WAHS

Welwitschia Archaeological Heritage Solutions

Final Archaeological Report

Proposed Oil Explorations drilling sites project in Kavango East, Namibia.

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Report Prepared For:

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INTRODUCTION

Risk-Based Solutions (RBS) CC, a Consulting Arm of Foresight Group Namibia (FGN) (PTY) LTD with its international partners proposed to drill about of 2-3 Wells in Kavango East for Oil Explorations project in Namibia. The project commenced from November 2018 to the end of February 2019. The Environment Management Act (*No. 7 of 2007*) and its Regulations (*2012*) requires an EIA to be carried out for projects such as the Oil Explorations. Risk-Based Solutions (RBS) CC, consequently subcontracted the services of an archaeologist, Dr. Alma Nankela from *Welwitschia Archaeological heritage Solutions CC* to undertake an archaeological desk assessment of the project sites (Fig.1).

In Namibia, heritage resources are protected under the National Heritage Act *(No. 27 of 2004*), which makes provision for Archaeological / Heritage Impact Assessment of projects such as the proposed oil explorations in order to strategically consider how potentially negative impacts can be avoided within the footprints of the proposed area that Risk-Based Solutions (RBS) CC consider spudding.

In the past, the archaeological knowledge about Kavango region has always been relatively poor with little research carried out as a result of the infrastructures development. At a time, Kavango region was only known for its earliest evidence of farming settlements in Namibia. However, the extent and extraordinary richness of archaeological record were substantially uncovered during the last decade, firstly by Sandelowsky in the 1960s whose community were identified to be dating 840 AD and later by a series of detailed archaeological research carried out in the course of archaeological surveys Cologne University, through ACACIA project by researchers such as (Richter 2005, 2007 and Kose, 2004, 2008,2009). This was of paramount importance in order to obtain the regional chronology of cultural development but mapping out heritage sites of national importance as per the National Heritage *Act No.27 of 2004*. Here, an expansions of known archaeological and historic sites distributions widened from the banks of Okavango River and its floodplains to Omatako and Khaudom areas where a well preserved archaeological record with evidence of human occupation spanning from the Pleistocene to Holocene Period (roughly 500 000 years through 2 000 years BP and Late Iron Age period) as shown in (Fig. 2 & 3) were revealed. Most of the Kavango area is still unexamined. Therefore, the likelihood of spread of other archaeological sites in proximity to the proposed project sites might be high to medium, pending detailed field investigations.

In addition to archaeological heritage, modern heritage of Kavango is characterized by remnants of numerous historic, sacred cultural sites as well as present-day community graves and cemeteries that are to be avoided. Fishing and traditional methods of maize cultivation, has been combined with small scale stock farming to form a secured subsistence lifestyle that has persevered in this dry savannah region for approximately 500 years have been recorded through the NDGF funded regional project '*Heritage Hunt Project'* of 2010 by the Museum Associations of Namibia (MAN). Commercial farming in form of private game reserves, community conservancies and State parks also characterizes modern Kavango region land use system. Therefore, its probable that the proposed drill sites might runs through these areas affecting some of sites as identified in this desktop study.

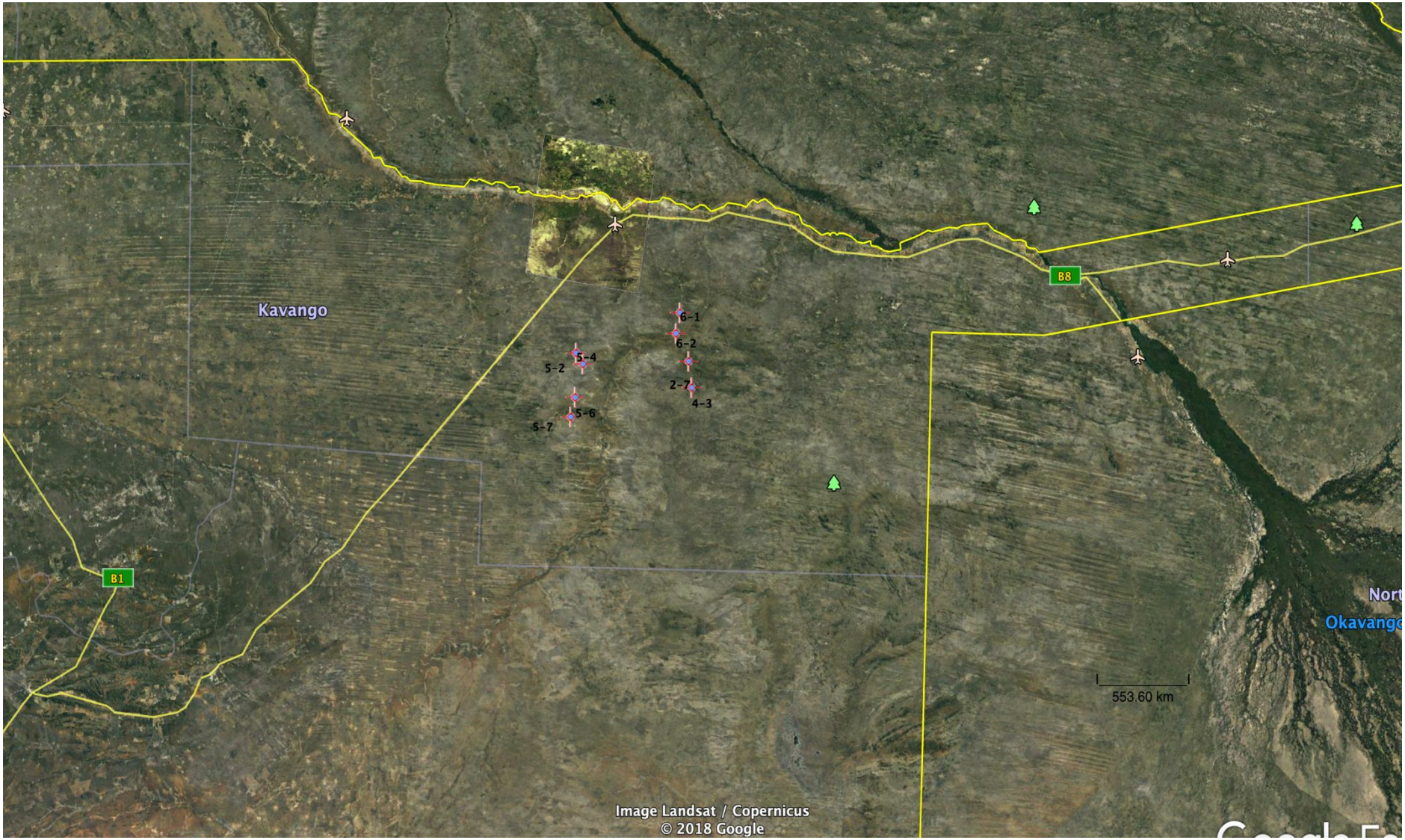

Figure 1: The geographic locations of the proposed drilling sites in Kavango East region. Credit: Google Earth 2018.

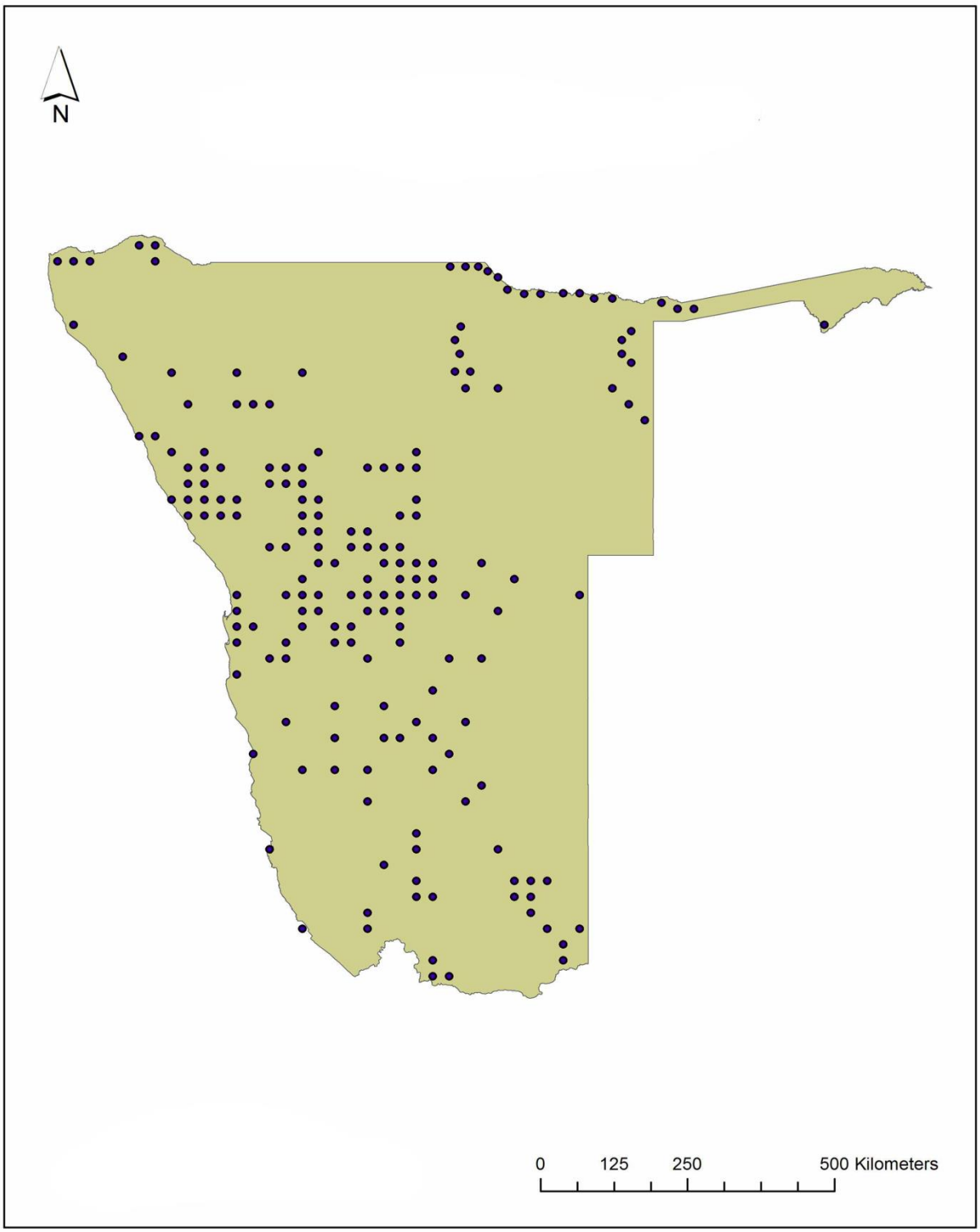

Figure 2: An edited distributional map of archaeological sites in Namibia dating from 1.8 ma to the last 1 000 years, Map credits: Kinahan 2000, accessed on: www.archaeologyamibia.com.

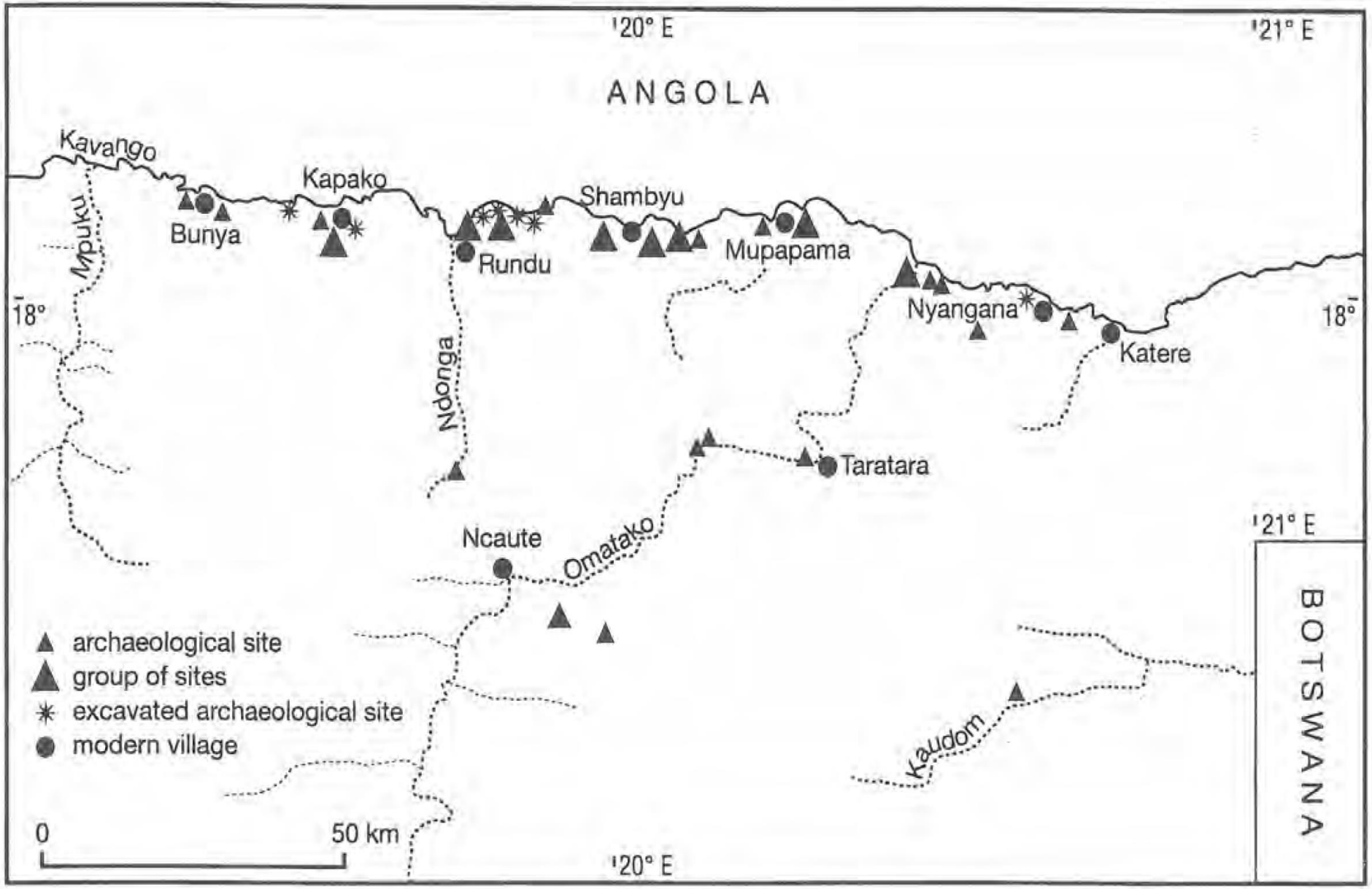

Figure 3: A detailed distribution of *known and studied* archaeological heritage sites in Kavango region before AD 2 000. Credits (Richter 2005).

TERMS OF REFERENCE

The key objectives of Phase I desktop archaeological studies were to:

- Identify and describe the nature of heritage resources (as defined by the National Heritage Act No. 27 of 2004), within the footprints of the proposed project sites and establish their possible heritage values;
- Establish cumulative impacts of this proposed oil explorations sites in relation to the heritage resources in these areas.
- Identify possible sensitive areas or sites and suggests practical mitigation measures along with monitoring indicators and guidelines.
- Develop a management program and recommendations for the heritage resources that might be discovered within the project area. The management criteria will be practical and measureable.

APPROACH AND METHODOLOGY

Archaeological Impacts Assessment in Namibia follows a basic three-phase process of evaluation usually by desk study (Phase I); followed by an assessment based on a field survey with limited sampling and including proposals for mitigation of impacts (if required – Phase II); and then mitigation –involving detailed field investigation, possible laboratory analysis and the preparation of site management plans (if required – Phase III). This archaeological heritage Impact Assessment also aimed at identifying potential negative impacts that that are likely to be associated with the construction such as the proposed oil exploration infrastructure development. However, these potential risks will not only specific to archaeology resources but also any cultural heritage resources in general as defined in the National Heritage (*Act No. 27 of 2004)*.

Therefore, methodologies adopted for this heritage assessment considered two standardized approaches: methodologies adopted in line with the standards for environmental assessment and the protocol developed for archaeological heritage assessment in Namibia devised by Quaternary Research Services (QRS) to reflect Namibian conditions and are accepted as a basis of evaluation by the National Heritage Council.

Against this background, this desk archaeological heritage research assessment (Phase I) was produced from existing and available heritage resources inferences. These were extracted from available heritage databases including the accession register of the Historic & Cultural accession register from Museums Associations of Namibia, an internal register of heritage resources in Namibia from the National Heritage Council of Namibia, the archaeological GIS spatial data as well as through telephonic interviews with government political office bearers such as the Kavango East rural constituency councillor and the Kavango regional council These records were then complimented by the Specialist's general knowledge of Namibia's heritage resource distributions.

It is therefore imperative to mention that data were only generated from desk studies (Phase I) and that no site visits or detailed field investigations were carried out in Phase I.

Furthermore, the conventional sensitivity and vulnerability rating scales, that aimed at establishing the nature of vulnerability and sensitivity of archaeological heritage resources that are likely to be impacted by the proposed Road Authority infrastructure development was used as per the assessment objectives outlined in the TOF. In addition to the sensitivity scale, archaeological heritage significance of the sites, and their vulnerability to disturbance in the course of project development were also be evaluated according to parallel 0-5 scales, summarized in Table 1 below.

Significance Rating	
0	No archaeological significance
1	Disturbed or secondary context, without diagnostic material
2	Isolated minor find in undisturbed primary context, with diagnostic material
3	Archaeological 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 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

Table 1: Rating scales for the assessment of archaeological significance and vulnerability as developed by the QRN.

The product of the significance and vulnerability ranking is taken as a measure of archaeological heritage sensitivity and is used as a basis for sensitivity mapping. The vulnerability rating is based on the perceived risk of impact from the project under consideration, independent of historical impacts and natural deterioration. With respect to each specific source of impact risk to heritage resources, the assessment methodology estimates the extent of impact, the magnitude of impact, and the duration of these impacts. The scales of estimation are set out and explained in Table 2 below.

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

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

ARCHAEOLOGICAL ASSESSMENT

Review of sources

It was only though recent intensified research that Kavango region archaeological heritage slightly became known (see Sandelowsky 1979; Huffman 1980; Kinahan 2000, Jacobson 1987; Richter 2005, 2007 and Kose, 2004, 2008,2009). However, much of it remains relatively uninvestigated and the fact that such data are not reflected in the literatures does not necessarily translate to non-existence of heritage resources in these areas. Nevertheless, its earliest archaeological heritage is attributed to the *Late Iron Age settlements*, restricted along the Okavango River basin. This industry is evidenced by numerous archaeological artefacts including but not limited to ceramics (decorated & undecorated), small number of imported glass trade beads, some stone artefacts, worked ostrich eggshells and iron implements. These records concurs with the historical dating of the Mbukushu settlement in this area that are believed to have inhibited this part of Namibia from 1750 around Kwando River and moved to the Kavango in about 1910 (Kinahan 2003; Gibbons 1981).

The systematic archaeological investigations of the Kavango region revealed human occupations that predate the pre-colonial farming settlements (see Fig. 3). These examinations yielded large accumulations of Early Stone Age (ESA) to Late Stone Age (LSA) archaeological knowledge of cultural sequences (Richter 2005). Here, about 73 archaeological sites were located along the southern bank of Okavango River and cover an extensive distance of approximately 100km from Bunya to Katere and about 80 km further inland including areas of Omatako and Khaudom National Park. The ESA archaeological stone tool artefacts are characterised by flakes and cores, Acheulean hand axes, hat

might be of 'developed Olduwan industry' or 'Voctoria West', roughly c. 50, 000 -13 000 years ago (Fig. 4 below). These were obtained through surface finds and a series of excavations. The distribution of the site bearing ESA artefacts includes but not limited to Rundu area and Shambyu mission (see Fig. 3).

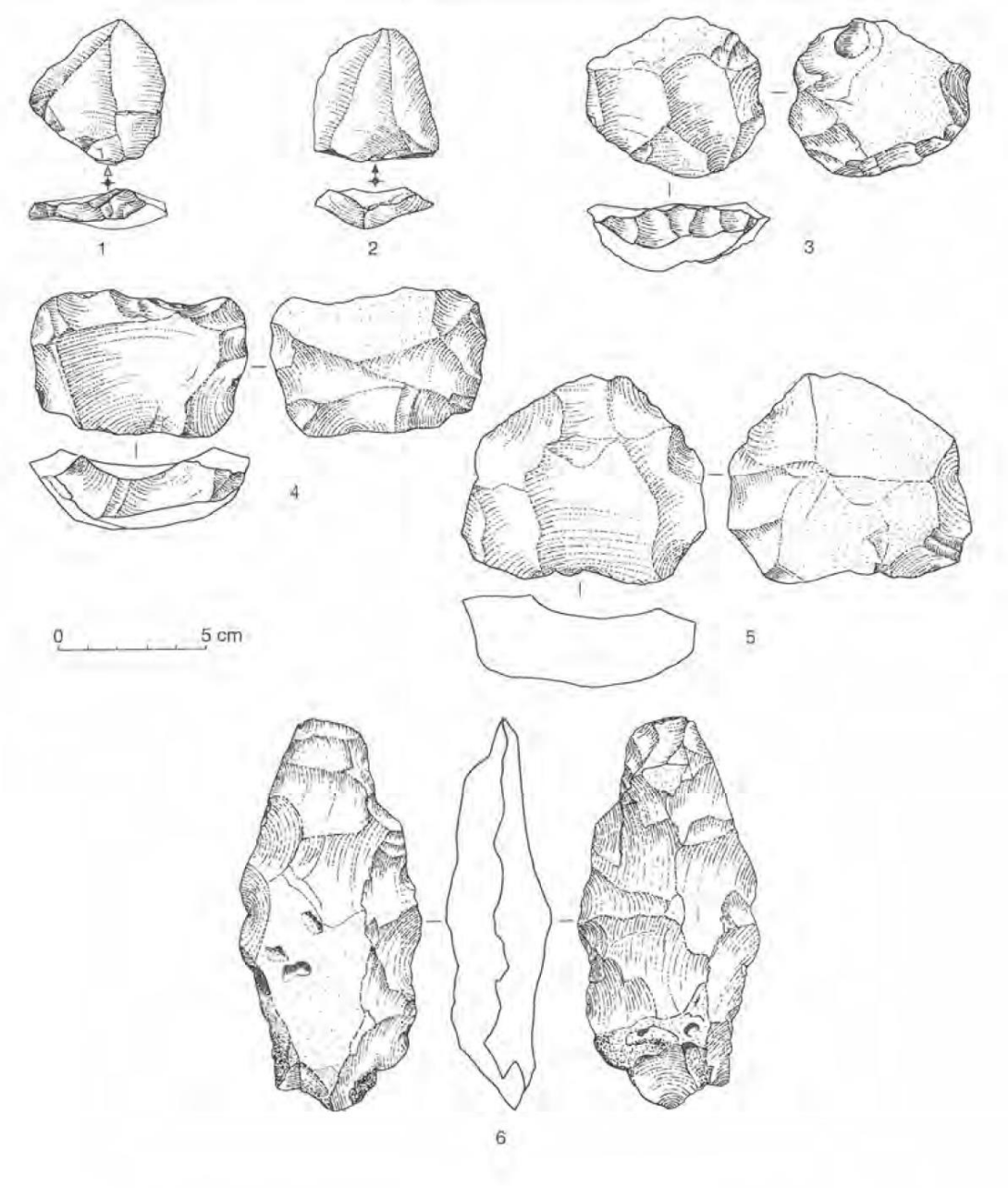

Figure 4: Early Stone Age archaeological artefacts that constitute Kavango archaeological heritage. Photo credits: (Kose & Richter, 2007:5).

The LSA occupation in Kavango region has been well documented. The LSA industry also covers the Iron Age materials and is defined by large accumulations of artefacts including: microlith industry (stone tools) later ceramic industry i.e. potteries (decorated and or undecorated), charcoal, bone

(animals) ornaments, glass beads, several blacksmith, iron and scrap metals (Richter 2005; Kose & Richter 2007). These are shown in Fig. 5 below). The distribution is the sites bearing LSA artefacts and Iron Age materials spread from the banks of Okavango River to Taratara and Khaudom areas (see Fig. 3) for locations.

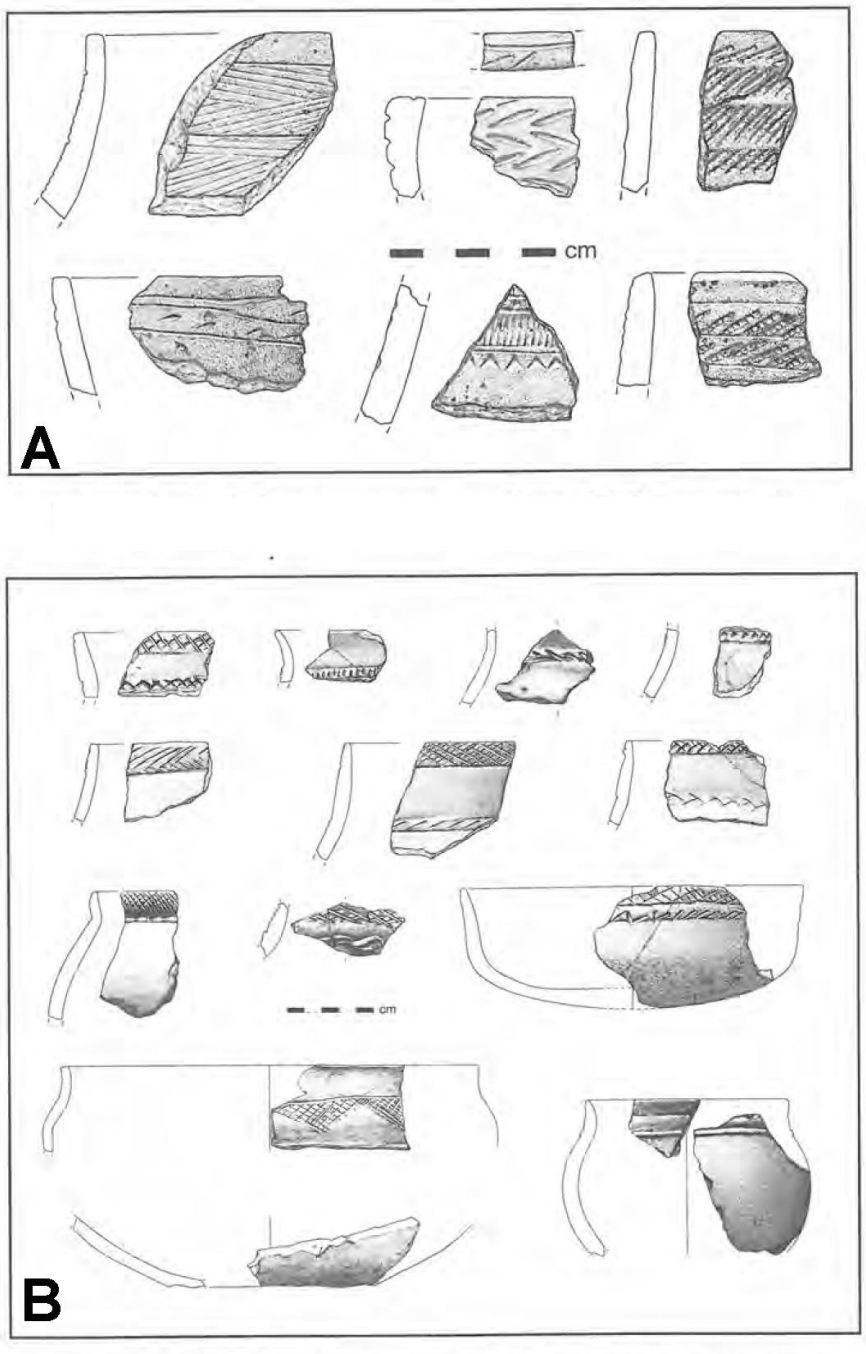

Figure 5: Image A shows the Iron Age potteries while image B below shows Late Iron Age potteries both from Kavango region

RESULTS OF DESKTOP STUDY

The desk archaeological heritage impact assessment study has only identified a group of archaeological heritage sites within the footprint of the proposed project. These are located between 12 and 28k km from proposed drilling sites and are located along the Omatako River basin between Ncaute and Taratara villages, near the drilling site 6-2, see (Fig 6 and Table 3). Additionally, a group of other sites whose quantity has not been established are also found south west of Omatako River basin. These sites will not be impacted by the proposed oil explorations development neither are they vulnerable nor sensitive. However, it cannot be ruled out that other significant archaeological evidence of pre-colonial occupation will likely be found along the tributaries of the Omatako River basin mainly due to the presence of fresh water in the immediate area.

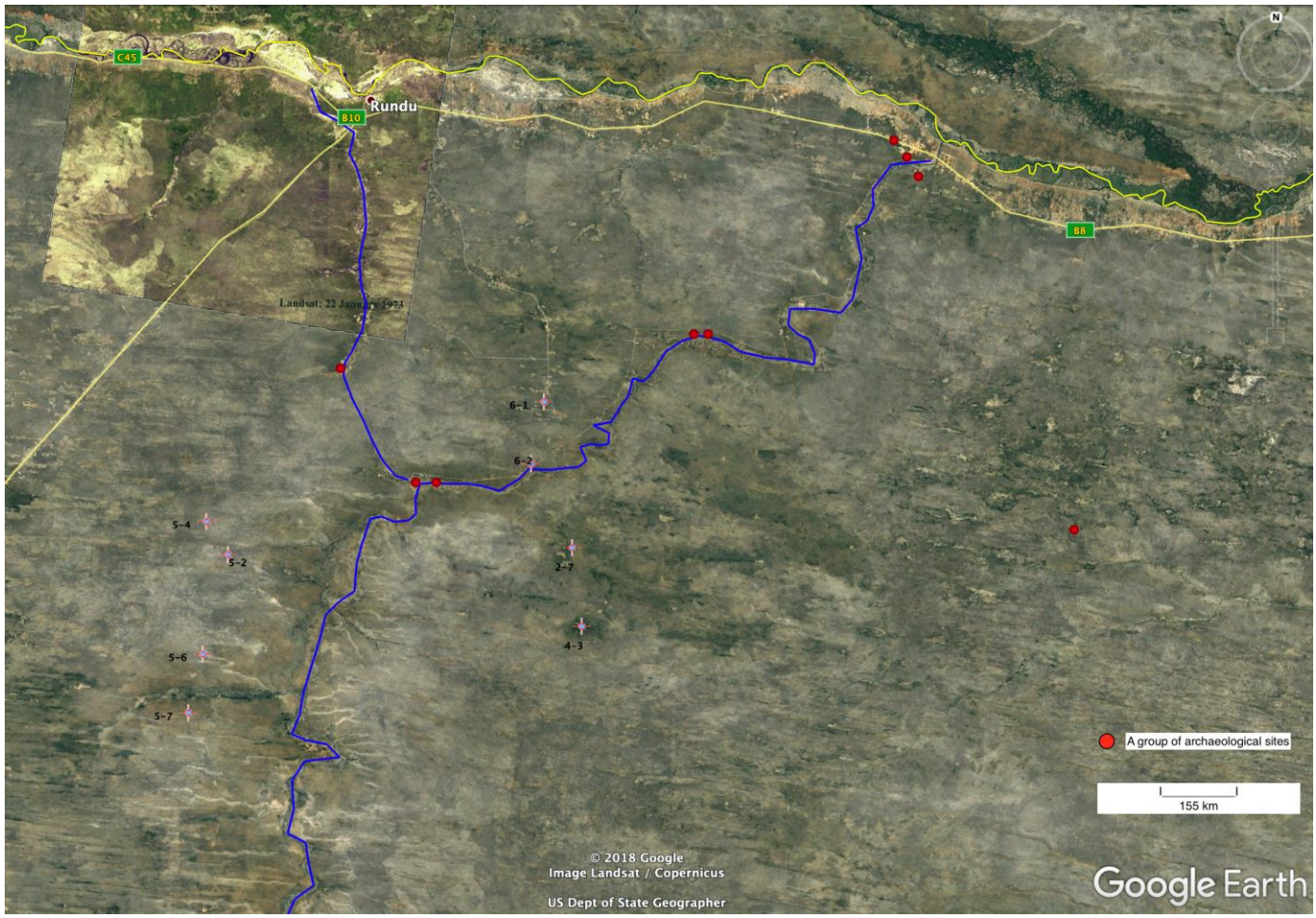

Figure 6: A group of archaeological sites (red, quantities not established) in relation to the proposed oil exploration drilling sites. The blue lines indicate the river systems from the main Okavango River.

If they do occur, the nature of anticipated archaeological materials along the Omatako river course will likely be of diagnostic nature from Late Stone Age period due to the spread of the industry in this area. However, such surface artefacts will have no archaeological values because they will likely disturbed

and in secondary depositions/context. In the unlikely event that archaeological sites are exposed during site works, the expected nature of impact would be in the form of direct physical disturbance or destruction. The expected magnitude of this impact would be LOW. Due to the fact that impacts on archaeological sites are irreversible, these would be HIGH, with a LOCAL spatial scale. The consequence of the impact would be LOCALIZED, and its significance would be LOW. The interpretation of this assessment would indicate a LOW significance, indicating that the risk of archaeological impact is so low as to have no influence on the project decision. Furthermore, this assessment has not located any historical or sacred sites in vicinity of the proposed drilling sites, but caution must be exercised since there are existing modem villages. In the case of the "no-go" alternative, no disturbance of the sites would occur at the group of identified archaeological sites and therefore the impact on archeological would not occur, and so the "no go" alternative has not been assessed here. From the cumulative impact perspective and low sensitivity of the sites, it is expected that the project will not have a negligible cumulative impact on Namibia's archeology resource base on the known archaeological sites.

The following are the GPS coordinates of the identified archaeological sites reflected in Figure 6.

Site No.	GPS location	Region	Constituency
1	18°13'54.72"S / 19°44'9.88"E	Kavango East	Mcuma/Chimpanda
2	18°21'50.17"S / 19°49'53.12"E	Kavango East	Shikambu
3	18°21'48.47"S / 19°51'24.65"E	Kavango East	Baramasono
4	18°11'1.21"S / 20°10'15.72"E	Kavango East	Baramasono
5	18°10'59.89"S / 20°11'18.68"E	Kavango East	Taratara

Table 3: List of archaeological sites identified within the footprints of the proposed project.

MANAGEMENT PROGRAM AND RECOMMENDATIONS

1. Site visit and field survey

   Due to the limited archaeological data available from the records as a result of restricted survey extension to this area and possible spread of archaeological sites along the Omatako basin due to relative homogeneity of archeology resources, the following recommendation provided below must be adopted:

   - Site visits and detailed field investigations of the area be carried out. Such field survey will establish if there is a presence or absence of visible surface indications to establish if there are sensitive archaeological heritage resources. It should take a least not more than 4 days and cover the area of about 30 km along the Omatako River System. A comprehensive field investigations for this assessment will include intensive examination of the general landscape of the sites though field transects approaches, recording the sites using conventional criteria of physical setting and heritage affinity through photography, general description and their GPS locations.

For purposes of this project, the client and contractors should be made aware of the provisions of Section 55 (4) of the National Heritage Act setting out the requirement that any sites or remains found in the course of construction and related work should be reported to the contacted archaeologist and the authorities as soon as possible. It should therefore include the standard archaeological chance finds procedure as set out below:

2. Chance Finds Procedure:

Areas of proposed oil explorations infrastructure development 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. Personnel and contractor heritage awareness training is intended to sensitize people so that they may recognize heritage "chance finds" in the course of their work. The procedure set out here covers the reporting and management of such finds.

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 person. The "chance finds" procedure is intended to ensure compliance with the relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): *" a person who discovers any archaeological object must 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 remains

B. Procedure:

Action by person (operator) identifying archaeological or heritage material

i. If operating machinery or equipment: **stop work**
ii. Identify the site with flag tape
iii. Determine GPS position if possible
iv. Report findings to foreman

C. Action by foreman

i. Report findings, site location and actions taken to superintendent
ii. Cease any works in immediate vicinity

D. Action by superintendent

i. Visit site and determine whether work can proceed without damage to findings
ii. Determine and mark exclusion boundary
iii. Site location and details to be added to Archaeological Heritage database system

E. Action by archaeologist
    i. Inspect site and confirm addition to AH database system
    ii. Advise National Heritage Council (NHC) and request a permit to remove findings from work area
    iii. Recovery, packaging and labeling of findings for transfer to National Museum

F. In the event of discovering human remains
    i. Actions as above
    ii. Field inspection by archaeologist to confirm that remains are human
    iii. Advise and liaise with NHC and Police
    iv. Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.

I hope you will find this report acceptable and look forward to your further instructions.

A.M Nankela
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