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HERITAGE ASSESSMENT AND MANAGEMENT PLAN FOR THE PROSPECTING RIGHT APPLICATION ON PORTION 1 OF THE FARM MATSAP 81, NORTHERN CAPE PROVINCE

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DECLARATION OF INDEPENDENCE

This report has been compiled by PGS Heritage (Pty) Ltd, an appointed Heritage Specialist for SLR Consulting (Africa) (Pty) Ltd. The views stipulated in this report are purely objective and no other interests are displayed in the findings and recommendations of this Heritage Impact Assessment.

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EXECUTIVE SUMMARY

PGS Heritage (Pty) Ltd (PGS) was appointed by SLR Consulting (Africa) (Pty) Ltd. (SLR) to undertake a Heritage Impact Assessment (HIA) which forms part of the Environmental Management plan for the Prospecting Right application on Portion 1 of the Farm Matsap 81, Northern Cape Province.

During the fieldwork 19 finds spots were identified consisting of 2 cemeteries, 1 Later Stone Age site, Low density stone age scatters, and historical finds including salt extraction equipment dating from the early 1900s.

Historical finds

The historical finds around the prospecting area consist of the farmstead and associated infrastructure on the werf and surround (**MS001-MS004** and **MS015-MS017**), the infrastructure and machinery associated with salt extraction (**MS009, MS010** and **MS018**) and two cemeteries (**MS008**). Some other historical man made structure occur around the dam (**MS011** and **MS013**) the use of these are unknown.

Finds associated with historical salt extraction activities include a well (**MS009**) and the associated foundations for the pump and machinery (**MS010**) in the middle of the pan. On the northern side of the pan closer to the farmstead at **MS001** the remains of an old machine (**MS018**) driving two sets of pumps for water extraction. Just to the north of the wells and pump is the remains of a few sets of low cement drying beds. These remains date as far back as 1921 as confirmed through archival research.

Cemeteries

Two definite cemeteries and two possible cemeteries were identified. A cemetery (**MS019**) consisting of 30 graves are situated to the north of the Witsand road and outside the immediate prospecting area. The cemetery is most probably associated with the farmstead at **MS001**.

Two possible graves were identified at **MS011** and **MS012**. Both structures are stone packed elongated structures, however they can also be associated with farming activities. In the absence of further information these should be treated as possible graves.

Stone Age finds

A large section of the northern periphery of the pan has been disturbed by historical activities and is seen as disturbed with no context for Stone Age material. The first finds of low-density scatters of Stone Age material occur at **MS006**. Sporadic finds of lithics (Stone Age material) continue around the pan and can be found at **MS007** and **MS014**.

Noticeable however is the absence of any Stone Age material as soon pan basin is accessed. All the Stone Age finds are in or on the periphery of the red sands to the west of the pan and the also in the pebble layers occurring on the eastern periphery of the pan at **MS014**.

The overall impact by the proposed prospecting activities on heritage resources is seen as very low. **No fatal flaws were identified** from a cultural, historical, archaeological perspective. Implementation of recommended mitigation measures will ensure that impacts by the development on chance find heritage resources will be kept to a minimum.

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1 INTRODUCTION

PGS Heritage (Pty) Ltd (PGS) was appointed by SLR Consulting (Africa) (Pty) Ltd. (SLR) to undertake a Heritage Impact Assessment (HIA) which forms part of the Environmental Management plan for the Prospecting Right application on Portion 1 of the Farm Matsap 81, Northern Cape Province.

1.1 Scope of the Study

The aim of the study is to identify possible heritage sites and finds that may occur in the proposed prospecting area. The HIA aims to assist in the development of a comprehensive Environmental Management Plan (EMP) to assist the prospecting company in managing the identified heritage resources in a responsible manner in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

1.2 Specialist Qualifications

This HIA was compiled by PGS. The staff at PGS have a combined experience of nearly 70 years in the heritage consulting industry and have extensive experience in managing HIA processes. PGS will only undertake heritage assessment work where its staff has the relevant expertise and experience to undertake that work competently.

Wouter Fourie, Principal Investigator for this project, is an Accredited Heritage Practitioner with the APHP (Association of Professional Heritage Practitioners – Western Cape) and is registered with the Association of Southern African Professional Archaeologists (ASAPA) and has CRM accreditation within the said organisation.

1.3 Assumptions and Limitations

Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage sites located during the fieldwork do not necessarily represent all the heritage sites present within the area. Should any heritage features or objects not included in the inventory be located or observed, a heritage specialist must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way, until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well.

The fieldwork focussed on the area earmarked for prospecting, which is in the Matsap pan itself. The fieldwork did not cover the larger extent of the application area, as prospecting will be limited to sections of the pan.

1.4 Legislative Context

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

- i. National Environmental Management Act (NEMA) Act 107 of 1998
- ii. National Heritage Resources Act (NHRA) Act 25 of 1999
- iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

- i. National Environmental Management Act (NEMA) Act 107 of 1998
 - a. Basic Environmental Assessment (BEA) – Section (23)(2)(d)
 - b. Environmental Scoping Report (ESR) – Section (29)(1)(d)
 - c. Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
 - d. EMP (EMP) – Section (34)(b)
- ii. National Heritage Resources Act (NHRA) Act 25 of 1999
 - a. Protection of Heritage Resources – Sections 34 to 36; and
 - b. Heritage Resources Management – Section 38
- iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
 - a. Section 39(3)

The NHRA stipulates that cultural heritage resources may not be disturbed without authorization from the relevant heritage authority. Section 34(1) of the NHRA states that, “no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority...”. The NEMA (No 107 of 1998) states that an integrated EMP should (23:2 (b)) “...identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage”. In accordance with legislative requirements and EIA rating criteria, the regulations of SAHRA and ASAPA have also been incorporated to ensure that a comprehensive and legally compatible HIA report is compiled.

1.5 Terminology and Abbreviations

Archaeological resources

- i. 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;
- ii. 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 a 10m buffer area;
- iii. 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 in the Maritimes Zones Act, 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;
- iv. features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic, technological value or significance.

Development

This means any physical intervention, excavation or action other than those caused by natural forces, which may according to the heritage agency result in a change to the nature, appearance or physical nature of a place or influence its stability & future well-being, including:

- i. construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- ii. carrying out any works on or over or under a place;
- iii. subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- iv. constructing or putting up for display signs or boards;
- v. any change to the natural or existing condition or topography of land; and
- vi. any removal or destruction of trees, or removal of vegetation or topsoil

Fossil

Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage

That which is inherited and forms part of the National Estate (historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).

Heritage resources

This means any place or object of cultural significance

Later Stone Age

The archaeology of the last 20 000 years, associated with fully modern people.

Late Iron Age (Early Farming Communities)

The archaeology of the last 1000 years up to the 1800's associated with ironworking and farming activities such as herding and agriculture.

Middle Stone Age

The archaeology of the Stone Age, dating to between 20 000-300 000 years ago, associated with early modern humans.

Palaeontology

Any fossilised remains or fossil trace of animals or plants which lived in the geological past and any site which contains such fossilised remains or trace.

Table 1 - Abbreviations

ABBREVIATIONS	DESCRIPTION
AIA	Archaeological Impact Assessment
ASAPA	Association of Southern African Professional Archaeologists
BAR	Basic Environmental Report
CMP	Conservation Management Plan
CRM	Cultural Resource Management
DWA	Department of Water Affairs
EIA	Environmental Impact Assessment
EMPR	Environmental Management Programme Report
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
LIA	Late Iron Age
LSA	Later Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act
PGS	PGS Heritage
PHRA	Provincial Heritage Resources Authority
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System

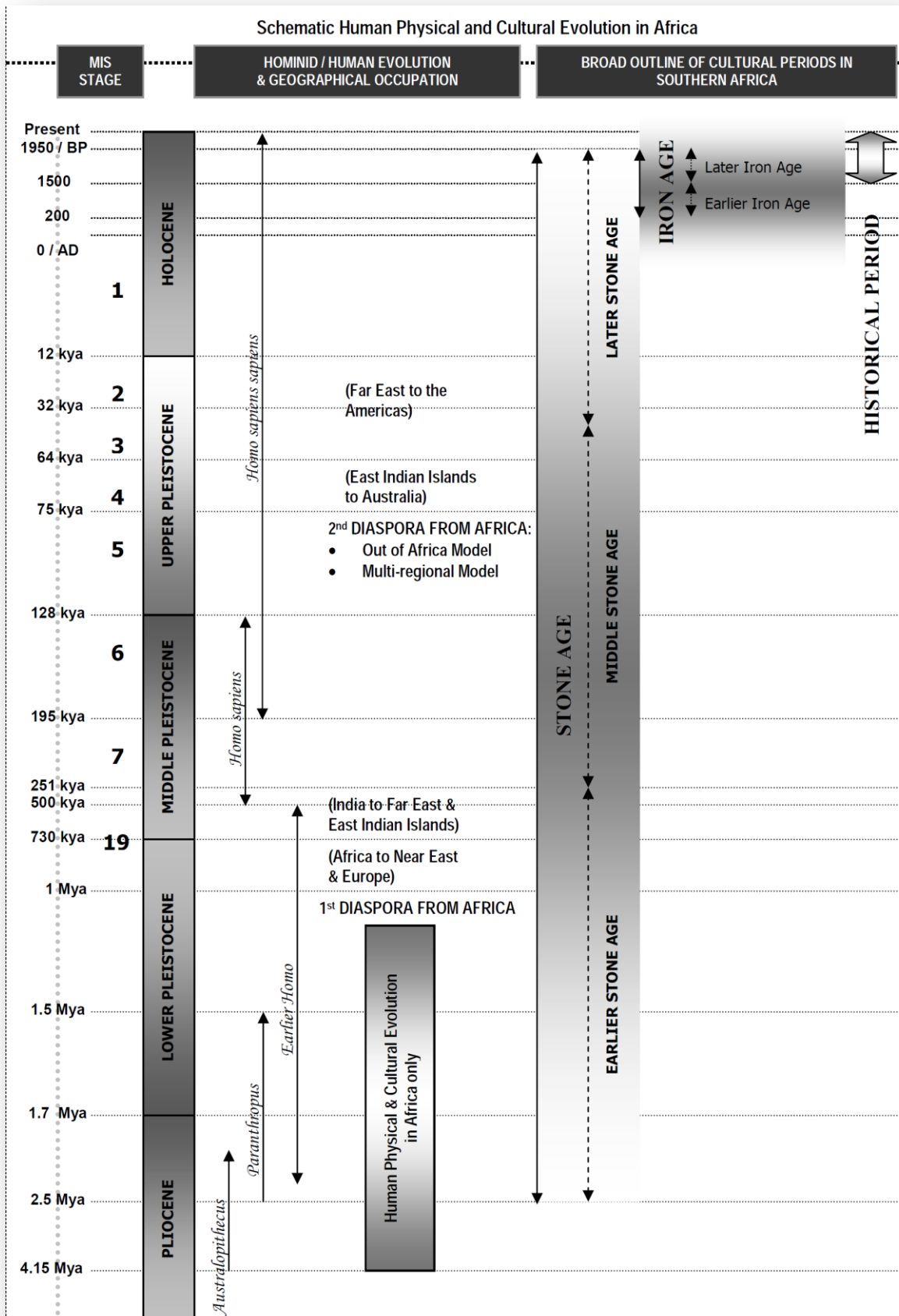


Figure 1 – Human and Cultural Time line in Africa (Morris, 2008)

2 TECHNICAL DETAILS OF THE PROJECT

2.1 Site Location and Description

Description	
Coordinates	The centre of the Matsap pan is located at E22.78445 S28.6777
Location	It is proposed that the prospecting operations be undertaken on Portion1 of the Farm Matsap 81 (referred to as the 'project area') which is located within the Siyancuma Local Municipality which forms part of the Pixley Ka Seme District Municipality within the Northern Cape Province (see Figure 2). The project area lies approximately 47 km southwest of the town of Postmasburg and is accessed from the R383 between Postmasburg and the N8 road.
Extent	Each of the sites earmarked for drilling is set out to be 10x10 meters, with the single camp site for the extent of the prospecting 15x15 meters
Land Description	The land use in the surrounding area is characterised mostly by vacant natural veld, which is used as grazing land for livestock and possibly as a water source for grazing activities. The pan is sparsely vegetated.

2.2 Technical Project Description

This prospecting right EMP caters for ten boreholes (Figure 3). The proposed prospecting programme involves both non-invasive and invasive prospecting methods. Phase 1 and 2 will have a duration of approximately 18 months each and will involve inferred drilling (percussion) of 5 holes per phase to depths of 50 m. All boreholes have been positioned immediately adjacent existing tracks. New tracks will only be constructed as a last resort and in consultation with the landowner. Temporary mobile accommodation and chemical ablution facilities for contractors will also be constructed. A drilling team of between 4 and 6 people are likely to be accommodated on site in caravans. The prospecting sites will be demarcated using temporary fencing. Phase 3 is non-invasive and will consist of a prefeasibility phase and will have a duration of approximately 2 years.

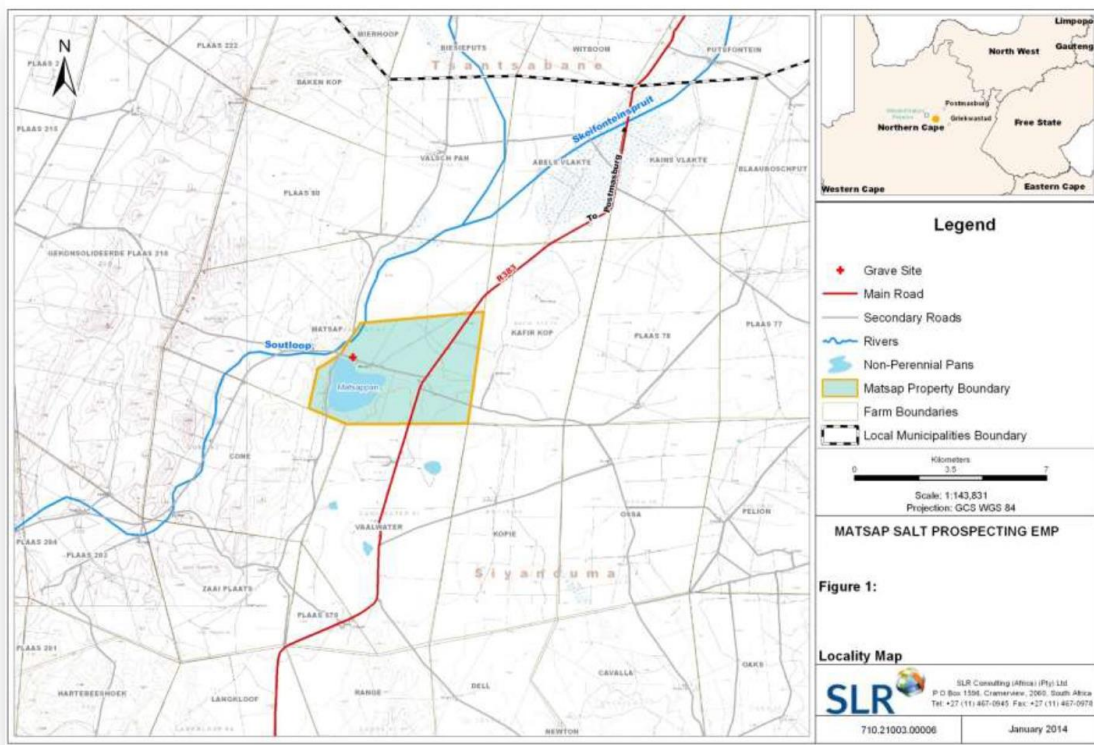


Figure 2 – The study area within its regional context (SLR Consulting 2015)

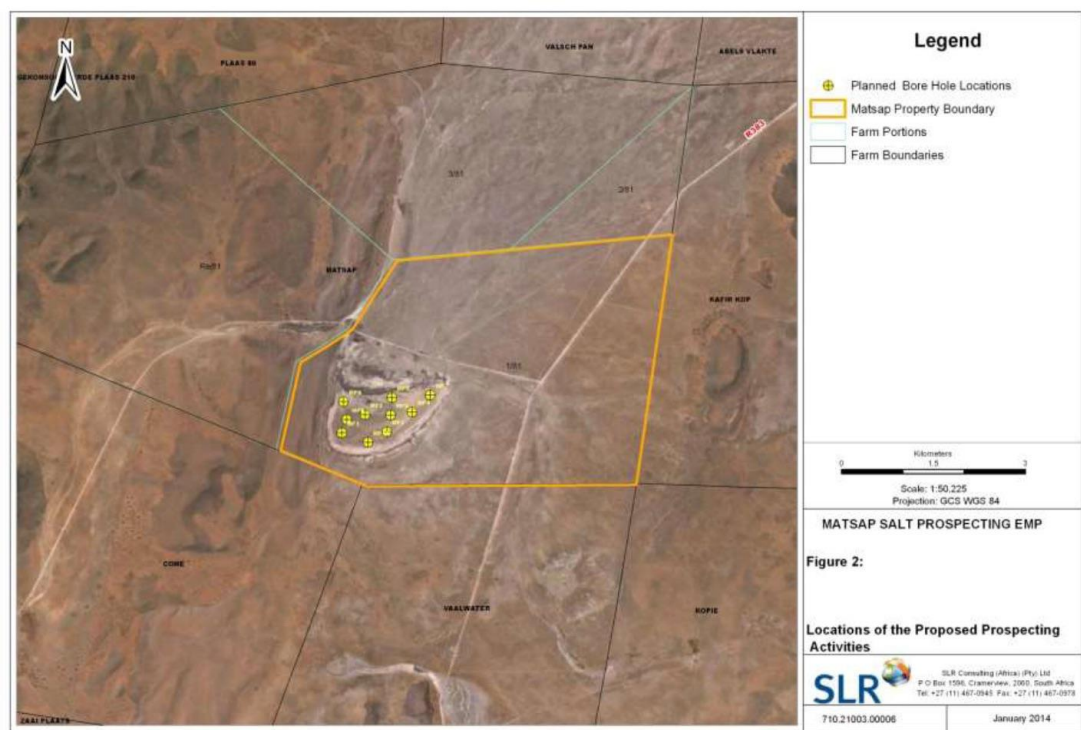


Figure 3 - Position of drill sites (SLR Consulting 2015)

3 ASSESSMENT METHODOLOGY

3.1 Methodology for Assessing Heritage Site Significance

This report was compiled by PGS Heritage for the Matsap prospecting application. The applicable maps, tables and figures are included as stipulated in the NHRA (no 25 of 1999) and the National Environmental Management Act (NEMA) (no 107 of 1998). The HIA process consisted of three steps:

Step I – Literature Review: The background information to the field survey leans greatly on the archival and historical cartographic material assessed as part of the study as well as a study of the available literature.

Step II – Physical Survey: A physical survey was conducted over one day on Thursday 24 July 2014. The survey was undertaken by a team comprising an archaeologist and project assistant and was undertaken on foot and in a 4x4 vehicle.

Step III – Report: The final step involved the recording and documentation of relevant heritage resources, as well as the assessment of resources regarding the heritage impact assessment criteria and report writing, as well as mapping and recommendations.

The significance of heritage sites was based on five main criteria:

- site integrity (i.e. primary vs. secondary context),
- amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter)
 - Low - <10/50m²
 - Medium - 10-50/50m²
 - High - >50/50m²
- uniqueness and
- potential to answer present research questions.

3.1.1 Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report (see **Table 2**).

Table 2 - Site significance classification standards as prescribed by SAHRA

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	Grade 4A	High/Medium	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium	Recording before destruction
Generally Protected C (GP.C)	Grade 4C	Low	Destruction

3.2 Methodology for Impact Assessment

In order to ensure uniformity, a standard impact assessment methodology has been utilised so that a wide range of impacts can be compared. The impact assessment methodology makes provision for the assessment of impacts against the following criteria:

- Significance;
- Spatial scale;
- Temporal scale;
- Probability; and
- Degree of certainty.

A combined quantitative and qualitative methodology was used to describe impacts for each of the afore-mentioned assessment criteria. A summary of each of the qualitative descriptors, along with the equivalent quantitative rating scale for each of the aforementioned criteria, is given.

Table 3 - Quantitative rating and equivalent descriptors for the impact assessment criteria

RATING	SIGNIFICANCE	EXTENT SCALE	TEMPORAL SCALE
1	VERY LOW	<i>Isolated site / proposed corridor</i>	<u>Incidental</u>
2	LOW	<i>Study area</i>	<u>Short-term</u>
3	MODERATE	<i>Local</i>	<u>Medium-term</u>
4	HIGH	<i>Regional / Provincial</i>	<u>Long-term</u>
5	VERY HIGH	<i>Global / National</i>	<u>Permanent</u>

A more detailed description of each of the assessment criteria is given in the following sections.

3.2.1 Significance Assessment

The significance rating (importance) of the associated impacts embraces the notion of extent and magnitude, but does not always clearly define these, since their importance in the rating scale is very relative. For example, 10 structures younger than 60 years might be affected by a proposed development, and if destroyed the impact can be considered as VERY LOW in that the structures are all of Low Heritage Significance. If two of the structures are older than 60 years and of historic significance, and as a result of High Heritage Significance, the impact will be considered to be HIGH to VERY HIGH.

A more detailed description of the impact significance rating scale is given in **Table 4** below.

Table 4 - Description of the significance rating scale

RATING	DESCRIPTION
5	VERY HIGH Of the highest order possible within the bounds of impacts which could occur. In the case of adverse impacts: there is no possible mitigation and/or remedial activity which could offset the impact. In the case of beneficial impacts, there is no real alternative to achieving this benefit.
4	HIGH Impact is of substantial order within the bounds of impacts which could occur. In the case of adverse impacts: mitigation and/or remedial activity is feasible but difficult, expensive, time-consuming or some combination of these. In the case of beneficial impacts, other means of achieving this benefit are feasible but they are more difficult, expensive, time-consuming or some combination of these.
3	MODERATE Impact is real but not substantial in relation to other impacts, which might take effect within the bounds of those which could occur. In the case of adverse impacts: mitigation and/or remedial activity are both

		feasible and fairly easily possible. In the case of beneficial impacts: other means of achieving this benefit are about equal in time, cost, effort, etc.
2	LOW	Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts: mitigation and/or remedial activity is either easily achieved or little will be required, or both. In the case of beneficial impacts, alternative means for achieving this benefit are likely to be easier, cheaper, more effective, less time consuming, or some combination of these.
1	VERY LOW	Impact is negligible within the bounds of impacts which could occur. In the case of adverse impacts, almost no mitigation and/or remedial activity is needed, and any minor steps which might be needed are easy, cheap, and simple. In the case of beneficial impacts, alternative means are almost all likely to be better, in one or a number of ways, than this means of achieving the benefit. Three additional categories must also be used where relevant. They are in addition to the category represented on the scale, and if used, will replace the scale.
0	NO IMPACT	There is no impact at all - not even a very low impact on a party or system.

3.2.2 Spatial Scale

The spatial scale refers to the extent of the impact i.e. will the impact be felt at the local, regional, or global scale. The spatial assessment scale is described in more detail in **Table 5**.

Table 5 - Description of the spatial significance rating scale

RATING		DESCRIPTION
5	Global/National	The maximum extent of any impact.
4	Regional/Provincial	The spatial scale is moderate within the bounds of possible impacts, and will be felt at a regional scale (District Municipality to Provincial Level). The impact will affect an area up to 50 km from the proposed site / corridor.
3	Local	The impact will affect an area up to 5 km from the proposed site.
2	Study Area	The impact will affect an area not exceeding the boundary of the study area.
1	Isolated Sites / proposed corridor	The impact will affect an area no bigger than the site.

3.2.3 Temporal/Duration Scale

In order to accurately describe the impact, it is necessary to understand the duration and persistence of an impact in the environment.

The temporal or duration scale is rated according to criteria set out in **Table 6**.

Table 6 - Description of the temporal rating scale

RATING		DESCRIPTION
1	Incidental	The impact will be limited to isolated incidences that are expected to occur very sporadically.
2	Short-term	The environmental impact identified will operate for the duration of the construction phase or a period of less than 5 years, whichever is the greater.
3	Medium-term	The environmental impact identified will operate for the duration of life of the project.
4	Long-term	The environmental impact identified will operate beyond the life of operation of the project.
5	Permanent	The environmental impact will be permanent.

3.2.4 Degree of Probability

The probability or likelihood of an impact occurring is outlined in **Table 7** below.

Table 7 - Description of the degree of probability of an impact occurring

RATING	DESCRIPTION
1	Practically impossible
2	Unlikely
3	Could happen
4	Very likely
5	It's going to happen / has occurred

3.2.5 Degree of Certainty

As with all studies, it is not possible to be 100% certain of all facts, and for this reason a standard “degree of certainty” scale is used, as discussed in

Table 8. The level of detail for specialist studies is determined according to the degree of certainty required for decision-making.

Table 8 - Description of the degree of certainty rating scale

RATING	DESCRIPTION
Definite	More than 90% sure of a particular fact.
Probable	Between 70 and 90% sure of a particular fact, or of the likelihood of that impact occurring.
Possible	Between 40 and 70% sure of a particular fact, or of the likelihood of

	an impact occurring.
Unsure	Less than 40% sure of a particular fact or the likelihood of an impact occurring.
Can't know	The consultant believes an assessment is not possible even with additional research.

3.2.6 Quantitative Description of Impacts

To allow for impacts to be described in a quantitative manner, in addition to the qualitative description given above, a rating scale of between 1 and 5 was used for each of the assessment criteria. Thus the total value of the impact is described as the function of significance, spatial and temporal scale, as described below:

$$\text{Impact Risk} = \frac{(\text{SIGNIFICANCE} + \text{Spatial} + \text{Temporal}) \times \text{Probability}}{3 \times 5}$$

An example of how this rating scale is applied is shown below:

Table 9 - Example of Rating Scale

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	Low	Local	Medium Term	Could Happen	Low
Impact on heritage structures	2	3	3	3	1.6

Note: The significance, spatial and temporal scales are added to give a total of 8, which is divided by 3 to give a criterion rating of 2.67. The probability (3) is divided by 5 to give a probability rating of 0.6. The criteria rating of 2.67 is then multiplied by the probability rating (0,6) to give the final rating of 1,6.

The impact risk is classified according to five classes as described in the table below.

Table 10 - Impact Risk Classes

RATING	IMPACT CLASS	DESCRIPTION
0.1 – 1.0	1	Very Low
1.1 – 2.0	2	Low
2.1 – 3.0	3	Moderate
3.1 – 4.0	4	High
4.1 – 5.0	5	Very High

Therefore, with reference to the example used for heritage structures above, an impact rating of 1.6 will fall in the Impact Class 2, which will be considered to be a low impact.

4 DESKTOP STUDY FINDINGS

4.1 Historic Overview of Study Area and Surrounding Landscape

The extent of the background research is limited to information available on SAHRIS and not an extensive background research.

4.1.1 Previous Heritage and Archaeological Impact Assessment Reports

A search of the SAHRIS database (SA Heritage Resources Information System) located no previous Heritage and Archaeological Impact Assessment Reports in close vicinity to the study area.

4.1.2 Archaeology

Stone Age

The Early inhabitants of Griqualand, both west and east, were the San people historically referred to as the Bushmen. Henderson (2000) describes some of the empirical evidence that points to the presence of the San people in the interior regions of South Africa. Among the things Henderson describes are the stone tool scatter and rock engravings near water course and/or sources such as springs; engravings are also noted as a common feature in small Koppies that define the landscape of the interior regions of South Africa.

Such evidence is corroborated with finds made in the study area in a study conducted in the survey area in 2010 by Webley. The fieldwork found concentrations of Stone Age material around the dry pans close to the study area

Other material culture found in the region that point to the presence of San people in the region include remains of ostrich shell-beads and ostrich egg-shell that were used by the San people to carry water and as drinking vessels. James Backhouse (1844), describing his journey to Klaarwater (modern-day Griquatown) in 1839, notes stopping at Spuigslang Fountain where he observed Bushmen women and their children coming to the fountain for water using egg-shell for bottles and vessels. Henderson

identifies the same localities in her 2000 report namely 'Spuigslang Fountain' and the 'Farm Spoedaan' in the Hay District. The similar egg-shell remains that Backhouse notes to have seen being used by the Bushmen women and children have been found in the area south-east of Hay District (Henderson, 2000).

General consensus between archaeologists working in the Northern Cape is that archaeological remains are mostly grouped around water sources (river systems, springs and pans) and other geographical structures such as ranges of hills or shelters found in broken country. These observations by various archaeologists in the 1970-1990, have been corroborated by more recent archaeological surveys for developments such as PGS (2009-2010), Webley & Halkett (2008), Webley et al. (2010), Webley & Halkett (2010), Morris (2008, 2010) and, Van Reyneveld (2005).

Archaeological excavations done at two specularite mines Doornfontein (Beaumont & Boshier, 1974) and Blinkklipkop (Thackery & Beaumont, 1983) produced artefacts and radiocarbon data dating back to 800 AD. The data also reflects an occupation from around 800AD up to around 1850AD, with glass beads, metal items indicating European contact in the upper layers.

A recent publication refers to the camps site of a well know amateur archaeologist in the 1930s that was located at Matsap. J.A Swan was a well know amateur archaeologist that travelled Southern Africa and collected archaeological specimens that he donated to the British museum (Stevenson, 2012). Swan donated in the region of 3000 specimens to the British museum over the course of his lifetime. Artefacts from Matsap are listed in the museum catalogue (Mitchel, 2002).

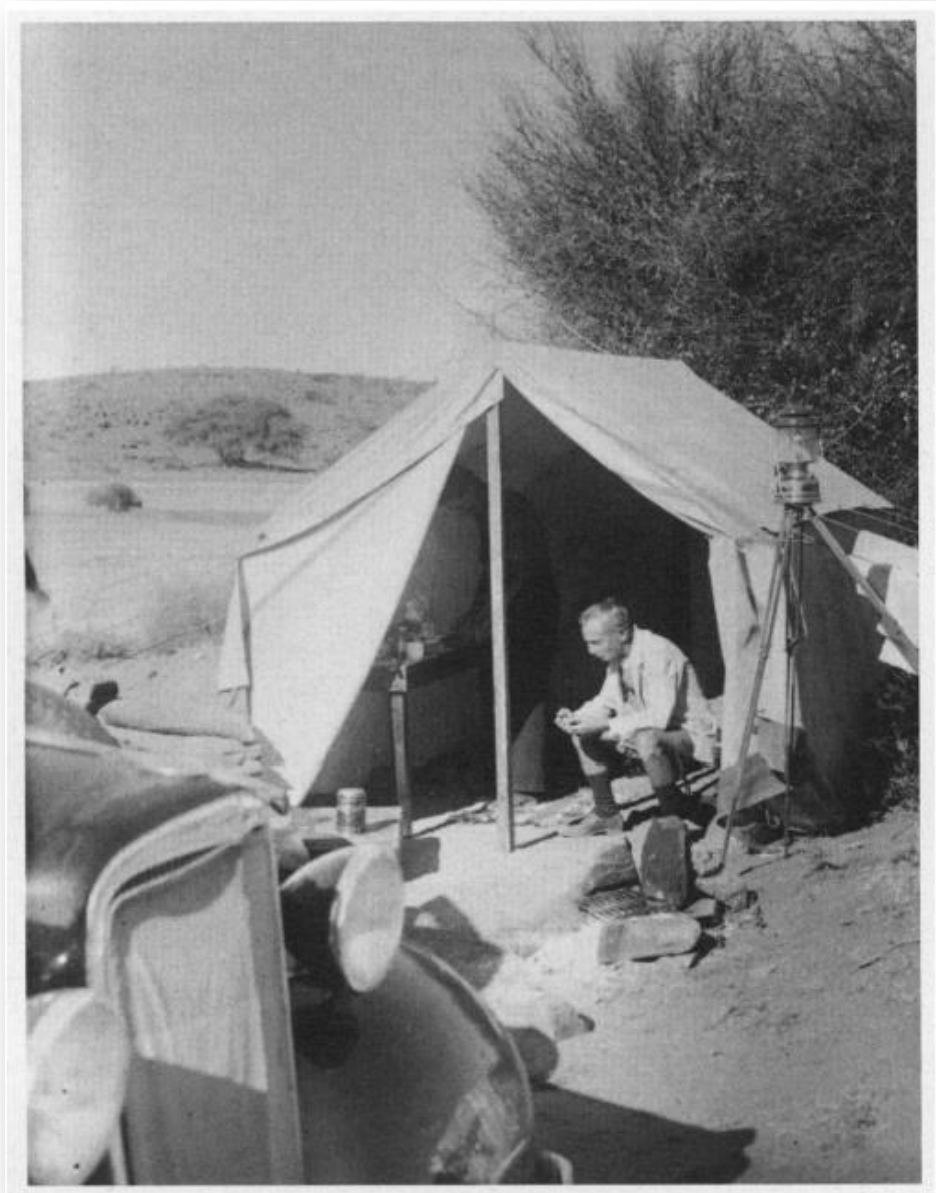


Figure 4 – James Swan at his campsite at Matsap in 1932 (Stevenson, 2012)

Iron Age

Iron Age expansion southwards past Kuruman in to the Ghaap plato and towards Postmasburg is dated to the 1600's (Humphreys, 1976 and Thackeray, 1983). Definite dates for Tswana presense in the Postmasburg area are around 1805 when Lichtenstein visited the area and noted the mining activities of the Tswana (probably the Thlaping) tribes in the area.

The area of Danielskuil was named by the Thlaro as *Thlaka la tlou* (reeds of the elephant) and with the Thlaping they settled the area from Campbell in the east to Postmasburg and towards the Langeberg close to Olifantshoek in the west before 1770 (Snyman, 1988) (Figure 5).

The Korana expansion after 1770 started to drive the Thlaro and Thlaping further north towards Kuruman (Shillington, 1985).

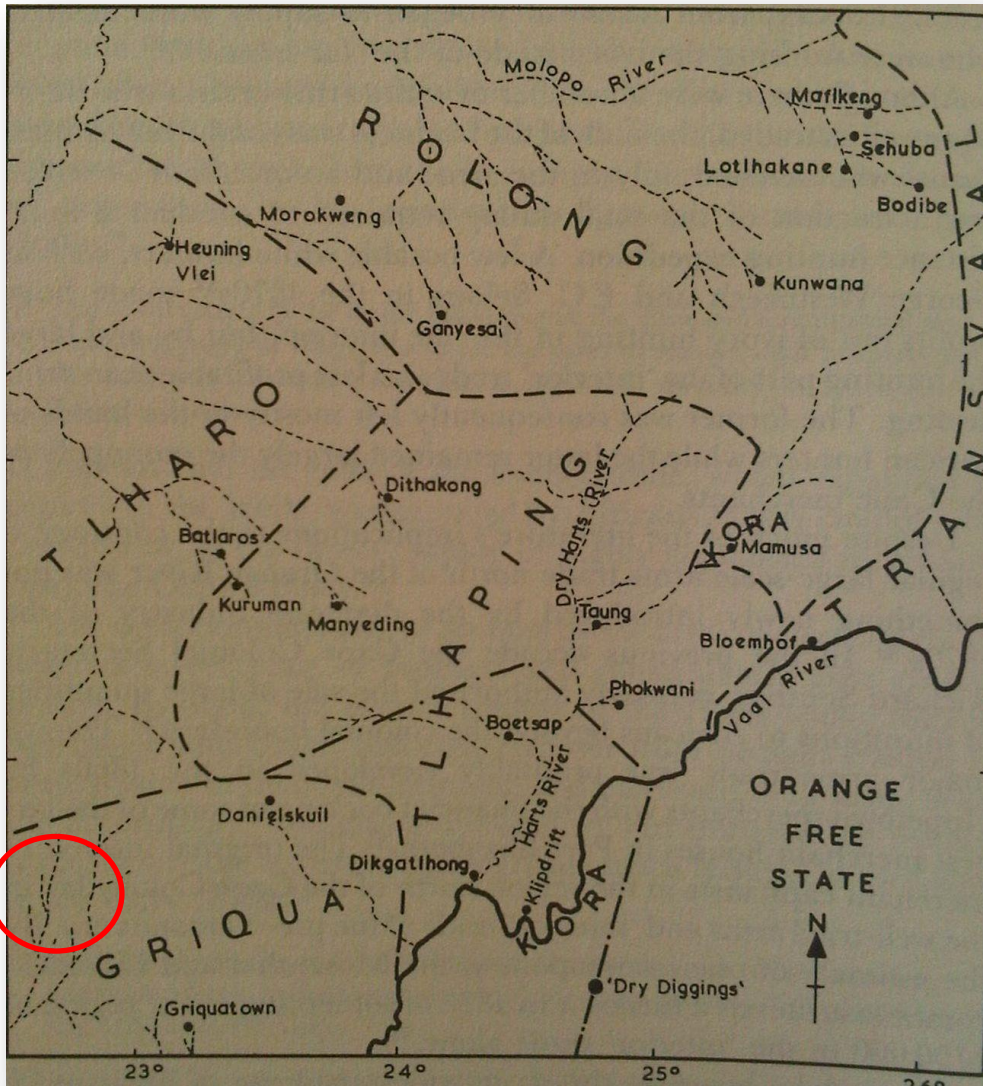


Figure 5: Thlaping and Thlaro areas of residence, 1800-1870

Post 1800's

Ouzman (2005) traces the Korana to what he calls “pre-colonial Kora” in the Cape Province and their father (of “frontier Korana”) to James Bloem, a ‘white’ Prussian from Thuringa who immigrated to the Cape in 1780, escaping to Namaqualand after accusations of murdering his wife.

4.1.3 Historical Context

Below we trace the formation of the Griqua nation and the establishment and the development of Griqualand in order to observe the evolution of the cultural landscape of Hay District where our study site is located.

The Formation of the Griqua Nation and the Establishment of Griqualand

The establishment of Griqualand, now characterised by Griquatown (south-west) and Campbell (south-east of the study area) and Daniëlskuil (Griqualand West) among the popular towns of Griqualand came about with the trekking of the so called ‘Bastaards’- a name that acknowledges multiple ethnogenesis (Ross, 1976) in Ouzman (2005) and ‘....other lesser privileged inhabitants from the Cape Colony during a period when their rights to land and livestock were being eroded in Cape Colony’ (Cronje, 2006). In the Cape they had been conscripted to serve in the commandos established by the Cape Government. Not incline to conscription, and possibly other laws of the Cape Colony they decided; under the leadership of Adam Kok I (1710-1795)(**Figure 6**), to trek (emigrate) to the interior regions of the country; in the processes occupying areas of land in the Orange River region.

It is here that in the second half of the 18th century Adam Kok I and his followers became dominant inhabitants of the region. However, following his emancipation in the mid-18th century, Kok I is suggested to have moved to the area immediate of Piketberg where in 1751 he acquired grazing rights to a farm, Stinkfontein, from the Dutch East India Company. It is here that a number of Khoi (Hottentots) descents, namely the Goringhaiqua and the Namaqua and some ‘Bastaards’ attached to Adam Kok I group first established themselves. Adam Kok I possibly got married to the daughter of the Xarixuriqua chief; a move that could have potentially strengthen his hold and enhanced his status among his group and followers as the leader of the newly formed nation to be later called, the Griqua’s (circa. 1813).

Adam Kok I initiated longstanding relations between himself, his successors and the administrators of the Cape Colony; in the process attracting either official support and/or sanctions (Cronje, 2006). This led to his recognition by the Cape Colony as the headman over the Khoi in the region, subsequently assuming the title of a chief or captaincy, Kaptyn as referred to in the Affairs of the Cape of Good Hope, 1871. His stay in the area did not last long as they had to move to the Kamiesberg area to escape increasing pressure and encroachment by the farmers who were moving west coast of the Cape Colony in their search for new lands for grazing and cultivation. Access to water sources also played a significant role in this encroachment.



Figure 6: Adam Kok I

Another resettlement by Kok and his group took place when he sent his son, Cornelius I, to explore the area along the Orange River; during this process several cattle posts were established for grazing purposes. Cronje (2006) suggests that, “in the course of time they increasingly adopted the Cape Dutch language but gave it their own idiom”; this became the language for the Griqua people. This is important because language is a defining trait of any nation and many Griqua people still speak Afrikaans to this day. However, the identity politics and rights to land of this newly formed nation did not end there as they continued for many generations to come which included periods of contestation for chieftainship and land between and among the Griqua’s and many other nations, both ‘black’ and ‘white’.

These contestations were pertinent in the period after Kok I stepped down as the chief of the Griqua people in Campbell, relinquishing his powers as chief to his son Cornelius Kok I. At the same time Adam Kok II (in Griquatown in 1816) was elected by London Missionary Society (LMS) as the overall chief in Griquatown.

The LMS tried to persuade the Griqua to abolish their hereditary leadership in favour of elected officials. Kok and Barend Barends did not take well to this proposed practice and moved away with their followers –Kok to Campbell and Barends to Daniëlskuil (Snyman, 1988).

The San residing at Daniëlskuil was not impressed with the new arrivals and a period of conflict resulted between Barends' Griqua and the local San inhabitants. This continued until 1820 when Jager Afrikaner (San representative) and Barends proclaimed a truce. The Griqua stayed fairly autonomous up to 1860 after which landowner's right and the expansion of the colonial empire started to encroach on their land.

In the 1860's this dispute of ownership of the Campbell lands and the surrounding areas between the Orange Free State and the Zuid Afrikaansche Republiek of the Transvaal on the one hand and Waterboer supported by the Cape Government on the other resulted in the eventual demise of the Griqua territory.

“The basis of Free State claims to the Campbell lands was the deed of sale dated December 1861 signed by Henry Harvey who purported to be the authorised agent of Adam Kok III” (Cronje, 2006). Meaning that Kok III had sold land to the Orange Free State without consulting with Waterboer, a process which had been negated by Sir Cathcart's devaluation of the treaty that had been signed earlier between Andries Waterboer and D'Urban. In the process Henry Harvey had also sold land of Kok III which did not belong to the Griqua government seated in Philippolis. Fires of these land claim sagas were propelled further when diamond fields were discovered in the region.

This led to the 1871 discussion between Barkly (who had personally visited the area and the newly discovered diamond fields at Kimberley), the Presidents of the Orange Free State and the Zuid Afrikaansche Republiek to submit the border dispute with Waterboer to arbitration.

This process of border negotiation and arbitration ended with the 1871 declaration by Barkly (who had acceded to Waterboer's request) of Griqualand West as a British territory. This resulted in the division of Griqualand into Western and the Eastern parts.

By 1880 the whole of Griqualand West was under Cape rule and numerous locations were set aside for the Southern Tswana. The locations furthest to the west were those of Daniëlskuil, Groenwater, Blinklip and Skeifontein (Shillington, 1985).

The Hay district

The Hay district is named after Lieutenant- General Charles Craufurd Hay. C.C. Hay was Lieutenant-General and Acting Governor of the Cape Colony in 1870. Hay was born 1809 and passed away in 1873 on the Isle of Wight. Hay accepted the position of lieutenant-general at the Cape on 25 January 1869, when Sir Philip Wodehouse left the Cape. Hay then acted as Governor and High Commissioner from 20 May until 31 December 1870.

During these months he resided over the dispute of the Griekwa Chief Nicolaas Waterboer and the Free State Government. Hay accepted Waterboer's Claims and championed his cause against the Free State government that proclaimed the Campbell Lands as Free State Territory.

His protracted handling of the situation lead to numerous treaties after him stepping down as Acting Governor and leaving South Africa to settle on the Isle of Wight. (Standard Encyclopaedia of Southern Africa).

4.2 Palaeontology

A palaeontological assessment is not part of the scope of this assessment, however a search on SAHRIS's palaeontological sensitivity mapping (**Figure 7**) indicates that a palaeontological desktop assessment will be required for the project. It was however determined by SAHRA that no palaeontological assessment would be required as it is unlikely that prospecting will have an impact on palaeontological resources (Refer to **Appendix C**)

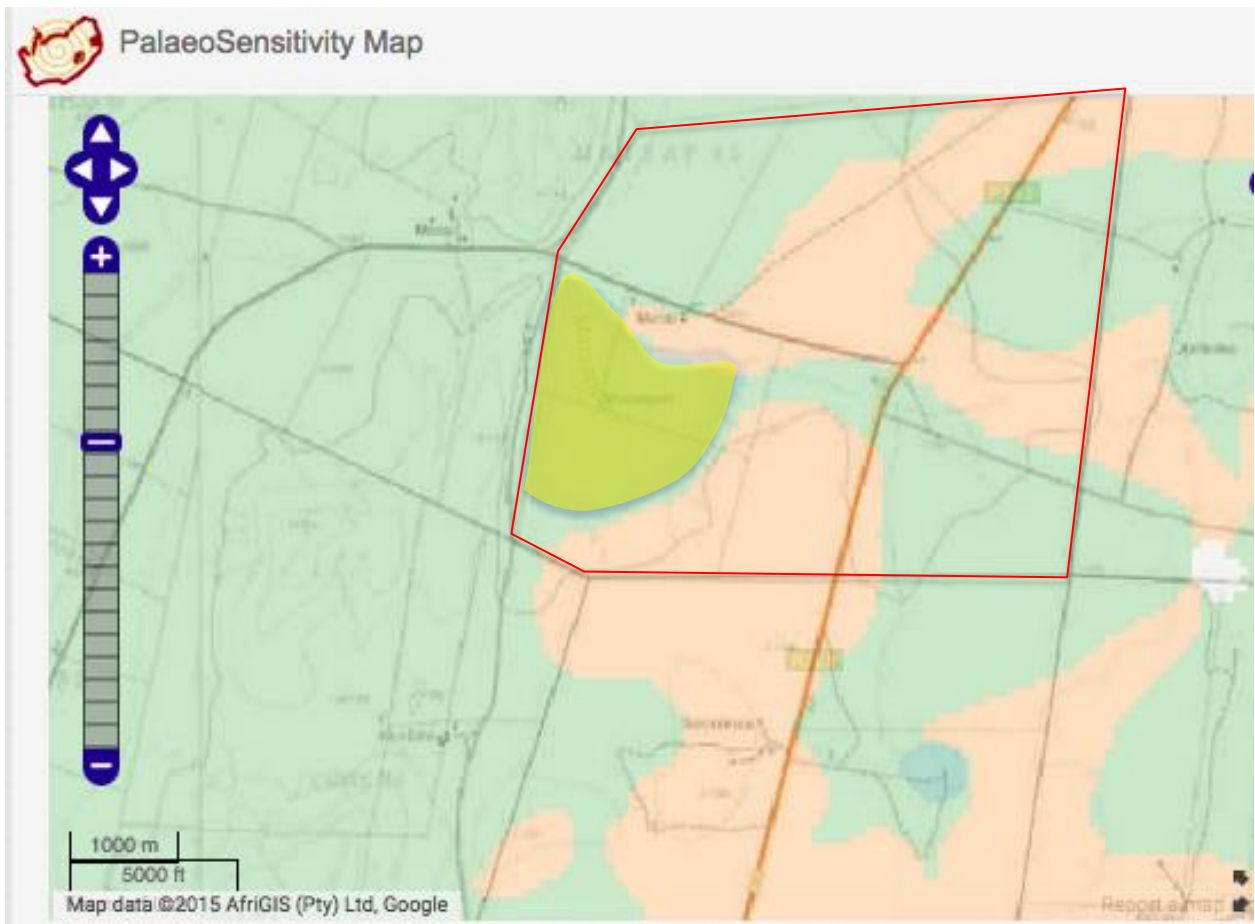


Figure 7 – Palaeontology sensitivity map as extracted from SAHRIS – application area in red. Prospecting area in yellow (<http://www.sahra.org.za/map/palaeo>)

4.2.1 Historical information on the farm Matsap

Accessing the National Archives the only reference to the farm Matsap is a document referencing the removal of salt from the farm Matsap dated to 1921 (LDE/4121/11458). This corresponding to the historical finds on the property.

5 FIELDWORK FINDINGS

An archaeologist from PGS undertook fieldwork on 20 July 2015. The archaeologist carried a hand-held GPS, and the track log is depicted in green on the image below (**Figure 23**). The aim of the fieldwork was to identify heritage resources within the and close to the proposed prospecting areas as well as developing a predictive distribution map for possible heritage resources.

During the fieldwork 19 finds spots were identified consisting of 2 cemeteries, 1 Later Stone Age site, Low density stone age scatters, and historical finds including salt extraction equipment dating from the early 1900s.

5.1 Historical finds

The historical finds around the prospecting area consist of the farmstead and associated infrastructure on the werf and surround (**MS001-MS004** and **MS015-MS017**), the infrastructure and machinery associated with salt extraction (**MS009, MS010** and **MS018**) and two cemeteries (**MS008**). Other historical man made structure occur around the dam (**MS011** and **MS013**) the use of these are unknown.

Original farmstead that is situated on the northern edge of Matsap pan (**MS001**) has been demolished with only the foundations and rubble still on site.



Figure 8 - View of werf with demolished houses at MS001

The werf had two separate houses that were constructed with a stone foundation and the walls with cement bricks. Some of the central walling does contain an older mud brick.

The sheds and kraals are situated to the west of the houses and consist of two large sheds also constructed with stone foundations and cement brick walls.

A stone 'leivoor' runs on the western side of the werf and joins the large round cement dam on the southern side of the werf. Along side the cement dam three large steel holding tanks were placed. Possibly utilised as settling tanks to remove the salt in the water.



Figure 9 - Settling tanks at MS001

The *leivoor* system is also continued to the west of the farmstead at **MS003** where the *leivoor* is connected with the farm dam and water pit to provide irrigation. It is possible that ploughed fields were present between **MS001** and **MS003** and irrigated with the *leivoor* system.



Figure 10 - Farm dam with valve to support leivoor

Further associated with the farmstead at **MS001** are two ruins consisting of foundations and rubble. The two sites at **MS005** and **MS0015-17** are most probably the remains of the farm workers housing on the farm. The only intact structure is the outhouse at **MS015**.



Figure 11 - Foundation remains at MS005

Finds associated with historical salt extraction activities include a well (**MS009**) and the associated foundations for the pump and machinery (**MS010**) in the middle of the pan. On the northern side of the pan closer to the farmstead at **MS001** the remains of an old machine (**MS018**) driving two sets of pumps for water extraction. Just to the north of the wells and pump is the remains of a few sets of low cement drying beds.



Figure 12 - Stone foundations for machinery at MS010



Figure 13 - Lined well at MS009



Figure 14 - Engine at MS018



Figure 15 - Drying beds at MS018

5.2 Stone Age finds

The general consensus between archaeologists on the occurrence of Stone Age material along the periphery of pans in the Northern Cape as tested through the fieldwork. A large section of the northern periphery of the pan has been disturbed by historical activities and is seen as disturbed with no context for Stone Age material. The first finds of low-density scatters of Stone Age material occur at **MS006**. Sporadic finds of lithics (Stone Age material) continue around the pan and can be found at **MS007** and **MS014**.

At **MS007** a medium density scatter of Later Stone Age material occur with some flakes and core present. Very few of the lithics show ware or retouch. Material utilised vary from banded ironstone, Cryptocrystalline (CCS) as well as glass (indicating a very late LSA date).



Figure 16 - Low density Stone Age scatter at MS006



Figure 17 - Glass material utilised for flaking



Figure 18 - CCS core with visible flaking

Noticeable however is the absence of any Stone Age material as soon pan basin is accessed. All the Stone Age finds are in or on the periphery of the red sands to the west of the pan and the also in the pebble layers occurring on the eastern periphery of the pan at **MS014**.

5.3 Cemeteries

Two definite cemeteries and two possible cemeteries were identified. A cemetery (**MS019**) consisting of 30 graves are situated to the north of the Witsand road and outside the immediate prospecting area. The cemetery is most probably associated with the farmstead at **MS001**. The grave date mostly from the early 1900s with the eight to nine grave associated with the Snyman family. Interestingly is the fact that 7 members of the Snyman family died within 3 days of each other in November 1918 as a result of the flue epidemic that raged through South Africa.



Figure 19 - Cemetery at MS019



Figure 20 - Grave at MS019

Another cemetery (**MS008**) consisting of 10 stone packed graves is situated on the western side of the pan. All the graves are aligned east/west and in a single line. It is possible that these graves area associated with a farm stead some 150 meters to the north of the cemetery on the adjacent farm property.



Figure 21 - Cemetery at MS008

Two possible graves were identified at **MS011** and **MS012**. Both structures are stone packed elongated structures, however they can also be associated with farming activities. In the absence of further information these should be treated as possible graves.



Figure 22 - Possible grave at MS012

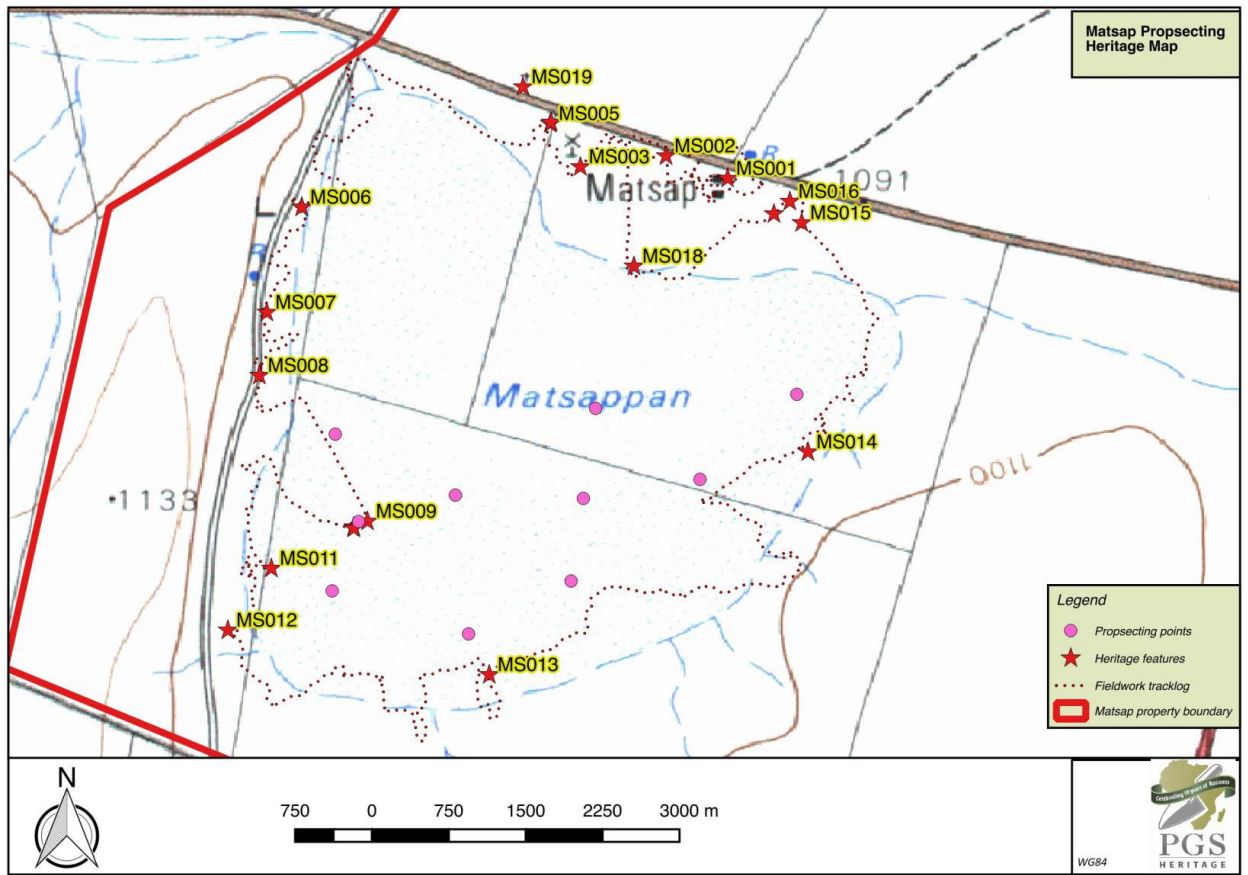


Figure 23 – The track logs recorded for the development area (tracklog in green & heritage sites in red).

6 IMPACT OF PROPOSED PROSPECTING ON HERITAGE RESOURCES

In this section the impact of the proposed development on the study area is calculated after implementation of mitigation measures.

Table 11 - Risk Calculation for chance finds

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	MODERATE	Isolated Sites / proposed site	Short-term	Unlikely	
Chance heritage finds	3	1	2	2	0,80

Impacts on possible chance heritage finds during construction will be unlikely of a Very Low negative significance, on *isolated sites*. The impact *is unlikely* and will be short term. The impact risk class is thus **Low**.

Table 12 - Risk Calculation for heritage resources

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	MODERATE	Isolated Sites / proposed site	Short-term	Unlikely	
Heritage resources	3	1	2	2	0,80

Impacts on possible chance heritage finds during construction will be unlikely of a Very Low negative significance, on *isolated sites*. The impact *is unlikely* and will be short term. The impact risk class is thus **Low**.

7 MITIGATION MEASURES AND GENERAL RECOMMENDATIONS

The risk calculation above has shown that the impact of the proposed development on heritage resources in the study area has a **Low** Impact Risk. However, these calculations were based on the assumption that all activities would be undertaken **with mitigation** measures implemented. Implementation on the recommended mitigation measures below will ensure that minimal impact on heritage resources will be achieved.

7.1 Status Quo and “No Go” option

8.1.1 Status Quo

Heritage resources were found within the vicinity of the proposed drill sites and mitigation measures will be required.

8.1.2 “No go” Option

In terms of heritage value, since no heritage sites were identified within the development footprint the “no go” option is not considered to more desirable than the proposed project.

7.2 Project Impact (Unmitigated)

During the drilling of the wells impacts could occur to heritage resources. These impacts could occur as a result of activities such as site preparation for drilling and camp site establishment.

The total impact on the heritage resource during the construction phase of the project is low, and can be minimized through the implementation on of the following.

7.3 Heritage Management Plan for EMP implementation

NO.	MITIGATION MEASURES	PHASE	TIMEFRAME	RESPONSIBLE PARTY FOR IMPLEMENTATION	MONITORING PARTY (FREQUENCY)	TARGET	PERFORMANCE INDICATORS (MONITORING TOOL)	COST FOR MITIGATION
<i>Possible finds</i>								
A	Include section on possible heritage finds in induction prior to construction activities take place – Refer to Section 9 of this report	Prospecting	Prior to prospecting	Applicant ECO Heritage Specialist	ECO (Monthly)	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 36 and 38 of NHRA	No legal directives Legal compliance audit scores (Legal register) (ECO Monthly Checklist/Report)	R5 000
B	Implement chance find procedures in case where possible heritage finds area made	Prospecting	During prospecting	Applicant ECO Heritage Specialist	ECO (weekly)	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 36 and 38 of NHRA	ECO Monthly Checklist/Report	Possibly R50 000
C	Include a no-go buffer of at least 50 meters from any heritage finds. In the case of MS009 and MS010 this buffer can be relaxed to 20 meters.	Prospecting	Prior to prospecting	Applicant ECO Heritage Specialist	ECO (Monthly)	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 36 and 38 of NHRA	No legal directives Legal compliance audit scores (Legal register) (ECO Monthly Checklist/Report)	MINIMAL

8 HERITAGE MANAGEMENT GUIDELINES

8.1 General Management Guidelines

1. The National Heritage Resources Act (Act 25 of 1999) states that, any person who intends to undertake a development categorised as-
 - (a) the construction of a road, wall, transmission line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
 - (b) the construction of a bridge or similar structure exceeding 50m in length;
 - (c) any development or other activity which will change the character of a site-
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - (d) the re-zoning of a site exceeding 10 000 m² in extent; or
 - (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

In the event that an area previously not included in an archaeological or cultural resources survey is to be disturbed, the SAHRA needs to be contacted. An enquiry must be lodged with them into the necessity for a Heritage Impact Assessment.

2. In the event that a further heritage assessment is required it is advisable to utilise a qualified heritage practitioner, preferably registered with the Cultural Resources Management Section (CRM) of the Association of Southern African Professional Archaeologists (ASAPA).

This survey and evaluation must include:

- (a) The identification and mapping of all heritage resources in the area affected;
- (b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6 (2) or prescribed under section 7 of the National Heritage Resources Act;
- (c) An assessment of the impact of the development on such heritage resources;

- (d) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
 - (e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
 - (f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
 - (g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.
3. It is advisable that an information section on cultural resources be included in the SHEQ training given to contractors involved in surface earthmoving activities. These sections must include basic information on:
- a. Heritage;
 - b. Graves;
 - c. Archaeological finds; and
 - d. Historical Structures.

This module must be tailor made to include all possible finds that could be expected in that area of construction.

Possible finds include:

- a. Open air Stone Age scatters, disturbed during vegetation clearing. This will include stone tools.
 - b. Palaeontological deposits such as bone, and teeth in fluvial riverbank deposits.
4. In the event that a possible find is discovered during construction, all activities must be halted in the area of the discovery and a qualified archaeologist contacted.
5. The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures.
6. If mitigation is necessary, an application for a rescue permit must be lodged with SAHRA.
7. After mitigation, an application must be lodged with SAHRA for a destruction permit. This application must be supported by the mitigation report generated during the rescue excavation. Only after the permit is issued may such a site be destroyed.
8. If during the initial survey sites of cultural significance are discovered, it will be necessary to develop a management plan for the preservation, documentation or destruction of such a site. Such a program must include an archaeological/palaeontological monitoring programme, timeframe and agreed upon schedule of actions between the company and the archaeologist.

9. In the event that human remains are uncovered, or previously unknown graves are discovered, a qualified archaeologist needs to be contacted and an evaluation of the finds made.
10. If the remains are to be exhumed and relocated, the relocation procedures as accepted by SAHRA need to be followed. This includes an extensive social consultation process.

Table 13: Roles and responsibilities of archaeological and heritage management when heritage resources are discovered during operations

ROLE	RESPONSIBILITY	IMPLEMENTATION
A responsible specialist needs to be allocated and should attend all relevant meetings, especially when changes in design are discussed, and liaise with SAHRA.	The client	Archaeologist and a competent archaeology support team
If chance finds and/or graves or burial grounds are identified during construction or operational phases, a specialist must be contacted in due course for evaluation.	The client	Archaeologist and a competent archaeology support team
Comply with defined national and local cultural heritage regulations on management plans for identified sites.	The client	Environmental Consultancy and the Archaeologist
Consult the managers, local communities and other key stakeholders on mitigation of archaeological sites, when discovered.	The client	Environmental Consultancy and the Archaeologist
Implement additional programs, as appropriate, to promote the safeguarding of our cultural heritage. (i.e. integrate the archaeological components into the employee induction course).	The client	Environmental Consultancy and the Archaeologist,
If required, conservation or relocation of burial grounds and/or graves according to the applicable regulations and legislation.	The client	Archaeologist, and/or competent authority for relocation services
Ensure that recommendations made in the Heritage Report are adhered to.	The client	The client
Provision of services and activities related to the management and monitoring of significant archaeological sites (when discovered). The client with the specialist needs to agree on the scope and activities to be performed	The client	Environmental Consultancy and the Archaeologist
When a specialist/archaeologist has been appointed for mitigation work on	Client and Archaeologist	Archaeologist

discovered heritage resources, comprehensive feedback reports should be submitted to relevant authorities during each phase of development.		
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8.2 All phases of the project

8.2.1 Archaeology

The project will encompass a range of activities during the drilling phase, including ground clearance, establishment of construction camps area.

It is possible that cultural material will be exposed during operations and may be recoverable, but this is the high-cost front of the operation, and so any delays should be minimised. Development surrounding infrastructure and construction of facilities results in significant disturbance, but construction trenches do offer a window into the past and it thus may be possible to rescue some of the data and materials. It is also possible that substantial alterations will be implemented during this phase of the project and these must be catered for. Temporary infrastructure is often changed or added to during the subsequent history of the project. In general these are low impact developments as they are superficial, resulting in little alteration of the land surface, but still need to be catered for.

During the prospecting phase, it is important to recognise any significant material being unearthed, and to make the correct judgment on which actions should be taken. In the event that possible heritage resources are identified a qualified archaeologist/palaeontologist must be contacted to evaluate the finds and make recommendations on the mitigation required. (refer to **Appendix B** for types of finds)

In addition, feedback reports can be submitted by the archaeologist to the client and SAHRA to ensure effective monitoring. This archaeological monitoring and feedback strategy should be incorporated into the Environmental Management Plan (EMP) of the project. Should an archaeological/palaeontological site or cultural material be discovered during construction (or operation), such as burials or grave sites, the project needs to be able to call on a qualified expert to make a decision on what is required and if it is necessary to carry out emergency recovery. SAHRA would need to be informed and may give advice on procedure. The developers therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the material and data are recovered. The project thus needs to have an archaeologist/palaeontologist available to do such work. This provision can be made in an archaeological/palaeontological monitoring programme.

In the case where archaeological material is identified during construction the following measures must be taken:

- Upon the accidental discovery of archaeological material, a buffer of at least 20 meters should be implemented.
- If archaeological material is accidentally discovered during construction, activities must cease in the area and a qualified archaeologist be contacted to evaluate the find. To remove the material permit must be applied for from SAHRA under Section 35 of the NHRA.

8.2.2 Graves

In the case where a grave is identified during construction the following measures must be taken:

- Upon the accidental discovery of graves, a buffer of at least 50 meters should be implemented.
- If graves are accidentally discovered during construction, activities must cease in the area and a qualified archaeologist be contacted to evaluate the find. To remove the remains a permit must be applied for from SAHRA (Section 36 of the NHRA) and other relevant authorities (National Health Act and its regulations). The local South African Police Services must immediately be notified of the find.
- Where it is recommended that the graves be relocated, a full grave relocation process that includes comprehensive social consultation must be followed.

The grave relocation process must include:

- i. A detailed social consultation process, that will trace the next-of-kin and obtain their consent for the relocation of the graves, that will be at least 60 days in length;
- ii. Site notices indicating the intent of the relocation;
- iii. Newspaper notices indicating the intent of the relocation;
- iv. A permit from the local authority;
- v. A permit from the Provincial Department of Health;
- vi. A permit from the South African Heritage Resources Agency, if the graves are older than 60 years or unidentified and thus presumed older than 60 years;
- vii. An exhumation process that keeps the dignity of the remains intact;
- viii. The whole process must be done by a reputable company that is well versed in relocations;
- ix. The exhumation process must be conducted in such a manner as to safeguard the legal rights of the families as well as that of the developing company.

9 CONCLUSIONS

During the fieldwork 19 finds spots were identified consisting of 2 cemeteries, 1 Later Stone Age site, Low density stone age scatters, and historical finds including salt extraction equipment dating from the early 1900s.

9.1 Historical finds

The historical finds around the prospecting area consist of the farmstead and associated infrastructure on the werf and surround (**MS001-MS004** and **MS015-MS017**), the infrastructure and machinery associated with salt extraction (**MS009**, **MS010** and **MS018**) and two cemeteries (**MS008**). Some other historical man made structure occur around the dam (**MS011** and **MS013**) the use of these are unknown.

Finds associated with historical salt extraction activities include a well (**MS009**) and the associated foundations for the pump and machinery (**MS010**) in the middle of the pan. On the northern side of the pan closer to the farmstead at **MS001** the remains of an old machine (**MS018**) driving two sets of pumps for water extraction. Just to the north of the wells and pump is the remains of a few sets of low cement drying beds. These remains date as far back as 1921 as confirmed through archival research.

9.2 Cemeteries

Two definite cemeteries and two possible cemeteries were identified. A cemetery (**MS019**) consisting of 30 graves are situated to the north of the Witsand road and outside the immediate prospecting area. The cemetery is most probably associated with the farmstead at **MS001**.

Two possible graves were identified at **MS011** and **MS012**. Both structures are stone packed elongated structures, however they can also be associated with farming activities. In the absence of further information these should be treated as possible graves.

9.3 Stone Age finds

A large section of the northern periphery of the pan has been disturbed by historical activities and is seen as disturbed with no context for Stone Age material. The first finds of low-density scatters of Stone Age material occur at **MS006**. Sporadic finds of lithics (Stone Age material) continue around the pan and can be found at **MS007** and **MS014**.

Noticeable however is the absence of any Stone Age material as soon pan basin is accessed. All the Stone Age finds are in or on the periphery of the red sands to the west of the pan and the also in the pebble layers occurring on the eastern periphery of the pan at **MS014**.

The overall impact by the proposed prospecting activities on heritage resources is seen as very low. **No fatal flaws were identified** from a cultural, historical, archaeological perspective. Implementation of recommended mitigation measures will ensure that impacts by the development on chance find heritage resources will be kept to a minimum.

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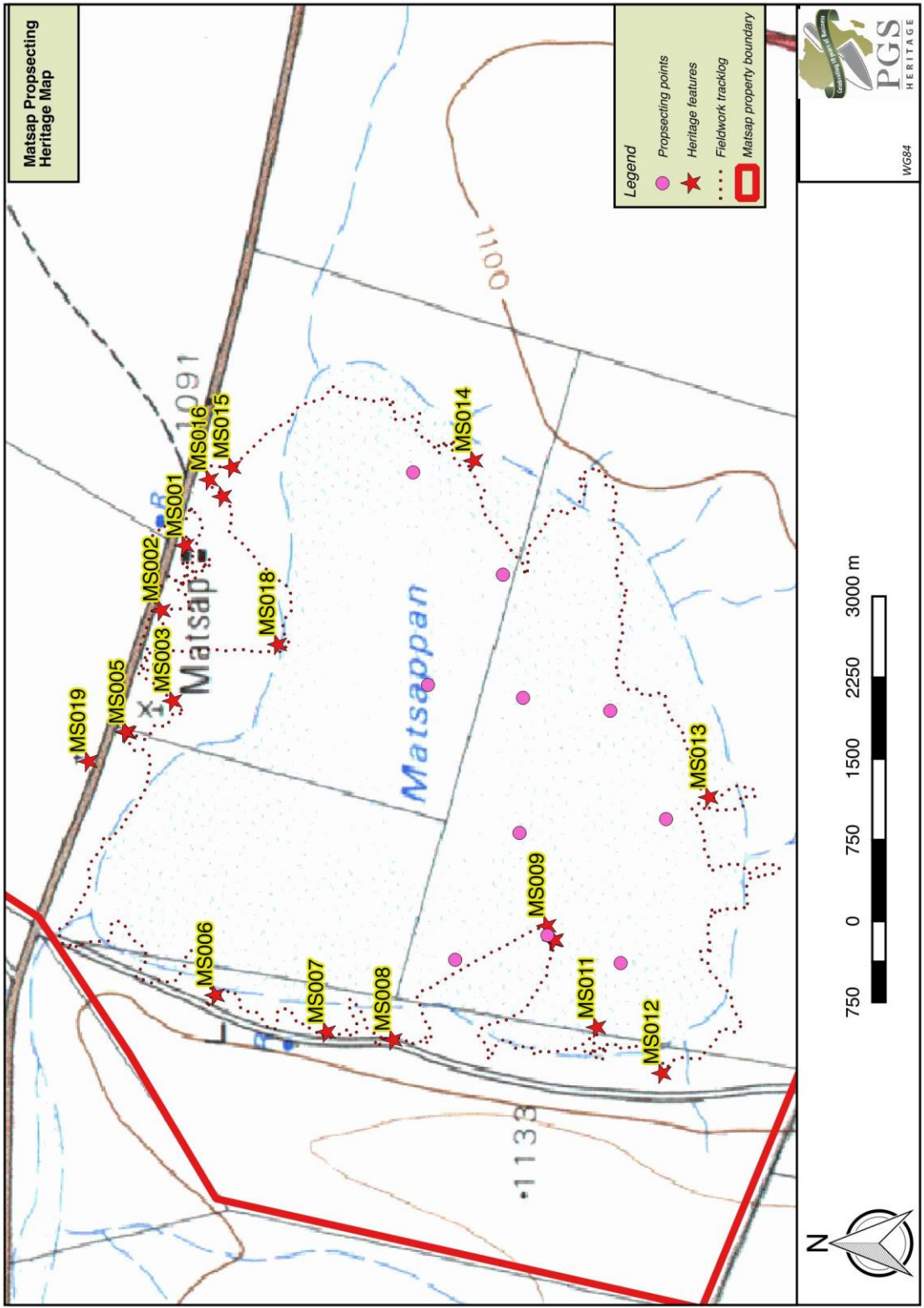
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10.1 Google Earth

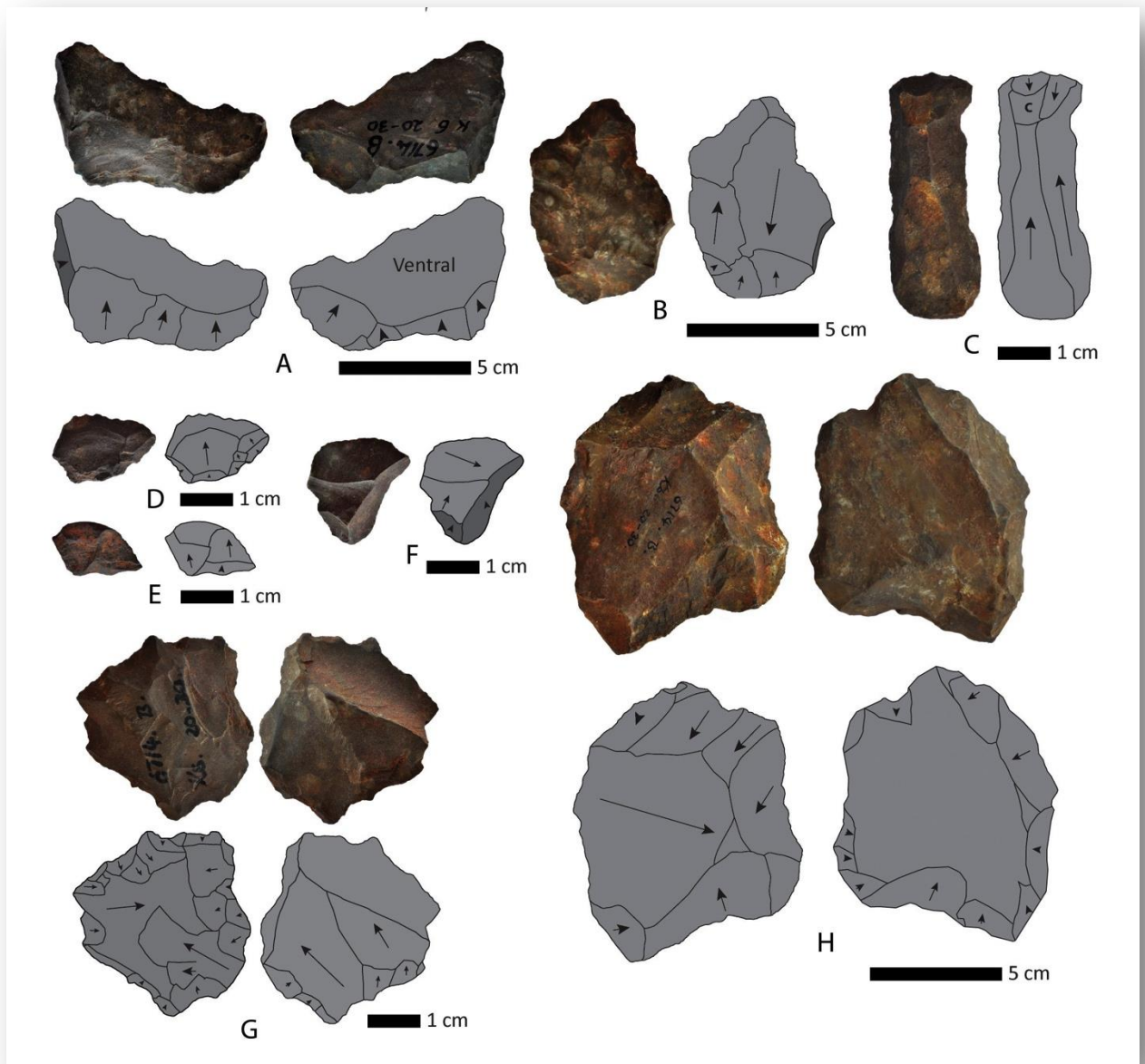
All the aerial depictions used in this report are from Google Earth.

APPENDIX A
HERITAGE SITES AND TRACK LOGS

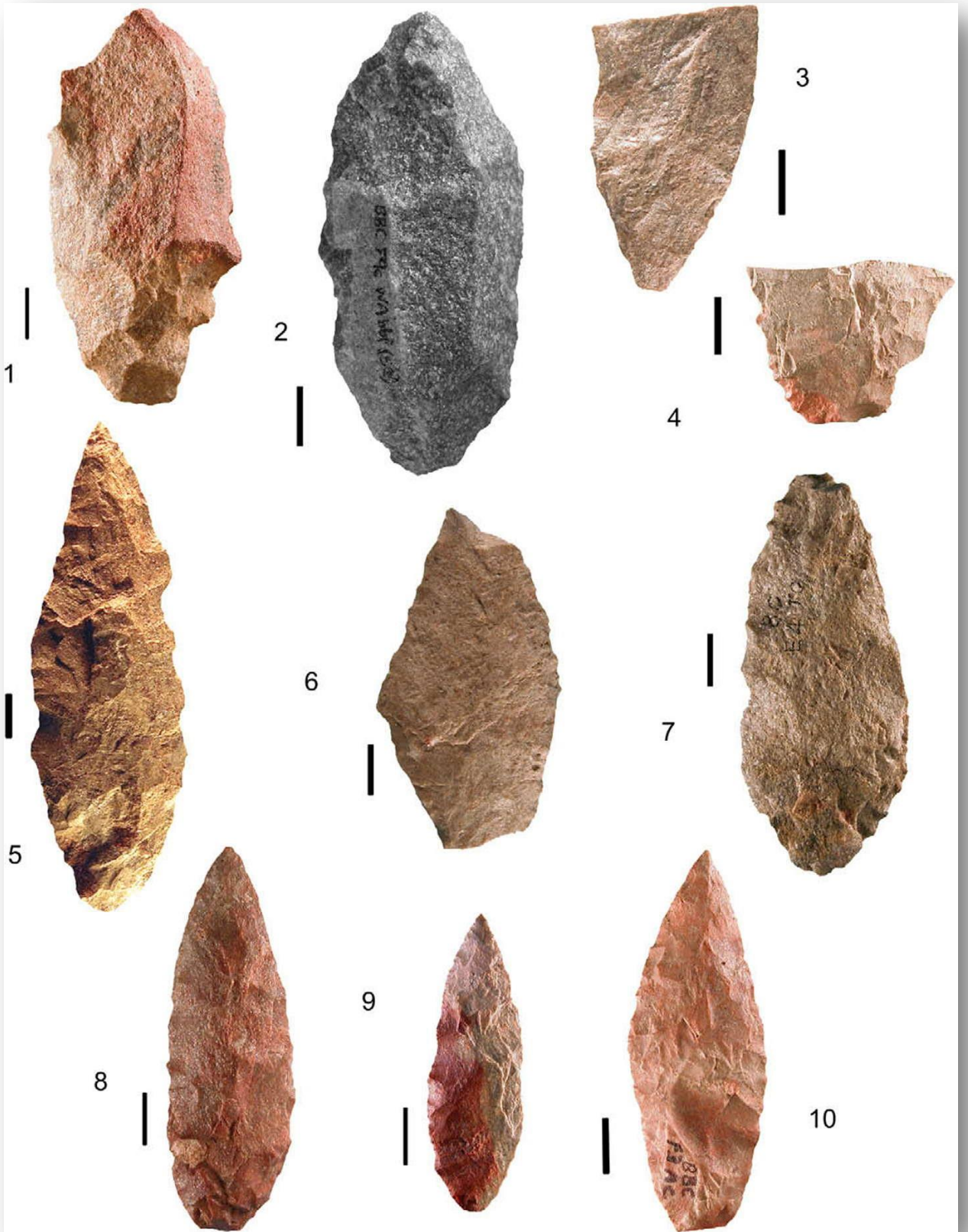


**APPENDIX B
POSSIBLE HERITAGE FINDS**

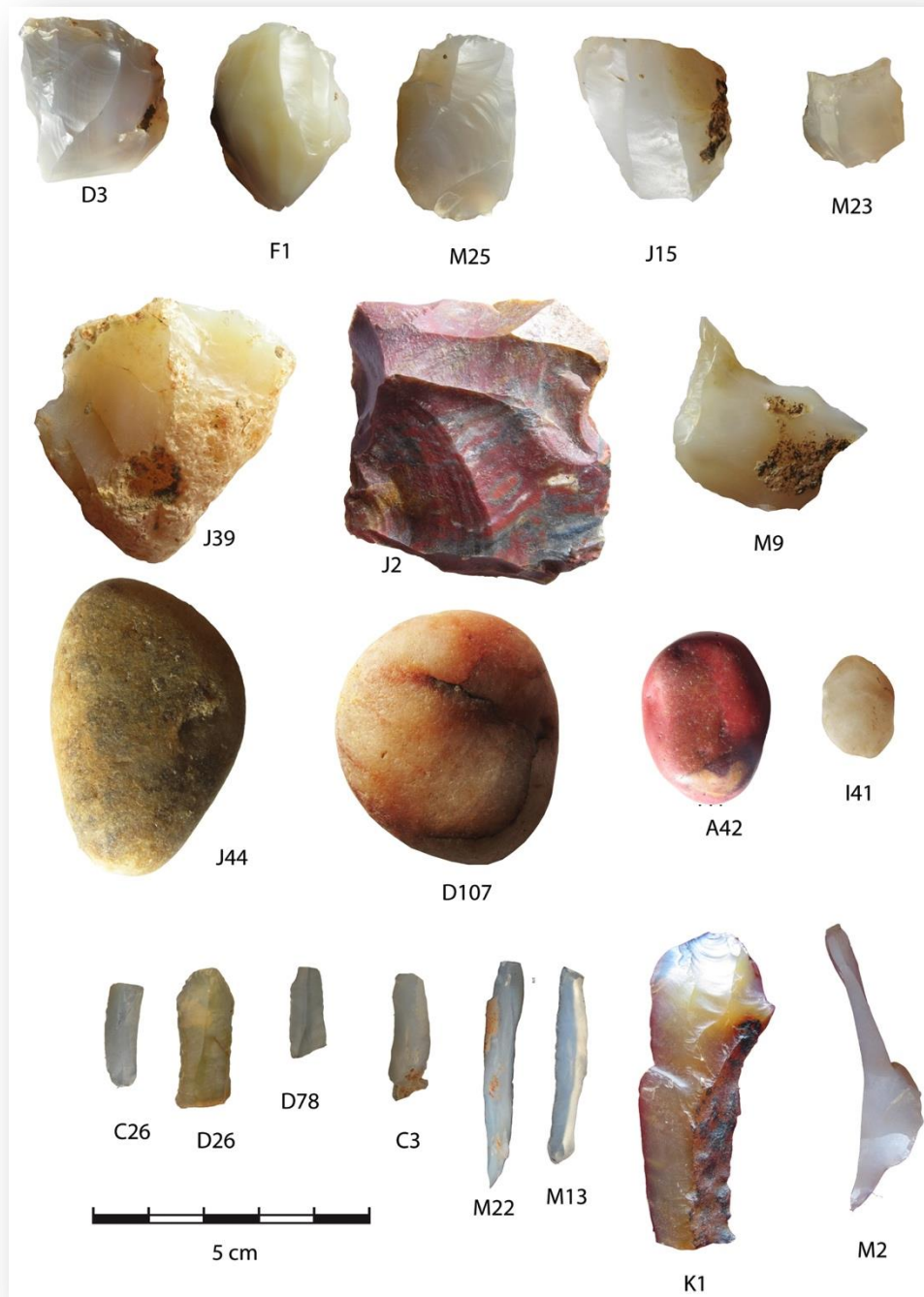
TYPES OF STONE AGE ARTEFACTS THAT COULD BE FOUND DURING SITE CLEARING AND DRILLING



<http://beforeitsnews.com/science-and-technology/2014/07/million-year-old-stone-age-artifacts-found-in-northern-cape-of-south-africa-2709632.html>



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Continuity of Microblade Technology in the Indian Subcontinent Since 45 ka: Implications for the Dispersal of Modern Humans

Sheila Mishra, Naveen Chauhan, Ashok K. Singhvi. Published: July 01, 2013. PLOS ONE



<http://www.dayofarchaeology.com/museological-multi-tasking-on-a-rainy-day-at-iziko-south-african-museums-archaeology-unit/>



Deposits uncovered during excavations

<http://beforeitsnews.com/science-and-technology/2014/07/million-year-old-stone-age-artifacts-found-in-northern-cape-of-south-africa-2709632.html>

**APPENDIX C
SAHRA LETTER**

J2798

Our Ref: 9/2/074/0001

Enquiries: Jenna Lavin
Edit view Tel: 021 462 4502
Edit view Email: jlavin@sahra.org.za
CaseID: 4374

Date: Thursday December 12, 2013

Page No: 1



Letter

In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: MSA Group
PO Box 81356
Parkhurst
2120

Proposed Prospecting Activities It is envisaged that the proposed prospecting will be conducted over a five year period, and in phases, with the work program being divided into several sequential sections. At the end of each section, there will be a brief period of compiling and evaluating results. These results will not only determine whether the project proceeds, but also the manner in which it will go forward. Essentially, the Applicant will only action the next stage once satisfied with the results obtained.

Thank you for submitting the above application for proposed prospecting activities over portion 1 of the Farm Matsap 81 near Postmasburg. The prospecting application is for salt and other minerals. Prospecting activities include drilling and sampling, although the impact of prospecting has been deemed minimal.

In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999), any proposed development that requires an application in terms of NEMA or the MPRDA must have an assessment of impacts to heritage resources completed as part of the application process. The relevant heritage authority must determine whether the assessment done in terms of impacts to heritage resources satisfies our requirements and must provide comments or recommendations to the decision-making authority.

No heritage information has been provided for the prospecting area. It is known that generally, archaeological sites are concentrated at the edges of salt pans in the Northern Cape. As such, it is likely that the proposed prospecting will impact on significant archaeological resources.

The area proposed for prospecting is not situated in an area that is palaeontologically sensitive and as such, it is unlikely that significant palaeontological heritage will be impacted by the proposed prospecting.

As such, SAHRA requires that a Heritage Impact Assessment be conducted.

This heritage impact assessment must assess the impact of the proposed prospecting on all heritage resources including, but not limited to, archaeological heritage, palaeontological heritage, rock art, any significant structures and intangible heritage. This assessment must not only assess impacts in terms of the development footprint, but must also assess broader, indirect impacts to heritage that may result from the proposed development. No assessment of impacts to palaeontological heritage is required.

The quickest process to follow for the archaeological component would be to contract a specialist (see www.asapa.org.za) to provide a Phase 1 Archaeological Impact Assessment Report. The Phase 1 Impact



The South African Heritage Resources Agency

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J2798

Our Ref: 9/2/074/0001

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Assessment Report will identify the archaeological sites to be impacted and assess their significance. It should also make recommendations (as indicated in section 38 of the NHRA) about the process to be followed. For example, there may need to be a mitigation phase (Phase 2) where the specialist will collect or excavate material and date the site. At the end of the process the heritage authority may give permission for destruction of the sites.

Any other heritage resources that may be impacted such as built structures, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes must also be assessed.

This assessment must satisfy SAHRA's minimum requirements for impact assessments and must comply with the requirements in Section 38(3) of the NHRA and as such, this assessment must provide recommendations regarding the mitigation of any identified direct and indirect impacts to heritage resources.

SAHRA looks forward to receiving this assessment before commenting further on this proposed development.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Jenna Lavin
Heritage Officer
South African Heritage Resources Agency

Colette Scheermeyer
SAHRA Head Archaeologist
South African Heritage Resources Agency

ADMIN:

Direct URL to case: <http://www.sahra.org.za/node/151267>



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