



PGS
HERITAGE

Proposed Good Hope 132kV Overhead Powerline

On Portions of the farm Klipfontein 305, Klipkoppan, Gedenkruist 1029 and Doornpan 1027 near Dealesville, Free State Province

Heritage Impact Assessment

Template Number	Document Number	Revision	Date
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Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page ii

REVISION HISTORY

Version	Issue Date	Description of Changes
01	16 March 2023	First draft
02	10 May 2023	Updated project description
03	19 May 2023	Addition of Palaeontological Compliance statement

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page iii

Declaration of Independence

- I, Wouter Fourie, declare that –
- General declaration:
- I act as the independent heritage practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting heritage impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in section 38 of the NHRA when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- All the particulars furnished by me in this form are true and correct;
- I will perform all other obligations as expected from a heritage practitioner in terms of the Act and the constitutions of my affiliated professional bodies; and
- I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the NEMA.

Disclosure of Vested Interest

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;

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Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page iv

ACKNOWLEDGEMENT OF RECEIPT

Report Title	Heritage Impact Assessment - Proposed Good Hope 132kV Overhead Power Line On Portions of the farm Klipfontein 305, Klipkoppan, Gedenkruist 1029 and Doornpan 1027 near Dealesville, Free State Province		
Control	Name	Signature	Designation
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CLIENT: Terramanzi Group

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SIGNATURE: _____

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page v

The Heritage Impact Assessment Report has been compiled considering the National Environmental Management Act (Act No. 107 of 1998) (NEMA): Appendix 6 of the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended, 2017) requirements for specialist reports as indicated in the table below.

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report
1.(1) (a) (i) Details of the specialist who prepared the report	Page iii of Report – Contact details and company
(ii) The expertise of that person to compile a specialist report including a curriculum vita	Section 1.2 – refer to Appendix C
(b) A declaration that the person is independent in a form as may be specified by the competent authority	Page iii of the report
(c) An indication of the scope of, and the purpose for which, the report was prepared	Section 1.1
(cA) An indication of the quality and age of base data used for the specialist report	Section 3, 4 and 5
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 5
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3 and 4
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3 and Appendix A
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 5 and 6
(g) An identification of any areas to be avoided, including buffers	Section 9
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 6
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1.3
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Section 6
(k) Any mitigation measures for inclusion in the EMPr	Section 9
(l) Any conditions for inclusion in the environmental authorization	Section 9
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorization	Section 9
(n)(i) A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and	Section 10
(n)(iA) A reasoned opinion regarding the acceptability of the proposed activity or activities; and	
(n)(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 10
(o) A description of any consultation process that was undertaken during the course of carrying out the study	
(p) A summary and copies if any comments that were received during any consultation process	Not applicable. To date no comments regarding heritage resources that require input from a specialist have been raised.
(q) Any other information requested by the competent authority.	Not applicable.
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	No protocols or minimum standards for HIAs or PIAs

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page vi

EXECUTIVE SUMMARY

PGS Heritage (Pty) Ltd was appointed by the TerraManzi Group (Pty) Ltd (TerraManzi) to undertake a Heritage Impact Assessment (HIA) that forms part of the Basic Assessment (BA) process for the proposed Good Hope Project Overhead Powerline (GHOHPL) on Portions of the farm Klipfontein 305, Klipkoppan, Gedenkruis 1029 and Doornpan 1027 near Dealesville, Free State Province.

This HIA aims to evaluate the possible impacts on heritage resources present within the proposed development footprint.

Heritage Resources Identified

A selective survey of the study area was undertaken by a combination of vehicles and pedestrian survey on 22 and 23 February 2023. It is important to note that although as intensive a fieldwork coverage as possible was undertaken, sections of the study area are in areas which are more densely overgrown and/or disturbed, which limited visibility in those areas of the study area.

Three heritage sites (**GH-OHL-001 to 003**) and three low heritage significance findspots (**GH-OHL-004 to 006**) were identified within the lesser disturbed southern section of the corridor.

Site **GH-OHL-001** consist of a large stone-walled kraal built within the confines of a large low rocky outcrop on the southern side of the dirt road running along the proposed alignment within the corridor. The type of stone-built kraal indicates early farming communities and their economic farming activities relating to animal husbandry. The site has a low to medium heritage significance with a local heritage grading of IIIC.

Sites **GH-OHL-002 and 003** are engraved initials on dolerite boulders, dating from 1956. The initialled engraving provides a unique glimpse into the general day-to-day activities of the white farming community in the late 1950s. The two engravings has a low heritage significance with a local grading of IIIC.

The dolerite outcrops towards the corridor's western end are characterised by various low-significance stone tool scatters (**GH-OHL-004 to 006**). Most stone tools consist of cores and flakes with minimal reworking or formal tools. The low density and lack of deposits on the rocky outcrops add to a generally low heritage significance rating and a grading of IIIC.

Palaeontology

A compliance statement for the OHPL was conducted by Dr Elize Butler (2023) with the following findings:

“The study area is underlain by Quaternary deposits, Jurassic dolerite, as well as the Tierberg Formation of the Ecca Group (Karoo Supergroup). According to the PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database, the Palaeontological Sensitivity of the Quaternary aeolian sands

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page vii

are Moderate, that of Jurassic dolerite is Zero and the Tierberg Formation has a High Palaeontological Sensitivity (Almond and Pether, 2009; Almond et al., 2013).

Buter (2023) states, that the updated Geology indicates that the study area is underlain by the Kalahari Group, Karoo Dolerite as well as the Tierberg Formation of the Eccca Group. Topographical as well as Google Earth images indicate that the relief of the proposed project is low, and outcrops in the area are rare. It is considered that the proposed development will not lead to detrimental impacts on the palaeontological reserves of the area.”

Impact Assessment

The pre-construction and construction phase of the proposed development will entail surface clearance and excavations into the superficial sediment cover and underlying bedrock. The possible pre-construction impacts calculated on the tangible cultural heritage resources is an overall **LOW NEGATIVE** rating, but with the implementation of the recommended buffers and management, guidelines will be reduced to a **LOW NEGATIVE** impact.

Mitigation measures

The calculated impact, as summarised in **Section 11** of this report, confirms that the impact of the proposed development will be reduced with the mitigation measures. This finding, in addition to implementing a chance finds procedure as part of the EMP, will mitigate possible impacts on unidentified heritage resources. The following mitigation measures are listed in Error! Reference source not found..

Table 1 - Heritage management recommendations.

Area and site no.	Mitigation measures
General project area	<ul style="list-style-type: none"> ▪ Implement a chance to find procedures in case where possible heritage finds are uncovered. ▪ A detailed “walk down” of the final approved alignment will be required before construction commences. ▪ Any significant features of significance identified during this walkdown will require formal mitigation (i.e., permitting where required) or where possible a slight change in design could accommodate such resources. <ul style="list-style-type: none"> ▪
Identified heritage sites	<ul style="list-style-type: none"> ▪ Archaeological Monitoring during construction in the vicinity of sites GH-OHL004-006 ▪ Avoidance of the low dolerite outcrop that contains site GH-OHL-001 to 003. It is recommended that the alignment keep to the norther side of the dirt road opposite the dolerite outcrop. ▪ Demarcate the outcrop at GH-OHL-001 to 003 as a n-go area during construction.
Palaeontology	<ul style="list-style-type: none"> ▪ If Palaeontological Heritage is uncovered during surface clearing and excavations the Chance find Protocol attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page viii

Area and site no.	Mitigation measures
	(SAHRA) (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation (recording and collection) can be carried out.
General project area	<ul style="list-style-type: none"> ▪ Implement a chance to find procedures in case where possible heritage finds are uncovered. ▪ A detailed “walk down” of the final approved alignment will be required before construction commences. ▪ Any significant features of significance identified during this walkdown will require formal mitigation (i.e., permitting where required) or where possible a slight change in design could accommodate such resources.

Conclusion

If heritage resources are discovered during site clearance, construction activities that may impact the find must stop. A qualified archaeologist must be appointed to evaluate and make recommendations on mitigation measures.

It is our considered opinion that the overall impact of the proposed development on heritage resources will be Low. Provided that the general recommendations and mitigation measures outlined in this report are implemented, the impact would be acceptably Low or could be mitigated to the degree that the project could be approved from a heritage perspective. The management and mitigation measures described in **Section 9** of this report have been developed to minimise the project's impact on heritage resources.

We have no objection to the proposed construction under the condition that a walk down of the final approved footprints be conducted before construction commences.

Site verification conclusion

The screening sensitivity map analysis indicates localised high-sensitivity areas within a larger low-sensitivity landscape. The localised sensitivities are indicated by red or dark red buffers around the small localised archaeological and cultural heritage findspots. Although these points have high and very high sensitivity ratings, they do not exclude development or indicate a trigger, as considered by the regulations relating to grids and powerlines. It must be kept in mind that the type of development still triggers the requirements of an HIA as contemplated in section 38 of the National Heritage Resources Act (Act 25 of 199). Comment and recommendations from the South African Heritage Resources Agency on whether a full HIA process must be followed if the OHL development is exempted from an environmental authorisation process in the form of a Basic Assessment or Environmental Impact Assessment (**Table 6**).

The fieldwork in the study area demonstrated that some of the localised areas identified correlate with those indicated in the screening sensitivity maps. Therefore, in the case of this study area, the Department of Forestry Fisheries and Environment (DFFE) screening tool sensitivity map is supported based on the findings of this fieldwork.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page ix

Table 2 - Compliance summary

Screening Tools Rating	Site verification - Heritage	Compliance studies conducted
Low sensitivity overall with localised high-sensitivity areas	Low sensitivity overall with localised high-sensitivity areas	Heritage Impact Assessment conducted in compliance with section 38 of the NHRA

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page x

TABLE OF CONTENT

1	INTRODUCTION.....	1
1.1	Scope of the Study	1
1.2	Specialist Qualifications	1
1.3	Assumptions and Limitations	1
1.4	Legislative Context	2
1.4.1	NOTICE 648 OF THE GOVERNMENT GAZETTE 45421.....	2
1.4.2	NEMA – APPENDIX 6 REQUIREMENTS.....	3
1.4.3	THE NATIONAL HERITAGE RESOURCES ACT.....	3
2	SITE LOCATION AND DESCRIPTION.....	4
2.1	Locality	4
2.1	Project Description	4
3	ASSESSMENT METHODOLOGY.....	6
3.1	Methodology for Assessing Heritage Site Significance	6
3.1.1	SITE SIGNIFICANCE.....	7
3.2	Methodology Used in Determining the Significance of Environmental Impacts	9
4	SITE VERIFICATION ASSESSMENT.....	10
4.1	Site Sensitivity Verification Methodology	10
5	OUTCOME OF SITE SENSITIVITY VERIFICATION.....	10
5.1	National Environmental Screening Tool	11
5.2	Conclusion	11
6	CURRENT STATUS QUO.....	12
7	BACKGROUND RESEARCH.....	13
7.1	Overview of the study area and surrounding landscape	13
7.2	Archival and historical maps	17
7.2.1	BOSHOFF REGIONAL MAP, 1902.....	17
7.2.2	THE FIRST EDITION OF THE 2825DA AND DB TOPOGRAPHICAL MAP, DATED 1971.....	18
7.3	Previous heritage impact assessment reports from the study area and surroundings	20
7.4	Heritage screening	21
7.4.1	HERITAGE SENSITIVITY.....	21
7.4.1	POSSIBLE HERITAGE FINDS.....	21
8	FIELDWORK FINDINGS.....	22
9	PALAEONTOLOGY.....	26

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page xi

10	IMPACT ASSESSMENT	28
10.1	Cumulative Impacts	28
10.2	Impact Assessment Table	29
11	MANAGEMENT RECOMMENDATIONS AND GUIDELINES	30
11.1	Construction and operational phases	30
11.2	Chance finds procedure	30
11.3	Possible finds during construction	31
11.4	Timeframes	31
11.5	Heritage Management Plan for EMPr implementation	32
12	CONCLUSIONS AND RECOMMENDATIONS	34
12.1	Heritage Resources Identified	34
12.2	Palaeontology	35
12.3	Impact Assessment	35
12.4	Mitigation measures	35
12.5	Conclusion	36
13	REFERENCES	38
13.1	Published References	38
13.2	Unpublished	38
13.3	Internet sources	40
13.4	Google Earth	40
13.5	Historical Topographical Maps	40

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page xii

List of Figures

<i>Figure 1 – Human and Cultural Timeline in Africa</i>	xvii
<i>Figure 2 - Regional Locality of study area.</i>	5
<i>Figure 3 - Screening tool map indicating a low and high sensitivity rating for archaeology and heritage within the corridor.</i>	11
<i>Figure 4 – View of grass land in the western section of the GHOHPL proposed corridor</i>	12
<i>Figure 5 – View of grass land in the western section of the GHOHPL proposed corridor with Dealesville in the distance.</i>	12
<i>Figure 6 – View of the western end of the GHOHPL proposed corridor at the Eskom Artemis substation</i> ..	13
<i>Figure 7 – General view of Good Hope substation area at the north eastern end of the GHOHPL proposed corridor.</i>	13
<i>Figure 8- Boshof cemetery, showing the graves of British casualties of the Second South African War (http://boshof.co.za/History.htm)</i>	16
<i>Figure 9 - Section of the 1902 map of Boshof and surrounds (green line indicative alignment) (University of Cape Town Libraries, South Africa).</i>	18
<i>Figure 10 - Section of the first edition 2825DA and DB Topographical Map dated 1971</i>	19
<i>Figure 11 - Views of a section of stone walling at GH-OHL-001.</i>	23
<i>Figure 12 - Engrave initials at GH-OHL-002 and 003.</i>	23
<i>Figure 13 - Fieldwork tracklogs (track in yellow).</i>	24
<i>Figure 14 - Identified heritage resources within the study area.</i>	25
<i>Figure 15 - Extract of the 1:250 000 Kimberley 2824 Geological map (1993) (Council of Geoscience, Pretoria) indicating the geology of the Good Hope OHPL west of Dealesville in the Free State Province. The study area is underlain by Quaternary sediments (Os, yellow), Jurassic dolerite (Jd, red), and the Tierberg Formation (Pt, orange).</i>	26
<i>Figure 16 - Extract of the 1 in 250 000 SAHRIS PalaeoMap map.</i>	27
<i>Figure 17 - Updated Geology (Council of Geosciences, Pretoria) indicates that the study area</i>	27

List of Tables

<i>Table 1 - Heritage management recommendations.</i>	vii
<i>Table 2 - Compliance summary</i>	ix
<i>Table 3 - Reporting requirements for GN648.</i>	2
<i>Table 4 - Rating system for archaeological resources</i>	7
<i>Table 5 - Rating system for built environment resources</i>	8
<i>Table 6 - Compliance summary</i>	12
<i>Table 7 - Tangible heritage site in the study area.</i>	21
<i>Table 8 - Landform type to heritage find matrix</i>	21
<i>Table 9 - Rating of impacts on archaeological resources</i>	29

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page xiii

Table 10 - Lead times for permitting and mobilisation31

Table 11 - Heritage Management Plan for EMPr implementation32

Table 12 - Heritage management recommendations.....35

List of Appendices

- A Environmental Impact Assessment Methodology*
- B Site Description Forms*
- C Project team CV's*
- D Palaeontological Compliance Statement*

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page xiv

TERMINOLOGY AND ABBREVIATIONS

Archaeological resources

This includes:

- 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;
- 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 any area within 10m of such representation;
- 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;
- 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 or technological value or significance

Development

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

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

Early Stone Age

The archaeology of the Stone Age between 700 000 and 2 500 000 years ago.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page xv

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 and can include (but not limited to) as stated under Section 3 of the NHRA,

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, and
- sites of significance relating to the history of slavery in South Africa;

Holocene

The most recent geological time period which commenced 10 000 years ago.

Late Stone Age

The archaeology of the last 30 000 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 iron-working and farming activities such as herding and agriculture.

Middle Stone Age

The archaeology of the Stone Age between 30 000-300 000 years ago, associated with early modern humans.

Palaeontology

Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page xvi

Abbreviations	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
CRM	Cultural Resource Management
DFFE	Department of Forestry Fisheries and Environment
ECO	Environmental Control Officer
EFC	Early Farming Communities
EIA practitioner	Environmental Impact Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GHOHPL	Good Hope Overhead Powerline
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&AP	Interested & Affected Party
LSA	Late Stone Age
LIA	Late Iron Age
MSA	Middle Stone Age
MIA	Middle Iron Age
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act
OHPL	Overhead Powerline
PHS	Provincial Heritage Site
PV	Photovoltaic
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency
SPP	Solar Photovoltaic Plant

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page xvii

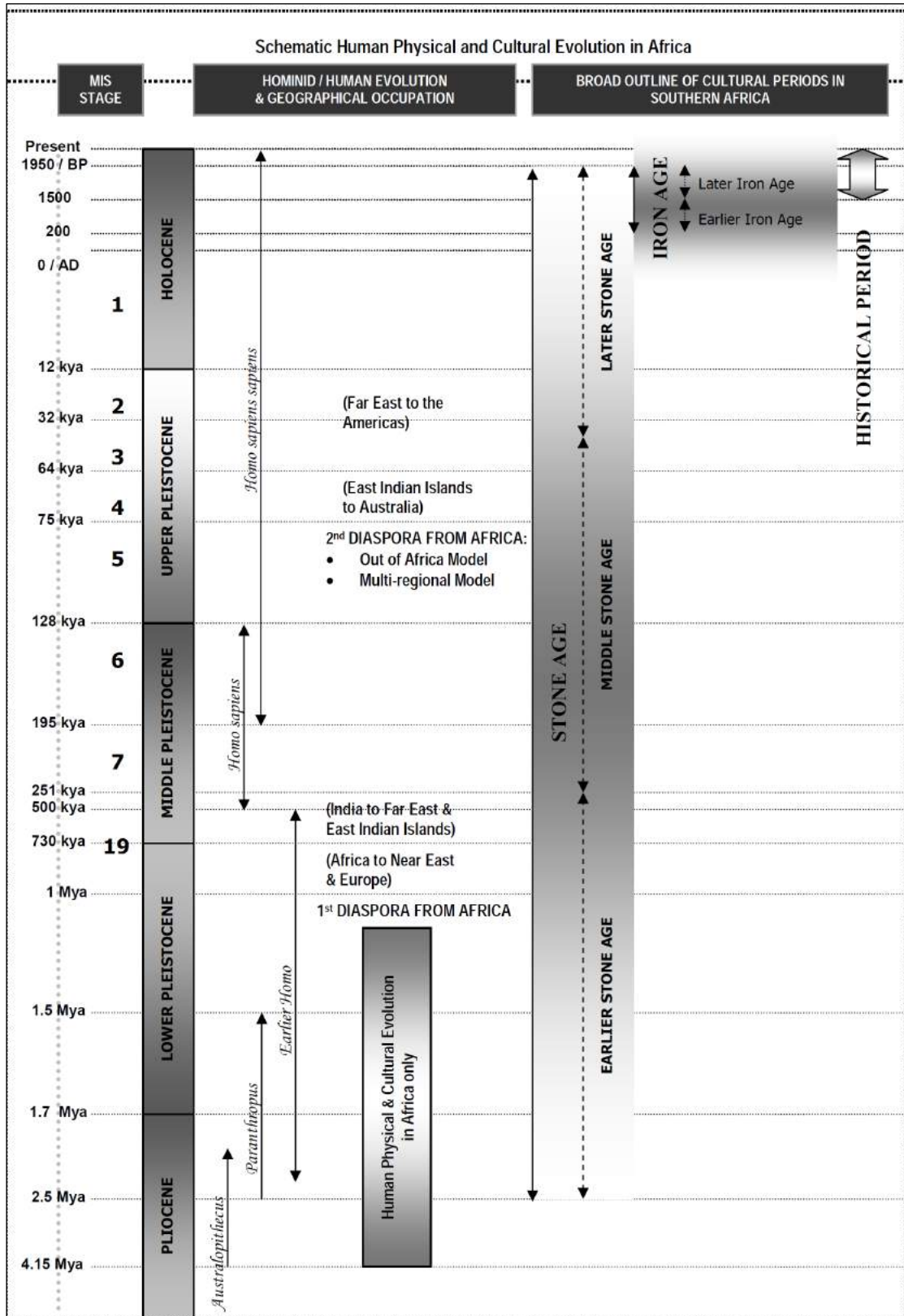


Figure 1 – Human and Cultural Timeline in Africa

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page 1

1 INTRODUCTION

PGS Heritage (Pty) Ltd was appointed by the TerraManzi Group (Pty) Ltd (TerraManzi) to undertake a Heritage Impact Assessment (HIA) that forms part of the Basic Assessment (BA) process for the proposed Good Hope Project Overhead Powerline (GHOHPL) on Portions of the farm Klipfontein 305, Klipkoppan, Gedenkruist 1029 and Doornpan 1027 near Dealesville, Free State Province.

1.1 Scope of the Study

The study aims to identify heritage sites and finds that may occur in the proposed project area. The HIA aims to inform the BA to assist the developer in responsibly managing the discovered heritage resources, 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 Report was compiled by PGS Heritage (PGS).

The staff at PGS has a combined experience of nearly 90 years in the heritage consulting industry. PGS and its staff have extensive experience in managing HIA processes. PGS will only undertake heritage assessment work where they have the relevant expertise and experience to undertake that work competently.

Wouter Fourie, the author, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is accredited as a Principal Investigator; he is further an Accredited Professional Heritage Practitioner with the Association of Professional Heritage Practitioners (APHP). He is also one of the Directors of PGS Heritage.

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 resources located during the fieldwork only represent some of the possible heritage resources present within the area. Various factors account for this, including the subterranean nature of some archaeological sites and existing vegetation cover.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page 2

It should be noted that most of the study area was accessible for the fieldwork survey. Fieldwork was also focussed on the area not previously ploughed or disturbed by farming activity, thus focussing on areas with the highest potential to yield heritage resources.

Therefore, a heritage specialist must be contacted immediately if any heritage features and/or objects are located or observed outside the identified heritage-sensitive areas during the construction activities. Such observed or located heritage features and/or objects may only be disturbed or removed when the heritage specialist has been able to assess the significance of the site (or material) in question. This applies to graves and cemeteries as well. If any graves or burial places are located during the development, the procedures and requirements about graves and burials will apply as set out below.

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:

- Notice 648 of the Government Gazette 45421- general requirements for undertaking an initial site sensitivity verification where no specific assessment protocol has been identified.
- National Environmental Management Act (NEMA), Act 107 of 1998 – Appendix 6
- National Heritage Resources Act (NHRA), Act 25 of 1999

1.4.1 Notice 648 of the Government Gazette 45421

Although minimum standards for archaeological (2007) and palaeontological (2012) assessments were published by SAHRA, GN.648 requires sensitivity verification for a site selected on the national web-based environmental screening tool for which no specific assessment protocol related to any theme has been identified. The requirements for this Government Notice (GN) are listed in **Table 3**, and the applicable section in this report noted.

Table 3 - Reporting requirements for GN648

GN 648	Relevant section in report
2.2 (a) a desktop analysis, using satellite imagery;	Section 7
2.2 (b) a preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the	Section 8

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page 3

GN 648	Relevant section in report
national web-based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.	
2.3(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web-based environmental screening tool;	Section 5
2.3(b) contains motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivity;	Section 5

1.4.2 NEMA – Appendix 6 requirements

The HIA report will be compiled considering the NEMA Appendix 6 requirements for specialist reports. been addressed.

1.4.3 The National Heritage Resources Act

- National Heritage Resources Act (NHRA) Act 25 of 1999
 - Protection of Heritage Resources – Sections 34 to 36; and
 - Heritage Resources Management – Section 38

The NHRA is utilised as the basis for identifying, evaluating, and managing heritage resources. In the case of Cultural Resource Management (CRM), those resources are impacted explicitly by development as stipulated in Section 38 of NHRA. This study falls under s38(8) and requires comment from the relevant heritage resources authority.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	3.0	22/05/2023	Page 4

2 SITE LOCATION AND DESCRIPTION

2.1 Locality

The proposed GHOHPL corridor is situated just to the west of the town of Dealesville within the Tokologo Local municipality, Lejweleputswa District Municipality, Free State Province (**Figure 2**).

2.1 Project Description

Antilia Energy (Pty) Ltd is proposing to develop a 132 kV back-to-back substation and 132kV Overhead Power Line (Good Hope OHPL) within a 400 m wide corridor to connect the Good Hope PVSEF to the authorised Eskom Artemis 400 kV Substation to feed the power generated by the Good Hope PVSEF into the Eskom National Grid. The 132kV back-to-back substation will occupy approximately 1.5 ha of a 7ha assessed site which is located within the footprint of the Good Hope PVSEF. The 400m Good Hope OHPL corridor will be approximately 8.6km in length and will traverse 4 land parcels. It will be constructed using monopoles and/or lattice structures and will have an associated servitude of 31 metres (approximately 15,5 metres on each side of the centre line).

The associated infrastructure is as follows:

- 132kV back-to-back substation within the assessed 7ha area
- 400m wide OHPL corridor approximately 8.6km in length

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 5

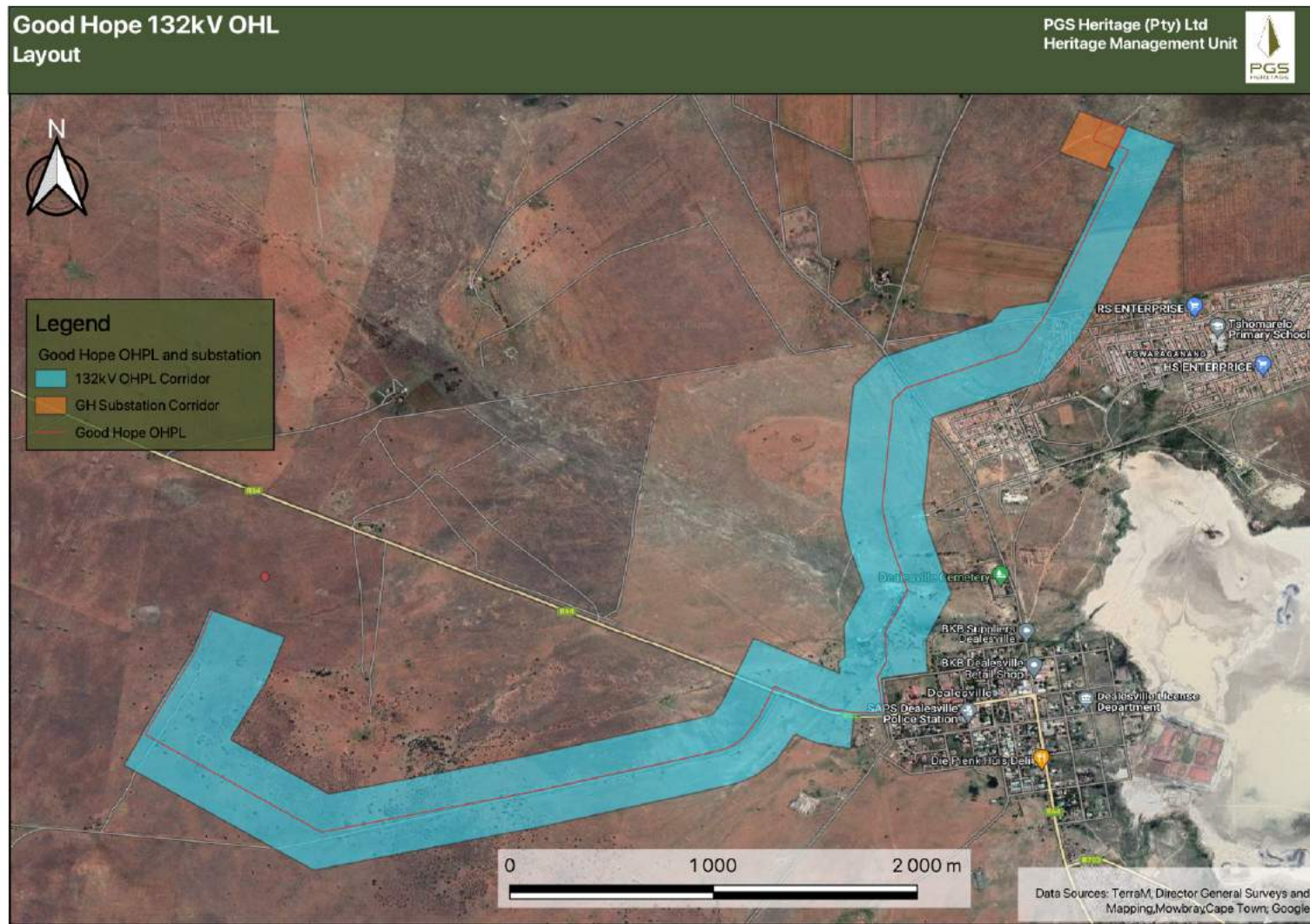


Figure 2 - Regional Locality of study area.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 6

3 ASSESSMENT METHODOLOGY

The section below outlines the assessment methodologies utilised in the study.

3.1 Methodology for Assessing Heritage Site Significance

PGS compiled this HIA report for the proposed GHOPHL. 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 consists of three steps:

Step I – Literature Review and initial site analysis: A detailed archaeological and historical overview of the study area and surroundings were undertaken. This work was augmented by assessing reports and data on the SAHRIS. Additionally, an assessment was made of the available historic topographic maps. All these desktop study components were undertaken to support the fieldwork.

Step II – Physical Survey: A physical survey was conducted by a combination of vehicle and pedestrian access through the proposed project area by one qualified heritage specialist on 22 and 23 February 2023, to locate and document sites falling within and adjacent to the proposed development footprint.

Step III – The final step involved recording and documenting relevant heritage resources identified in the physical survey, assessing these resources in terms of the HIA criteria and report writing, and mapping and constructive recommendations.

The significance of heritage sites is based on four 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.

Impacts on these sites by the development will be evaluated as follows:

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 7

3.1.1 Site Significance

Site significance classification standards use is based on the heritage classification of s3 in the NHRA and developed for implementation, considering the grading system approved by SAHRA for archaeological impact assessments. The updated classification and rating system developed by Heritage Western Cape (2021) is implemented in this report.

Site significance classification standards prescribed by the Heritage Western Cape Guideline (2016) were used for this report (**Table 4** and **Table 5**).

Table 4 - Rating system for archaeological resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Langebaanweg (West Coast Fossil Park), Cradle of Humankind	May be declared as a National Heritage Site managed by SAHRA. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Highest Significance
II	Heritage resources with special qualities which make them significant, but do not fulfil the criteria for Grade I status. Current examples: Blombos, Paternoster Midden.	May be declared as a Provincial Heritage Site managed by Provincial Heritage Authority. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Exceptionally High Significance
III	Heritage resources that contribute to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. Current examples: Varschedrift; Peers Cave; Brobartia Road Midden at Bettys Bay	Resource must be retained. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree.	Resource must be retained where possible where not possible it must be fully investigated and/or mitigated.	Medium Significance
IIIC	Such a resource is of contributing significance.	Resource must be satisfactorily studied before impact. If the recording already done (such as in an HIA or permit application) is not sufficient, further recording or even mitigation may be required.	Low Significance
NCW	A resource that, after appropriate investigation, has been	No further actions under the NHRA are required. This must	No research potential or

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 8

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
	determined to not have enough heritage significance to be retained as part of the National Estate.	be motivated by the applicant or the consultant and approved by the authority.	other cultural significance

Table 5 - Rating system for built environment resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Robben Island	May be declared as a National Heritage Site managed by SAHRA.	Highest Significance
II	Heritage resources with special qualities which make them significant in the context of a province or region, but do not fulfil the criteria for Grade I status. Current examples: St George's Cathedral, Community House	May be declared as a Provincial Heritage Site managed by Provincial Heritage Authority.	Exceptionally High Significance
II	Such a resource contributes to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. These are heritage resources which are significant in the context of an area.	This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration, both internal and external, is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive maximum protection at local level.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree. These are heritage resources which are significant in the context of a townscape, neighbourhood, settlement or community.	Like Grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be rare, but less so than Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at local level.	Medium Significance

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 9

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
IIC	Such a resource is of contributing significance to the environs These are heritage resources which are significant in the context of a streetscape or direct neighbourhood.	This grading is applied to buildings and/or sites whose significance is contextual, i.e. in large part due to its contribution to the character or significance of the environs. These buildings and sites should, as a consequence, only be regulated if the significance of the environs is sufficient to warrant protective measures, regardless of whether the site falls within a Conservation or Heritage Area. Internal alterations should not necessarily be regulated.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant and approved by the authority. Section 34 can even be lifted by HWC for structures in this category if they are older than 60 years.	No research potential or other cultural significance

3.2 Methodology Used in Determining the Significance of Environmental Impacts

The methodology used to determine the environmental impact significance was provided by TerraManzi and is explained in **Appendix A**.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 10

4 SITE VERIFICATION ASSESSMENT

4.1 Site Sensitivity Verification Methodology

The site sensitivity verification of the proposed project is based on:

- A desktop review of (a) the relevant 1:50 000 scale topographic maps 2825DA and DB - Current and historical edition (1971), (b) Google Earth© satellite imagery, (c) published historical and archaeological literature, as well as (d) several previous HIA and AIA assessments undertaken in the general vicinity of the study area.
- A field archaeologist conducted a multi-day field assessment of the proposed project area during the 22-23 February 2023. The proposed GHOHPL corridor was surveyed where possible (some limitations existed, such as dense vegetation).

5 OUTCOME OF SITE SENSITIVITY VERIFICATION

Southern Africa has one of the longest human species occupations records in the world. The occupation dates to approximately 2 million years ago (Mitchell 2002). The archaeology of South Africa is divided into three periods: the Stone Age, Iron Age and the Historical Period. Each period is characterised by unique cultural material. Both archaeological and historical sites have been identified all over South Africa, including the Free State Province.

The arrival of early farming communities (EFC) during the first millennium, heralded the start of the Iron Age in South Africa. The Iron Age is that period in South Africa's archaeological history associated with pre-colonial farming communities who practised cultivation and pastoralist farming activities, metal working, cultural customs such as lobola and whose settlement layouts show the tangible representation of the significance of cattle (known as the Central Cattle Pattern) (Huffman, 2007).

The Historical Period within the study area and surroundings commenced with the arrival of newcomers to this area. The first arrivals would almost certainly have been travellers, traders, missionaries, hunters, and fortune seekers. However, with time, this initial trickle was replaced by a mass flood of white immigrants during the 1830s, when a mass migration of roughly 2 540 Afrikaner families (comprising approximately 12 000 individuals) from the frontier zone of the Cape Colony to the interior of Southern Africa took place. The people who took part in this Great Trek were later to be known as Voortrekkers (Visagie, 2011).

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 11

5.1 National Environmental Screening Tool

The Archaeological and Cultural Heritage Sensitivity Map for the proposed project area prepared using the DFFE screening tool indicates a **Low Sensitivity with localised high sensitivity areas** rating for the study area (**Figure 3**).

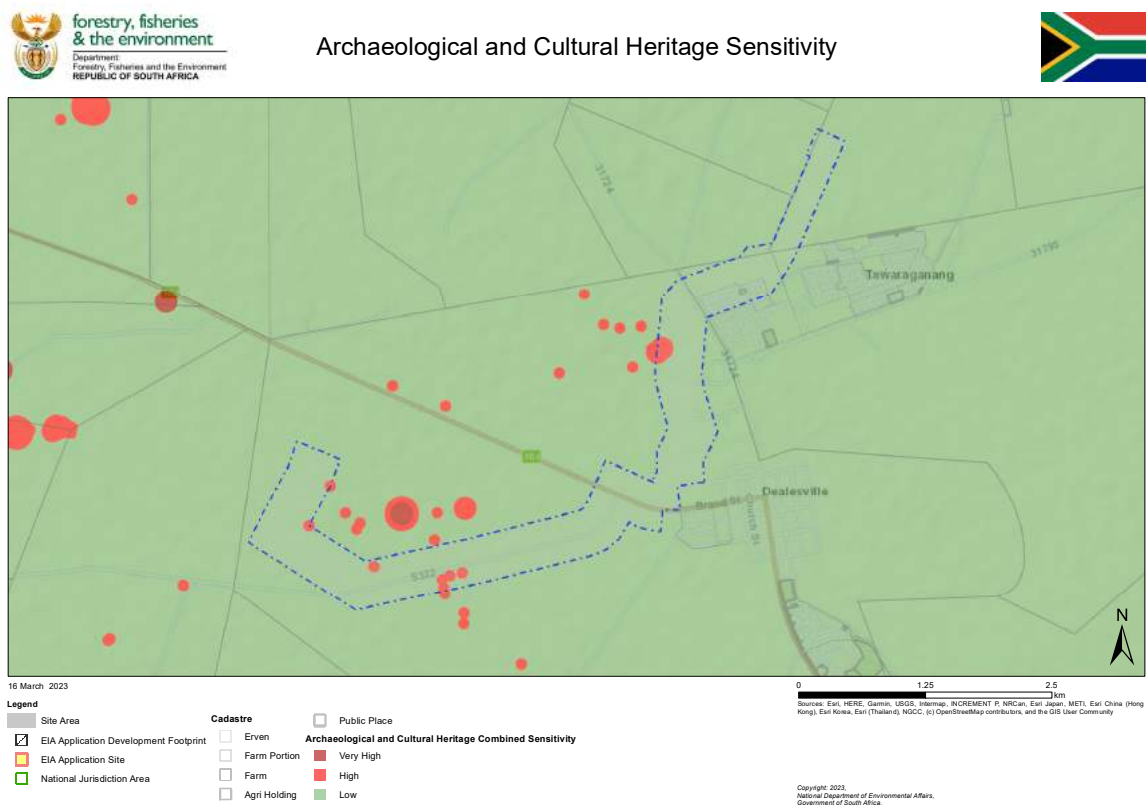


Figure 3 - Screening tool map indicating a low and high sensitivity rating for archaeology and heritage within the corridor.

5.2 Conclusion

The screening sensitivity map analysis indicates localised high-sensitivity areas within a larger low-sensitivity landscape. The localised sensitivities are indicated by red or dark red buffers around the small localised archaeological and cultural heritage findspots. Although these points have high and very high sensitivity ratings, they do not exclude development or indicate a trigger as considered by the regulations relating to grids and powerlines. It must be kept in mind that the type of development still triggers the requirements of an HIA as contemplated in section 38 of the National Heritage Resources Act (Act 25 of 199). Comment and recommendations from the South African Heritage Resources Agency on whether a full HIA process must be followed if the OHL

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 12

development is exempted from an environmental authorisation process in the form of a Basic Assessment or Environmental Impact Assessment (**Table 6**).

The fieldwork in the study area demonstrated that some of the localised areas identified correlate with those indicated in the screening sensitivity maps. Therefore, in the case of this study area, the Department of Forestry Fisheries and Environment (DFFE) screening tool sensitivity map is supported based on the findings of this fieldwork.

Table 6 - Compliance summary

Screening Tools Rating	Site verification - Heritage	Compliance studies conducted
Low sensitivity overall with localised high-sensitivity areas	Low sensitivity overall with localised high-sensitivity areas	Heritage Impact Assessment conducted in compliance with section 38 of the NHRA

6 CURRENT STATUS QUO

The proposed GHOHPL areas are located just west and north of Dealesville, within the Tokologo Local municipality, Lejweleputswa District Municipality, Free State Province.

The proposed development areas are generally flat and open landscapes. The proposed alignment corridor starts at the approved Artemis Eskom substation, 3 km west of Dealesville and just south of the R64 provincial road. The GHOHPL corridor alignment then runs parallel with a local dirt road before crossing the R64 just outside of Dealesville and turning north through the remains of the town showground. It crossed the Dealesville-Hertzogville road before ending some two kilometres north at the proposed Goode Hope substation on the farm Epsom Downs 1216.



Figure 4 – View of grass land in the western section of the GHOHPL proposed corridor



Figure 5 – View of grass land in the western section of the GHOHPL proposed corridor with Dealesville in the distance

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 13



Figure 6 – View of the western end of the GHOHPL proposed corridor at the Eskom Artemis substation



Figure 7 – General view of Good Hope substation area at the north eastern end of the GHOHPL proposed corridor

7 BACKGROUND RESEARCH

7.1 Overview of the study area and surrounding landscape

DATE	DESCRIPTION
2.5 million to 250,000 years ago	The Earlier Stone Age is the first and oldest phase identified in South Africa's archaeological history and comprises two technological phases. The earliest of these technological phases is known as Oldowan which is associated with crude flakes and hammer stones and dates to approximately 2 million years ago. The second technological phase in the Earlier Stone Age of Southern Africa is known as the Acheulian and comprises more refined and better made stone artefacts such as the cleaver and bifacial handaxe. The Acheulian phase dates back to approximately 1.5 million years ago.
250,000 to 40,000 years ago	The Middle Stone Age is the second oldest phase identified in South Africa's archaeological history. It is associated with flakes, points and blades manufactured by means of the prepared core technique. No sites dating to the MSA are known in the larger study area. However, several MSA sites are known in the greater Region; the most well-known being Florisbad, where many stone tools and fossils have been found, including parts of a cranium of a fossil hominin – Florisbad Man (Archaic Homo Sapiens) (Kuman & Clark, 1986).
40,000 years ago to the historic past	The Later Stone Age is the third phase in South Africa's Stone Age history. It is associated with an abundance of very small stone artefacts (microliths). The Munro Site found by Revil Mason during his survey of the Oppermandrift Dam (see above) also included a Later Stone Age component (Mason, 1969).
Rock Art	The Later Stone Age is also associated with rock engravings and rock paintings. Rock engravings are known from the direct and wider vicinity of the study area (Bergh, 1999).


Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 14

	<p>The two closest rock art sites in the general area include Spitskop and Stowlands. Spitskop is located 12 km west of Verkeerdevlei on the link road to the N1 in the Brandfort District. The Spitskop site consists of three San or 'Bushman', as well as Khoe or 'Khoi' rock-engraving sites located on adjacent farms. These sites are all within sight of the 1580 m high sandstone mountain known as Spitskop. There are images of eland – one is 1.35 m long – geometric forms, human figures, and ostrich. It is regrettable to note that the last gathering and hunting San was shot 15 km from the farm in the 1860s (Ouzman, S. 2001).</p> <p>The Stowlands site is located 4 km from Christiana, to the east on the R708, in the direction of Boshof. Over 320 Bushman and Khoe rock engravings are scattered on the summit of a hill overlooking the Vaal River. The engravings include elephant, giraffe, rhino, human figures, spirit-world animals and geometric motifs. Stowlands is one of South Africa's Rock Art Provincial Heritage sites (Ouzman, S. 1998; http://www.nasmus.co.za/departments/rock-art/public-rock-art-sites)</p>
AD 400 – 1100	<p>The Early Iron Age (EIA) period in South Africa was introduced by the expansion of early farmers during the first millennium AD. The Iron Age is that period in South Africa's archaeological history associated with pre-colonial farming communities associated with agricultural and pastoralist farming activities, metal working, cultural customs such as lobola, as well as settlement pattern known as the Central Cattle Pattern. (Huffman, 2007).</p> <p>No sites dating to the Early Iron Age have been recorded in the study area.</p>
1500 – 1700	<p>This period is associated with a Late Iron group referred to as the Olifantspoort facies of the Urewe Tradition. The Olifantspoort facies originated from the Icon facies (AD1300 – 1500) and led to the Thabeng facies (AD1700 – 1840) (Huffman, 2007). The Olifantspoort facies (with the Letsibogo facies in Botswana and the Madikwe facies in the area between Makapansgat and Botswana) represents the second phase in the development of Moloko and were represented by an absence of any stonewalling. Olifantspoort pottery is characterised by "multiple bands of fine stamping or narrow incision separated by colour" (Huffman, 2007:193).</p>
1700 – 1820	<p>This period is associated with the Late Iron Age group known as the Thabeng facies of the Urewe Tradition. As indicated above this facies followed on the Olifantspoort facies as the third facies in the development of Moloko in this area. The Thabeng pottery is characterised by "incised triangles, coloured chevrons and arcades" (Huffman, 2007:197) whereas the settlements are stonewalled. Their layout conformed to Type Z settlements which can be described as "...a loose circle of individual bilabial households surrounding the core..." (Huffman, 2007:41).</p>
1795	<p>During this time Legassick (2010) indicates that the study area fell within the Rolong sphere of influence.</p> <p>Before this time the Rolong were mainly settled south of the Vaal River. Under their leader Tau (c. 1700 – 1760) they were a strong group with a vast sphere of influence and in control of strong trade networks. However, after his death the Rolong moved northward to settle along the headwaters of the Molopo River. The period after Tau's death saw fissures develop which (after the death of Tau's son Ratlou and in turn the death of his son Seitshiro) led to the division of the once united Rolong into at least five groups, namely the Rolong-Mariba, Rolong-Ratlou, Rolong-Tshidi, Rolong-Seleka and Rolong-Rapulana. In roughly 1790 the Rolong-Seleka,</p>

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 15

	followed by the Rolong-Rapulana, left the Molopo River to settle at Thabeng near Klerksdorp (Legassick, 2010).
Early 1820s	During the early 1820s, Burchell records the Tlhaping at Dithakong, the missionary Broadbent records the Rolong on top of the Platberg (at Thabeng) and the Kubung were associated with several localities in the Free State. These three groups form a South-western Sotho-Tswana cluster which can be associated with Thabeng pottery and Type Z walling (Huffman, 2007).
1823-1826	As a result of increasing numbers of raiding groups crossing over the Vaal River from the south as part of the social dynamics of the Difaqane, the Rolong-Seleka abandoned their settlement at Thabeng and moved along the northern bank of the Vaal River in a western direction. The first Europeans to move into the area were two explorers named Hodgson and Archbell in 1826, followed by Krebs in 1838 (Berg, 1999)
1869	With the establishment of the Bloemhof District, the entire study area now fell within this district (Bergh, 1999).
April - June 1871	An arbitration commission held hearings in Bloemhof during this period. The commission was asked to provide an arbitrated solution to the exact position of the western boundary of the Zuid-Afrikaansche Republiek. It came as a result of increasing levels of disagreement and discontent between the Z.A.R. on the one hand, and the Rolong, Tlhaping and the Koranna (amongst others) on the other. The commission comprised the British magistrate at Klipdrif, John Campbell and the Z.A.R. magistrate of Wakkerstroom, A.A. O' Reilly. When the two individuals failed to reach an agreement, the Lieutenant-Governor of Natal, R.W. Keate, was asked to provide the final recommendations of the commission. In the vicinity of the study area the Keate Award (as Keate's findings are referred to) defined the western boundary of the Z.A.R. along the Makwassie Stream (Bergh, 1999).
1839-1850s	The town of Boshof was named after Johannes Nicolaas Boshof, the second president of the Orange Free State (1855-59) and founder of the republic's civil service. The town was established on the farm Van Wyksvlei which was bought in 1839 by Dawid Fourie from Koranna chief David Danster. By the early 1850s, a number of white farmers had settled in the lower Modder River Valley and they then bought the farm in 1855 for the purpose of establishing a parish and a village. Subsequently, in 1856, the Volksraad of the republic added a large area to the townlands and the first residential stands were surveyed. Boshof became a municipality in 1872 (Erasmus, 2014).
1881	After the end of the Anglo-Transvaal War (also referred to as the First Boer War) which terminated the two-year British annexation of the Z.A.R., the Pretoria Convention of 1881 redefined the western boundary of the Z.A.R. The recommendations of the convention were largely based on the investigations undertaken by Lieutenant-Colonel C.J. Moysey who had been appointed by the British government during the previous year to investigate the Keate Award of 1871 through map surveys and field assessments. According to the recommendations of the Pretoria Convention the western boundary of the Z.A.R. was moved from the Makwassie Spruit to roughly the Harts River. In 1884 the western boundary of the Z.A.R. was again moved further west as a result of the recommendations of the London Convention (Bergh, 1999).
1899	The town Dealesville was proclaimed on 20 July 1899, after the farm Klipfontein was bought. The town was named after the owner of the farm,

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 16

	<p>John Henry Deale. The town became a municipality in 1914 (Erasmus, 2014).</p>
1899-1902	<p>Several significant events can be associated with the general vicinity of the study area during the Second South African War.</p> <p>The town of Boshof saw intense activity during the British march towards the two capitals of the Boer Republics. On the 12th of March 1900 the town was occupied by British forces under command of Lord Methuen and a garrison was installed in the town (Farwell, 1999; Cloete, 2000). The exact location of the garrison is not known and remnants of it may still exist somewhere in the town.</p> <p>On the 5 of April 1900 a battle took place just outside of Boshof, on the farm Tweefontein, also commonly referred to as 'The Battle of Boshof', which resulted in a British victory and the death of General De Villebois-Mareul (Farwell, 1999; Cloete, 2000; Grobler, 2004). The period between April and May of 1900 saw a number of skirmishes in the area surrounding the town and was followed by several more skirmishes during the guerrilla phase of the war (late 1900-1902) (Farwell, 1999; Cloete, 2000; Grobler, 2004). An official report on the 30th of April 1902 states that the block house line between Kimberly and Theunissen, via Boshof as well as the line between Boshof and Hoopstad was completed (Cloete, 2000). Therefore, remnants of these blockhouses may still exist in areas within and surrounding Boshof (Hutten, 2011).</p>  <p><i>Figure 8- Boshof cemetery, showing the graves of British casualties of the Second South African War (http://boshof.co.za/History.htm)</i></p>
1906 - 1910	<p>After the monopolisation of the Kimberley diggings in 1880, many of the independent diamond diggers started working their way northward along the Vaal River. In 1906 they had reached the town of Christiana and when these diggings faltered after a year or two, the diggers reached the vicinity of Bloemhof in 1908. Although the Bloemhof diggings yielded only 783 carats in 1909, the following year saw the doubling of earnings (Van Onselen, 1996).</p>
1911-1913	<p>The discovery and proclamation of an extensive diamond field at Mooifontein (north-west of Bloemhof) in 1911 attracted roughly 5,000 people to these diggings with other 1,200 fortune seekers setting their sights on the Bloemhof townlands. By the end of the year the two fields had yielded more than 37,000 carats, a yield that was maintained for the following two years as well (Van Onselen, 1996).</p>

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 17

1914-1918	<p>First World War: Even before the outbreak of the First World War in 1914, the Union of South Africa's responsibility to Britain in such a war was the subject of a heated debate for quite some time. With the outbreak of hostilities in the South African Government of General Louis Botha notified Britain of their willingness to assist in the war effort.</p> <p>Many of the Afrikaans people found it intolerable that South Africa should assist their erstwhile enemy in her international conflicts and against a country with which they still had very strong ties. Subsequently, many of them rose up in armed rebellion under the leadership of former Boer Generals such as Christiaan de Wet and J.C.G. Kemp and General Christiaan Frederik Beyers, who at the time was the commander of the Union Defence Force. After resigning his post he became one of the leaders of the rebellion.</p> <p>Van Onselen (1996) indicates that on 1 November 1914, a skirmish took place between rebels under the command of P.J.K. van Vuuren and government troops on the farm Zoutpan 212 HO. This farm is located roughly south-east of the study area.</p>
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7.2 Archival and historical maps

Examining historical data and cartographic resources is critical for locating and identifying heritage resources and determining the study area's historical and cultural context. Relevant topographic maps and satellite imagery were studied to identify structures, possible burial grounds or archaeological sites in the footprint area.

Historical topographic maps (1:50 000) for 1971 and older historical maps (1902) were available in the background study. These maps were assessed to observe the area's development and the location of possible historical structures and burial grounds.

7.2.1 Boshoff regional map, 1902

(University of Cape Town Libraries, South Africa)

The map depicted in **Figure 9** below is titled "Boshof". A.H.F. Duncan compiled it for the British Army Field Intelligence Department. There are no structures except a farmstead on the north-western periphery of the pan on the farm Klipfontein that later became the town of Dealesville.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 18



Figure 9 - Section of the 1902 map of Boshof and surrounds (green line indicative alignment) (University of Cape Town Libraries, South Africa).

7.2.2 The First Edition of the 2825DA and DB Topographical Map, dated 1971

The 2825DA and DB Topographical Map were utilised to create an image overlay of the proposed GHOHPL (Figure 10). The map depicts recent historic structures on the periphery and inside. The GHOHPL corridor.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 19

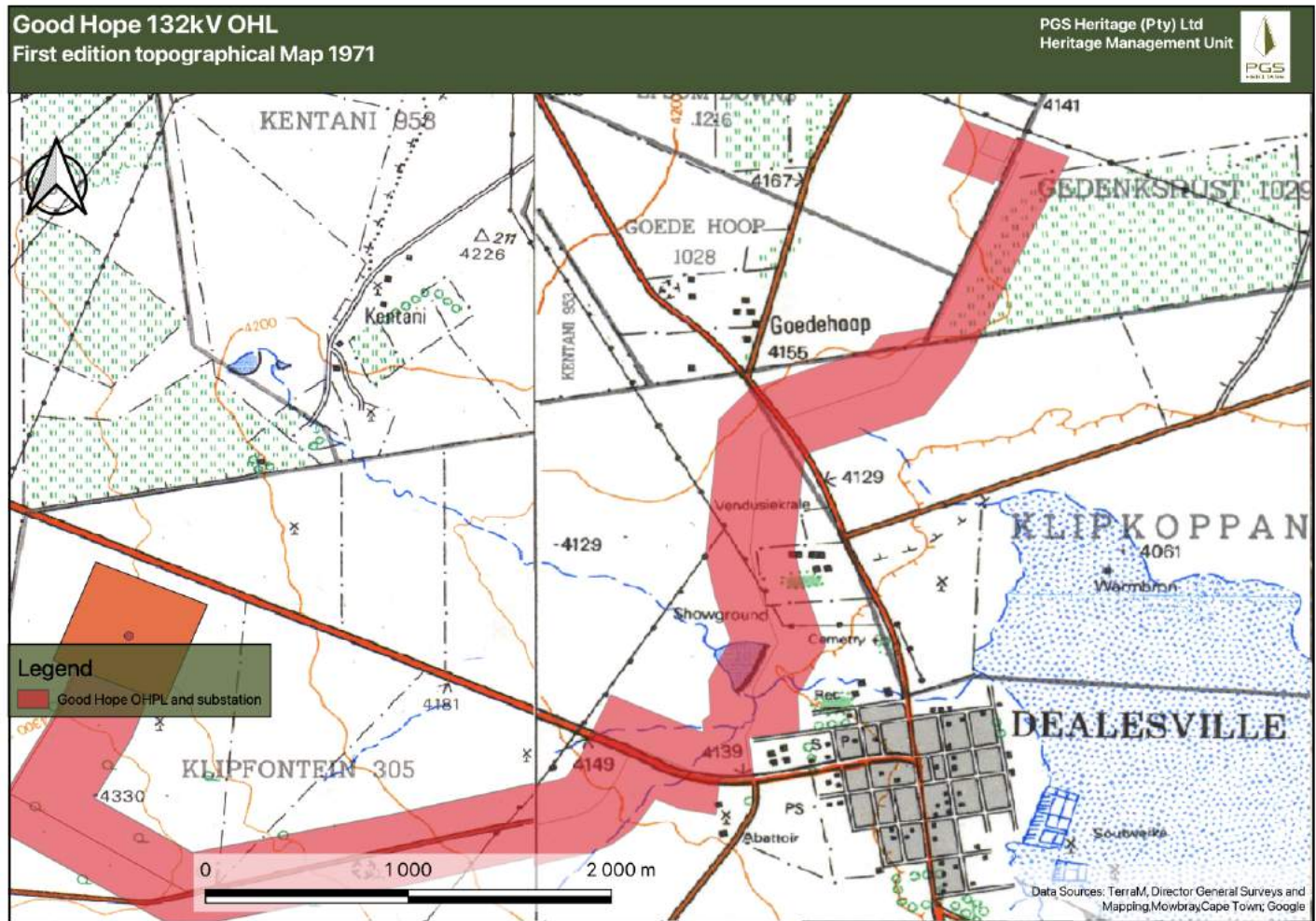


Figure 10 - Section of the first edition 2825DA and DB Topographical Map dated 1971

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 20

7.3 Previous heritage impact assessment reports from the study area and surroundings

A search of the South African Heritage Resources Information System (SAHRIS) database revealed that several previous archaeological and heritage impact assessments had been undertaken within the surroundings of the study area. In each case, the results of each study are shown in bold. These previous studies are listed below in ascending chronological order:

- Dreyer, C. 2004: Archaeological and Historical investigation of the Proposed Residential Area at Boshof, Free State. **Sites located include historical structures and LSA material.**
- Dreyer, C. 2008: First Phase Archaeological and Cultural Heritage Assessment of the Proposed Leisure Residential Developments at the Farms Serfonteinshoop 43, Napier 662 & Garvoch 367, Boshof, Free State. **LSA sites were located.**
- Hutten, M. 2011: Heritage Impact Assessment for the proposed Boshof Solar Park on the Farm Rabenthal north of Boshof, Free State Province. **MSA and LSA artefacts were located.**
- Van Vollenhoven, A.C. 2014: Heritage Scoping Report Related to the Eskom Kimberly Strengthening Phase 4 Project between the BETA and Boundary Substations in the Northern Cape Province. **Burial grounds and a LIA/historical site were located.**
- Dreyer, C. 2015: First Phase Archaeological and Heritage Assessment of the Proposed Riverton – Boshof – Dealesville Water Pipeline, Free State. **A burial ground was located.**
- Orton, J. 2015: Heritage Impact Assessment: Eleven Solar PV Facilities and Supporting Electrical Infrastructure near Dealesville in the Free State Province Proposed by Mainstream Renewable Power Developments. **Rock engravings, Historical structures, burial grounds and Stone Age artefacts were located.**
- Orton, J. 2016: Heritage Impact Assessment: Scoping and Environmental Impact Assessment for the Proposed Development of the Marconi PV 100 MW Photovoltaic Facility near Dealesville, Free State. **Burial Grounds, historical ruins and Stone Age artefact scatters were located.**
- Morris, D. 2016: Heritage Impact Assessment for the Proposed Drilling Site on the Farm Deelpan 314 near Dealesville, Western Free State. **Historical sites and Stone Age material was located.**
- Tomose, N. 2018: Proposed Construction of a 15,5 km Single-circuit BPBH and KDLO Interconnector 22KV Powerline near Boshof. **MSA artefacts were located.**
- Rossouw, L. 2021. Phase 1 Heritage Impact Assessment for the proposed new Good Hope Solar PV facility near Dealesville, Freestate Province. **Old farm ruin identified.**

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 21

7.4 Heritage screening

7.4.1 Heritage sensitivity

The sensitivity maps were produced by overlying:

- Satellite Imagery;

Current Topographical Maps;

- First edition Topographical Maps dating from the 1971.

This enabled the identification of possible heritage sensitive areas around the proposed development area that included:

- Cluster of dwellings (farmsteads),
- Homesteads (“huts”) and
- Structures/Buildings.

By superimposition and analysis, it was possible to rate these structure/areas according to age and thus their level of protection under the NHRA. Note that these structures refer to possible tangible heritage sites as listed in **Table 7**.

Table 7 - Tangible heritage site in the study area.

Name	Description	Legislative protection
Archaeology	Older than 100 years	NHRA Sections 3 and 35
Structures	Possibly older than 60 years	NHRA Sections 3 and 34
Burial grounds	Graves	NHRA Sections 3 and 36 and MP Graves Act

7.4.1 Possible Heritage Finds

The evaluation of satellite imagery and the analysis of the studies previously undertaken in the area has indicated that certain areas may be sensitive from a heritage perspective. This combined analysis of satellite imagery and previous heritage studies has assisted in the development of the following landform type to heritage find matrix (**Table 8**)

Table 8 - Landform type to heritage find matrix

LANDFORM TYPE	HERITAGE TYPE
Crest and foot hill	LSA and MSA scatters, LIA settlements
Crest of small hills	Small LSA sites – scatters of stone artefacts, ostrich eggshell, pottery, and beads
Water holes/pans/rivers	MSA and LSA sites, LIA settlements
Farmsteads	Historical archaeological material
Ridges and drainage lines	LSA sites, LIA settlements

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 22

8 FIELDWORK FINDINGS¹

An archaeologist from PGS heritage conducted the fieldwork on 22 and 23 February 2023. The fieldwork comprised a controlled exclusive survey of the proposed corridor footprint areas. Tracklogs were recorded with hand-held GPS devices. These track logs are in yellow in **Figure 13** and show the areas assessed by the archaeologist during the fieldwork.

Three heritage sites (**GH-OHL-001 to 003**) and three low heritage significance findspots (**GH-OHL-004 to 006**) were identified within the lesser disturbed southern section of the corridor.

Site **GH-OHL-001** consist of a large stone-walled kraal built within the confines of a large low rocky outcrop on the southern side of the dirt road running along the proposed alignment within the corridor (**Figure 11**). The type of stone-built kraal indicates early farming communities and their economic farming activities relating to animal husbandry. The site has a low to medium heritage significance with a local heritage grading of IIIC.

Sites **GH-OHL-002 and 003** are engraved initials on dolerite boulders, dating from 1956 (**Figure 12**). The initialled engraving provides a unique glimpse into the general day-to-day activities of the white farming community in the late 1950s. The two engravings has a low heritage significance with a local grading of IIIC.

The dolerite outcrops towards the corridor's western end are characterised by various low-significance stone tool scatters (**GH-OHL004 to 006**). Most stone tools consist of cores and flakes with minimal reworking or formal tools. The low density and lack of deposits on the rocky outcrops add to a generally low heritage significance rating and a grading of IIIC. The individual site descriptions as contained in **Appendix B**.

¹ Site in this context refers to a place where a heritage resource is located and not a proclaimed heritage site as contemplated under s27 of the NHRA.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 23



Figure 11 - Views of a section of stone walling at GH-OHL-001.



Figure 12 - Engrave initials at GH-OHL-002 and 003. .

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 24

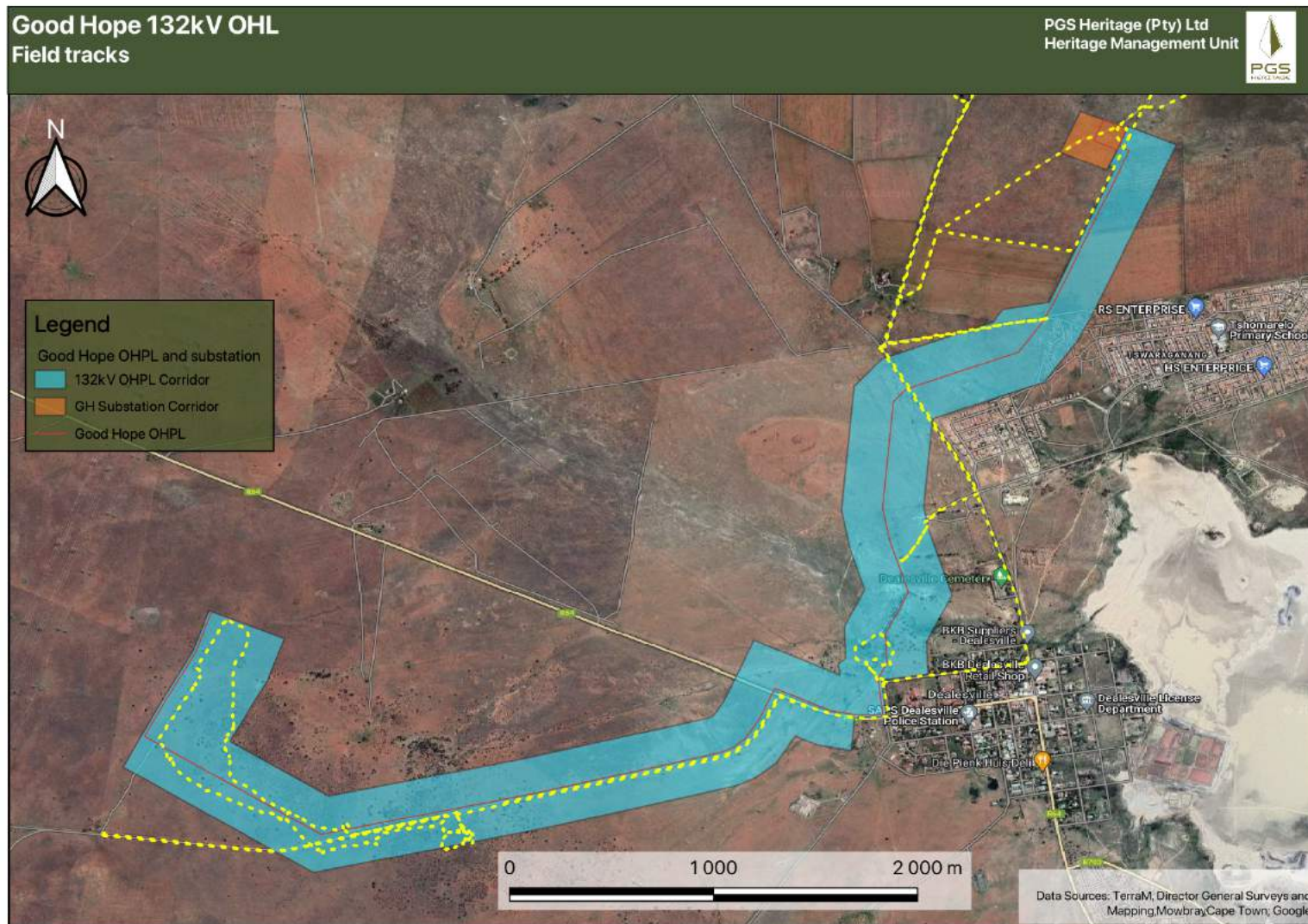


Figure 13 - Fieldwork tracklogs (track in yellow).

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 25

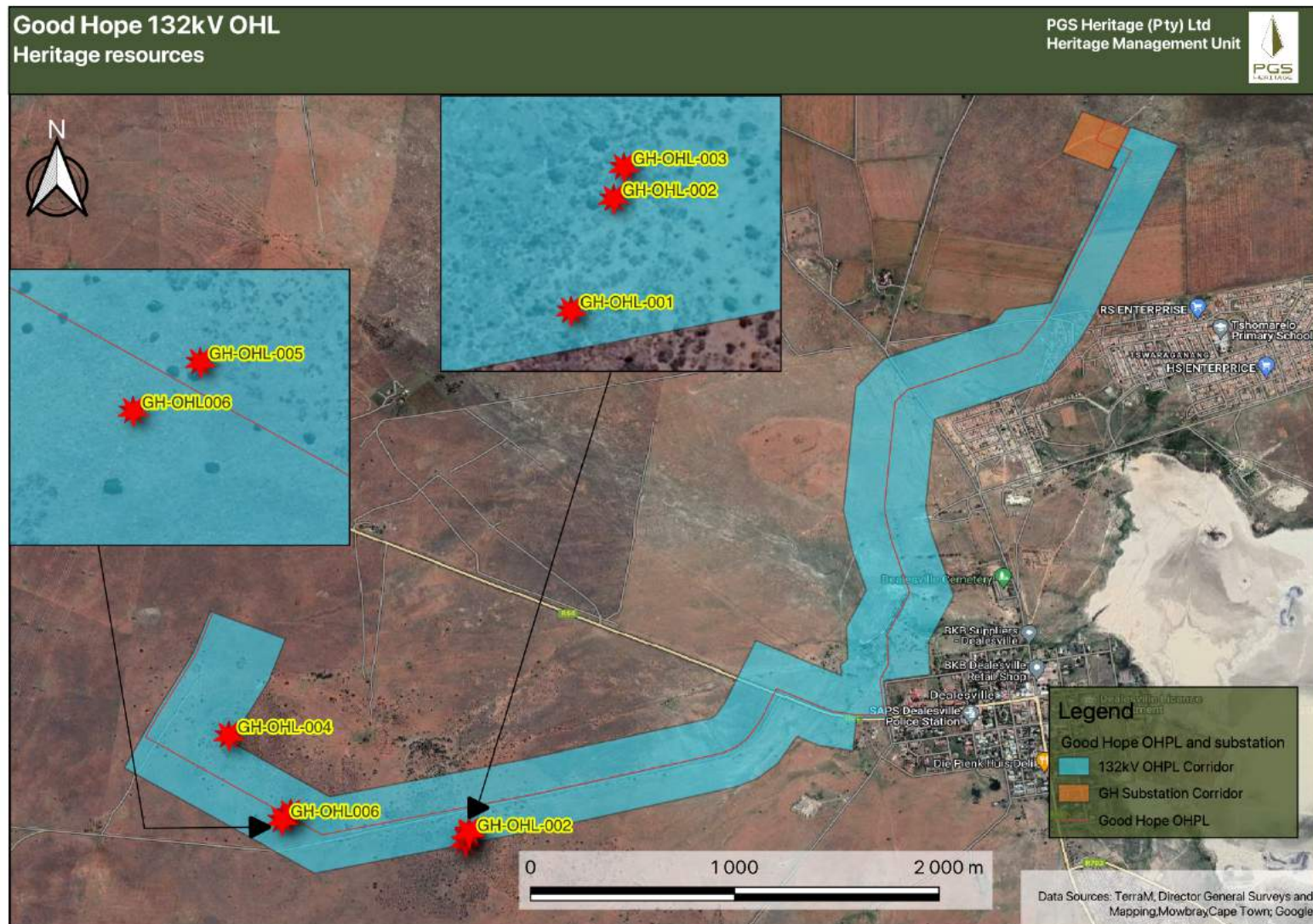


Figure 14 - Identified heritage resources within the study area.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 26

9 PALAEOONTOLOGY

The palaeontology in the surrounding area is identified as a low and high sensitivity according to the SAHRIS palaeontological sensitivity map (**Figure 16**).

A compliance statement for the OHPL was conducted by Dr Elize Butler (2023) with the following findings (**Appendix D**):

“The study area is underlain by Quaternary deposits, Jurassic dolerite, as well as the Tierberg Formation of the Ecca Group (Karoo Supergroup). According to the PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database, the Palaeontological Sensitivity of the Quaternary aeolian sands are Moderate, that of Jurassic dolerite is Zero and the Tierberg Formation has a High Palaeontological Sensitivity (Almond and Pether, 2009; Almond et al., 2013).

Updated Geology indicates that the study area is underlain by the Kalahari Group, Karoo Dolerite, and the Tierberg Formation of the Ecca Group. Topographical as well as Google Earth images indicate that the relief of the proposed project is low, and outcrops in the area are rare. “

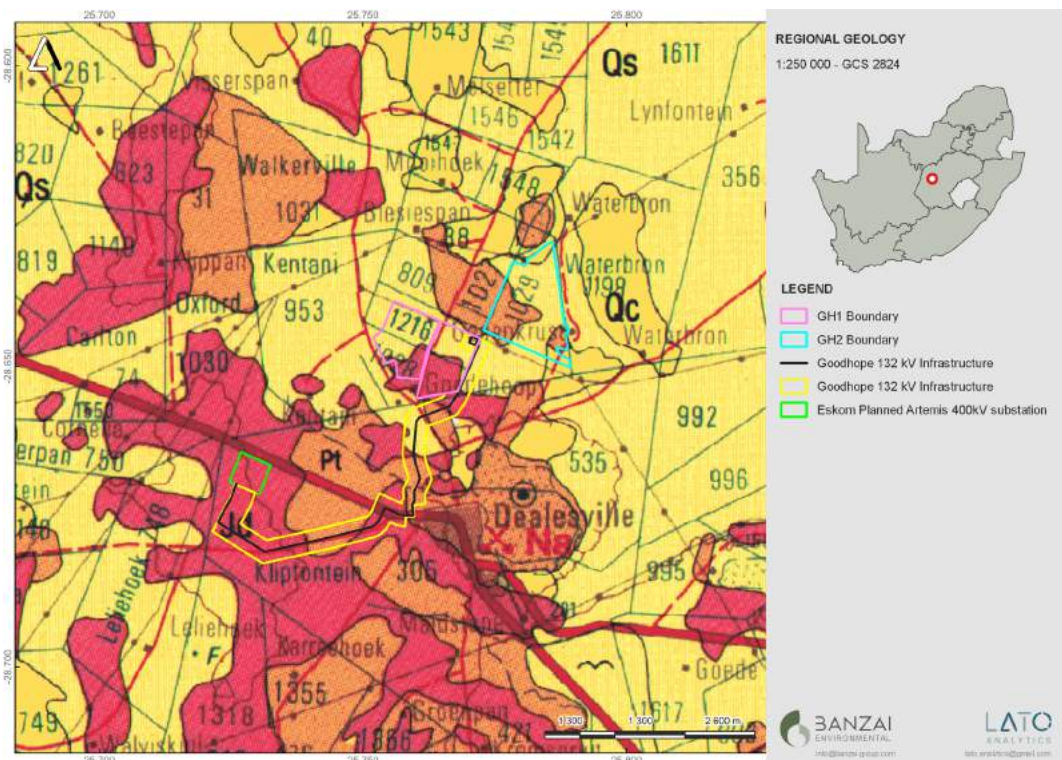


Figure 15 - Extract of the 1:250 000 Kimberley 2824 Geological map (1993) (Council of Geoscience, Pretoria) indicating the geology of the Good Hope OHPL west of Dealesville in the Free State Province. The study area is underlain by Quaternary sediments (Os, yellow), Jurassic dolerite (Jd, red), and the Tierberg Formation (Pt, orange).

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 27

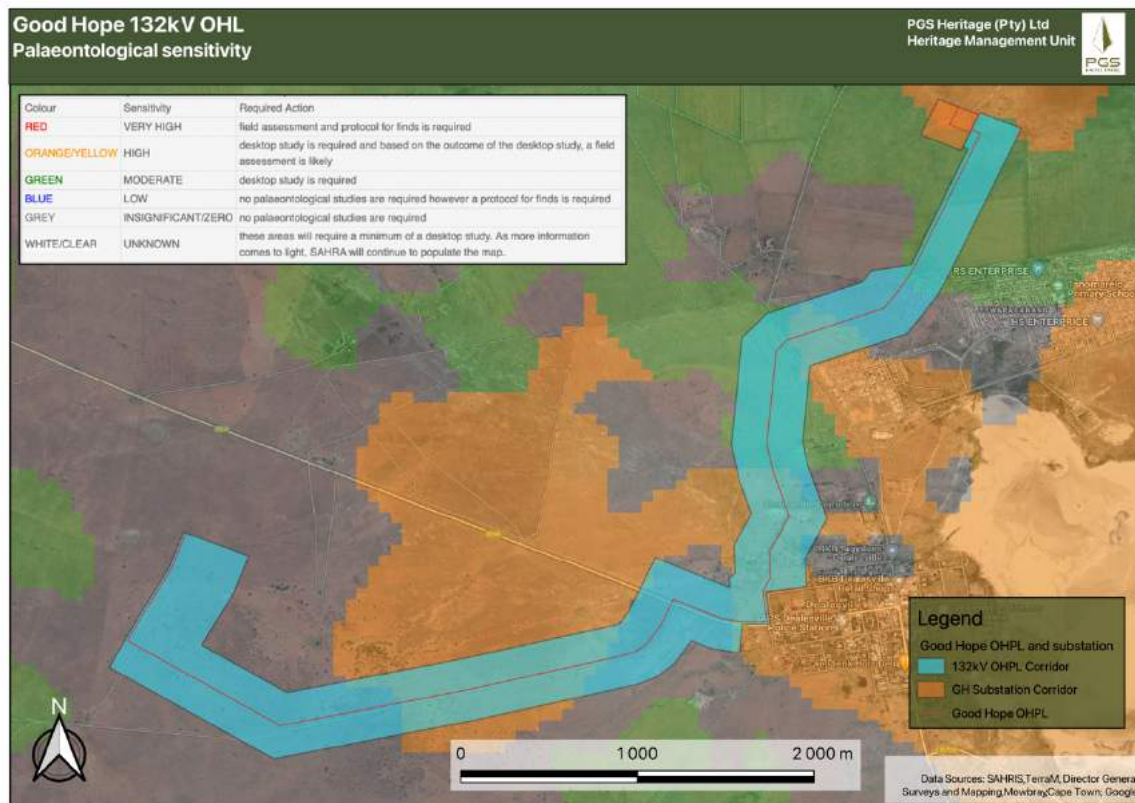


Figure 16 - Extract of the 1 in 250 000 SAHRIS PalaeoMap map.

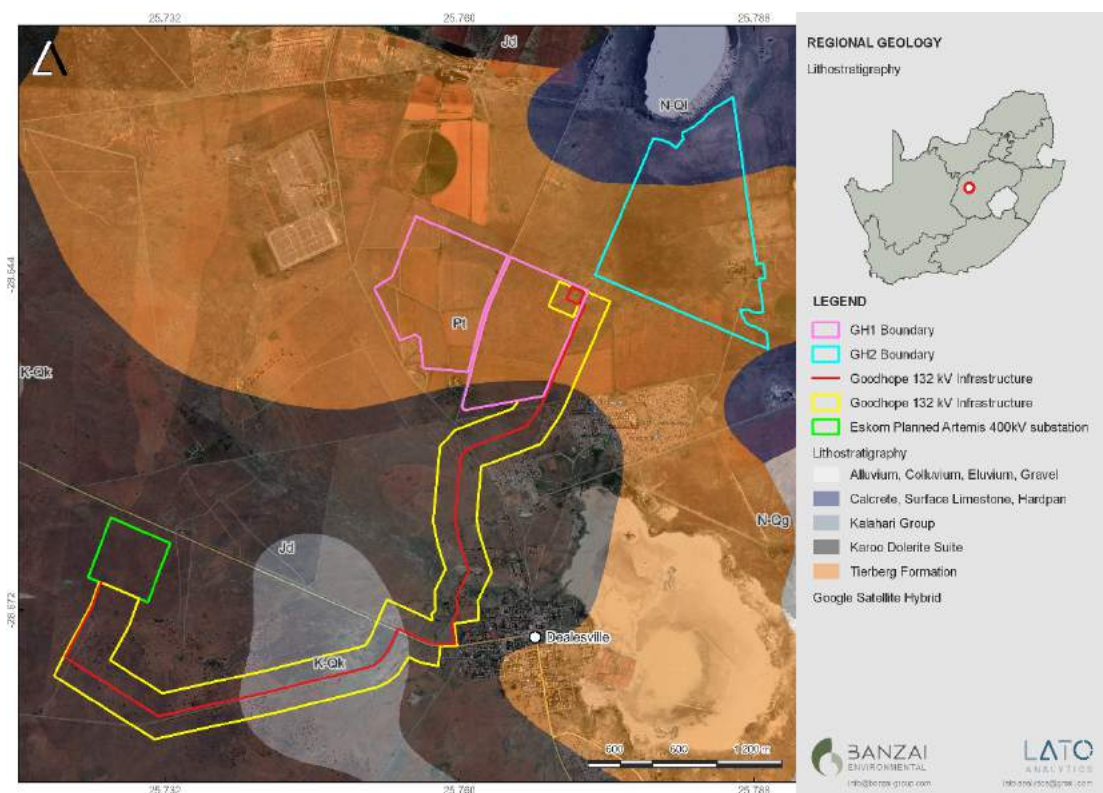


Figure 17 - Updated Geology (Council of Geosciences, Pretoria) indicates that the study area is underlain by the Kalahari Group, Karoo Dolerite as well as the Tierberg Formation of the Ecca Group

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 28

10 IMPACT ASSESSMENT

In this section, an assessment will be made of the impact of the proposed development on the identified heritage sites. An overlay of all the heritage sites identified during the fieldwork over the proposed development footprint areas was made to assess the proposed project's impact on these identified heritage sites. This overlay resulted in the following observations:

The following general observations will apply to the impact assessment undertaken in this report:

- The impact assessment rating is based on the rating scale contained in **Appendix A**.
- Heritage sites with low significance should be included in these impact risk assessment calculations. This is because sites of low significance will not require mitigation. This includes sites (**GH-OHL004-6**).
- Two historical rock engravings (**GH-OHL002** and **003**) dating to 1956 and a potential Early Farmer Community Stock stone built kraal (**GH-OHL001**) were located within the proposed GHOHPL corridor. As a result, the proposed development could impact upon this site.
- It is important to note that the heritage resources located during the fieldwork only represent some of the possible heritage resources in the area. Various factors account for this, including the subterranean nature of some heritage sites. The impact assessment conducted for heritage sites assumes the possibility of finding heritage resources during the project life and has been conducted as such.
- As calculated in Table 8, the impact assessment rating calculates an overall impact significance pre-mitigation as LOW (-36) with medium confidence. Post- mitigation, the impact is seen as Very Low with and overall impact rating of (-1).

10.1 Cumulative Impacts

This section evaluates the possible cumulative impacts (CI) on heritage resources within the addition of the GHOHPL to the larger study area around Dealesville. The Dealesville area is characterised by a large number of power line corridors traversing the landscape due to the large number of Eskom substations. A number of HIAs have been completed in the larger study area with a limited number of heritage resources identified.

The following must be considered in the analysis of the cumulative effect of development on heritage resources:

- **Fixed datum or dataset:** A comprehensive heritage data set for the Dealesville area needs to be created. Thus, we cannot quantify how much of a specific cultural heritage element is present in the region. The region has never been covered by a heritage resources study that can account for all heritage resources. Further to this, none of the heritage studies conducted can with certainty state that all heritage resources within the study area have been identified and evaluated;

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 29

- **Defined thresholds:** The value judgement on the significance of a heritage site will vary from individual to individual and between interest groups. Thus, implicating that heritage resources' significance can and does change over time. And so, will the tipping threshold for impacts on a certain type of heritage resource;
- **Threshold crossing:** In the absence of a comprehensive dataset or heritage inventory of the entire region we will never be able to quantify or set a threshold to determine at what stage the impact of developments on heritage resources has reached or is reaching the danger level or excludes the new development on this basis. (Godwin, 2011)

10.2 Impact Assessment Table

Implementing the impact assessment methodology as supplied by the client, the table below provides a quantitative assessment of the impacts of the proposed project.

Table 9 - Rating of impacts on archaeological resources

IMPACT NATURE	Impact – Nature of Impact		STATUS	NEGATIVE
	Impact on heritage resources. Loss of no replicable heritage resources			
Impact Description	The potential destruction of sites GH-OHL001-003 during construction of the OHPL			
Impact Source(s)	Construction activities			
Receptor(s)	Heritage resources			
PARAMETER	WITHOUT MITIGATION	SCORE	WITH MITIGATION	SCORE
EXTENT (A)	Preferred Alternative:	1	Preferred Alternative:	1
	No-Go Alternative:	0	No-Go Alternative:	0
DURATION (B)	Preferred Alternative:	4	Preferred Alternative:	1
	No-Go Alternative:	0	No-Go Alternative:	0
PROBABILITY (C)	Preferred Alternative:	2	Preferred Alternative:	1
	No-Go Alternative:	0	No-Go Alternative:	0
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-3	Preferred Alternative:	-1
	No-Go Alternative:	0	No-Go Alternative:	0
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	-36	Preferred Alternative:	-1
	No-Go Alternative:	0	No-Go Alternative:	0
CUMULATIVE IMPACTS	The overall cumulative impact of the GHOHPL is rated as low due to the amount of low-significance heritage resources identified in the GHOHPL corridor.			

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 30

CONFIDENCE	Medium
MITIGATION MEASURES	<ul style="list-style-type: none"> ▪ Archaeological Monitoring during construction in the vicinity of sites GH-OHL004-006 ▪ Avoidance of the low dolerite outcrop that contains site GH-OHL-001 to 003. It is recommended that the alignment keep to the norther side of the dirt road opposite the dolerite outcrop. ▪ Demarcate the outcrop at GH-OHL-001 to 003 as a n-go area during construction. ▪ Develop and implement a Chance finds procedure for construction of the OHPL.

11 MANAGEMENT RECOMMENDATIONS AND GUIDELINES

The following section must be read with **Table 11** of this report.

11.1 Construction and operational phases

The project will encompass a range of activities during the construction phase, including ground clearance and small-scale infrastructure development associated with the project.

It is possible that cultural material will be exposed during construction and may be recoverable, keeping in mind that delays can be costly during construction and must be minimised—development surrounding infrastructure and construction of facilities results in a significant disturbance. However, holes offer a window into the past, and it is possible to rescue some data and materials.

During the construction phase, it is essential to recognise any significant material being unearthed, correctly judging which actions should be taken. It is recommended that the following chance find procedure should be implemented.

11.2 Chance finds procedure

- An appropriately qualified heritage practitioner / archaeologist must be identified to be called upon if any possible heritage resources or artefacts are identified.
- Should an archaeological site or cultural material be discovered during construction (or operation), the area should be demarcated, and construction activities halted.
- The qualified heritage practitioner / archaeologist will then need to come out to the site and evaluate the extent and importance of the heritage resources and make the necessary recommendations for mitigating the find and the impact on the heritage resource.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 31

- The contractor therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the materials and data are recovered.
- Construction can commence as soon as the site has been cleared and signed off by the heritage practitioner / archaeologist.

11.3 Possible finds during construction

The study area occurs within a greater historical and archaeological site, as identified during the desktop and fieldwork phase. Soil clearance for infrastructure as well as the proposed reclamation activities could uncover the following:

- Stone tools and pottery;
- Unmarked burial grounds and graves;

11.4 Timeframes

It must be kept in mind that mitigation and monitoring of heritage resources discovered during construction activity will require permitting for collection or excavation of heritage resources and lead times must be worked into the construction time frames. **Table 10** gives guidelines for lead times on permitting.

Table 10 - Lead times for permitting and mobilisation

Action	Responsibility	Timeframe
Preparation for field monitoring and finalisation of contracts	The contractor and service provider	1 month
Application for permits to do necessary mitigation work	Service provider – Archaeologist and SAHRA	3 months
Documentation, excavation, and archaeological report on the relevant site	Service provider – Archaeologist	3 months
Handling of chance finds – Graves/Human Remains	Service provider – Archaeologist and SAHRA	2 weeks
Relocation of burial grounds or graves in the way of the development	Service provider – Archaeologist, SAHRA, local government and provincial government	6 months

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 32

11.5 Heritage Management Plan for EMPr implementation

Table 11 - Heritage Management Plan for EMPr implementation

Area and site no.	Mitigation measures	Phase	Timeframe	The responsible party for implementation	Monitoring Party (frequency)	Target	Performance indicators (Monitoring tool)
General project area	<ul style="list-style-type: none"> ▪ Implement a chance to find procedures in case where possible heritage finds are uncovered. ▪ A detailed “walk down” of the final approved alignment will be required before construction commences. ▪ Any significant features of significance identified during this walkdown will require formal mitigation (i.e., permitting where required) or where possible a slight change in design could accommodate such resources. 	Construction	During construction	Applicant ECO Heritage Specialist	ECO (monthly / as or when required)	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 34-36 and 38 of NHRA	ECO Monthly Checklist/Report
Identified heritage sites	<ul style="list-style-type: none"> ▪ Archaeological Monitoring during construction in the vicinity of sites GH-OHL004-006 ▪ Avoidance of the low dolerite outcrop that contains site GH-OHL-001 to 003. It is recommended that the alignment keep to the norther side of the dirt road opposite the dolerite outcrop. ▪ Demarcate the outcrop at GH-OHL-001 to 003 as a n-go area during construction. 	Construction	During Construction	Applicant Environmental Control Officer (ECO) Heritage specialist	Monthly	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35 and 38 of NHRA	ECO Monthly Checklist/Report

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 33

Area and site no.	Mitigation measures	Phase	Timeframe	The responsible party for implementation	Monitoring Party (frequency)	Target	Performance indicators (Monitoring tool)
Palaeontology	<ul style="list-style-type: none"> If Palaeontological Heritage is uncovered during surface clearing and excavations the Chance find Protocol attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation (recording and collection) can be carried out. 	Construction	During Construction	Applicant Environmental Control Officer (ECO) Palaeontologist	Monthly	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35 and 38 of NHRA	ECO Monthly Checklist/Report

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 34

12 CONCLUSIONS AND RECOMMENDATIONS

PGS was appointed by TerraManzi to undertake an HIA that forms part of the BA process for the proposed GHOHPL on Portions of the farm Klipfontein 305, Klipkoppan, Gedenkruist 1029 and Doornpan 1027 near Dealesville, Free State Province.

This HIA aims to evaluate the possible impacts on heritage resources present within the proposed development footprint.

12.1 Heritage Resources Identified

A selective survey of the study area was undertaken by a combination of vehicles and pedestrian survey on 22 and 23 February 2023. It is important to note that although as intensive a fieldwork coverage as possible was undertaken, sections of the study area are in areas which are more densely overgrown and/or disturbed, which limited visibility in those areas of the study area.

Three heritage sites (**GH-OHL-001 to 003**) and three low heritage significance findspots (**GH-OHL-004 to 006**) were identified within the lesser disturbed southern section of the corridor.

Site **GH-OHL-001** consist of a large stone-walled kraal built within the confines of a large low rocky outcrop on the southern side of the dirt road running along the proposed alignment within the corridor. The type of stone-built kraal indicates early farming communities and their economic farming activities relating to animal husbandry. The site has a low to medium heritage significance with a local heritage grading of IIIC.

Sites **GH-OHL-002 and 003** are engraved initials on dolerite boulders, dating from 1956. The initialled engraving provides a unique glimpse into the general day-to-day activities of the white farming community in the late 1950s. The two engravings has a low heritage significance with a local grading of IIIC.

The dolerite outcrops towards the corridor's western end are characterised by various low-significance stone tool scatters (**GH-OHL-004 to 006**). Most stone tools consist of cores and flakes with minimal reworking or formal tools. The low density and lack of deposits on the rocky outcrops add to a generally low heritage significance rating and a grading of IIIC.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 35

12.2 Palaeontology

A compliance statement for the OHPL was conducted by Dr Elize Butler (2023) with the following findings:

“The study area is underlain by Quaternary deposits, Jurassic dolerite, as well as the Tierberg Formation of the Ecca Group (Karoo Supergroup). According to the PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database, the Palaeontological Sensitivity of the Quaternary aeolian sands are Moderate, that of Jurassic dolerite is Zero and the Tierberg Formation has a High Palaeontological Sensitivity (Almond and Pether, 2009; Almond et al., 2013).

Buter (2023) states, that the updated Geology indicates that the study area is underlain by the Kalahari Group, Karoo Dolerite as well as the Tierberg Formation of the Ecca Group. Topographical as well as Google Earth images indicate that the relief of the proposed project is low, and outcrops in the area are rare. It is considered that the proposed development will not lead to detrimental impacts on the palaeontological reserves of the area.”

12.3 Impact Assessment

The pre-construction and construction phase of the proposed development will entail surface clearance as well as excavations into the superficial sediment cover and underlying bedrock. The possible pre-construction impacts calculated on the tangible cultural heritage resources is an overall **LOW NEGATIVE** rating but with the implementation of the recommended buffers and management, guidelines will be reduced to a **LOW NEGATIVE** impact.

12.4 Mitigation measures

The calculated impact, as summarised in **Section 11** of this report, confirms that the impact of the proposed development will be reduced with the mitigation measures. This finding, in addition to implementing a chance finds procedure as part of the EMP, will mitigate possible impacts on unidentified heritage resources. The following mitigation measures are listed in Error! Reference source not found..

Table 12 - Heritage management recommendations.

Area and site no.	Mitigation measures
General project area	<ul style="list-style-type: none"> ▪ Implement a chance to find procedures in case where possible heritage finds are uncovered.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 36

Area and site no.	Mitigation measures
	<ul style="list-style-type: none"> ▪ A detailed “walk down” of the final approved alignment will be required before construction commences. ▪ Any significant features of significance identified during this walkdown will require formal mitigation (i.e., permitting where required) or where possible a slight change in design could accommodate such resources. <ul style="list-style-type: none"> ▪
Identified heritage sites	<ul style="list-style-type: none"> ▪ Archaeological Monitoring during construction in the vicinity of sites GH-OHL004-006 ▪ Avoidance of the low dolerite outcrop that contains site GH-OHL-001 to 003. It is recommended that the alignment keep to the norther side of the dirt road opposite the dolerite outcrop. ▪ Demarcate the outcrop at GH-OHL-001 to 003 as a n-go area during construction.
Palaeontology	<ul style="list-style-type: none"> ▪ If Palaeontological Heritage is uncovered during surface clearing and excavations the Chance find Protocol attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation (recording and collection) can be carried out.
General project area	<ul style="list-style-type: none"> ▪ Implement a chance to find procedures in case where possible heritage finds are uncovered. ▪ A detailed “walk down” of the final approved alignment will be required before construction commences. ▪ Any significant features of significance identified during this walkdown will require formal mitigation (i.e., permitting where required) or where possible a slight change in design could accommodate such resources.

12.5 Conclusion

If heritage resources are discovered during site clearance, construction activities that may impact the find must stop. A qualified archaeologist must be appointed to evaluate and make recommendations on mitigation measures.

It is our considered opinion that the overall impact of the proposed development on heritage resources will be Low. Provided that the general recommendations and mitigation measures outlined in this report are implemented, the impact would be acceptably Low or could be mitigated to the degree that the project could be approved from a heritage perspective. The management and mitigation measures described in **Section 9** of this report have been developed to minimise the project's impact on heritage resources.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 37

We have no objection to the proposed construction under the condition that a walk down of the final approved footprints be conducted before construction commences.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 38

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Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 39

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Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 40

TOMOSE, N. 2018: *Proposed Construction of a 15,5 km Single-circuit BPBH and KDLO Interconnector 22KV Powerline near Boshof.*

VAN RIET & LOUW, Landscape Architects, 2002. *Environmental Management Programme Report: For the Blaauwbosch Diamond Mine, In the Boshof district of the Free State Province.*

VAN VOLLENHOVEN, A.C. 2014: *Heritage Scoping Report Related to the Eskom Kimberly Strengthening Phase 4 Project between the BETA and Boundary Substations in the Northern Cape Province.*

13.3 Internet sources

<http://boshof.co.za/History.htm>

<http://www.nasmus.co.za/departments/rock-art/public-rock-art-sites>

13.4 Google Earth

All the aerial depictions and overlays used in this report are from Google Earth or QGIS.

13.5 Historical Topographical Maps

All the historic topographical maps used in this report were obtained from the Directorate: National Geospatial Information of the Department of Rural Development and Land Reform in Cape Town.

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 41

APPENDIX A

ENVIRONMENTAL IMPACT METHODOLOGY

Definitions of terminology

ITEM	DEFINITION
EXTENT	
Local	Extending only as far as the boundaries of the activity, limited to the site and its immediate surroundings
Regional	Impact on the broader region
National	Will have an impact on a national scale or across international borders
DURATION	
Short-term	0-5 years
Medium-Term	5-15 years
Long-Term	>15 years, where the impact will cease after the operational life of the activity
Permanent	Where mitigation, either by natural process or human intervention, will not occur in such a way or in such a time span that the impact can be considered transient.
MAGNITUDE OR INTENSITY	
Low	Where the receiving natural, cultural or social function/environment is negligibly affected or where the impact is so low that remedial action is not required.
Medium	Where the affected environment is altered, but not severely and the impact can be mitigated successfully and natural, cultural or social functions and processes can continue, albeit in a modified way.
High	Where natural, cultural or social functions or processes are substantially altered to a very large degree. If a negative impact then this could lead to unacceptable consequences for the cultural and/or social functions and/or irreplaceable loss of biodiversity to the extent that natural, cultural or social functions could temporarily or permanently cease.
PROBABILITY	
Improbable	Where the possibility of the impact materialising is very low, either because of design or historic experience
Probable	Where there is a distinct possibility that the impact will occur
Highly Probable	Where it is most likely that the impact will occur
Definite	Where the impact will undoubtedly occur, regardless of any prevention measures
SIGNIFICANCE	

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 42

Low	Where a potential impact will have a negligible effect on natural, cultural or social environments and the effect on the decision is negligible. This will not require special design considerations for the project
Medium	Where it would have, or there would be a moderate risk to natural, cultural or social environments and should influence the decision. The project will require modification or mitigation measures to be included in the design
High	Where it would have, or there would be a high risk of, a large effect on natural, cultural or social environments. These impacts should have a major influence on decision making.
Very High	Where it would have, or there would be a high risk of, an irreversible negative impact on biodiversity and irreplaceable loss of natural capital that could result in the project being environmentally unacceptable, even with mitigation. Alternatively, it could lead to a major positive effect. Impacts of this nature must be a central factor in decision making.
STATUS OF IMPACT	
Whether the impact is positive (a benefit), negative (a cost) or neutral (status quo maintained)	
DEGREE OF CONFIDENCE IN PREDICTIONS	
The degree of confidence in the predictions is based on the availability of information and specialist knowledge (e.g. low, medium or high)	
MITIGATION	
Mechanisms used to control, minimise and or eliminate negative impacts on the environment and to enhance project benefits Mitigation measures should be considered in terms of the following hierarchy: (1) avoidance, (2) minimisation, (3) restoration and (4) off-sets.	

2. Scoring System for Impact Assessment Ratings

To comparatively rank the impacts, each impact has been assigned a score using the scoring system outlined in the Table below. This scoring system allows for a comparative, accountable assessment of the indicative cumulative positive or negative impacts of each aspect assessed.

IMPACT PARAMETER	SCORE
Extent (A)	Rating
Local	1
Regional	2
National	3
Duration (B)	Rating

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 43

Short term	1	
Medium Term	2	
Long Term	3	
Permanent	4	
Probability (C)	Rating	
Improbable	1	
Probable	2	
Highly Probable	3	
Definite	4	
IMPACT PARAMETER	NEGATIVE IMPACT SCORE	POSITIVE IMPACT SCORE
Magnitude/Intensity (D)	Rating	Rating
Low	-1	1
Medium	-2	2
High	-3	3
SIGNIFICANCE RATING (F) = (A*B*D)*C	Rating	Rating
Low	0 to - 40	0 to 40
Medium	- 41 to - 80	41 to 80
High	- 81 to - 120	81 to 120
Very High	> - 120	> 120

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 44

Please complete the following Tables for **EACH IDENTIFIED IMPACT.**

IMPACT NATURE	Impact – Nature of Impact		STATUS	POSITIVE/NEGATIVE
	Eg. Botanical Impact – Loss of natural vegetation			
Impact Description				
Impact Source(s)				
Receptor(s)				
PARAMETER	WITHOUT MITIGATION	SCORE	WITH MITIGATION	SCORE
EXTENT (A)	Preferred Alternative:		Preferred Alternative:	
	No-Go Alternative:		No-Go Alternative:	
DURATION (B)	Preferred Alternative:		Preferred Alternative:	
	No-Go Alternative:		No-Go Alternative:	
PROBABILITY (C)	Preferred Alternative:		Preferred Alternative:	
	No-Go Alternative:		No-Go Alternative:	
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:		Preferred Alternative:	
	No-Go Alternative:		No-Go Alternative:	
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:		Preferred Alternative:	
	No-Go Alternative:		No-Go Alternative:	
CUMULATIVE IMPACTS				
CONFIDENCE				
MITIGATION MEASURES				

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 45

Summary table of overall significance:

DESCRIPTION OF IMPACT	Overall Significance	
	No-Go Alternative	Preferred Alternative

Examples for Table 2:

Description of impact: Loss of endangered vegetation types and plant species

Overall Significance with mitigation: Low/Moderate/High/Very High +/- (eg. High +)

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 46

APPENDIX B
SITE DESCRIPTION FORMS

Site coordinates		
Site	X	Y
GH-OHL-001	-28.68117	25.73856
GH-OHL-002	-28.68079	25.73871
GH-OHL-003	-28.68068	25.73874
GH-OHL-004	-28.67586	25.72669
GH-OHL-005	-28.67976	25.7298
GH-OHL006	-28.68009	25.72934


Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 47

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
GH-OHL006	-28.68009	25.72934	<p>General Landscape Characteristics Flat lying area</p> <p>Site Conditions Overgrown/ limited visibility</p> <p>Time Period Stone Age</p> <p>Site Type Lithics Cluster</p> <p>Site Extent 5m x 5m</p> <p>Notes ESA/MSA cruse flakes cores and large unretouched flakes on and in between a bolder outcrop</p>		Grade 3 - C (IIIC), NCW

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 48




Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 49

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
					

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 50

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
GH-OHL-005	-28.67976	25.7298	<p>General Landscape Characteristics Bushy/Shrubby vegetation</p> <p>Site Conditions Overgrown/ limited visibility</p> <p>Time Period Stone Age</p> <p>Site Type Lithics Cluster</p> <p>Site Extent 10m x 10m</p> <p>Notes MSA lithic scatter with large flaked cores scattered in between a rocky natural outcrop.</p>		Grade 3 - B (IIIB)


Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 51

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
					

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 52

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
GH-OHL-004	-28.67586	25.72669	<p>General Landscape Characteristics Grassy vegetation</p> <p>Site Conditions Overgrown/ limited visibility</p> <p>Time Period Stone Age</p> <p>Site Type Lithics Low Density Surface Scatter//Single Find Spot</p> <p>Site Extent 20m x 20m</p> <p>Notes Low density background scatter of LSA and MSA cores, debitage and some backed pieces</p>		Grade 3 - C (IIIC)

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 53

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
					

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 54

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
GH-OHL-003	-28.68068	25.73874	<p>General Landscape Characteristics Mountainous, Bushy/Shrubby vegetation</p> <p>Site Conditions Overgrown/ limited visibility</p> <p>Time Period Historical Period, Recent</p> <p>Site Type Rock Engravings</p> <p>Site Extent 5m x 5m</p> <p>Notes Rock engraving wit initials - J.M. 1956</p>		Grade 3 - C (IIC)

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 55

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
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Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 56

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
GH-OHL-002	-28.68079	25.73871	<p>General Landscape Characteristics Mountainous</p> <p>Site Conditions Overgrown/ limited visibility</p> <p>Time Period Recent</p> <p>Site Type Rock Engravings</p> <p>Site Extent 5m x 5m</p> <p>Notes Engraving J.L 9/6?/1955</p>		Grade 3 - C (IIIC)



Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 57

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 58

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
GH-OHL-001	-28.68117	25.73856	<p>General Landscape Characteristics Mountainous, Bushy/Shrubby vegetation</p> <p>Site Conditions Overgrown/ limited visibility</p> <p>Time Period Iron Age</p> <p>Site Type Stonewall</p> <p>Site Extent 20m x 20m</p> <p>Notes Stone walling. Large circular kraal</p>	Low	Grade 3 - C (IIIC)

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 59

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
					...

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 60

APPENDIX C
PGS TEAM CV

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 61

WOUTER FOURIE

Professional Heritage Specialist and Professional Archaeologist and Director PGS Heritage



WOUTER FOURIE

Professional Heritage Practitioner

PROFILE

I am involved in heritage resources management for the past 23 years acting as a specialist consultant on various high-profile projects involving heritage and archaeology. I aim to develop tailor-made heritage solutions to the mining, water and oil and gas industries. I have worked in various African countries, including South Africa, Lesotho, Mozambique, Mauritius, Malawi and the DRC.

I thrive on developing and implementing heritage projects in new territories and with these securing local partnerships that enable skill development for local graduates.

CONTACT

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EDUCATION

University of Pretoria

1993-1996
BA Degree - Majors in Archaeology, Anthropology and Geography

University of Pretoria

1997
BA Hon Archaeology, with further specialisation in environmental management.

University of Cape Town

2016 – present
MPhil Conservation of the Built Environment

WORK EXPERIENCE

PGS Heritage Group of Companies

(South Africa, Lesotho, Mozambique, and Portugal)

Director – Heritage Specialist

2003- present

I am actively involved in the management of the business and focus on marketing and new business for PGS, specifically the broader SADC region. Acting as heritage specialist in multidisciplinary teams

The University of the Witwatersrand - Project Manager – Archaeological Contracts Unit

2007-2008

Responsible for conducting heritage and archaeological impact studies, archaeological excavations and general management of the unit

Matakoma Consultants – Director – Heritage Specialist

2000 – 2008

Heritage specialist and Director responsible for heritage and archaeological impact studies

Randfontein Estate Gold Mine – Environmental Coordinator

Oct 1998- Feb 2000

Coordinating all environmental Rehabilitation work

Department of Minerals and Energy Environmental Officer

Oct 1997– Sept 1998

PROFESSIONAL AFFILIATION

Accredited Professional Heritage Practitioner

Association of Professional Heritage Practitioners
Since 2014

Accredited Professional Archaeologist

Association of Southern African Professional Archaeologists –
Since 2001

Document	Project	Revision	Date	Page Number
687HIA - 001	Proposed Good Hope OHL	2.0	22/05/2023	Page 62

APPENDIX D

PALAEONTOLOGICAL COMPLIANCE STATEMENT



PALAEONTOLOGICAL COMPLIANCE STATEMENT

132 KV GOOD HOPE OHPL
WEST OF DEALESVILLE IN THE
FREE STATE PROVINCE

May 2023

COMPILED FOR:
PGS HERITAGE



EXECUTIVE SUMMARY

Banzai Environmental was appointed by PGS Heritage to conduct the Palaeontological Desktop Assessment (PDA) to assess the 132 kV Good Hope overhead power line (OHPL) west of Dealsville in the Free State. In accordance with the National Environmental Management Act 107 of 1998 (NEMA) and to comply with the National Heritage Resources Act (No 25 of 1999, section 38) (NHRA), this PDA is necessary to confirm if fossil material could potentially be present in the planned development area, and to evaluate the potential impact of the proposed development on the Palaeontological Heritage.

The study area is underlain by Quaternary deposits, Jurassic dolerite, as well as the Tierberg Formation of the Ecca Group (Karoo Supergroup). According to the PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database, the Palaeontological Sensitivity of the Quaternary aeolian sands are Moderate, that of Jurassic dolerite is Zero and the Tierberg Formation has a High Palaeontological Sensitivity (Almond and Pether, 2009; Almond *et al.*, 2013).

Updated Geology indicates that the study area is underlain by the Kalahari Group, Karoo Dolerite, and the Tierberg Formation of the Ecca Group. Topographical as well as Google Earth images indicate that the relief of the proposed project is low, and outcrops in the area are rare.

Therefore, the proposed development will not lead to detrimental impacts on the palaeontological reserves of the area.

If Palaeontological Heritage is uncovered during surface clearing and excavations the **Chance find Protocol** attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation (recording and collection) can be carried out.

Preceding any collection of fossil material, the specialist would need to apply for a collection permit from SAHRA. Fossil material must be curated in an accredited collection (museum or university collection), while all fieldwork and reports should meet the minimum standards for palaeontological impact studies suggested by SAHRA.



TABLE OF CONTENT

1	INTRODUCTION	1
2	QUALIFICATIONS AND EXPERIENCE OF THE AUTHOR	1
3	METHODS.....	4
3.1	Assumptions and Limitations	4
4	GEOLOGICAL AND PALAEOLOGICAL HISTORY.....	5
5	FINDINGS AND RECOMMENDATIONS.....	13
6	CHANCE FINDS PROTOCOL.....	14
6.1	Legislation	14
6.2	Chance Find Procedure	15



LIST OF FIGURES

Figure 1: Regional locality of the Good Hope OHPL west of Dealesville in the Free State Province 2

Figure 2: Locality Map of the Good Hope OHPL west of Dealesville in the Free State Province ... 3

Figure 3: Extract of the 1:250 000 Kimberley 2824 Geological map (1993) (Council of Geoscience, Pretoria) indicating the geology of the Good Hope OHPL west of Dealesville in the Free State Province. The study area is underlain by Quaternary sediments (Os, yellow), Jurassic dolerite (Jd, red), and the Tierberg Formation (Pt, orange). 26

Figure 4: Extract of the 1 in 250 000 SAHRIS PalaeoMap map (Council of Geosciences) indicating the Palaeontological Sensitivity of the of the Good Hope OHPL west of Dealesville in the Free State Province. 10

Figure 5: Updated Geology (Council of Geosciences, Pretoria) indicates that the study area 27

Figure 6: Palaeontological Sensitivity of the Good Hope OHPL near Dealesville in the Free State by the National Environmental Web-bases Screening Tool indicats that the Sensitivity of the development is High. 13

LIST OF TABLES

[Table 1: Legend to the 1:250 000 Kimberley 2824 Geological map \(1993\) \(Council of Geoscience, Pretoria\)](#) 9

[Table 2: Palaeontological Sensitivity according to the SAHRIS PalaeoMap \(Almond et al, 2013; SAHRIS website\)](#)..... 11

Appendix A:

Curriculum Vitae Elize Butler



INTRODUCTION

The proposed 132kV Good Hope OHPL is a new Application to connect the authorised Good Hope Solar Park (consisting of the Good Hope 1&2 Solar PV Facilities) to the national grid, via the proposed Eskom Artemis Substation. Terramanzi Group (Pty) Ltd have been appointed to facilitate the Basic Assessment Reporting process to obtain Environmental Authorisation in terms of the National Environmental Management Act ("NEMA") and associated Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended).

The Good Hope Solar Park consists of the authorised Good Hope 1 & 2 Solar PV Facilities and has been awarded Preferred Bidder status under Bid Window 6 of the REIPPPP; The OHPL is required to connect the Solar Park to the national grid, which will add capacity to the energy mix; Employment opportunities and skills development.

The proposed Good Hope Over Head Power Line (GHOHPL) corridor is situated just to the west of the town of Dealesville within the Tokologo Local municipality, Lejweleputswa District Municipality, Free State Province (**Figure 1-2**).

QUALIFICATIONS AND EXPERIENCE OF THE AUTHOR

This study has been conducted by Mrs Elize Butler. She has conducted approximately 400 palaeontological impact assessments for developments in the Free State, KwaZulu-Natal, Eastern, Central, and Northern Cape, Northwest, Gauteng, Limpopo, and Mpumalanga. She has an MSc (*cum laude*) in Zoology (specializing in Palaeontology) from the University of the Free State, South Africa and has been working in Palaeontology for more than thirty years. She has experience in locating, collecting, and curating fossils. She has been a member of the Palaeontological Society of South Africa (PSSA) since 2006 and has been conducting PIAs since 2014.

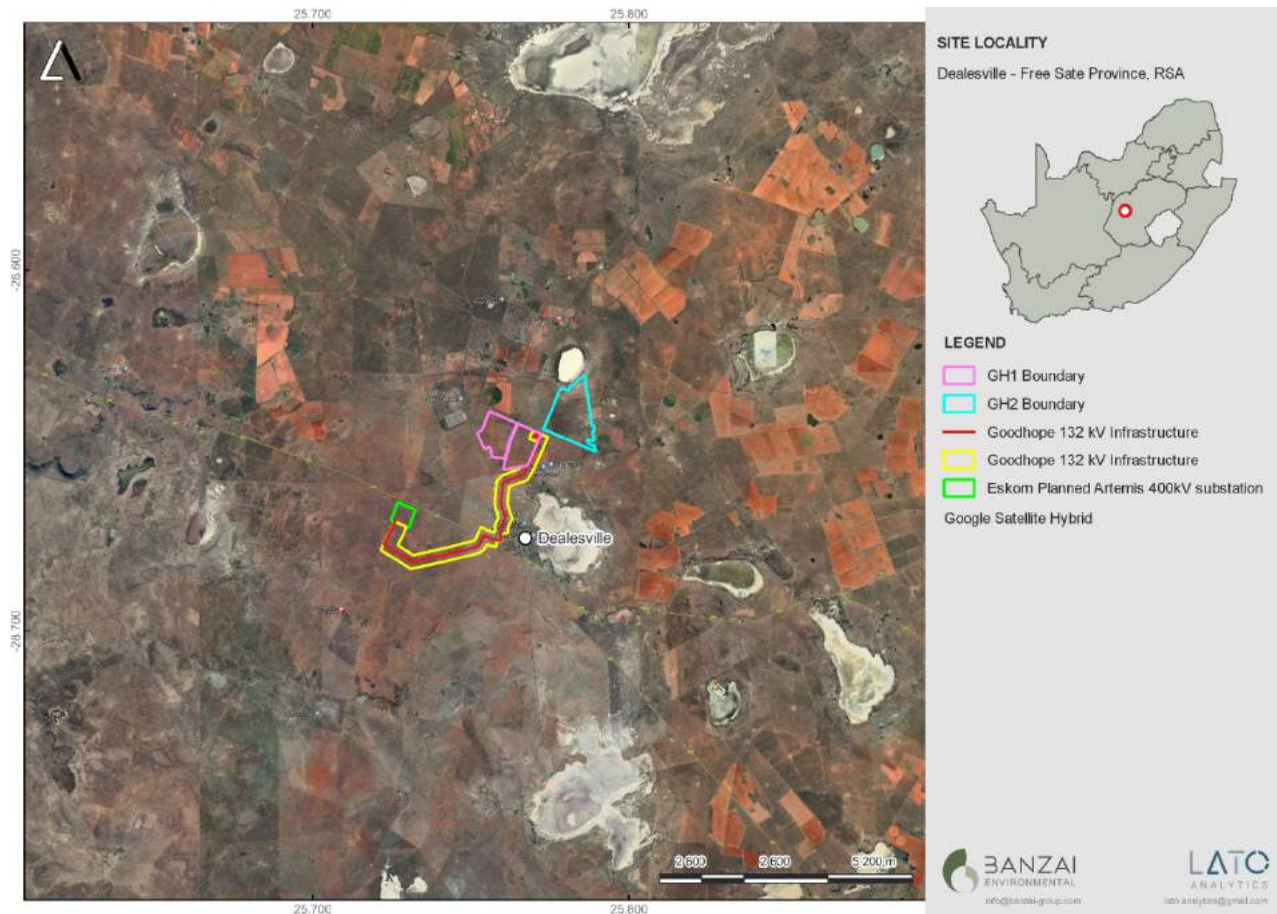


Figure 18: Regional locality of the Good Hope OHPL west of Dealesville in the Free State Province

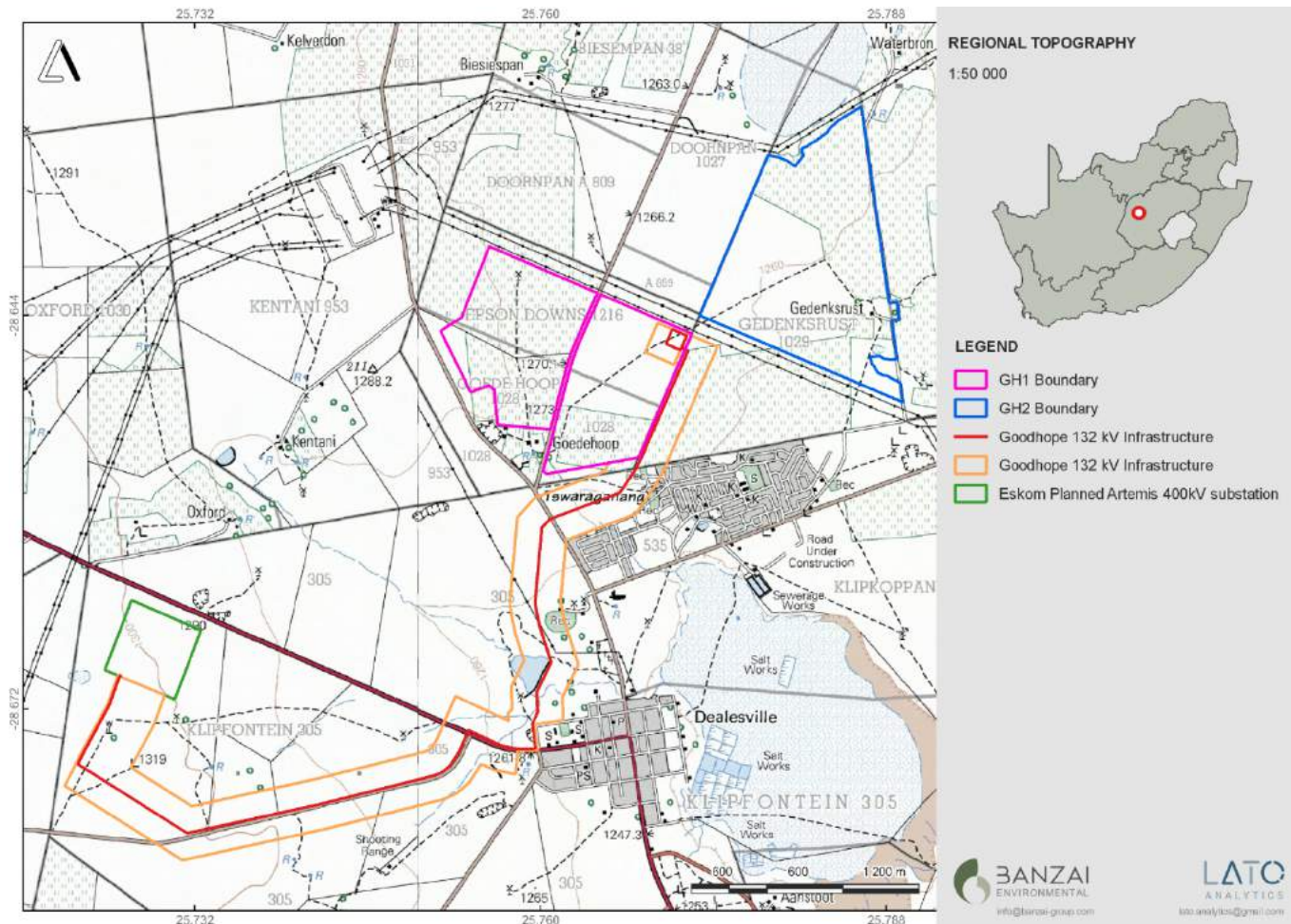


Figure 19: Locality Map of the Good Hope OHPL west of Dealesville in the Free State Province



METHODS

In terms of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations [4 December 2014, Government Notice (GN) R982, R983, R984 and R985, as amended), various aspects of the proposed development may have an impact on the environment and are considered to be listed activities. These activities require environmental authorisation (EA) from the Competent Authority (CA), namely the Department of Small Business Development, Tourism and Environmental Affairs (DESTEA), prior to the commencement thereof.

In accordance with GN 320 of 20 March 2020 and GN 1150 of 30 October 2020² (i.e., “the Protocols”) of the NEMA EIA Regulations of 2014 (as amended), prior to commencing with a specialist assessment, a site sensitivity verification must be undertaken to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (i.e., Screening Tool). Elize Butler as Palaeontology Specialist have been commissioned to verify the sensitivity of the Good Hope OHPL under these specialist protocols.

5.1 Site Sensitivity Verification Methodology

The Palaeontology Sensitivity Verification was undertaken by the following methodology:

- The site sensitivity is established through the National Environmental Web-Based Screening Tool
- The Site is mapped on the relevant Geological Map to determine the underlying geology of the development
- Then the site is mapped on the South African Heritage Resources Information System (SAHRIS) PalaeoMap, and the Sensitivity of the proposed development established.
- Other information is obtained by using satellite imagery and
- Palaeontological Impact Assessments and Desktop Assessments of projects in the same area are studied.

Assumptions and Limitations

The focal point of geological maps is the geology of the area and the sheet explanations of the Geological Maps were not meant to focus on palaeontological heritage. Many inaccessible regions of South Africa have never been reviewed by palaeontologists and data is generally

² GN 320 (20 March 2020): Procedures for The Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation



based on aerial photographs alone. Locality and geological information of museums and universities databases have not been kept up to date or data collected in the past have not always been accurately documented.

Areas with similar Assemblage Zones in other areas is also used to provide information on the existence of fossils in an area which has not documented in the past. When using similar Assemblage Zones and geological formations for Desktop studies it is generally **assumed** that exposed fossil heritage is present within the footprint. A field-assessment will thus improve the accuracy of the desktop assessment and thus this study has been commissioned

GEOLOGICAL AND PALAEOONTOLOGICAL HISTORY

The Good Hope OHPL west of Dealesville in the Free State is depicted on the 1:250 000 2824 (1993) Kimberley Geological Map (Council of Geoscience, Pretoria). The study area is underlain by Quaternary deposits (Qs, yellow), Jurassic dolerite (Jd, red), as well as the Tierberg Formation (Pt, orange) of the Ecca Group (Karoo Supergroup) (**Figure 3, Table 2**). The PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database indicates that the Palaeontological Sensitivity of the Quaternary sands is Moderate, that of Jurassic dolerite is Zero and the Tierberg Formation (Pt; orange) has a High Palaeontological Sensitivity (Almond and Pether, 2009; Almond *et al.*, 2013; **Figure 4**). Recent Shape files produced by the Council of Geosciences, Pretoria) is depicted in **Figure 5**. Topographical as well as Google Earth images indicate that the relief of the proposed project is low, and outcrops in the area are rare.

The Quaternary deposits reveal palaeoclimatic changes in the different geological formations (Hunter *et al.*, 2006). The climatic fluctuations in the Cenozoic Era were responsible for the formation of most geomorphologic features in southern Africa (Maud, 2012). Various warming and cooling events occurred in the Cenozoic but climatic changes during the Quaternary, specifically the last 1.8 Ma, were the most drastic climate changes relative to all climate variations in the past Barnosky (2005). Climate in the Quaternary Period were both drier and wetter than the present and resulted in changes in river flow patterns, sedimentation processes and vegetation variation (Tooth *et al.*, 2004). Netterberg (1978, 1980) revised the South African calcretes and found that the calcretes comprise of glaebular calcrete (with separate nodules), hardpan calcrete that contain solid limestone and honeycomb calcrete (fusing with glaebules). These calcretes are locally conglomeratic with clasts of exotic pebbles and reworked calcretes. The calcretes could contain mammalian teeth, bones and horn corns, reptile skeletons and fragments of ostrich eggs. Microfossils, non-marine mollusc shells are also known from Quaternary deposits. Plant material such as foliage, wood, pollens, and peats are recovered as well as trace fossils like vertebrate tracks, termite and insect burrows, termitaria (termite heaps/mounds) as well as rhizoliths (root casts). Reworked Stone Age artifacts (Plio-Pleistocene) have been found in Quaternary alluvium. Some of these calcretes may be diamondiferous.



Various authors have described fossilized hyena burrows in Late Pleistocene alluvial sediments of the Modder River (Broom 1909 a, b; Cooke 1955; Churchill et al. 2000; Rossouw 2006). Fossilized hyena lairs are occasionally located outside the present river valleys along localized spring deposits and calcified pan dunes (Scott & Brink 1991). Fossiliferous sediments (local peat deposits) occur within calcified pan dunes in this region (Horowitz et al. 1978; Scott and Klein 1981; Butzer 1984). These types of pans formed when the prevailing winds blew aeolian sands (unconsolidated material) into newly formed lunettes on the lee side of the deflation hollows and sometimes provided a site for hyena burrows and prehistoric human habitation.

Pleistocene vertebrate fossils and plant microfossils are associated with spring and pan deposits [e.g., Florisbad, (northwest of Bloemfontein, Baden Baden (north of Dealesville,) Liebenbergspan (Voigts Post), Deelpan between Bloemfontein and Petrusburg) (Brink 1987, 1988; Scott & Rossouw 2005)]. Florisbad has been declared a Provincial Heritage Site while Erfkroon is another valuable fossil site along the Modder River. Fossils in these areas occur over large areas in erosion gullies. Stone artefacts from the earlier part of the Middle Stone Age and the Later Stone Age have also been uncovered and are sometimes associate with bones (Churchill et al. 2000). The palaeontology of the Quaternary superficial deposits has been relatively neglected in the past.

The **Karoo igneous province** (Jd-red) is one of the world's classic continental basalt (CFB) provinces. These rocks are igneous in origin and are thus unfossiliferous and thus not discussed further in the report.

The **Tierberg Formation** (Pt, orange, **Figure 3**) consists of a recessive-weathering, thick, mudrock-dominated succession. These rocks comprise mostly of dark, often grey to brown, well-laminated, carbonaceous shales with subordinate thin, fine-grained sandstones (Prinsloo 1989, Le Roux 1993, Viljoen 2005, Johnson et al., 2006). The Early to Middle Permian Tierberg shales were deposited in a series of offshore, quiet water environments below wave base and include basin plain, distal turbidite fan and distal pro-delta in ascending order (Viljoen 2005, Almond in Macey et al. 2011). Towards the top of the formation thin coarsening-upwards cycles occur with confined evidence of ripples and common calcareous concretions as well as soft-sediment deformation. Thin volcanic ash layers (water-lain tuffs) are known in these sediments. The Ecca Basin were a restricted, brackish water environment. The Tierberg mudrocks are often baked to a dark grey hornfels with a reddish-brown crust close to the contact with Karoo dolerite intrusions (Prinsloo 1989). This formation is known for its rare trace fossils assemblages (Anderson 1976; De Beer et al. 2002; Viljoen 2005; Johnson et al. 2006). These trace fossil assemblages comprise of arthropod trackways and associated resting impressions, possible gastropod horizontal epichnial furrows, fish swimming trails, and burrows of different sizes. Vascular plants (including petrified wood, more abundant in the upper portion of the formation (Ryan 1967; Wickens 1996) and palynomorphs of *Glossopteris* flora have been found while



132kV Good Hope OHPL, near Dealsville in the Free State

insects, crustaceans, shelly marine invertebrates, and fish fossils as well as microfossils have been identified (Zawada 1992, Bosch 1993).



132kV Good Hope OHPL, near Dealesville in the Free State

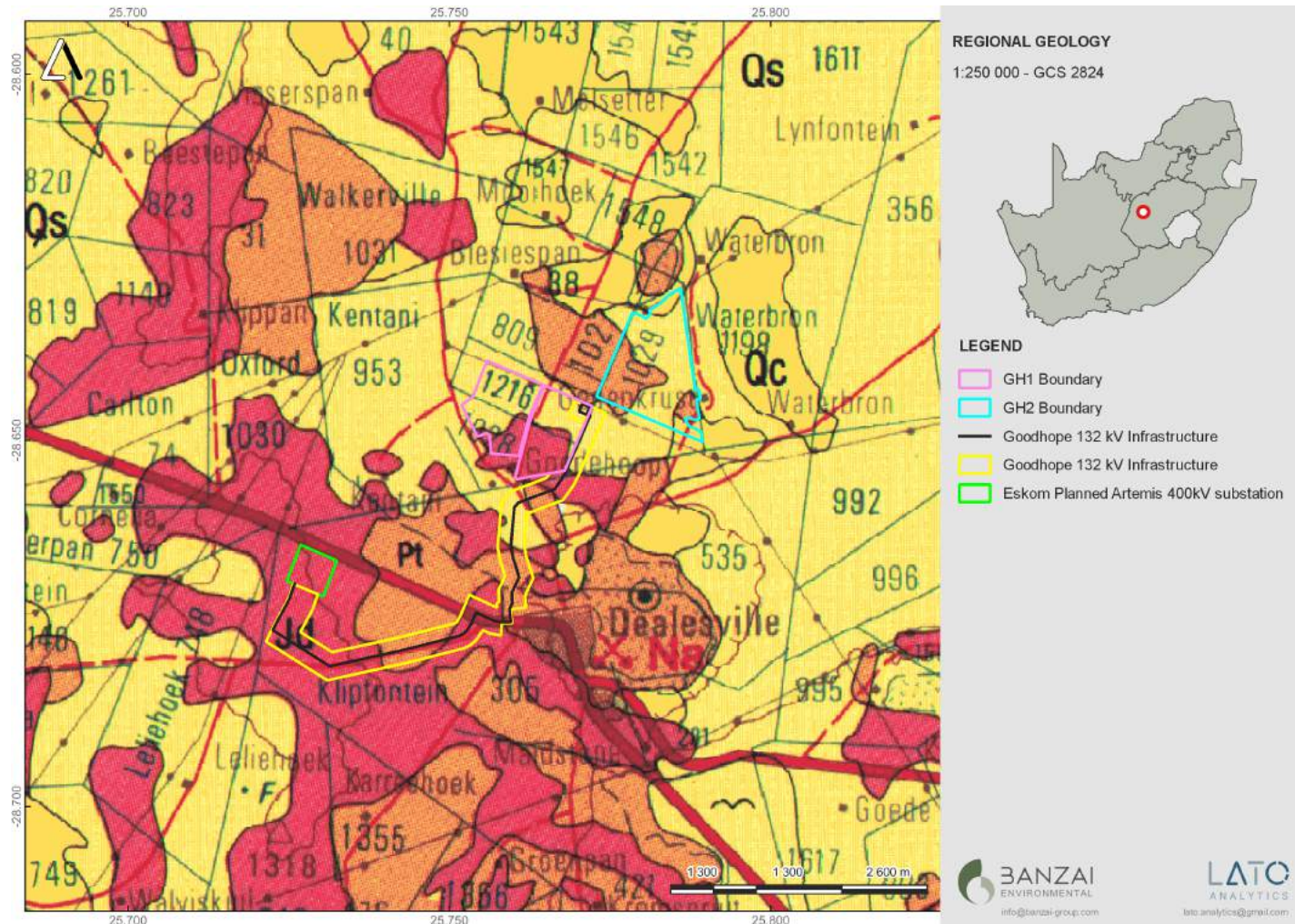
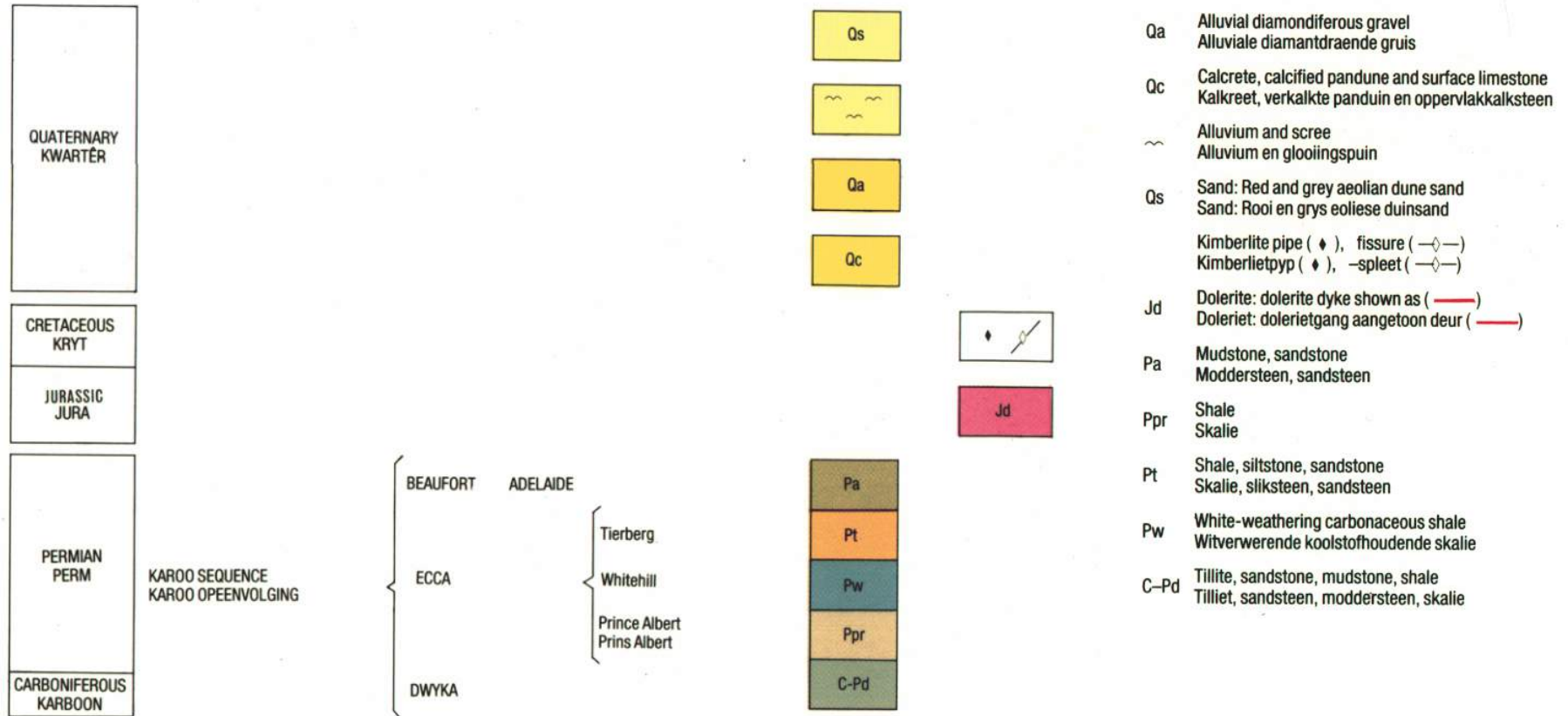


Figure 20. Extract of the 1:250 000 Kimberley 2824 Geological map (1993) (Council of Geoscience, Pretoria) indicating the geology of the Good Hope OHPL west of Dealesville in the Free State Province. The study area is underlain by Quaternary sediments (Os, yellow), Jurassic dolerite (Jd, red), and the Tierberg Formation (Pt, orange).



Table 13: Legend to the 1:250 000 Kimberley 2824 Geological map (1993) (Council of Geoscience, Pretoria).



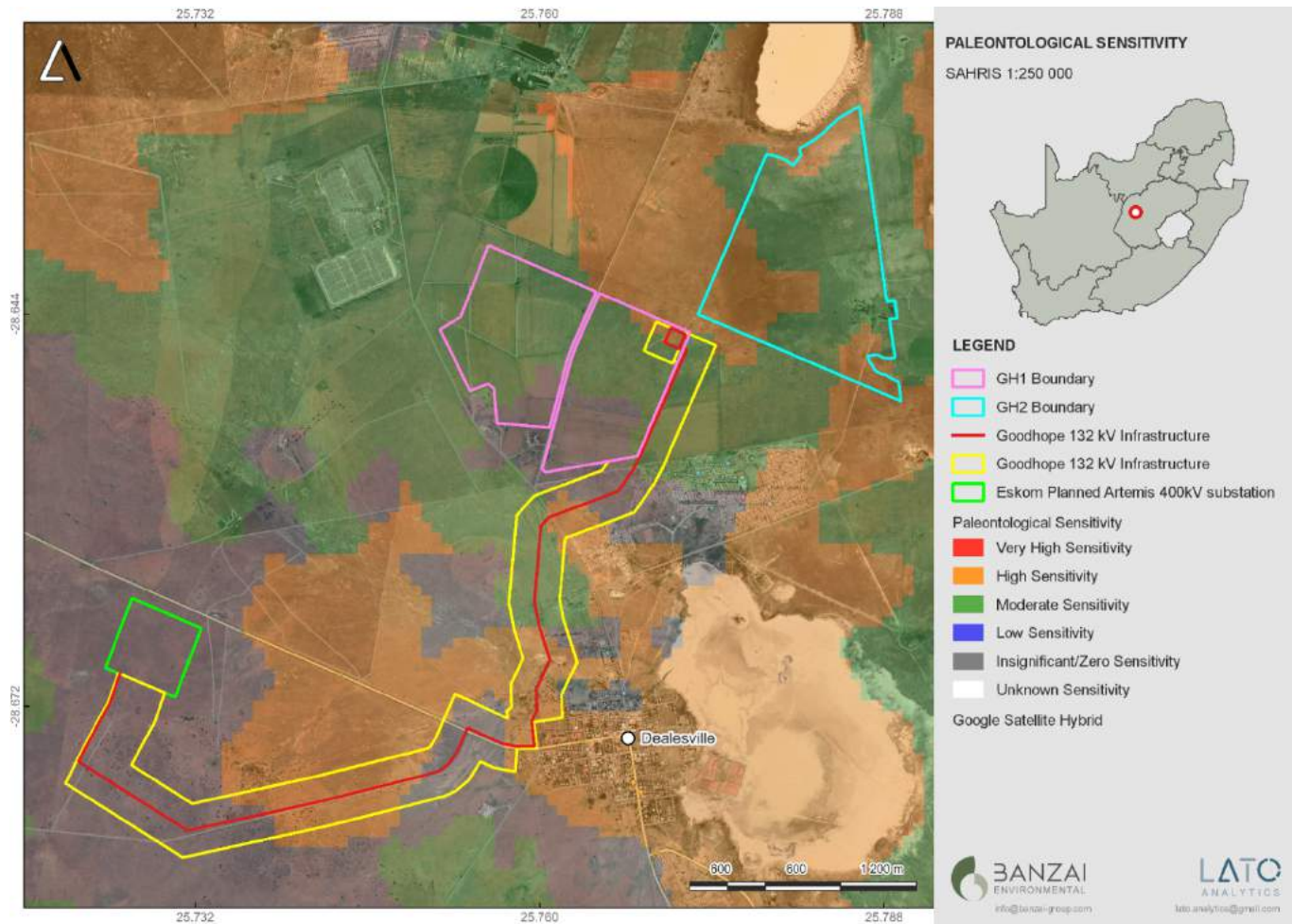


Figure 21: Extract of the 1 in 250 000 SAHRIS PalaeoMap map (Council of Geosciences) indicating the Palaeontological Sensitivity of the of the Good Hope OHPL west of Dealesville in the Free State Province.



The SAHRIS Palaeomap indicates that the Palaeontological Sensitivity of the proposed development is underlain by sediments with a High (orange), Moderate (green) and Zero (grey) Palaeontological Sensitivity.

Table 14: Palaeontological Sensitivity according to the SAHRIS PalaeoMap (Almond et al, 2013; SAHRIS website)

Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study; a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

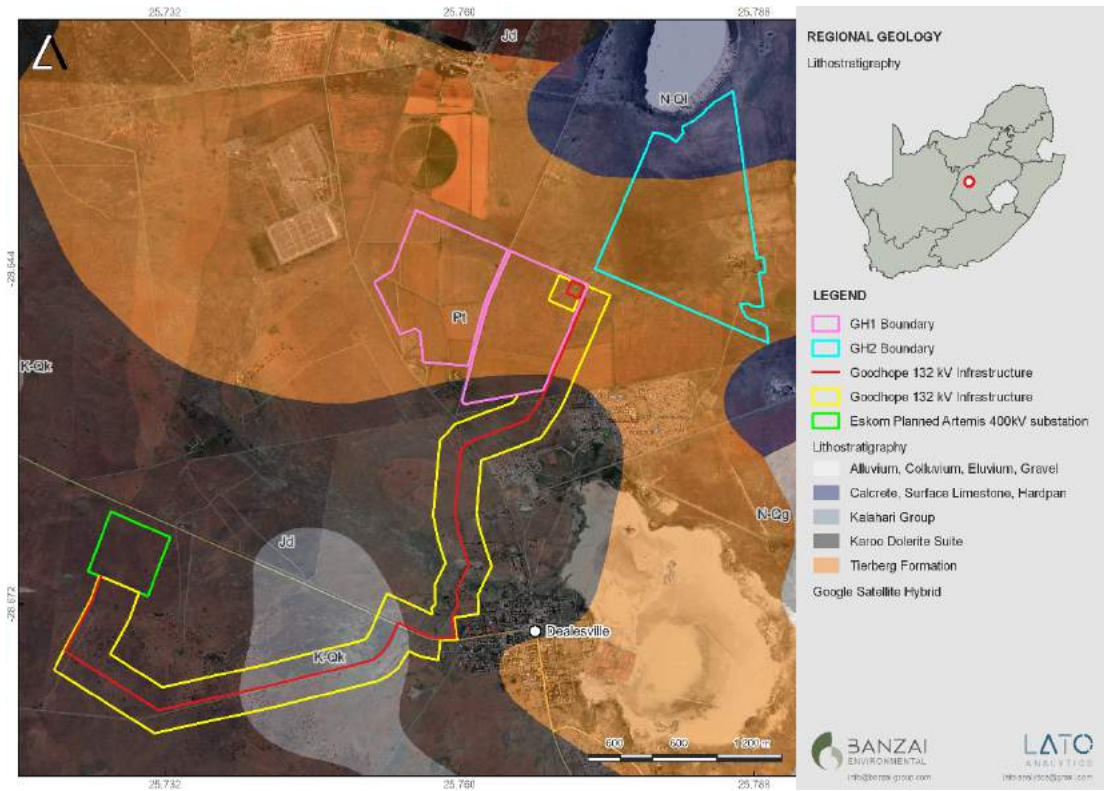


Figure 22: Updated Geology (Council of Geosciences, Pretoria) indicates that the study area is underlain by the Kalahari Group, Karoo Dolerite as well as the Tierberg Formation of the Ecca Group.

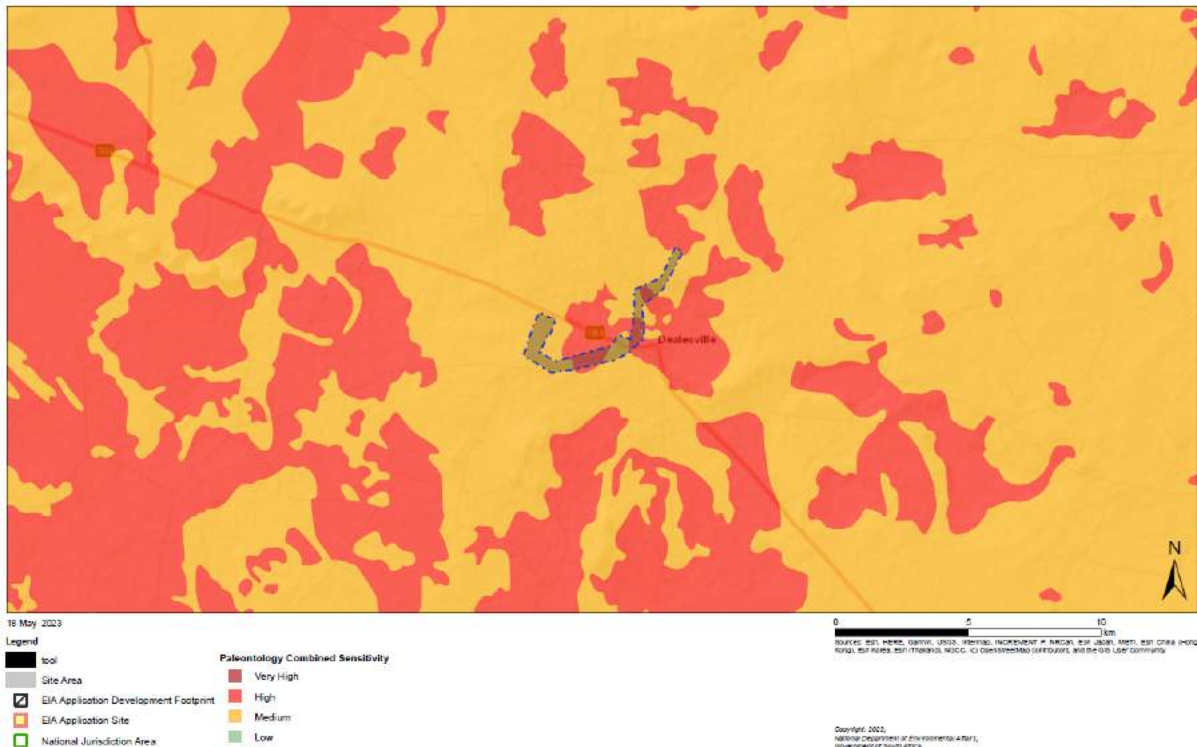


Figure 23: Palaeontological Sensitivity of the Good Hope OHPL near Dealsville in the Free State by the National Environmental Web-based Screening Tool indicates that the Sensitivity of the development is High.

The Site Sensitivities of the proposed Good Hope OHPL has been verified. From a Palaeontological point of view, it was found that: 1) The SAHRIS Palaeosensitivity map indicates that the Palaeontological Sensitivity of the development is High and 2) the National Environmental Web-based Screening Tool indicates that the Palaeontological Sensitivity of the development is High.

FINDINGS AND RECOMMENDATIONS

The study area is underlain by Quaternary deposits, Jurassic dolerite, as well as the Tierberg Formation of the Ecca Group (Karoo Supergroup). According to the PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database, the Palaeontological Sensitivity of the Quaternary aeolian sands are Moderate, that of Jurassic dolerite is Zero and the Tierberg Formation has a High Palaeontological Sensitivity (Almond and Pether, 2009; Almond *et al.*, 2013).



Updated Geology indicates that the study area is underlain by the Kalahari Group, Karoo Dolerite as well as the Tierberg Formation of the Ecca Group. Topographical as well as Google Earth images indicate that the relief of the proposed project **is low, and outcrops in the area are rare.**

It is therefore considered that the proposed development will not lead to detrimental impacts on the palaeontological reserves of the area.

If Palaeontological Heritage is uncovered during surface clearing and excavations the **Chance find Protocol** attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation (recording and collection) can be carried out.

Preceding any collection of fossil material, the specialist would need to apply for a collection permit from SAHRA. Fossil material must be curated in an accredited collection (museum or university collection), while all fieldwork and reports should meet the minimum standards for palaeontological impact studies suggested by SAHRA.

CHANCE FINDS PROTOCOL

The following procedure will only be followed if fossils are uncovered during the excavation phase of the development.

Legislation

Cultural Heritage in South Africa (includes all heritage resources) is protected by the **National Heritage Resources Act (Act No 25 of 1999) (NHRA)**. According to Section 3 of the Act, all Heritage resources include "all objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens".

Palaeontological heritage is unique and non-renewable and is protected by the NHRA and are the property of the State. It is thus the responsibility of the State to manage and conserve fossils on behalf of the citizens of South Africa. Palaeontological resources may not be excavated, broken, moved, or destroyed by any development without prior assessment and without a permit from the relevant heritage resources authority as per section 35 of the NHRA.

A fossil is the naturally preserved remains (or traces thereof) of plants or animals embedded in rock. These organisms lived millions of years ago. Fossils are extremely rare and irreplaceable. By studying



fossils, it is possible to determine the environmental conditions that existed in a specific geographical area millions of years ago.

This informational document is intended for workmen and foremen on construction sites. It describes the actions to be taken when mining or construction activities accidentally uncovers fossil material.

It is the responsibility of the Environmental Site Officer (ESO) or site manager of the project to train the workmen and foremen in the procedure to follow when a fossil is accidentally uncovered. In the absence of the ESO, a member of the staff must be appointed to be responsible for the proper implementation of the chance find protocol as not to compromise the conservation of fossil material.

Chance Find Procedure

- If a chance find is made the person responsible for the find must immediately **stop working** and all work that could impact that finding must cease in the immediate vicinity of the find.
- The person who made the find must immediately **report** the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates.
- A preliminary report must be submitted to the Heritage Agency within **24 hours** of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates.
- Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found.
- Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary.
- The site must be secured to protect it from any further damage. **No attempt** should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find.
- If the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO. Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.



- Once the Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.