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**PHASE 1 ARCHAEOLOGICAL/ HERITAGE IMPACT ASSESSMENT REPORT FOR THE  
PROPOSED OASIS-TAAIPIT 132KV POWERLINE UPGRADE INCLUDING 2 DEVIATIONS IN  
THE KAI!GARIB LOCAL MUNICIPALITY IN NORTHERN CAPE PROVINCE.**

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**October 2017**

**Compiled for:**

**GIBB (Pty) Ltd**

PO Box 2700, Rivonia 2128, Johannesburg

Woodmead North Office Park, 54 Maxwell Drive

Woodmead, 2191

Tel: 011 519 4701

Fax: 011 807 5670

Web Site: [www.gibb.co.za](http://www.gibb.co.za)

**Compiled by:**

**SATIVA TRAVEL AND ENVIRONMENTAL CONSULTANTS (PTY) LTD**

Constantia Park, Building 16-2, 546, 16<sup>th</sup> Road,

Midrand, 1685

Cell: 0716859247/ 076 328 1558

Fax: 086 652 9774

E-mail: [info@sativatec.com.za](mailto:info@sativatec.com.za)

Web Site: [www.sativatec.co.za](http://www.sativatec.co.za)

## DOCUMENT INFORMATION

Item	Description
Proposed development and location	Proposed Oasis-Taaipit 132KV Powerline upgrade including 2 Deviations in Kai !Garib Local Municipality, Northern Cape Province.
Title	Proposed Oasis Taaipit 132 kV Powerline Upgrade including 2 Deviation in Kai !Garib Local Municipality in Northern Cape Province: Archaeological and Heritage Impact Assessment Report.
Purpose of the study	The purpose of this study is an Archaeological and Heritage Impact Assessment report that describes the cultural values and heritage factors that may be impacted on by the proposed Oasis-Taaipit 132KV powerline upgrade
1:50 000 Topographic Map	2820DA
Coordinates	S28° 44' 13.981", E020° 40' 19.232" (see project location)
Municipalities	Kai!Garib Local Municipality
Predominant land use of surrounding area	Existing powerline, Vacant, agricultural, road and transport
Developer	
Heritage Consultant	Sativa Travel and Environmental Consultants (Pty) Ltd
Date of Report	31 October 2017
STEC Contact Person	Moses Kgopana ( <a href="mailto:moses@sativatec.co.za">moses@sativatec.co.za</a> )
GIBB Contact Person	Tashriq Naicker ( <a href="mailto:tnaicker@gibb.co.za">tnaicker@gibb.co.za</a> )
Author Identification	Trust Miilo (Archaeologist and Heritage specialist).

## COPYRIGHT

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**Authorship:** This AIA/HIA Report has been prepared by Mr Trust Mlilo (Professional Archaeologist). The report is for the review of the Northern Cape PHRA.

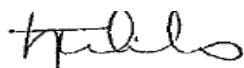
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**Geographic Co-ordinate Information:** Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

**Maps:** Maps included in this report use data extracted from the National Topographic Survey Map and Google Earth Pro.

**Disclaimer:** The Author is 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 SAHRA Regulations and Guidelines as to the authorisation proposed Oasis-Taaipit 132Kv powerline upgrade.



Signed by



October 2017

## REVIEW AND APPROVAL

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Name	Title	Signature	Date
Moses Kgopana	Environmental Manager/Director (STEC)		31/10/2017
Tashriq Naicker	Environmental Scientist (GIBB)		03/11/2017

## ACKNOWLEDGEMENTS

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The authors acknowledge GIBB (Pty) Ltd and Eskom team for their assistance with project information, as well as responding to technical queries related to the project.

## TABLE OF CONTENT

---

<b>EXECUTIVE SUMMARY .....</b>	<b>VII</b>
<b>ABBREVIATIONS .....</b>	<b>IX</b>
<b>KEY CONCEPTS AND TERMS.....</b>	<b>X</b>
<b>INTRODUCTION.....</b>	<b>1</b>
BACKGROUND.....	1
LOCATION OF THE PROPOSED PROJECT SITE .....	2
DESCRIPTION OF THE PROPOSED PROJECT .....	- 5 -
<b>LEGAL REQUIREMENTS .....</b>	<b>- 6 -</b>
<b>TERMS OF REFERENCE .....</b>	<b>- 10 -</b>
<b>METHODOLOGY.....</b>	<b>- 22 -</b>
IMPACT ASSESSMENT .....	- 23 -
CRITERIA FOR THE CLASSIFICATION OF AN IMPACT .....	- 23 -
ASSUMPTIONS AND LIMITATIONS .....	- 25 -
CONSULTATION .....	- 26 -
<b>CULTURE HISTORY BACKGROUND OF THE PROJECT AREA.....</b>	<b>- 26 -</b>
STONE AGE ARCHAEOLOGY .....	- 26 -
INTANGIBLE HERITAGE .....	- 28 -
<b>RESULTS OF THE ARCHAEOLOGICAL/HERITAGE ASSESSMENT STUDY.....</b>	<b>- 28 -</b>
ARCHAEOLOGICAL AND HERITAGE SITE.....	- 29 -
HISTORICAL BUILDINGS AND STRUCTURES.....	- 29 -
BURIAL GROUNDS AND GRAVES .....	- 29 -
HISTORICAL MONUMENTS AND MEMORIALS.....	- 30 -
MITIGATION MEASURES.....	- 30 -
CUMULATIVE IMPACTS .....	- 30 -
<b>DISCUSSION.....</b>	<b>- 31 -</b>
<b>CULTURAL HERITAGE SITE ASSESSMENT OF SIGNIFICANCE.....</b>	<b>- 32 -</b>
<b>ASSESSMENT CRITERIA .....</b>	<b>- 33 -</b>
<b>IMPACT ASSESSMENT.....</b>	<b>- 34 -</b>
<b>RECOMMENDATIONS.....</b>	<b>- 36 -</b>
<b>CONCLUDING REMARKS.....</b>	<b>- 37 -</b>
<b>BIBLIOGRAPHY.....</b>	<b>- 38 -</b>
<b>APPENDIX 1: HERITAGE MANAGEMENT PLAN INPUT INTO THE OASIS-TAAIPIT POWERLINE UPGRADING PROJECT EMP .....</b>	<b>- 42 -</b>
<b>APPENDIX 2: HERITAGE MITIGATION MEASURE TABLE .....</b>	<b>- 43 -</b>



**TABLE OF PLATES [PHOTOGRAPHS]**

Plate 1: Photo 1: View of Oasis Substation where the powerline development starts (Photograph © by Author 2017).... - 11 -

Plate 2: Photo 2: View of wooden structures to be replaced by steel monopole structures (Photograph © by Author 2017).Note that the powerline cuts through vine yards. .... - 11 -

Plate 3: Photo 3: View of powerline cutting through heavily disturbed landscape(Photograph © by Author 2017). .... - 12 -

Plate 4: Photo 4: View of existing powerline cutting through ploughed fields (Photograph © by Author 2017)..... - 12 -

Plate 5: Photo 5: View of existing powerline cutting a soccer pitch (Photograph © by Author 2017). .... - 13 -

Plate 6: Photo 6: View of existing powerline route running along railway and road servitude (Photograph © by Author 2017).- 13 -

Plate 7: Photo 7: View of isolated stone tools recorded in secondary deposition near powerline route (Photograph © by Author 2017). .... - 14 -

Plate 8: Photo 8: View of the powerline wooden tower which will be by passed because of its inaccessibility (Photograph © by Author 2017). .... - 14 -

Plate 9: Photo 9: View of alternative powerline deviation route (Photograph © by Author 2017)..... - 15 -

Plate 10: Photo 10: Closer view of powerline deviation routes (Alternative 1 and C) (Photograph © by Author 2017)..... - 15 -

Plate 11: Photo 11: View of proposed powerline deviation routes Alternatives B and C seen from the south (Photograph © by Author 2017). .... - 16 -

Plate 12: Photo 12: View of general project area taken from top of the hill (Photograph © by Author 2017). .... - 16 -

Plate 13: Photo 13: View of point where Alternative 1 will turn left towards the terminal point (Photograph © by Author 2017). .... - 17 -

Plate 14: Photo 14: View of terminal position for Alternative 1 deviation route (Photograph © by Author 2017). .... - 17 -

Plate 15: Photo 15: View of existing infrastructure near terminal position for Alternative 2 powerline deviation route (Photograph © by Author 2017)..... - 18 -

Plate 16: Photo 16: View of Alternative 2 deviation route cutting through sandy landscape (Photograph © by Author 2017).. - 18 -

Plate 17: Photo 17: View of proposed tower position for Alternative 2 deviation route (Photograph © by Author 2017)... - 19 -

Plate 18: Photo 18: View of existing wooden tower which will be by passed taken from the south (Photograph © by Author 2017)..... - 19 -

Plate 19: Photo 19: View of tower position where the proposed deviation will be connected (Photograph © by Author 2017). - 20 -

Plate 20: Photo 20: View of formal cemetery located approximately 200m from the powerline route (Photograph © by Author 2017)..... - 20 -

Plate 21: Photo 21: View of tower position where the proposed deviation will be connected (Photograph © by Author 2017). - 21 -

Plate 22: Photo 22: View of Taaipit Substation where the proposed powerline development will terminate (Photograph © by Author 2017). Note remains of campsite dwellings near substation. .... - 21 -

## LIST OF FIGURES

---

Figure 1: Site Location.....	- 3 -
Figure 2: Locality Map (GIBB 2017) .....	- 4 -
Figure 3: Oasis – Taaipit 132 kV Powerline: Example of Existing 5-pole wooden Pylons .....	- 5 -
Figure 4: Example of Steel Mono-Pole Type to replace the existing 5-pole wooden pylons .....	- 6 -

## EXECUTIVE SUMMARY

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This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared to address requirements of Section 38 of the National Heritage Resources Act, Act 25 of 1999 (NHRA). Sativa Travel and Environmental Consultants (Pty) Ltd (STEC) was commissioned by GIBB (Pty) Ltd to conduct this Archaeological and Heritage Impact Assessment (AIA/HIA) Study for the proposed Oasis-Taaipit 132kv powerline upgrade from wooden 5 pole structures to steel monopole structures. The development includes two deviations.

The proposed project is located in the Kai !Garib Local Municipality, Northern Cape Province. This report comprises an impact study on potential archaeological and cultural heritage resources that may be associated with the proposed Oasis Taaipit 132 kV powerline route. This study was conducted as part of the specialist input for the Basic Impact Assessment process. The study covers the existing powerline route including two (2) deviations. These have been determined by the developer and project information has been passed to STEC research team by the project EAP. Analysis of the archaeological, cultural heritage, environmental and historic contexts of the study area predicted that archaeological sites, cultural heritage sites, burial grounds or isolated artefacts were likely to be present on the affected landscape. The field survey was conducted to test this supposition and verify this prediction within the proposed Oasis Taaipit 132 kV powerline route. The main urban residential areas in the area include Kakamas and Keimoes.

The report makes the following observations:

- The findings of this report have been informed by desktop data review, field survey and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project.
- The project area is accessible and the field survey was effective enough to cover all sections of the project receiving environs. However, some portions of the proposed project site had limited access because of steep mountain slopes.
- The project area is predominantly agriculture (Cattle and sheep grazing) with some grape farming.
- Although the possibility of archaeological or historical sites associated with the general project area is high, however, from a contextual studies perspective, no medium to high significance archaeological, heritage landmark or monument was recorded during this study.

The report sets out the potential impacts of the proposed development on heritage matters and recommends appropriate safeguard and mitigation measures that are designed to minimize the impacts where appropriate. The Report makes the following recommendations:

- Should construction work commence for this project:



- The proposed project construction teams must be inducted on the significance of the possible archaeological resources that may be encountered during subsurface construction work before work on the area commences in order to ensure appropriate treatment and course of action is afforded to any chance finds.
- If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place.
- The findings of this report, with approval of the SAHRA/Northern Cape PHRA, may be classified as accessible to any interested and affected parties within the limits of the laws.

The conclusion of this study is that the impacts of the proposed development on the cultural environmental values are not likely to be significant if the Environmental Management Plan includes recommended safeguard and mitigation measures identified in this report.

**Deviation Alternative 2 is preferred from a HIA point of view.**

## **ABBREVIATIONS**

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<b>AIA</b>	Archaeological Impact Assessment
<b>ECO</b>	Environmental Control Officer
<b>EAP</b>	Environmental Assessment Practitioner
<b>EIA</b>	Environmental Impact Assessment
<b>EM</b>	Environmental Manager
<b>EMP</b>	Environmental Management Plan
<b>GPS</b>	Geographical Positioning System
<b>HIA</b>	Heritage Impact Assessment
<b>LIA</b>	Late Iron Age
<b>NHRA</b>	Nation Heritage Resources Act, Act 25 of 1999
<b>PM</b>	Project Manager
<b>NCPHRA</b>	Northern Cape Provincial Heritage Agency
<b>SM</b>	Site Manager
<b>SAHRA</b>	South African Heritage Resources Agency

## KEY CONCEPTS AND TERMS

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**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 South African 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, ecofacts 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.

***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 National Heritage Resources Act (NHRA) (Act No. 25 of 1999), 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 authorisation from the South African Heritage Resources Agency (SAHRA) 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 authorisation 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 minimising 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 prehistorical, 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

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### 1.1. Background

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared by Sativa Travel and Environmental Consultants (Pty) Ltd (Heritage Division) for the purpose of Basic Impact Assessment being conducted by GIBB (Pty) Ltd. Eskom is proposing to upgrade the existing Oasis-Taaipit 132kv powerline from wooden structures to steel mono pole structures. The development will include two deviations mainly due to inaccessibility of some pole positions. This report details the field study, results of the study as well as discussion on the anticipated impacts of the proposed development as is required by Section 38 of the National Heritage Resources Act, Act 25. It focuses on identifying and assessing potential impacts on archaeological resources as well as on other physical cultural properties including historical heritage resources in relation to the proposed development. Sativa research team undertook the assessments, research and consultations required for the preparation of the report comprising archaeological and heritage impacts for the purpose of ensuring that the cultural environmental values are taken into consideration and reported into the Basic Assessment process.

The study was designed to ensure that any significant archaeological or cultural physical property or sites are located and recorded, and site significance is evaluated to assess the nature and extent of expected impacts from the proposed development. The assessment includes recommendations to manage the expected impact of the proposed development site. The report includes recommendations to guide heritage authorities in making appropriate decision with regards to approval process for the proposed powerline upgrade. The report concludes with detailed recommendations on heritage management associated with the proposed development work. STEC, an independent consulting firm, conducted the assessment; research and consultations required for the preparation of the report in a manner consistent with its obligations set out in the NHRA.

Field investigations were conducted during early May and October 2017.

In line with SAHRA guidelines, this report, not necessarily in this order, provides:

- 1) Management summary
- 2) Methodology
- 3) Information regarding the desktop study
- 4) Map and relevant geodetic images and data
- 5) GPS co-ordinates
- 6) Directions to the site

- 7) Site description and interpretation of the cultural area where the project will take place
- 8) Management details, description of affected cultural environment, photographic records of the project area
- 9) Recommendations regarding the significance of the site and recommendations regarding further monitoring of the site
- 10) Conclusions.

### 1.2. Location of the proposed project site

The project area is located between Kakamas and Keimoes under the jurisdiction of Kai !Garib Local Municipality within Northern Cape Province (**See Figure 1 & 2**). The proposed powerline upgrade will start at Oasis Substation at Kakamas and will terminate at Taaipit Substation at Keimoes. The proposed deviation will T-off from 28°44'13.98" S, 20°40'19.23" E, alternative 1 new tower position will be located at GPS Coordinates 28°44'09.50" S, 20°39'54.03" E and will connect at 28°44'15.78" S, 20°39'44.62" E. Alternative 2 will have its tower position located at GPS coordinates 28°44'12.86" S, 20°40'6.780 E and reconnects with the line at 28°44'18.54" S, 20°39'58.19" E. The project area is predominantly agricultural, which dates to the 19<sup>th</sup> Century. The project area is accessed from the N14 west.

The GPS Co-ordinates for the proposed deviation alternatives and route realignment are as follows:

#### Alternative 1 GPS Co-ordinates:

<u>Point</u>	<u>Latitude</u>	<u>Longitude</u>
<b>Start</b>	28°44' 13.98" S	20°40' 19.23" E
<b>Middle</b>	28°44' 09.50" S	20°39' 54.03" E
<b>End</b>	28°44' 15.78" S	20°39' 44.62" E

#### Alternative 2 GPS Co-ordinates:

<u>Point</u>	<u>Latitude</u>	<u>Longitude</u>
<b>Start</b>	28°44' 13.98" S	20°40' 19.23" E
<b>Middle</b>	28°44' 12.86" S	20°40' 6.780 E
<b>End</b>	28°44' 18.54" S	20°39' 58.19" E

#### Oasis Substation Route realignment GPS Co-ordinates:

<u>Point</u>	<u>Latitude</u>	<u>Longitude</u>
<b>Start</b>	28°41' 24.28" S	20°58' 37.55" E
<b>Middle</b>	28°41' 31.68" S	20°58' 42.50" E
<b>End</b>	28°41' 35.52" S	20°58' 45.92" E

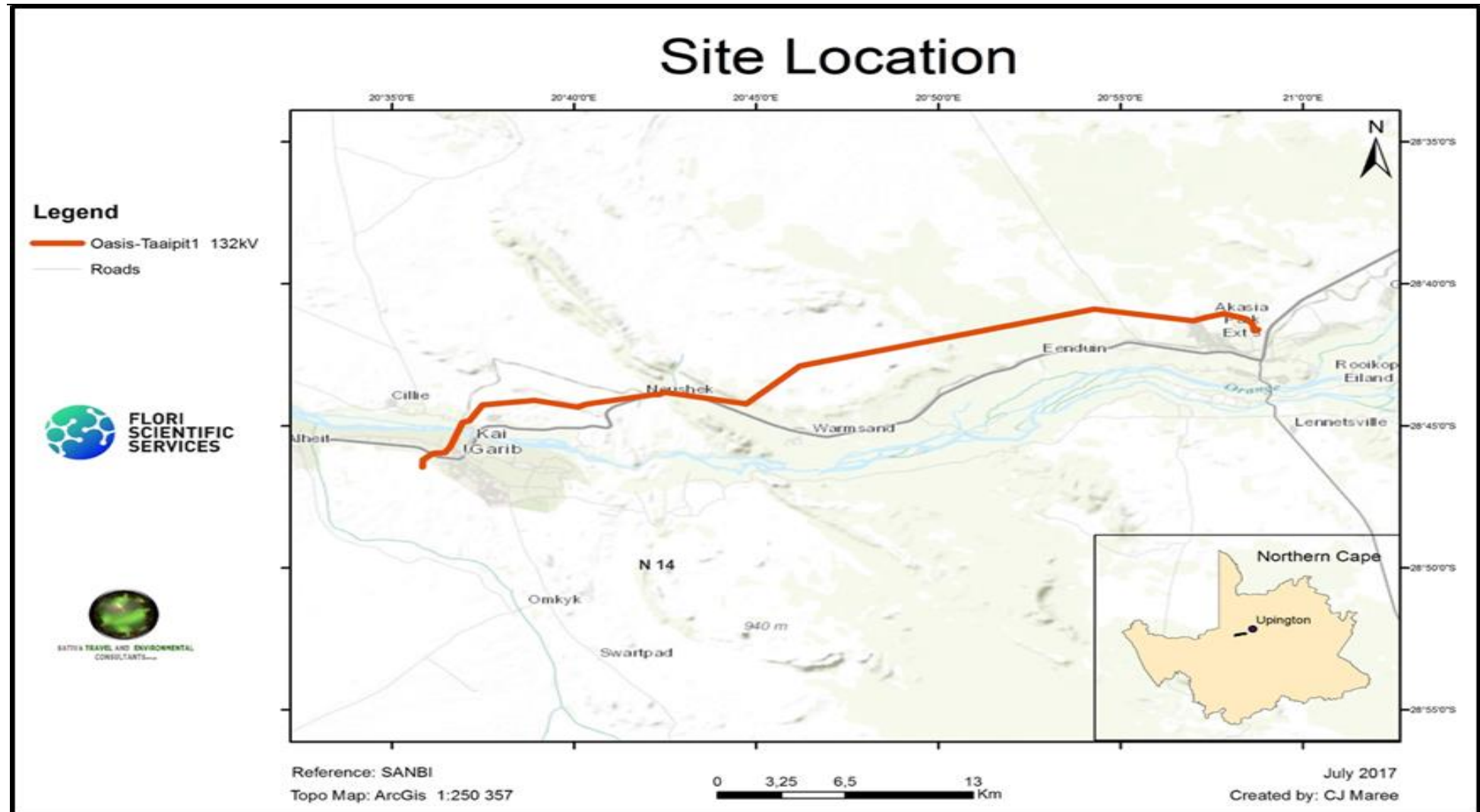


Figure 1: Site Location



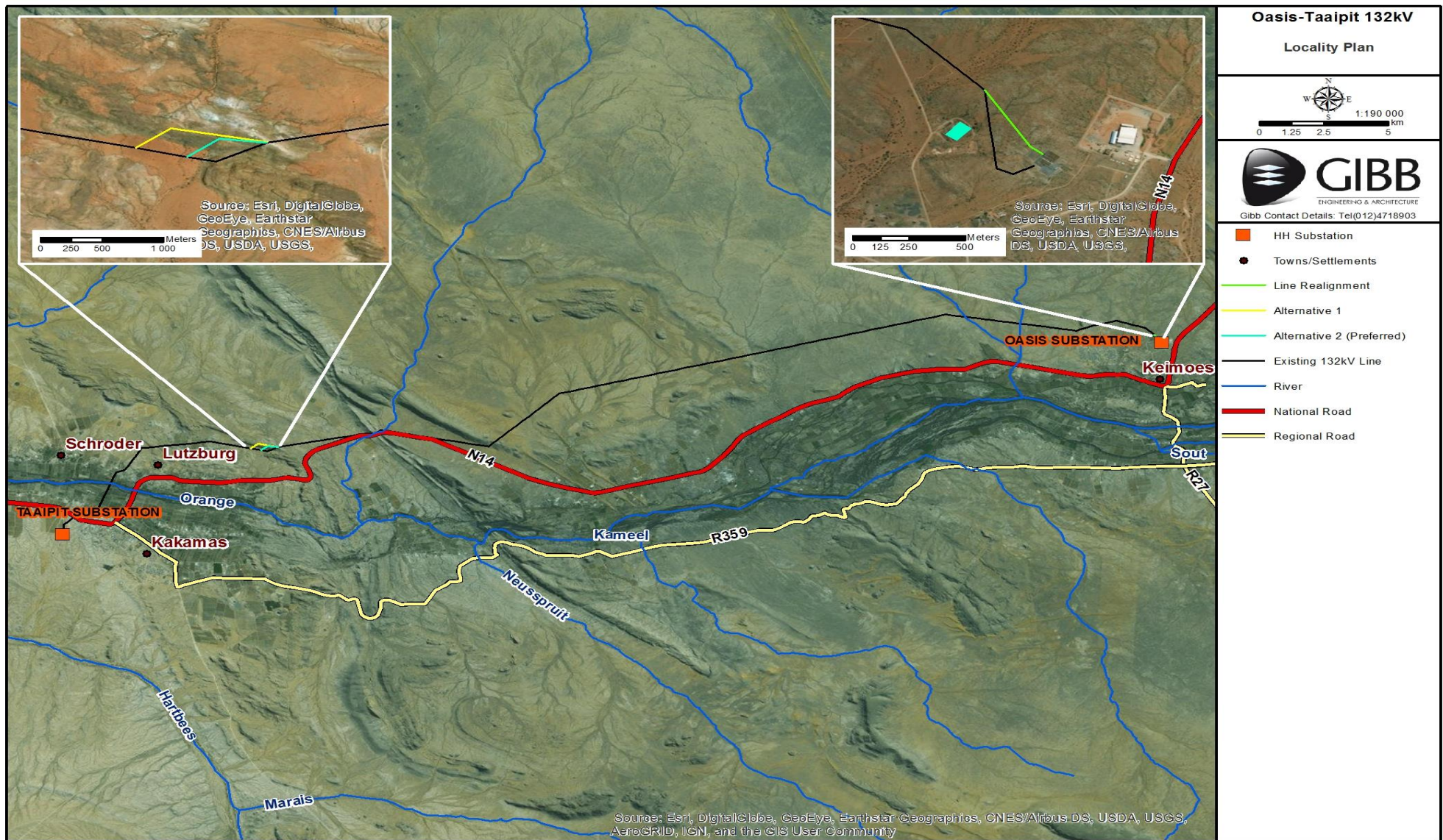


Figure 2: Locality Map (GIBB 2017)



### 1.3. Description of the Proposed Project

The proposed project entails upgrading of the existing Oasis Taaipit 132 kV powerline from wooden 5 pole structures to steel mono pole structures. The development will also include 2 deviations because some structures are not accessible. As such the proposed upgrading will shift some structures to accessible positions along the route. This study also covers such sections where two alternative powerline deviations were presented namely Alternative 1 and Alternative 2. This report is a component of a broader Basic Assessment Report and addresses the requirements of Section 38 of the NHRA Act 25 of 1999 and EIA Terms of Reference in relation to the assessment of impacts of the proposed development on the cultural and heritage resources associated with the receiving environment. The statutory mandate of heritage impact assessment studies is to encourage and facilitate the protection and conservation of archaeological and cultural heritage sites, in accordance with the provisions of the NHRA and auxiliary regulations. Therefore, in pre-development context, heritage impact assessment study is conducted to fulfil the requirements of Section 38 (1) of the National Heritage Resources Act (No 25 of 1999).

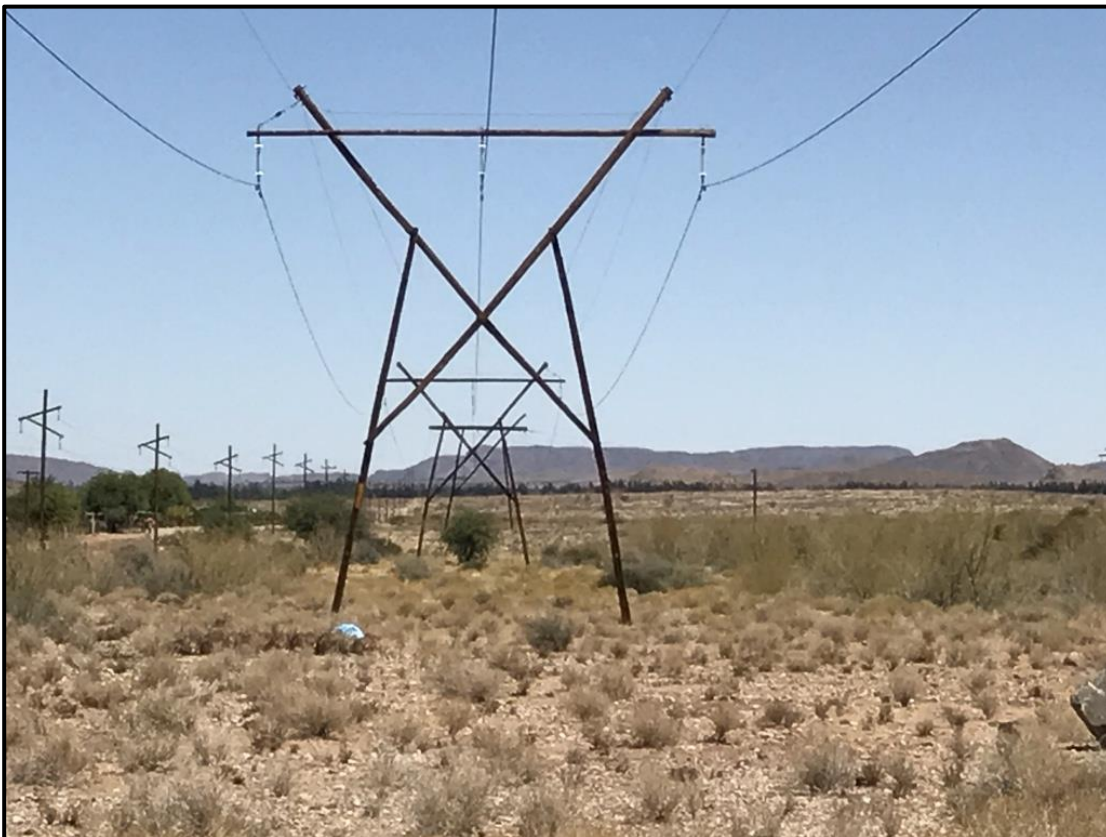


Figure 3: Oasis – Taaipit 132 kV Powerline: Example of Existing 5-pole wooden Pylons



Figure 4: Example of Steel Mono-Pole Type to replace the existing 5-pole wooden pylons

## LEGAL REQUIREMENTS

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Two main pieces of legislations are relevant to the present study and there are presented here. Under the National Heritage Resources Act (Act 25 of 1999) (NHRA) and the National Environmental Management Act (NEMA), an AIA or HIA is required as a specialist sub-section of the EIA.

Heritage management and conservation in South Africa is governed by the NHRA and falls under the overall jurisdiction of the SAHRA and its PHRAs. There are different sections of the NHRA that are relevant to this study. The present proposed development is a listed activity in terms of Section 38 of the NHRA which stipulates that the following development categories require a HIA to be conducted by an independent heritage management consultant:

- Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length
- Construction of bridge or similar structure exceeding 50m in length
- Development or other activity that will change the character of a site -
  - Exceeding 5000 sq. m

- Involving three or more existing erven or subdivisions
  - Involving three or more erven or divisions that have been consolidated within past five years
  - Rezoning of site exceeding 10 000 sq. m
  - The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
- Any other development category, public open space, squares, parks, recreation grounds

Thus, any person undertaking any development in the above categories, 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. Section 38 (2) (a) of the same act also requires the submission of a heritage impact assessment report for authorization purposes to the responsible heritage resources agencies (SAHRA/PHRAs). Because, the proposed development is a linear activity more than 300m in length, a HIA is required according to this section of act.

Related to Section 38 of the NHRA are Sections 34, 35, 36 and 37. Section 34 stipulates that no person may alter, damage, destroy, relocate etc. any building or structure older than 60 years, without a permit issued by SAHRA or a provincial heritage resources authority. This section may not apply to present study since none were identified. Section 35 (4) of the NHRA stipulates that no person may, without a permit issued by SAHRA, destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object. This section may apply to any significant archaeological sites that may be discovered before or during construction. This means that any chance find must be reported to the heritage practitioner or SAHRA, who will assist in investigating the extent and significance of the finds and inform about further actions. Such actions may entail the removal of material after documenting the find site or mapping of larger sections before destruction. Section 36 (3) of the NHRA also stipulates that no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority. This section may apply in case of the discovery of chance burials, which is unlikely. The procedure for reporting chance finds also applies to the unlikely discovery of burials or graves by the developer or his contractors. Section 37 of the NHRA deals with public monuments and memorials but this may not apply to this study.

In addition, the new EIA Regulations (2014, as amended) promulgated in terms of NEMA (Act 107 of 1998) determine that any environmental reports will include cultural (heritage) issues. The new regulations in terms of Chapter 5 of the NEMA provide for an assessment of development impacts on the cultural (heritage) and social environment and for Specialist Studies in this regard. The end purpose of such a report is to alert the developer the environmental consultant, SAHRA and interested and affected parties about existing heritage resources that may

be affected by the proposed development, and to recommend mitigatory measures aimed at reducing the risks of any adverse impacts on these heritage resources.

**Evaluation of the proposed development as guided by the criteria in NHRA and NEMA**

<b>ACT</b>	<b>Stipulation for developments</b>	<b>Requirement details</b>
NHRA Section 38	Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	Yes
	Construction of bridge or similar structure exceeding 50m in length	No
	Development exceeding 5000 sq. m	No
	Development involving three or more existing erven or subdivisions	No
	Development involving three or more erven or divisions that have been consolidated within past five years	No
	Rezoning of site exceeding 10 000 sq. m	Not available
	Any other development category, public open space, squares, parks, recreation grounds	No
NHRA Section 34	Impacts on buildings and structures older than 60 years	Subject to identification during Phase 1
NHRA Section 35	Impacts on archaeological and palaeontological heritage resources	Subject to identification during Phase 1
NHRA Section 36	Impacts on graves	Subject to identification during Phase 1
NHRA Section 37	Impacts on public monuments	Subject to identification during Phase 1
Chapter 5 NEMA	HIA is required as part of an EIA	Yes

## **TERMS OF REFERENCE**

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The author was asked to conduct an AIA/HIA study addressing the following issues:

- Archaeological and heritage potential of the proposed development site including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the PHRA/ SAHRA to make an informed decision with regards to authorisation of the proposed powerline development.



## Photographic Presentation of the Project Area



Plate 1: Photo 1: View of Oasis Substation where the powerline development starts (Photograph © by Author 2017).



Plate 2: Photo 2: View of wooden structures to be replaced by steel monopole structures (Photograph © by Author 2017). Note that the powerline cuts through vine yards.





Plate 3: Photo 3: View of powerline cutting through heavily disturbed landscape (Photograph © by Author 2017).



Plate 4: Photo 4: View of existing powerline cutting through ploughed fields (Photograph © by Author 2017).





Plate 5: Photo 5: View of existing powerline cutting a soccer pitch (Photograph © by Author 2017).



Plate 6: Photo 6: View of existing powerline route running along railway and road servitude (Photograph © by Author 2017).





Plate 7: Photo 7: View of isolated stone tools recorded in secondary deposition near powerline route (Photograph © by Author 2017).



Plate 8: Photo 8: View of the powerline wooden tower which will be by passed because of its inaccessibility (Photograph © by Author 2017).





Plate 9: Photo 9: View of alternative powerline deviation route (Photograph © by Author 2017).



Plate 10: Photo 10: Closer view of powerline deviation routes (Alternative 1 and 2) (Photograph © by Author 2017).





Plate 11: Photo 11: View of proposed powerline deviation routes Alternatives 1 and 2 seen from the south (Photograph © by Author 2017).



Plate 12: Photo 12: View of general project area taken from top of the hill (Photograph © by Author 2017).





Plate 13: Photo 13: View of point where Alternative 1 will turn left towards the terminal point (Photograph © by Author 2017).



Plate 14: Photo 14: View of terminal position for Alternative 1 deviation route (Photograph © by Author 2017).





Plate 15: Photo 15: View of existing infrastructure near terminal position for Alternative 2 powerline deviation route (Photograph © by Author 2017)



Plate 16: Photo 16: View of Alternative 2 deviation route cutting through sandy landscape (Photograph © by Author 2017).





Plate 17: Photo 17: View of proposed tower position for Alternative 2 deviation route (Photograph © by Author 2017).



Plate 18: Photo 18: View of existing wooden tower which will be by passed taken from the south (Photograph © by Author 2017).





Plate 19: Photo 19: View of tower position where the proposed deviation will be connected (Photograph © by Author 2017).



Plate 20: Photo 20: View of formal cemetery located approximately 200m from the powerline route (Photograph © by Author 2017).





Plate 21: Photo 21: View of tower position where the proposed deviation will be connected (Photograph © by Author 2017).



Plate 22: Photo 22: View of Taaipit Substation where the proposed powerline development will terminate (Photograph © by Author 2017). Note remains of campsite dwellings near substation.

## METHODOLOGY

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The proposed development requires clearance and authorisation from government compliance agencies including the heritage authority SAHRA. Key AIA/HIA objectives for this project are to:

- Fulfil the statutory requirements of the National Heritage Resources Act, Act 25 of 1999.
- Identify and describe, (in terms of their conservation and / or preservation importance) sites of cultural and archaeological importance that may be affected by the proposed project. This study seeks to identify sites and features of traditional historical, social, scientific, cultural, and aesthetic significance within the affected study area; the identification of gravesites.
- Assess the significance of the resources where they are identified.
- Evaluate the impact thereon with respect to the socio-economic opportunities and benefits that would be derived from the proposed development.
- Provide guidelines for protection and management of identified heritage sites and places (including associated intangible heritage resources management that may apply).
- Consult with the affected and other interested parties, where applicable, regarding the impact on the heritage resources in the project's receiving environment.
- Make recommendations on mitigation measures with the view to reduce specific adverse impacts and enhance specific positive impacts on the heritage resources.
- Take responsibility for communicating with the SAHRA and other authorities in order to obtain the relevant permits and authorization regarding heritage aspects.

In order to meet the objectives of the AIA/HIA Phase 1 study, the following tasks were conducted: 1) site file search, 2) limited literature review, 3) consultations with the affected communities, 4) completion of a field survey and assessment and 5) analysis of the acquired data and report production. The following tasks were undertaken:

- Preparation of a predictive model for archaeological heritage resources in the study area.
- A review and gap analysis of archaeological, historical, and cultural background information, including possible previous heritage consultant reports specific to the affected project area, the context of the study area and previous land use history as well as a site search;
- Field survey of sampled sections of the proposed development site within the study area, in order to test the predictive model regarding heritage sites in the area;
- Physical cultural property recording of any identified sites or cultural heritage places;
- Identification of heritage significance; and
- Preparation of AIA/HIA report with recommendation, planning constraints and opportunities associated with the proposed development.



Walking surveys (during early May and October 2017) were conducted in order to identify and document archaeological and cultural sites in the areas affected by the proposed development. Formal and informal settlements, commercial farming infrastructure; access and main road infrastructures, existing transmission and distribution and other auxiliary infrastructures dominate the affected project area. The entire project area was accessible through a network of main roads and district roads used to access the settlements. Although some sections of the powerline route were steep and difficult to climb, this did not hinder identification of possible archaeological sites in surveyed areas particularly those earmarked for the proposed development. Coordinates were obtained with a handheld Garmin GPS global positioning unit. Photographs were taken as part of the documentation process during field study.

#### **4.1. Impact Assessment**

The impact assessment takes into account the nature, scale and duration of the effects on the cultural landscape and whether such effects are positive (beneficial) or negative (detrimental).

A rating/point system is applied to the potential impacts on the affected environment and includes an objective evaluation of the mitigation of the impact. In assessing the significance of each issue, the following criteria are used and points awarded as shown:

- Extent: National - 4; Regional – 3; Local – 2; Site – 1.
- Duration: Permanent – 4; Long term – 3; Medium term – 2; Short term – 1.
- Intensity: Very high – 4; High – 3; Moderate – 2; Low – 1.
- Probability of Occurrence: Definite – 4; Highly probable – 3; Possible – 2; Impossible – 1.

#### **4.2. Criteria for the classification of an impact**

##### **Nature**

A brief description of the cultural aspect being impacted upon by a particular action or activity is presented.

##### **Extent (Scale)**

Considering the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact.

- Site: Within the construction site
- Local: Within a radius of 2 km of the construction site
- Regional: Provincial (and parts of neighbouring provinces)
- National: The whole of South Africa

## **Duration**

Indicates what the lifetime of the impact will be.

- Short-term: The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase.
- Medium-term: The impact will last for the period of the construction phase, where after it will be entirely negated.
- Long-term: The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter.
- Permanent: The only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

## **Intensity**

Describes whether an impact is destructive or benign.

- Low: Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.
- Medium: Effected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way.
- High: Natural, cultural and social functions and processes are altered to extent that they temporarily cease.
- Very high: Natural, cultural and social functions and processes are altered to extent that they permanently cease.

## **Probability**

Probability is the description of the likelihood of an impact occurring.

- Improbable: Likelihood of the impact materialising is very low.
- Possible: The impact may occur.
- Highly probable: Most likely that the impact will occur.
- Definite: Impact will certainly occur.

## **Significance**

Significance is determined through a synthesis of impact characteristics. It is an indication of the importance of the impact in terms of both the physical extent and the time scale and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Using the scoring from the previous section, the significance of impacts is rated as follows:

- Low impact: 4-7 points. No permanent impact of significance. Mitigating measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
- Medium impact: 8-10 points. Mitigation is possible with additional design and construction inputs.
- High impact: 11-13 points. The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
- Very high impact: 14-16 points. The design of the site may be affected. Intensive remediation as needed during construction and/or operational phases. Any activity, which results in a “very high impact”, is likely to be a fatal flaw.

### **Status**

Status gives an indication of the perceived effect of the impact on the area.

- Positive (+): Beneficial impact.
- Negative (-): Harmful or adverse impact.
- Neutral Impact (0): Neither beneficial nor adverse.

It is important to note that the status of an impact is assigned based on the *status quo*. That is, should the project not proceed. Therefore, not all negative impacts are equally significant. The suitability and feasibility of all proposed mitigation measures will be included in the assessment of significant impacts. This will be achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

### **4.3. Assumptions and Limitations**

The investigation has been influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities must be halted immediately, and a competent heritage practitioner, SAHRA or PHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see NHRA (Act No. 25 of 1999), Section 36 (6)). Recommendations contained in this document do not exempt the developer from complying with any national, provincial and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA. The author assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.

The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion or field ploughing. Some assumptions were made as part of the study and therefore some limitations, uncertainties and gaps in information apply. It should however, be noted that these do not invalidate the findings of this study in any significant way:

- The proposed development will be limited to specific right of corridors (200m) as detailed in the development layout (Figure 1 & 2).
- The construction team will utilize existing access to the proposed development site and service sites will use the existing access roads and there will be no construction without any major deviations.
- The study observed that most sections of the project area have low potential to yield significant *in situ* archaeological or physical cultural properties.
- No excavations or sampling were undertaken, since a permit from heritage authorities is required to disturb a heritage resource. As such the results herein discussed are based on surface observed indicators, these surface observations concentrated on exposed sections such as road cuts and clear farmland.
- This study did not include any ethnographic and oral historical studies nor did it investigate the settlement history of the area.

#### **4.4. Consultation**

The EIA Public Participation invited comments from stakeholder's interested parties on any archaeological heritage matters related to the proposed development.

## **CULTURE HISTORY BACKGROUND OF THE PROJECT AREA**

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### **5.1. Stone Age Archaeology**

#### **Introduction**

Keimoes where the existing powerline starts is situated alongside the Orange River, about 40 km west of Upington. The site for the proposed extension on quarry mining is located farm Warm Z and 468 situated in the Magisterial District of Gordonia, Northern Cape Province. The Warm Zand farm is situated in an agricultural setting approximately 18km west from the town of Keimoes. The town of Keimoes grew out of an irrigation scheme that was established in the larger Upington and Kakamas areas. It attained municipal status in 1949. The name of the town is of Khoikhoi origin and translates as "large eye", i.e. a natural fountain. According to the various databases that were consulted it has approximately 10 buildings and features that are listed as provincial heritage sites or are viewed to be of conservation worthy status. The area under study is approximately 500m. The aim of the study is to locate and map archaeological sites/remains that may be impacted by the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate the impacts.

Stone Age archaeology is prevalent in the larger geographical area such that archaeologists who have previously worked on Northern Cape documented a quite number of Stone Age sites in the area. It is not surprising to come across stone tools in the region. Banded ironstone is known to have been a favoured and desirable raw material for making stone artefacts and occurs on a number of sites that have been documented by the archaeologist and others throughout the Northern Cape. Most of the tools are spread very thinly and unevenly over the surrounding region, but a low-density scatter of tools can also be noticed. Previous researches on the province shows that Early Stone Age is very well represented at sites such as Kathu Pan 1, Kathu Townlands, Bestwood 1 (Wilkins and Chazan 2012; Chazan *et al.* 2012; Walker *et al.* 2014) and Wonderwerk Cave (Thackeray *et al.* 1981). All of the above sites produced well-made Acheulean hand axes and cleavers, as well as Fauresmith lithic materials that are transitional between the Acheulean (ESA) and the MSA.

The ESA is generally associated with the earlier Oldowan industry (marked by crude choppers and other unifacial core tools), followed by the still large but better fashioned hand axes and cleavers of the Acheulean techno-complex (Deacon and Deacon 1999). The Fauresmith Industry is characterized by a prepared core technology that produced both blades and points, making it transitional between the ESA and the MSA (~ 250 000 to 40 000-25 000 years ago) (Porat *et al.* 2010; Wilkins and Chazan 2012; Walter *et al.* 2014). Until recently, the Fauresmith Industry was poorly defined, being mostly identified based on the co-occurrence of Levallois points and hand axes (Beaumont and Vogel 2006: 224), and prepared cores, blades, and 'side-scrapers on flakes' (Beaumont 1990:79)

More technological and behavioural changes than those witnessed in the MSA, occurred during the LSA (~40 000-25 000, to recently, 100 years ago), which is also associated with *Homo sapiens* (Barham and Mitchell 2008). For the first time, there is evidence of people's activities derived from material other than stone tools (ostrich eggshell beads, ground bone arrowheads, small bored stones and wood fragments) (Deacon and Deacon 1999).

The LSA people are also credited with the production of rock art (engravings and paintings), which is an expression of their complex social and spiritual beliefs (Parkington *et al.* 2008). The MSA is better understood as a flake-technological stage characterized by faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology (Barham and Mitchell 2008). At Wonderwerk Cave, the MSA component was associated with pieces of haematite and several incised stone slabs, most with curved parallel lines that add to the behavioural shifts that went beyond stone tools and ushered in the appreciation of art (Beaumont and Vogel 2006). In terms of characterization, the lithic succession at Wonderwerk Cave serves as a benchmark for the Stone Age sequence of the Northern Cape (Beaumont and Vogel 2006; Kusel *et al.* 2009). The sequence comprises an



uppermost LSA sequence that contains Ceramic LSA, Wilton and Oakhurst industries. Some researchers have named the earlier LSA industry of the region as the Oakhurst industry (some have labelled this local variant the Kuruman), characterized by rare retouched artefacts, most of which are large scrapers that are oblong with retouch on the side.

## **5.2. SAHRIS Database and Impact assessment reports in the proposed project area**

At least sixteen previous CRM projects were conducted in the general vicinity of the study area. The studies include solar plants, powerline and other infrastructure development projects were completed by Dreyer (2012), Fourie, (2011, 2013, 2014), Kaplan (2006, 2008, 2011a, 2011b, 2012a, 2012b, 2014), Van der Walt (2006, 2008a, 2008b, 2013, 2015); Engelbrecht (2015), Hutten, L. & Hutten, W. (2013) Morris (2011a, 2011b), Beaumont (2005, 2005), Van Ryneveld (2007a, 2007b), Mlilo (2016), Kruger (2015a, 2015b), Pelsler, A. & van Vollenhoven, A.C. 2011, Pelsler, A.J (2012), Van Schalkwyk (2010, 2015a, 2015b, 2016), Van Vollenhoven, A.C. (2012), Webley, L & Halkett, D. (2008) and Mlilo (2017). These recorded LSA, MSA and LSA sites of varying significance. These findings provided insights regarding the potential of the study site.

## **5.3. Intangible Heritage**

As defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) intangible heritage includes oral traditions, knowledge and practices concerning nature, traditional craftsmanship and rituals and festive events, as well as the instruments, objects, artefacts and cultural spaces associated with group(s) of people. Thus, intangible heritage is better defined and understood by the particular group of people that uphold it. In the present study area, very little intangible heritage is anticipated on the development footprint because most historical knowledge does not suggest a relationship with the study area per se, even though several other places in the general area such do have intangible heritage.

## **RESULTS OF THE ARCHAEOLOGICAL/HERITAGE ASSESSMENT STUDY**

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The proposed powerline development is located in the magisterial district of Gordonia, Northern Cape Province. The proposed development site has been established through consideration of biophysical, social, technical and cultural aspects. The Basic Assessment process will aim to provide a final site selection of the proposed development site is based on biophysical, social, cultural and technical considerations. The following section presents results of the archaeological and Heritage survey conducted along the proposed powerline deviation route.

Heritage resource	Status/Findings
Buildings, structures, places and equipment of cultural significance	None exist along the powerline route.
Areas to which oral traditions are attached or which are associated with intangible heritage	None exists on the study area
Historical settlements and townscapes	None survives in the proposed area
Landscapes and natural features of cultural significance	None
Archaeological and palaeontological sites	None were recorded along the powerline route.
Graves and burial grounds	Identified a formal cemetery within the greater area of the powerline that will be refurbished but none at the deviation points
Movable objects	None
Overall comment	Although disturbed the site has potential to yield significant archaeological remains.

### 6.1. Archaeological and Heritage Site

The proposed powerline development including 2 deviations did not yield any confirmable archaeological remains. It is assumed that the chances of recovering significant archaeological materials *in situ* were seriously compromised by erosion and stamping by farm animals.

### 6.2. Historical Buildings and Structures

The proposed powerline route including deviations did not yield any buildings or structures older than 60 years. In terms of the built environment, the area has no significance. There are no other structures, features or old equipment in the study area.

### 6.3. Burial Grounds and Graves

The proposed powerline route including deviations did not yield any graves or burial grounds within the impact zone. There is a formal cemetery within the vicinity of the powerline route. The cemetery is fenced and well-marked. It is significantly far from the powerline impact zone. It should be noted that burial grounds and gravesites are accorded the highest social significance threshold (**See Appendix 3**). They have both historical and social significance and are considered sacred. Wherever they exist, they may not be tempered with or interfered with during any development. The possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present. Although the possibility of encountering previously unidentified burial sites is low along the proposed powerline routes, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (**See Appendices 2 & 3 for more details**).

#### **6.4. Historical Monuments and Memorials**

The proposed powerline upgrade routes did not yield any historical monuments and memorials.

#### **6.5. Mitigation Measures**

No mitigation is required for the proposed construction of the proposed Oasis-Taaipit 132kv powerline upgrading.

#### **6.6. CUMULATIVE IMPACTS**

The powerline will utilize the existing route. As such no new impacts are expected from the development including deviations. The development will not introduce new impacts to the landscape.

## **DISCUSSION**

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Various archaeological and heritage specialist studies were conducted in the general project area since 2002. These studies recorded sites of varying significance for example Kaplan (2006, 2008, 2011, 2014), van der Walt (2008, 2011, 2013, 2015); Morris (2011a 2011b), Van Ryneveld, K. (2007A, 2007B, 2007C) which testify that the project area is a cultural landscape with high potential to yield significant Stone Age sites.

The study noted that the proposed powerline development route is located within a degraded area, and have reduced sensitivity for the presence of high significance physical cultural site remains, be they archaeological, historical or burial sites, due to previous disturbances resulting from mainly agriculture activities in the area. However, the absence of confirmable and significant archaeological cultural heritage sites is not evidence in itself that such sites did not exist in the proposed powerline route. There is potential of recovering significant archaeological remains beneath the surface. In addition, some sections were not easily accessible due to the steep nature of the project site. Significance of the sites of Interest is not limited to presence or absence of physical archaeological sites.

## **CULTURAL HERITAGE SITE ASSESSMENT OF SIGNIFICANCE**

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The appropriate management of cultural heritage resources is usually determined on the basis of their assessed significance as well as the likely impacts of any proposed developments. Cultural significance is defined in the Burra Charter as meaning aesthetic, historic, scientific, or social value for past, present, or future generations (Article 1.2). Social, religious, cultural, and public significance are currently identified as baseline elements of this assessment, and it is through the combination of these elements that the overall cultural heritage values of the site of interest, associated place or area are resolved.

Not all sites are equally significant and not all are worthy of equal consideration and management. The significance of a place is not fixed for all time, and what is considered of significance at the time of assessment may change as similar items are located, more research is undertaken and community values change. This does not lessen the value of the heritage approach, but enriches both the process and the long-term outcomes for future generations as the nature of what is conserved and why, also changes over time (Pearson and Sullivan 1995:7).

African indigenous cultural heritage significance is not limited to items, places or landscapes associated with pre-European contact. Indigenous cultural heritage significance is understood to encompass more than ancient archaeological sites and deposits, broad landscapes, and environments. It also refers to sacred places and story sites, as well as historic sites, including mission sites, memorials, and contact sites. This can also refer to modern sites with resonance to the indigenous community. The site of interest considered in this project falls within this realm of broad significance.

## **ASSESSMENT CRITERIA**

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The SAHRA Guidelines and the Burra Charter define the following criterion for the assessment of cultural significance:

### **9.1. Aesthetic Value**

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture, and material of the fabric; sense of place, the smells and sounds associated with the place and its use.

### **9.2. Historic Value**

Historic value encompasses the history of aesthetics, science, and society, and therefore to a large extent underlies all of the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase, or activity. It may also have historic value as the site of an important event. For any given place, the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

### **9.3. Scientific value**

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality, or representativeness, and on the degree to which the place may contribute further substantial information. Scientific value is also enshrined in natural resources that have significant social value. For example, pockets of forests and bushvelds have high ethnobotany value.

### **9.4. Social Value**

Social value embraces the qualities for which a place has become a focus of spiritual, religious, political, local, national or other cultural sentiment to a majority or minority group. Social value also extends to natural resources such as bushes, trees and herbs that are collected and harvested from nature for herbal and medicinal purposes.

## IMPACT ASSESSMENT

The main causes of impact during construction of the proposed powerline are excavation for new tower positions, movement of heavy construction equipment during transporting of material and during stringing as well as maintenance of the powerline. The project area is mainly disturbed by overgrazing, erosion and stamping by cattle as the project falls on a major cattle track within the greater area.

### 10.1. Potential impacts

The biggest potential negative impacts on the affected landscape are activities related to excavations for tower positions, installation, and movement of construction equipment along the proposed powerline route. However, because the existing route is already significantly impacted on, the potential impacts are insignificant. The following impact assessment was done for this study. The impact assessment takes into consideration that the general landscape is already significantly disturbed.

The table below is the impact assessment for the dismantling and construction as are related to the powerline deviation.

Potential impacts on archaeological and heritage remains during dismantling and construction deviation	
Criteria	Rating
Intensity	1
Duration	1
Intensity	1
Probability	2
Total	5

The study concluded that without any mitigating measures, the impacts of the proposed powerline upgrade will be **very low**. However, construction teams must take into consideration the chance find procedures below.

### 10.2. Chance finds procedures

It has already been highlighted that sub-surface materials may still be lying hidden from surface surveys. Therefore, absence (during surface survey) is not evidence of absence all together. The following monitoring and reporting procedures must be followed in the event of a chance find, in order to ensure compliance with heritage laws and

policies for best-practice. This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. Accordingly, all construction teams must be properly inducted to ensure they are fully aware of the procedures regarding chance finds.

- ❖ If during the construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- ❖ The site manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing the client.
- ❖ The client will then contact a professional archaeologist for an assessment of the finds who will in turn inform SAHRA/PHRA.



## RECOMMENDATIONS

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The study, did not find any permanent barriers to the proposed powerline upgrade. The following recommendations are based on the results of the AIA/HIA research, cultural heritage background review, site inspection and assessment of significance. The deviation Alternatives are all viable from an archaeological perspective, however **Alternative 2** for the Deviation on the ridge **is the most preferred** because it is shorter and less likely to cause any serious impacts to subsurface remains. All the potential impacts associated with the development site can be mitigated without serious design alterations. The project may be approved subject to the following recommendations:

- The proposed development may be approved to proceed as planned under observation that construction work does not extend beyond the surveyed site. Rather servitude area
- Both deviation alternatives are viable from an archaeological and heritage perspective
- The foot print impact of the proposed development should be kept to minimal to limit the possibility of encountering chance finds within servitude.
- Location of the proposed development infrastructure should be restricted to minimum footprint impact especially where such infrastructure falls within bushy area. Such bushy sections have local ethno-botany significance as sources of traditional herbs and medicines. As such disruption and vegetation clearance should be minimal.
- Overall, impacts to heritage resources are not considered to be significant for the project receiving environment. It is thus concluded that the project may be cleared to proceed as planned subject to the Heritage Authority ensuring that a detailed heritage monitoring procedures are included in the project EMP for the construction phase, include chance archaeological finds mitigation procedure in the project EMP (See Appendix 1).
- The chance finds process will be implemented when necessary especially when archaeological materials and burials are encountered during subsurface construction activities.
- If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place.
- If during the construction or operations phases of this project, any person employed by the developer, any of its subsidiaries, contractors and subcontractors, or service provider, finds any artifacts of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- The senior-site manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing SAHRA/PHRA.

- If a human grave/burial is encountered, the remains must be left as undisturbed as possible before the local police and SAHRA or PHRA are informed. If the burial is deemed to be over 60 years old and no foul play is suspected, an emergency rescue permit may be issued by SAHRA for an archaeologist to exhume the remains.
- The Project Public Participation Process should ensure that any cultural heritage related matters for this project are given due attention whenever they arise and are communicated PHRA throughout the proposed project development. This form of extended community involvement would pre-empt any potential disruptions that may arise from previously unknown cultural heritage matter that may have escaped the attention of this study.
- The findings of this report, with approval of the PHRA/SAHRA, may be classified as accessible to any interested and affected parties within the limits of the laws.

## CONCLUDING REMARKS

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The literature review and field research confirmed that the project area is situated within a contemporary cultural landscape dotted with settlements with long local history. In terms of the archaeology and heritage with respect to the proposed Oasis-Taaipit 132kv powerline upgrade there are **no obvious 'Fatal Flaws' or 'No-Go' areas. No archaeological sites were recorded along the existing route and deviations.** The field survey established that the affected project area is degraded by existing powerline, overgrazing and stamping by cattle. This report concludes that the proposed development may be approved by SAHRA/PHRA to proceed as planned subject to recommendations herein made which include a heritage monitoring plan being incorporated into the construction EMP (See Appendices 1, 2 &3). The measures are informed by the results of the study and principles of heritage management enshrined in the NHRA, Act 25 of 1999.

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## APPENDIX 1: HERITAGE MANAGEMENT PLAN INPUT INTO THE OASIS-TAAIPIT POWERLINE UPGRADING PROJECT EMP

Objective	<ul style="list-style-type: none"> <li>• Protection of archaeological sites and land considered to be of cultural value;</li> <li>• Protection of known physical cultural property sites against vandalism, destruction and theft; and</li> <li>• The preservation and appropriate management of new archaeological finds should these be discovered during construction.</li> </ul>							
No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
<b>Pre-Construction Phase</b>								
1	Planning	Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan, and marked as no-go areas.	Throughout Project	Weekly Inspection	Contractor [C] CECO	SM	ECO	EA EM PM
<b>Construction Phase</b>								
1	Emergency Response	Should any archaeological or physical cultural property heritage resources be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM
		Should any archaeological, cultural property heritage resources be exposed during excavation or be found on development site, a registered heritage specialist or PHRA official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from site;		Throughout	C CECO	SM	ECO	EA EM PM
		Should remain and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform PHRA.		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the PHRA and South African Police Service should be contacted.		When necessary	C CECO	SM	ECO	EA EM PM
<b>Rehabilitation Phase</b>								
		Same as construction phase.						
<b>Operational Phase</b>								
		Same as construction phase.						

**APPENDIX 2: HERITAGE MITIGATION MEASURE TABLE**

SITE REF	HERITAGE ASPECT	POTENTIAL IMPACT	MITIGATION MEASURES	RESPONSIBLE PARTY	PENALTY	METHOD STATEMENT REQUIRED
Chance Archaeological and Burial Sites	General area where the proposed project is situated is a historic landscape, which may yield archaeological, cultural property, remains. There are possibilities of encountering unknown archaeological sites during subsurface construction work which may disturb previously unidentified chance finds.	<p>Possible damage to previously unidentified archaeological and burial sites during construction phase.</p> <ul style="list-style-type: none"> <li>• Unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant archaeological sites.</li> <li>• Loss of historic cultural landscape;</li> <li>• Destruction of burial sites and associated graves</li> <li>• Loss of aesthetic value due to construction work</li> <li>• Loss of sense of place</li> </ul> <p>Loss of intangible heritage value due to change in land use</p>	<p>In situations where unpredicted impacts occur construction activities must be stopped and the heritage authority should be notified immediately.</p> <p>Where remedial action is warranted, minimize disruption in construction scheduling while recovering archaeological data. Where necessary, implement emergency measures to mitigate.</p> <ul style="list-style-type: none"> <li>• Where burial sites are accidentally disturbed during construction, the affected area should be demarcated as no-go zone by use of fencing during construction, and access thereto by the construction team must be denied.</li> <li>• Accidentally discovered burials in development context should be salvaged and rescued to safe sites as may be directed by relevant heritage authority. The heritage officer responsible should secure relevant heritage and health authority permits for possible relocation of affected graves accidentally encountered during construction work.</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor /</li> <li>• Project Manager</li> <li>• Archaeologist</li> <li>• Project EO</li> </ul>	<p>Fine and or imprisonment under the NHRA</p>	<p>Monitoring measures should be issued as instruction within the project EMP.</p> <p>PM/EO/Archaeologists Monitor construction work on sites where such development projects commence within the farm.</p>

## **1. APPENDIX 3: LEGAL BACK GROUND AND PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA**

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Extracts relevant to this report from the National Heritage Resources Act No. 25 of 1999, (Sections 5, 36 and 47):

General principles for heritage resources management

5. (1) All authorities, bodies and persons performing functions and exercising powers in terms of this Act for the management of heritage resources must recognise the following principles:

(a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival;

(b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans;

(c) heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and

(d) heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

(2) To ensure that heritage resources are effectively managed—

(a) the skills and capacities of persons and communities involved in heritage resources management must be developed; and

(b) provision must be made for the ongoing education and training of existing and new heritage resources management workers.

(3) Laws, procedures and administrative practices must—

(a) be clear and generally available to those affected thereby;

(b) in addition to serving as regulatory measures, also provide guidance and information to those affected thereby; and

(c) give further content to the fundamental rights set out in the Constitution.

(4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.

(5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.

(6) Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development.

(7) The identification, assessment and management of the heritage resources of South Africa must—

(a) take account of all relevant cultural values and indigenous knowledge systems;

(b) take account of material or cultural heritage value and involve the least possible alteration or loss of it;

(c) promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural

significance and conservation needs;

(d) contribute to social and economic development;

(e) safeguard the options of present and future generations; and

(f) be fully researched, documented and recorded.

### **Burial grounds and graves**

36. (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—



- (a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
  - (b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.
- (7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.
- (b) The Minister must publish such lists as he or she approves in the Gazette.
- (8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.
- (9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

### **General policy**

47. (1) SAHRA and a provincial heritage resources authority—

- (a) must, within three years after the commencement of this Act, adopt statements of general policy for the management of all heritage resources owned or controlled by it or vested in it; and
- (b) may from time to time amend such statements so that they are adapted to changing circumstances or in accordance with increased knowledge; and
- (c) must review any such statement within 10 years after its adoption.

(2) Each heritage resources authority must adopt for any place which is protected in terms of this Act and is owned or controlled by it or vested in it, a plan for the management of such place in accordance with the best environmental, heritage conservation, scientific and educational principles that can reasonably be applied taking into account the location, size and nature of the place and the resources of the authority concerned, and may from time to time review any such plan.

(3) A conservation management plan may at the discretion of the heritage resources authority concerned and for a period not exceeding 10 years, be operated either solely by the heritage resources authority or in conjunction with an environmental or tourism authority or under contractual arrangements, on such terms and conditions as the heritage resources authority may determine.

(4) Regulations by the heritage resources authority concerned must provide for a process whereby, prior to the adoption or amendment of any statement of general policy or any conservation management plan, the public and interested organisations are notified of the availability of a draft statement or plan for inspection, and comment is

invited and considered by the heritage resources authority concerned.

(5) A heritage resources authority may not act in any manner inconsistent with any statement of general policy or conservation management plan.

(6) All current statements of general policy and conservation management plans adopted by a heritage resources authority must be available for public inspection on request.