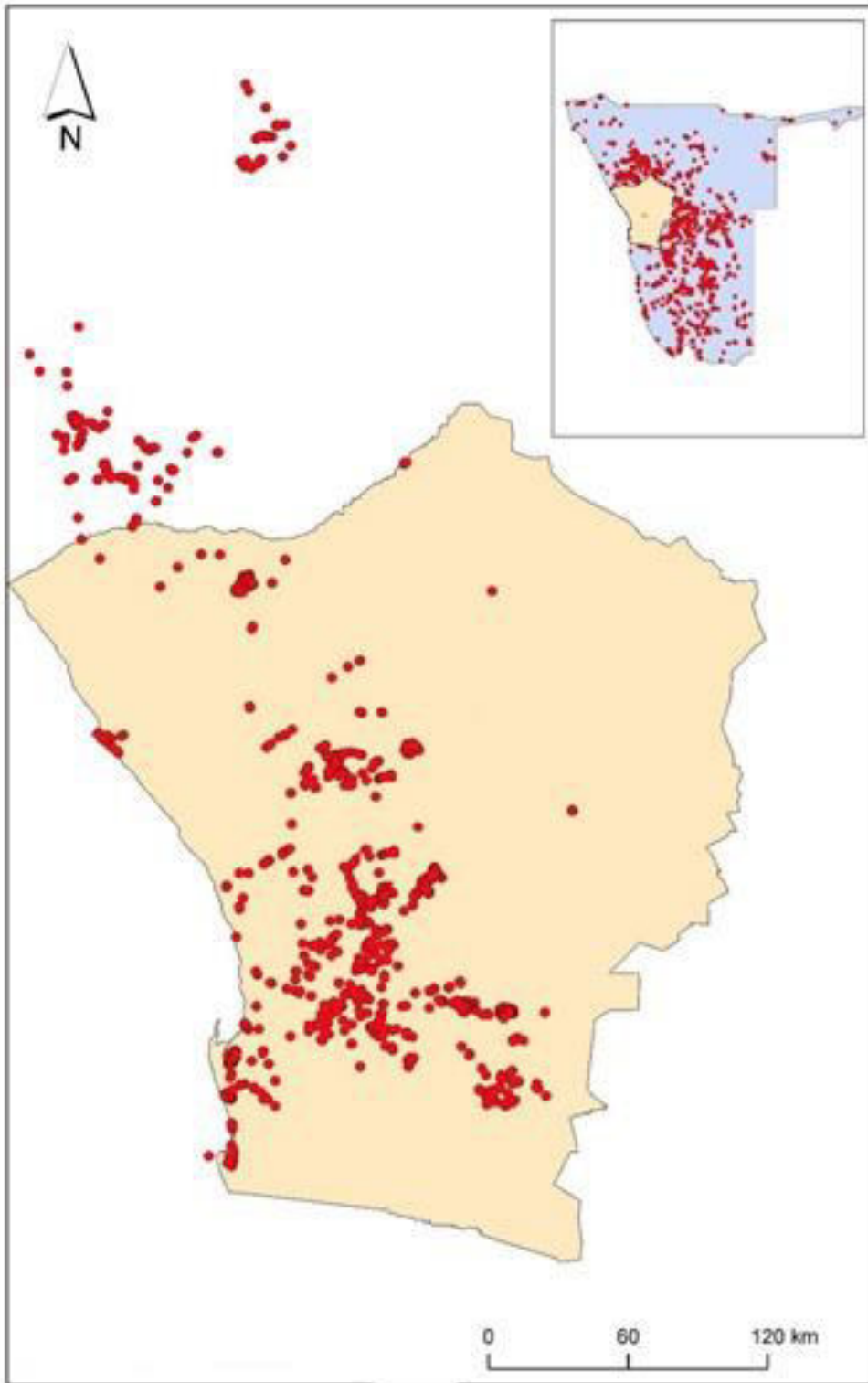


Figure 4; General distribution of archaeological sites in Erongo region and in relation to Namibia Source: authors. (Rfc. Kinahan 2012)

5.2 Geological and heritage setting of the localized area

General Geology

EPL 8799 is located within the Southern Kaoko Zone (SKZ), a tectonostratigraphic zone of the Damara Belt. The Damara Belt is an intracontinental branch of the Damara Orogen that was formed as a result of the collision between the Congo and Kalahari cratons during pan African times (Miller 2003). The Southern Kaoko Zone is largely a low grade metamorphic zone that is magnetically quiet. It is bounded by the Autseib fault, separating the northern central zone from the Southern Kaoko Zone. Forming the basement rocks in the area are rocks of the Mokolian Abbabis Metamorphic Complex (MAB) comprising metasedimentary rocks, para- and orthogneisses, ortho-amphibolites and pegmatites. These rocks are exposed between Usakos and Karibib and do not outcrop in the EPL area (Graptus Consulting 2023).

The basement rocks are underlain by the metasedimentary and intrusive rocks of the late Proterozoic Damara Super group. These are represented by mica schists, metagreywacke and quartzite's which have been assigned to the Zerrissene Group (middle Swakop Group equivalent) intruded by post tectonic to early Phanerozoic granites (biotite granite/granodiorite of the Salem Suite) and pegmatites.

According to Kinahan (2011), Erongo Region is a highly significant archaeological landscape in Namibia whose resources represent irreplaceable evidence of global importance (**Figure 3**). The region surrounding Erongo Mountains has been the focus of several archaeological research and surveys during the last decades (see Sherz 1959; Breuil 1960s; Clark *et al.* 2014; Pleaudeau 2012 and Nankela 2013; 2017; 20202).

The area under study is home to the mighty Brandberg Mountain, situated approximately 30 km North West of the Uis settlement. It is the highest mountain in Namibia, the Brandberg, which stands out as an imposing feature in the otherwise flat gravel plains of the central Namib Desert. This large, almost circular inselberg is visible from space and rises more than 1800 m above the surrounding plains (highest peak 2573 m.) It has an exceptionally rich paleo-archaeological heritage with a high concentration of prehistoric rock art (more than 43 000 paintings and 900 sites alone). The two genres of rock art (engravings and paintings) are found in close association in the Brandberg and more than 120 archaeological sites have been recorded. The Brandberg is home to the famous rock art frieze of the "White Lady", the authors and meaning of which has puzzled

researchers, as well as numerous other friezes of exceptional quality. The mountain forms part of numerous destinations along prehistoric migration routes of people who migrated seasonally between the coast and the interior.

Such data indicates that its archaeological chronology dates from the last 5000 years to 1000 years when significant changes in human settlement patterns and economic activities occurred in the immediate semi-desert hinterland. These are attributed to Hunter-Gatherers, Herder's economy and to some extent, Pastoralists. They include pieces of evidence are reflected in materials records such as surface scatters of stone tools, rock shelters with evidence of occupation, including of rock art, graves, stone features such as hunting blinds and huts, and more recent sites such as colonial battlefields, old road-works and historical mines (Kinahan 2012; Nankela *et al* 2021).

6.0 Fieldwork Findings and Observations

A detailed field survey was carried out within the footprints of EPL 8799 on the 17th – 18th December 2022. The field survey was aimed at recording and locating the most important archaeological features (if found) that might be negatively impacted by the proposed exploration activities within the boundaries of EPL 8799 and beyond. This survey also meant to come up with mitigation measures that will safeguard and protect such heritage resources. The field survey involved a combined approach which included foot survey within and around EPL 8799 and a one-on-one interview with community members (Daures Daman Traditional Authority). Two (2) possible archaeological/heritage sites were recorded during the field survey. The site locations are set out below together with brief remarks on their significance. The vulnerability of the sites in terms of their sensitivity is outlined below as well. Mitigation measures are required to ensure their conservation.

Site 1 (Cairn/marker stones)

Site coordinates: 21°17'47.30" S 14°23'28.66" E

Setting: staked stones

Description: a man-made pile (or stack) of stones raised for a purpose, usually as a marker or as a burial mound. The cairn is in the middle of a circle of stones and is approximately 90 cm high with a few stone tools scattering around the cairn. The marker stones are partially painted in white. Cairns have been and are used for a broad variety of purposes. In prehistoric times, they were raised as markers, as memorials and as burial monuments (some of which contained chambers). In modern times, cairns are often raised as landmarks, especially to mark the summits of mountains. Cairns are also used as trail markers (see fig 5).

Records: Photographs and fieldnotes

Significance rating: 3

Vulnerability rating: 5

Reversibility rating: Irreversible

Condition assessment: stable condition



Figure 5; stones cairn/marker with some of the scattered stone tools within EPL 8799 (Photo credits: Authors 2022).

Site Two (The messum crater)

Site coordinates: 21°04'37" S 14°28'22" E

Setting: Natural mountain

Description: the messum crater is a natural heritage which is part of an igneous ring complex of the volcano. Part of the messum crater falls within EPL 8799 and the other half lies within the Dorob national park. (see fig 6).

Records: Photographs and fieldnotes

Significance rating: 5

Vulnerability rating: 5

Reversibility rating: Irreversible

Condition assessment: stable condition



Figure 6; google earth image of the messum crater (Photo credits: Google earth 2022).





Figure 7; field work pictures in relation to the receiving environment of EPL 8799 (Photo credits: Authors 2022).



Figure 8; public consultation meeting with the Daures Traditional Daman Authority's chief and councils (Photo credit: 2022).

8.0 Conclusions and Recommendations

The archaeological sensitivity of the surrounding area of EPL 8799 is considered to be high. There are few significant surface indications of precolonial occupation in the area such as the out of context stone tools and it is possible that subsurface remains might be exposed during site preparation and exploration phase, hence, the chance find procedure is highly recommended. The significance rating of the sites (refer to Table 1) ranges from 1 (disturbed or secondary occurrences), to 4 and 5 (multi-component and major sites). These are considered as high value archaeological/heritage resources.

8.1 Management recommendations

At this stage it is important that the client is made aware of the fact that archaeological/heritage sites in the project area are protected under the National Heritage Act (27 of 2004). When prospecting is underway, the proponent should make sure that all personnel and contractors are aware of the protected nature of archaeological sites as well as the legal obligation to report any new finds to the National Heritage Council as soon as possible. The proponent should take steps to avoid either direct damage to the sites or to their immediate landscape setting.

Based on the desktop study and field work survey undertaken in this study, we recommended that:

- a) At least a 50-meter buffer zone be maintained free of any exploration activities from the marker cairn.
- b) The Messum Crater is a natural heritage site and it is recommended that at least a 200-meter buffer zone be maintained free of any exploration activities. It should be treated as a no go area.
- c) That the project proponents or contractors should adopt the Chance Finds Procedure attached here as Appendix 1, so that buried archaeological remains are discovered may be handled following the provisions of Part V Section 46 of the National Heritage Act (27 of 2004).
- d) That the vehicle tracks not to approach within 50m of any the above-mentioned sites and should be deviated accordingly.
- e) That annual site inspections by the NHC be carried out.
- f) That the foot print impact of the proposed exploration activities should be kept to minimal, to limit the possibility of encountering chance finds within servitude.
- g) That the Environmental Management Plan is to ensure that all the existing archaeological reference guidelines (Chance Find Procedure Guideline by NHC (2017) is shared with the proponent for guidance. So that, any buried archaeological remains that might be discovered during the prospecting phase are handled following the provisions of Part V Section 46 of the National Heritage Act (27 Of 2004).

Appendix 1)

The proponent is advised to implement the following management actions on the way forward:

1. Chance Finds Procedure (CFP) management guideline:

Areas of proposed development or mining activities are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is, therefore, possible that sites or items of heritage significance will be found in the course of development work. The procedure set out here covers the reporting and management of such finds.

Scope: The “chance finds” procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified people.

Compliance: The “chance finds” procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “a person who discovers any archaeological Objectmust as soon as practicable report the discovery to the Council”. The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

A. Responsibilities:

Operator to exercise due caution if archaeological remains are found

Foreman to secure site and advise management timeously

Superintendent to determine safe working boundary and request inspection

Archaeologist to inspect, identify, advice management, and recovers remain

B. Procedure:

Action by the person (operator) identifying archaeological or heritage material

- If operating machinery or equipment: **stop work**
- Identify the site with flag tape

- Determine GPS position if possible
 - Report findings to foreman
- C. Action by foreman:
- Report findings, site location and actions are taken to the superintendent
 - Cease any works in the immediate vicinity
- D. Action by superintendent
- Visit the site and determine whether work can proceed without damage to findings;
 - Determine and mark the exclusion boundary
 - Site location and details to be added to the Archaeological Heritage database system
- E. Action by archaeologist
- Inspect site and confirm the addition to AH database system;
 - Advise National Heritage Council and request a permit to remove findings;
 - Recovery, packaging and labeling of findings for transfer to National Museum
- F. In the event of discovering human remains
- Actions as above;
 - Field inspection by archaeologist to confirm that remains are human;
 - Advise and liaise with NHC Guidelines; and
 - Recovery of remains and removal to National Museum or National Forensic Laboratory, or as directed.

8.2 Conclusion

Based on the desktop assessment and subsequent field investigation highlighted in this report and with professional confidence and satisfaction, we recommend issuing a heritage consent with conditions based on the above recommendations for the proponents to proceed with the solar project

References

Daures Daman Traditional Authority Verbal communication 2023.

Environmental Management Act No 7 of 2007.2007. Government Gazzete.

Kinahan, J. 2005. The late Holocene human ecology of the Namib Desert. In Smith, M, and Hesse, P. eds 23 Degrees South: Archaeology and Environmental History of the Southern Deserts. Canberra, National Museum of Australia pp120-3

Kinahan, J. 2011. From the beginning: the archaeological evidence. In Wallace, M. and Kinahan, J. History of Namibia: from the beginning to 1990. London: Hurst & Co., pp 15- 44.

Kinahan, J. 2020. Namib: The Archaeology of an African Desert. Windhoek: University of Namibia Press (in press).

Kinahan, John. 2012. Archaeological Guidelines for Exploration & Mining in the Namib Desert, the Namibia Archaeological Trust.

National Heritage Act 27 of 2004.2004. Government Gazette

Wendt, W.E. 1972. Preliminary report on an archaeological research programme in South West Africa. Cimbebasia (B) 2: 1-61.