



SiVEST (PTY) LTD

PROPOSED CONSTRUCTION AND OPERATION OF THE BATTERY ENERGY STORAGE SYSTEM (BESS) AND ASSOCIATED INFRASTRUCTURE FOR THE AUTHORISED DROOGFONTEIN 3 SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY LOCATED NEAR KIMBERLEY IN THE SOL PLAATJE LOCAL MUNICIPALITY, FRANCIS BAARD DISTRICT MUNICIPALITY, IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA.

Heritage Impact Assessment

DEA Reference:	2020-09-0027
Report Prepared by:	PGS Heritage Pty Ltd
Issue Date:	02 November 2020
Version No.:	0.2

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PROPOSED CONSTRUCTION AND OPERATION OF THE BATTERY ENERGY STORAGE SYSTEM (BESS) AND ASSOCIATED INFRASTRUCTURE FOR THE AUTHORISED DROOGFONTEIN 3 SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY LOCATED NEAR KIMBERLEY IN THE SOL PLAATJE LOCAL MUNICIPALITY, FRANCIS BAARD DISTRICT MUNICIPALITY, IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA.

HERITAGE IMPACT ASSESSMENT

EXECUTIVE SUMMARY

PGS Heritage (Pty) Ltd (PGS) has been appointed by SiVEST (PTY) Ltd, on behalf of South Africa Mainstream Droogfontein PV 3 (Pty) Ltd to undertake the assessment of the development of a Battery Energy Storage System (BESS) and associated infrastructure for the authorised Droogfontein 3 Solar Photovoltaic (PV) Energy Facility (12/12/20/2024/1/1/AM9), located near Kimberley in the Sol Plaatje Local Municipality, Francis Baard District Municipality, in the Northern Cape Province of South Africa.

The fieldwork conducted for the evaluation of the possible impact of the new BESS as part of the Droogfontein 3 PV plant has revealed no heritage resources.

Conclusion

The completed and approved HIA (Fourie, 2012) has shown that the possibility of archaeological finds in the general vicinity of the Droogfontein PV3 does exist. However, the probability is seen as very low.

The current study has confirmed this finding and with the implementation of a chance finds procedure as part of the EMPr will mitigate possible impacts on unidentified heritage resources.

The calculated impact as summarised in section 7 of this report confirms the low negative impact rating pre-and post-mitigation.

Impact Statement

In the event that heritage resources are discovered during site clearance, construction activities must stop in the vicinity, and a qualified archaeologist must be appointed to evaluate and make recommendations on mitigation measures.

The overall impact of the Droogfontein BESS, on the heritage resources, is seen as acceptably low after the recommendations have been implemented and therefore, impacts can be mitigated to acceptable levels allowing for the development to be authorised.

NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT REGULATIONS, 2014 (AS AMENDED) - REQUIREMENTS FOR SPECIALIST REPORTS (APPENDIX 6)

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of Report
1. (1) A specialist report prepared in terms of these Regulations must contain- a) details of- i. the specialist who prepared the report; and ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	1.3
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Page 3
c) an indication of the scope of, and the purpose for which, the report was prepared;	1.12
(cA) an indication of the quality and age of base data used for the specialist report;	7
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	7
d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	7
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	1.4
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;	Figure 10
g) an identification of any areas to be avoided, including buffers;	None
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;	Figure 10
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	1.4
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) or activities;	9

k) any mitigation measures for inclusion in the EMPr;	9.2
l) any conditions for inclusion in the environmental authorisation;	None
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	9.2
n) a reasoned opinion- <ul style="list-style-type: none"> i. (as to) whether the proposed activity, activities or portions thereof should be authorised; <ul style="list-style-type: none"> (iA) regarding the acceptability of the proposed activity or activities; and 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; 	9.3
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	N/A
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	N/A
q) any other information requested by the competent authority.	N/A
2) Where a government notice <i>gazetted</i> 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.	GN648



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Proposed construction and operation of the Battery Energy Storage System (BESS) and associated infrastructure for the authorised Droogfontein 3 Solar Photovoltaic (PV) Energy Facility located near Kimberley in the Sol Plaatje Local Municipality, Francis Baard District Municipality, in the Northern Cape Province of South Africa.

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

CLIENT NAME South Africa Mainstream Droogfontein PV 3 (Pty) Ltd
Description.... Heritage Impact Assessment – Droogfontein BESS
Version No. 0.1

Prepared by: PGS

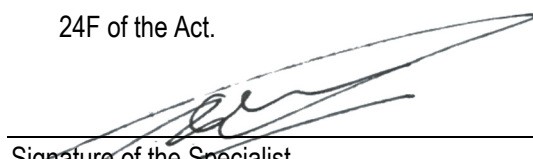
SPECIALIST INFORMATION

Specialist Company Name:	PGS Heritage Pty Ltd			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition	135
Specialist name:	Wouter Fourie			
Specialist Qualifications:	BA(Hon) Archaeology			
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DECLARATION BY THE SPECIALIST

I, _____Wouter Fourie_____, declare that –

- I act as the independent specialist 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 the specialist report relevant to this application, 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 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;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the Specialist

PGS Heritage Pty Ltd


Name of Company:

02 November 2020

Date:

UNDERTAKING UNDER OATH/ AFFIRMATION

I, ___Wouter Fourie___, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

PGS Heritage Pty Ltd

Name of Company

02 November 2020

Date

Signature of the Commissioner of Oaths

Date

SIVEST (PTY) LTD

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HERITAGE IMPACT ASSESSMENT

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Glossary of Terms

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

Cultural Landscapes Terminology

“perceptual qualities” Aspects of a landscape which are perceived through the senses, specifically views and aesthetics.

“cultural landscape” A representation of the combined worlds of nature and of man illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal (World Heritage Committee, 1992). Includes and extends beyond the study site boundaries.

“cultural landscape area” These are single unique areas which are the discrete geographical areas of a particular landscape type. Each will have its own individual character and identity, even though it shares the same generic characteristics with other areas of the same type.

“study site” The study site is assumed to include the area within the boundaries of the proposed development

“characteristics” elements, or combination of elements, which make a particular contribution to distinctive character.

“elements” individual components which make up the landscape, such as trees and fences.

“landscape character” A distinct, and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.

“landscape character assessment” This is the process of identifying and describing variation in the character of the landscape. It seeks to identify and explain the unique combination of elements and features (characteristics) that make landscapes distinctive. This process results in the production of a Landscape Character Assessment.

“sense of place” The unique quality or character of a place, whether natural, rural or urban. It relates to uniqueness, distinctiveness or strong identity.

“scenic route” A linear movement route, usually in the form of a scenic drive, but which could also be a railway, hiking trail, horse-riding trail or 4x4 trail.

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

Earlier Stone Age

The archaeology of the Stone Age between ~300 000 and 3 300 000 years ago.

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.

Later 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.

Site

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

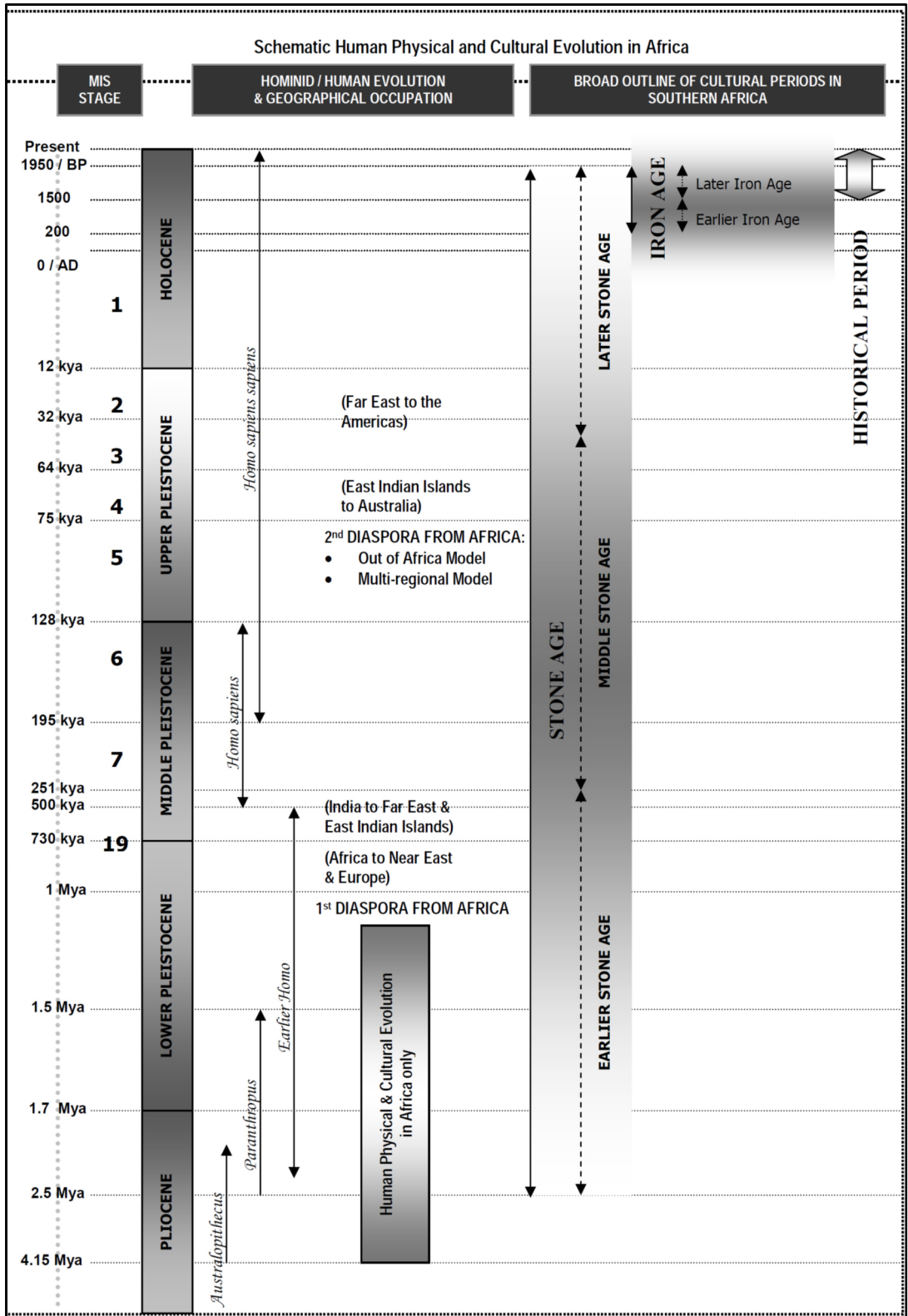


Figure 1: Human and Cultural Timeline in Africa (Morris, 2008)

List of Abbreviations

Acronyms	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
EIA practitioner	Environmental Impact Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
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
PHRA	Provincial Heritage Resources Agency
RoD	Record of Decision
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency

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HERITAGE IMPACT ASSESSMENT

1. INTRODUCTION

PGS Heritage (Pty) Ltd (PGS) has been appointed by SiVEST (PTY) Ltd, on behalf of South Africa Mainstream Droogfontein PV 3 (Pty) Ltd to undertake the assessment of the development of a Battery Energy Storage System (BESS) and associated infrastructure for the authorised Droogfontein 3 Solar Photovoltaic (PV) Energy Facility (12/12/20/2024/1/1/AM9), located near Kimberley in the Sol Plaatje Local Municipality, Francis Baard District Municipality, in the Northern Cape Province of South Africa.

In terms of the Environmental Impact Assessment (EIA) Regulations, which were published on 04 December 2014 and amended on 07 April 2017 [promulgated in Government Gazette 40772 and Government Notice (GN) R326, R327, R325 and R324 on 7 April 2017], various aspects of the proposed development are considered listed activities under GNR 327 and GNR 324 which may have an impact on the environment and therefore require authorisation from the National Competent Authority (CA), namely the Department of Environment, Forestry and Fisheries (DEFF), prior to the commencement of such activities. The HIA have been commissioned to assess and verify the BESS under the new Gazetted specialist protocols.

1.1 Scope and Objectives

Assess the impacts associated with the installation of a BESS on the Droogfontein 3 Solar Photovoltaic (PV) Energy Facility (12/12/20/2024/1/1/AM9).

The aim of the study is to identify possible heritage resources, sites, finds and sensitive areas that may occur in the study area for the BA study. The HIA aims to inform the BA in the development of a comprehensive EMPr to assist the developer in managing the discovered heritage resources in a responsible manner, in

order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

1.2 Terms of Reference

Refer to Appendix C.

1.3 Specialist Credentials

PGS Heritage (PGS) compiled this Heritage Impact Report.

The staff at PGS has a combined experience of nearly 80 years in the heritage consulting industry. PGS and its staff have extensive experience in managing the HIA processes. PGS will only undertake heritage assessment work where they have the relevant expertise and experience to undertake that work competently.

Wouter Fourie, Project manager for this project, is registered as a Professional Archaeologist with the Association of Southern African Professional Archaeologists (ASAPA) and has CRM accreditation within the said organisation, as well as being accredited as a Professional Heritage Practitioner with the Association of Professional Heritage Practitioners – Western Cape (APHP).

1.4 Assessment Methodology

The applicable maps, tables and figures are included, as stipulated in the NHRA (Act No 25 of 1999) and NEMA (Act No 107 of 1998). The HIA process consisted of three steps;

Step I – Literature Review - The background information to the field survey relies greatly on the Heritage Background Research.

Step II – Physical Survey - A physical survey was conducted predominantly by foot within the proposed areas by two qualified archaeologists, which aimed at locating and documenting sites falling within and adjacent to the proposed development footprint.

Step III – The final step involved the recording and documentation of relevant archaeological resources, the assessment of resources in terms of the HIA criteria and report writing, as well as mapping and constructive recommendations.

The significance of identified heritage sites are 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/High - 10-50/50m²

- High - >50/50m2
- Uniqueness; and
- Potential to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows -

- A - No further action necessary;
- B - Mapping of the site and controlled sampling required;
- C - No-go or relocate development activity position;
- D - Preserve site, or extensive data collection and mapping of the site; and
- E - Preserve site.

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

Site significance classification standards

Site significance classification standards use is based on the heritage classification of s3 in the NHRA and developed for implementation keeping in mind the grading system approved by SAHRA for archaeological impact assessments. The update classification and rating system as developed by Heritage Western Cape (2016) is implemented in this report as it addresses and update the SAHRA minimum standards.

Site significance classification standards prescribed by the Heritage Western Cape Guideline (2016), were used for the purpose of this report (**Table 1** and **Table 2**).

Table 1: 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 HWC. 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

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage 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 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 or the consultant and approved by the authority.	No research potential or other cultural significance

Table 2: 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 HWC.	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	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	Medium Significance

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
	townscape, neighbourhood, settlement or community.	Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at local level.	
IIIC	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

2. 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 do not necessarily represent all the possible heritage resources present within the area. Various factors account for this, including the subterranean nature of some archaeological sites and the current dense vegetation cover. As such, should any heritage features and/or objects not included in the present inventory be located or observed, a heritage specialist must immediately be contacted.

Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well. In the event that any graves or burial places are located during the development, the procedures and requirements pertaining to graves and burials will apply as set out below.

3. TECHNICAL DESCRIPTION

3.1 Project Location

The BESS is located on the authorised Droogfontein 3 Solar Photovoltaic (PV) Energy Facility (12/12/20/2024/1/1), near Kimberley in the Sol Plaatje Local Municipality, Francis Baard District Municipality, in the Northern Cape Province of South Africa.

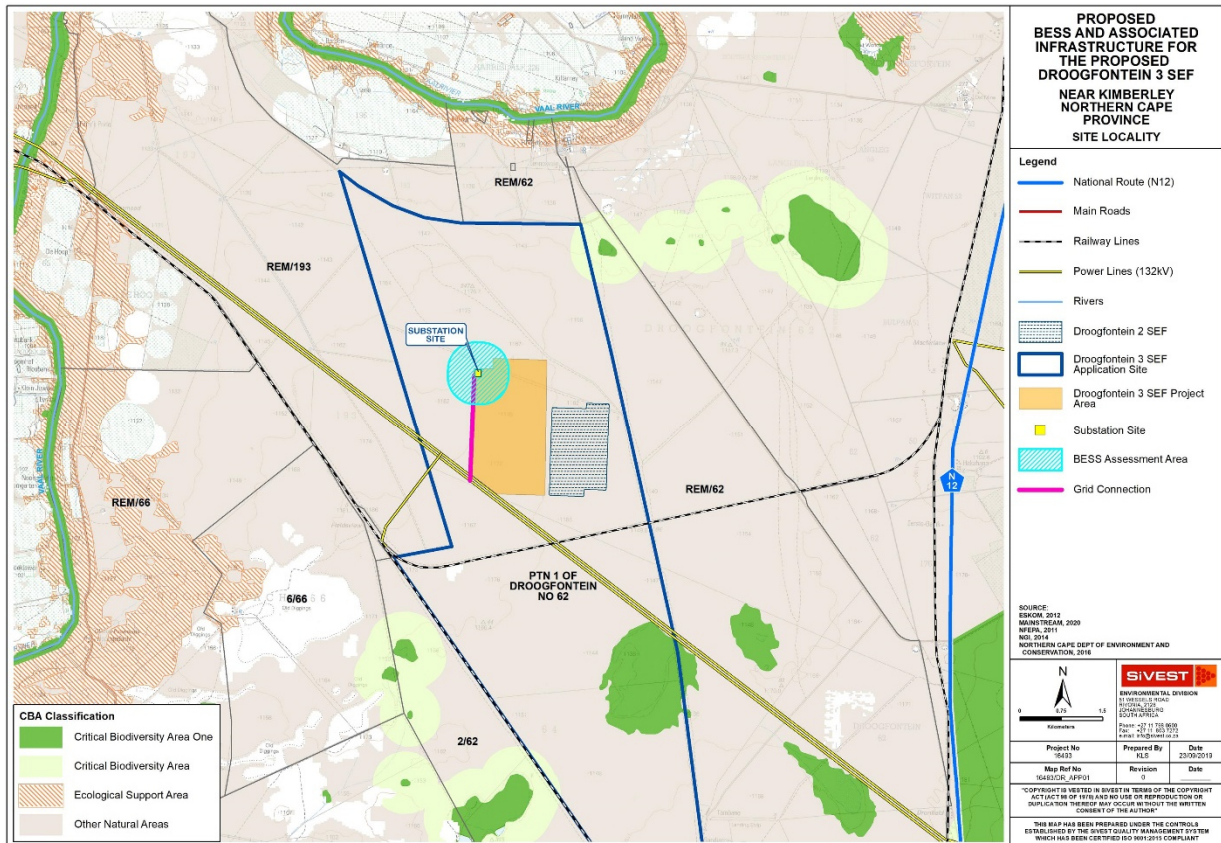


Figure 2: BESS is located on the authorised Droogfontein 3 Solar Photovoltaic (PV) Energy Facility

3.2 Project Description

South Africa Mainstream Droogfontein PV 3 (Pty) Ltd is proposing the construction and operation of a BESS and associated infrastructure for the authorised Droogfontein 3 Solar Photovoltaic (PV) Energy Facility (12/12/20/2024/1/1). The need for a BESS stems from the fact that electricity is only produced by the Renewable Energy Facility while the sun is shining, while the peak demand may not necessarily occur during the day-time. Therefore, the storage of electricity and supply thereof during peak-demand will mean that the facility is more efficient, reliable and electricity supply more constant.

The BESS will:

- Store and Integrate a greater amount of renewable energy from the Renewable Energy Facility into the electricity grid;
- This will assist with the objective to generate electricity by means of renewable energy to feed into the National Grid which will be procured under either the Renewable Energy Independent Power Producer Procurement Program (REIPPPP), other government run procurement programmes or for sale to private entities if required

The Droogfontein PV BESS will be located adjacent to the approved Droogfontein PV substation associated with the approved Droogfontein PV. To reduce electrical losses the BESS must be in close proximity to the on-site 33/132kV substation. A ~5ha study site has been established around the approved substation (500m zone) to allow for the micrositing / specialist guidance regarding placement can be made.

3.2.1 Alternatives

No site alternatives for this proposed development were considered as the placement of the proposed BESS is dependent on the location of the Droogfontein 3 Solar Photovoltaic (PV) Energy Facility (12/12/20/2024/1/1).

Technology alternatives are limited to battery types, namely Redox flow batteries and Solid State Batteries. No other activity alternatives are being considered.

The BESS alternatives:

BESS Specifications	
BESS Footprint	Up to 2Ha
BESS Capacity	200MWh
BESS Technology	Lithium Ion
BESS Alternative- Solid State Batteries	Type Containerised systems assembled within shipping containers and delivered to the project site. Dimensions are approximately 17 m long x 3.5 m wide x 4 m high. Containers will be placed on a raised concrete plinth (30 cm) and may be stacked on top of each other to a maximum height of approximately 15 m. Additional instrumentation, including inverters and temperature control equipment, may be positioned between the battery containers.

The 'no-go' alternative is the option of not constructing and operating a BESS in support of the authorised Renewable Energy (RE) facility. This alternative would result in no additional environmental impact other than that assessed during the EIA for the RE facility.

The 'no-go' option is an option; however, this would prevent the Droogfontein PV 3 Solar Energy Facility from contributing to the environmental, social and economic benefits associated with the development of the renewables sector.

The above-mentioned alternatives (including 'no-go' alternative) will all be assessed by the appointed specialists as part of the BA process. All the above-mentioned location alternatives will be informed by the identified environmental sensitive and/or 'no-go' areas (i.e. status quo). The respective alternatives being considered as part of the BA process for the proposed development will also be comparatively assessed.

4. LEGAL REQUIREMENT AND GUIDELINES

4.1 Statutory Framework: The National Heritage Resources (Act 25 of 1999)

The NHRA has applicability, as the study forms part of an overall HIA in terms of the provisions of Section 34, 35, 36 and 38 of the NHRA and forms part of a heritage scoping study that serves to identify key heritage resources, informants, and issues relating to the palaeontological, archaeological, built environment and cultural landscape, as well as the need to address such issues during the impact assessment phase of the HIA process.

4.1.1 Section 35 – Archaeology, Palaeontology and Meteorites

According to Section 35 (Archaeology, Palaeontology and Meteorites) and Section 38 (Heritage Resources Management) of the NHRA, PIAs and AIAs are required by law in the case of developments in areas underlain by potentially fossiliferous (fossil-bearing) rocks, especially where substantial bedrock excavations are envisaged, and where human settlement is known to have occurred during prehistory and the historic period.

4.1.2 Section 36 – Burial Grounds & Graves

A section 36 permit application is made to the SAHRA or the competent provincial heritage authority which protects burial grounds and graves that are older than 60 years and must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit. SAHRA must also identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with these graves and must maintain such memorials. A permit is required under the following conditions:

Permitting requirements for burial grounds and graves older than 60 years (prehistoric) and historic burials to the South African Heritage Resources Agency:

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

- b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- d) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant.

4.1.3 Section 38 HIA as a Specialist Study within the EIA in Terms of Section 38(8)

A NHRA Section 38 (Heritage Impact Assessments) application to SAHRA is required when the proposed development triggers one or more of the following activities:

Permitting requirements for demolition of built environment features:

- a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- b) the construction of a bridge or similar structure exceeding 50 m in length;
- c) any development or other activity which will change the character of a site,
 - i. exceeding 5 000 m² in extent; or
 - ii. involving three or more existing erven or subdivisions thereof; or
 - iii. involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - iv. the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- d) the re-zoning of a site exceeding 10 000 m² in extent; or
- e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority

In this instance, the heritage assessment for the property is to be undertaken as a component of the BA for the project. Provision is made for this in terms of Section 38(8) of the NHRA, which states that:

This is an HIA submitted to the relevant authority in terms of Section 38(8) of the National Heritage Resources Act. The commenting authority is the SAHRA. The authorising government agency is the North West Department of Economic Development, Environment, Conservation and Tourism (NW DEDECT),

An HIA report is required to identify, and assess archaeological resources as defined by the Act, assess the impact of the proposal on the said archaeological resources, review alternatives and recommend mitigation (see methodology above).

Section 38 (3) Impact Assessments are required, in terms of the statutory framework to conform to basic requirements as laid out in Section 38(3) of the NHRA. These are:

- The identification and mapping of heritage resources in the area affected

- The assessment of the significance of such resources
- The assessment of the impact of the development on the heritage resources
- An evaluation of the impact on the heritage resources relative to sustainable socio/economic benefits
- Consideration of alternatives if heritage resources are adversely impacted by the proposed development
- Consideration of alternatives
- Plans for mitigation in the future

4.1.4 Notice 648 of the Government Gazette 45421

Although minimum standard for archaeological and palaeontological assessments¹ were published by SAHRA and Heritage Western Cape²³, Government Notice (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 GN is listed in **Table 3** and the applicable section in this report noted.

Table 3: Reporting requirements for GN648

GN 648	Relevant section in report	Where not applicable in this report
2.2 (a) a desk top analysis, using satellite imagery;	section 5	
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 national web based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.	section 5	-
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 a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity;	Section 5 provides a description of the current use and confirms the status in the screening report	

¹ South African Heritage Resources Agency. 2007. *Minimum Standards: Archaeological and Palaeontological Components Of Impact Assessment Reports*. May 2007

² Heritage Western Cape. 2016. *Guide for Minimum Standards for Archaeology and Palaeontology Reports Submitted to Heritage Western Cape*. June 2016

³ Heritage Western Cape. 2016. *Guidelines for Heritage Impact Assessments required in terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999)*.

An assessment of the Environmental Screening tool provides the following sensitivity ratings for archaeological and heritage resources medium (**Figure 3**).

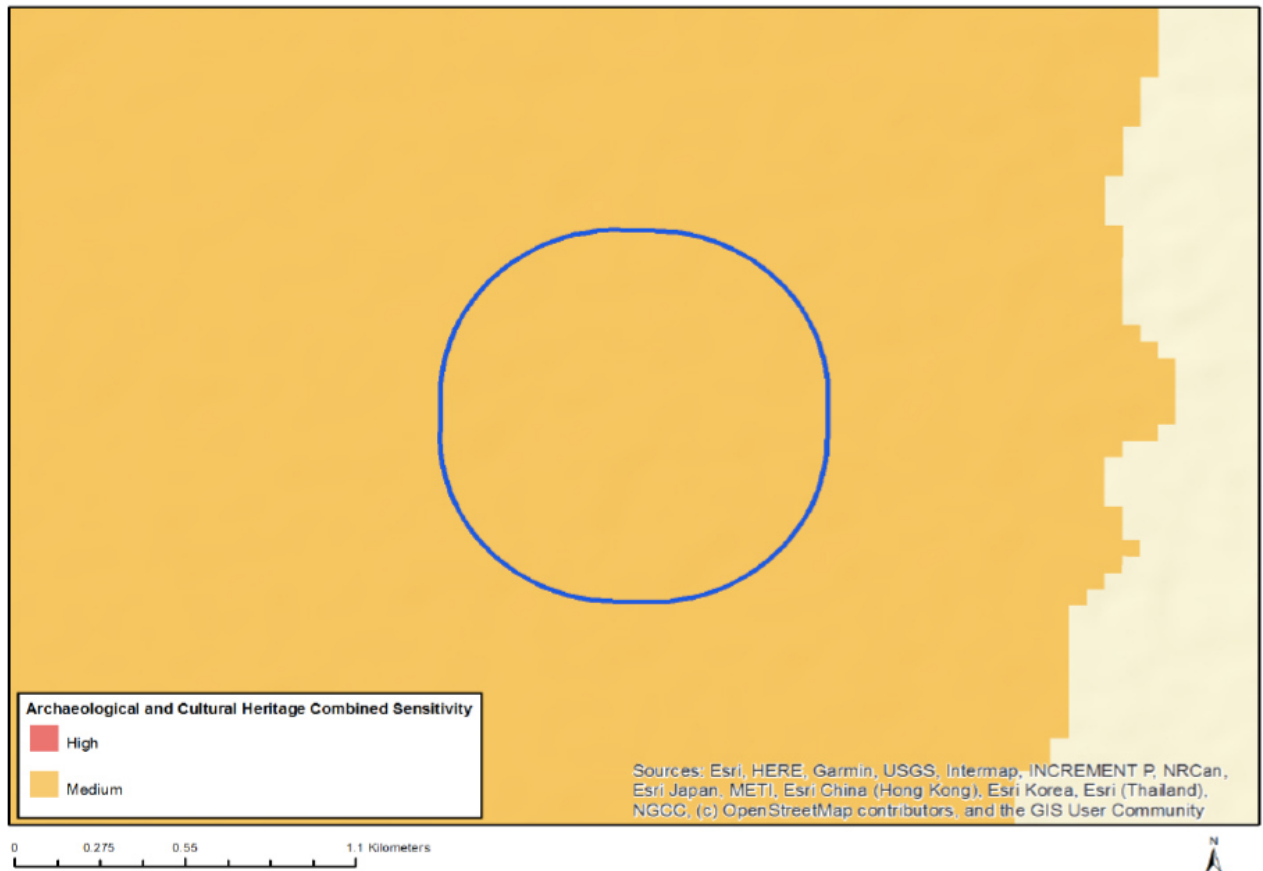


Figure 3: Environmental screening tool – archaeological and Cultural heritage sensitivity

4.1.5 NEMA – Appendix 6 requirements

The HIA report has been compiled considering the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) Appendix 6 requirements for specialist reports as indicated in the table on page 2 and 3 of this report. For ease of reference the table provides cross references to the report sections where these requirements have been addressed.

5. DESCRIPTION OF THE RECEIVING ENVIRONMENT

A site visit was conducted by an archaeologist from PGS on 15 September 2020. The general vicinity of the proposed BESS was assessed. The site is characterised by red sandy soils with a characteristic wooded grass land (**Figure 4** and **Figure 5**). Various animal burrows were observed.



Figure 4: View of study area towards the east



Figure 5: View of study area towards the south


6. BACKGROUND RESEARCH


6.1 The Archival findings


The archival research focused on available information sources (published literature and historical maps) that were used to compile a background history of the study area and surrounds. This data then informed the possible heritage resources to be expected during the initial field surveying.

Table 4: Summary of archival data found on the area in general

DATE	DESCRIPTION
2.5 million to 250 000 years ago	<p>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 the Oldowan, which is associated with crude flakes and hammer stones and dates to approximately 2 million years ago. Examples of such tools have been excavated from the sites of Wonderwerk Cave in Kuruman and Canteen Kopje in Barkly West, near Kimberley.</p> <p>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 hand axe. The Acheulian dates back to approximately 1.5 million years ago and examples of this phase have been found at Wonderwerk Cave (Berna et al. 2012). This site is of particular importance because its excavations have provided some of the first evidence of the controlled use of fire by hominins dating to approximately 1 million years ago (Berna et al. 2012). Other archaeological sites associated with the Earlier Stone Age from the general vicinity of the study area, is Canteen Kopje, Kathu Pan and Rooidam which has yielded many invaluable artefacts primarily associated with the Acheulian, this particular period of Earlier Stone Age (Herries, 2011).</p>
250 000 to 40 000 years ago	<p>The Middle Stone Age is the second oldest phase identified in South Africa's archaeological history. This phase is associated with flakes, points and blades manufactured by means of the so-called 'prepared core' technique. Examples of such artefacts have been found at the Bundu Farm, Kathu Pan and Wonderwerk Cave sites (Lombard et al. 2012). It is also widely argued that this time period saw the advent of "modern human behaviour".</p>
40 000 years ago to the historic past	<p>The Later Stone Age is the third oldest phase identified in South Africa's archaeological history. This phase in human history is associated with an abundance of very small stone artefacts known as microliths and is characterised by a hunter-gatherer way of life. Other types of heritage associated with this time period and therefore hunter-gatherers are OES (ostrich eggshell) beads, thin-walled ceramics, bone implements and rock art (painted and engraved) (Forssman et al. 2010). A large number of Later Stone Age sites are known in the Northern Cape Province. Some of these include</p>

	<p>those sites found in the Seacow Valley (Sampson, 1988) and Little Witkrans, Powerhouse Cave, and Blinkklipkop (Humphreys & Thackeray, 1983). And the more famous sites such as Wonderwerk Cave in Kuruman and Canteen Kopje in Barkley West, near Kimberley (Forssman et al. 2010).</p> <p>Canteen Kopje exhibits evidence of a very rich cultural history in the later periods of the Later Stone Age where the hunter-gatherers would interact with Khoekhoe herders that moved into the region, which we can tell from excavated domesticated animal remains such as sheep and goats (Forssman et al. 2010). These communities even entered a network of cultural exchange within the last 2000 years. Similar evidence has also been recovered from Wonderwerk Cave (Forssman et al. 2010).</p> <p><i>Nooitgedacht Rock Art Site</i></p> <p>This National Monument is situated on the farm Nooitgedacht adjacent to the farm Droogfontein and contains 3 sections of glaciated pavement with over 250 Bushman and Khoe rock engravings (Figure 6)</p>  <p>Figure 6: (Khoi)San Engraving of and Eland on glacial pavement at Nooitgedacht (http://commons.wikimedia.org/wiki/File:Rock_Art_at_Nooitgedacht.jpg)</p>
AD 1650 – AD 1700	<p>Historical records combined with 'Type Z' walling and archaeological evidence from Postmasburg show that Bantu-speaking farmers occupied the area from around AD 1650 to AD 1700. The typical archaeology that is associated with these Iron Age farmers are the well-known stone-walled settlements (or 'Kraals') and their thick-walled, decorated ceramics. However there is not much evidence of farmers or herders South and to the West of this area, with the</p>

	evidence showing that most of this land was left unoccupied possibly because of its characteristically arid conditions (Forssman et al. 2010).
AD 1700 - AD 1850	Hearsay and eyewitness accounts have placed Tswana (more specifically Tshlaping) farming settlements North of present-day Kuruman however, a lack of archaeological evidence from the area as well as what we know about the lack of rainfall in the area, corroborates the previous point that this point of South Africa was not well inhabited by Iron Age farmers (Humphreys, 1976). The 18 th century is also characterised by the conflict between the Griqua, Korana and white settlers who were competing for availability of land, which gave rise to the occurrence of the <i>Mfecane</i> as a direct result of the influx of all these different peoples (Becker, 2013)
AD 1800- AD 1900	<p>Kamfersdam mine was one of the first diamond digging camps in the area, situated north of Kimberley (Becker, 2013). Its mining area also doubled as a strategic position by the Boers during the Anglo-Boer War (Becker, 2013). Diamond digging fortified itself as the main bookmark in Kimberley's recent history. Diamond digging began in Kimberley during 1871 and ended by 1914 (The Big Hole, 2012). During this time, from about 1872, a huge population shift occurred where the population of Kimberley experienced an estimated increase from 28 000 to 50 000 people due to the increase in diamond mining activities (Rob, 1981). Within a few years the population of the diamond field was reduced, and miners started to concentrate around the Kimberley mine in about 1875 (Rob, 1981). By the end of the 1880s the efforts of all these individual miners, prospectors and claim-holders had over shadowed as companies began to coalesce which eventually gave rise to the De Beers monopoly (Van Der Merwe et al. 2009).</p> <p>South Africa's railway system started as early as the 1860s however, the importance of diamond mining in the area gave preference for the construction of railway infrastructure in the area to be built between the 1870s and 1880s, in order to connect Kimberley to various colonies (Becker, 2013).</p> <p>Commercial diamond mining has not stopped for the last 120 years with De Beers at the helm (Becker, 2013).</p>
1869	 <p>Figure 7: Kimberley Mine, 1872.</p>

	<p>“The search for diamonds was divided between two area: the wet diggings along the Vaal River and the dry diggings 40km south. The Vaal River diggings attracted the most prospectors” (Gaigher & Associates, 2014).</p>
<p>1873</p>	 <p>Figure 8: Kimberley, 1899</p> <p>“<i>New Rush</i> was renamed Kimberley (in honour of the Earl of Kimberley, the British Secretary of State for the Colonies) and Proclaimed on 5 July 1873. The nearest town, called Beaconsfield was merged with Kimberley in 1912 to become a city” (Gaigher & Associates, 2014).</p>
<p>1899 - 1902</p>	<p>A series of fortifications and encampments can still be found today surrounding Kimberley as a result of the siege of Kimberley between 1899 and 1900, during the Anglo-Boer War (Becker, 2013). The Kimberley area was also privy to the “Western Campaign” during the war, with regards to the Battles of Belmont, Graspan, Modder River and Magersfontein (Morris 2000). It also saw the base of operations for the subsequent incursions into the Cape Colony by De Wet, Hertzog and Naude, as well as the development of British military bases and hospitals (Morris 2000).</p> <p>The southern western border of the study area is close to Intermediate pumping station which was the area where the Head Quarters of the Boer command during the siege, while the south eastern section is close to the vicinity of the low ridge just north of the Falstead farm where a set of boer redoubts were positioned (Error! Reference source not found.).</p>

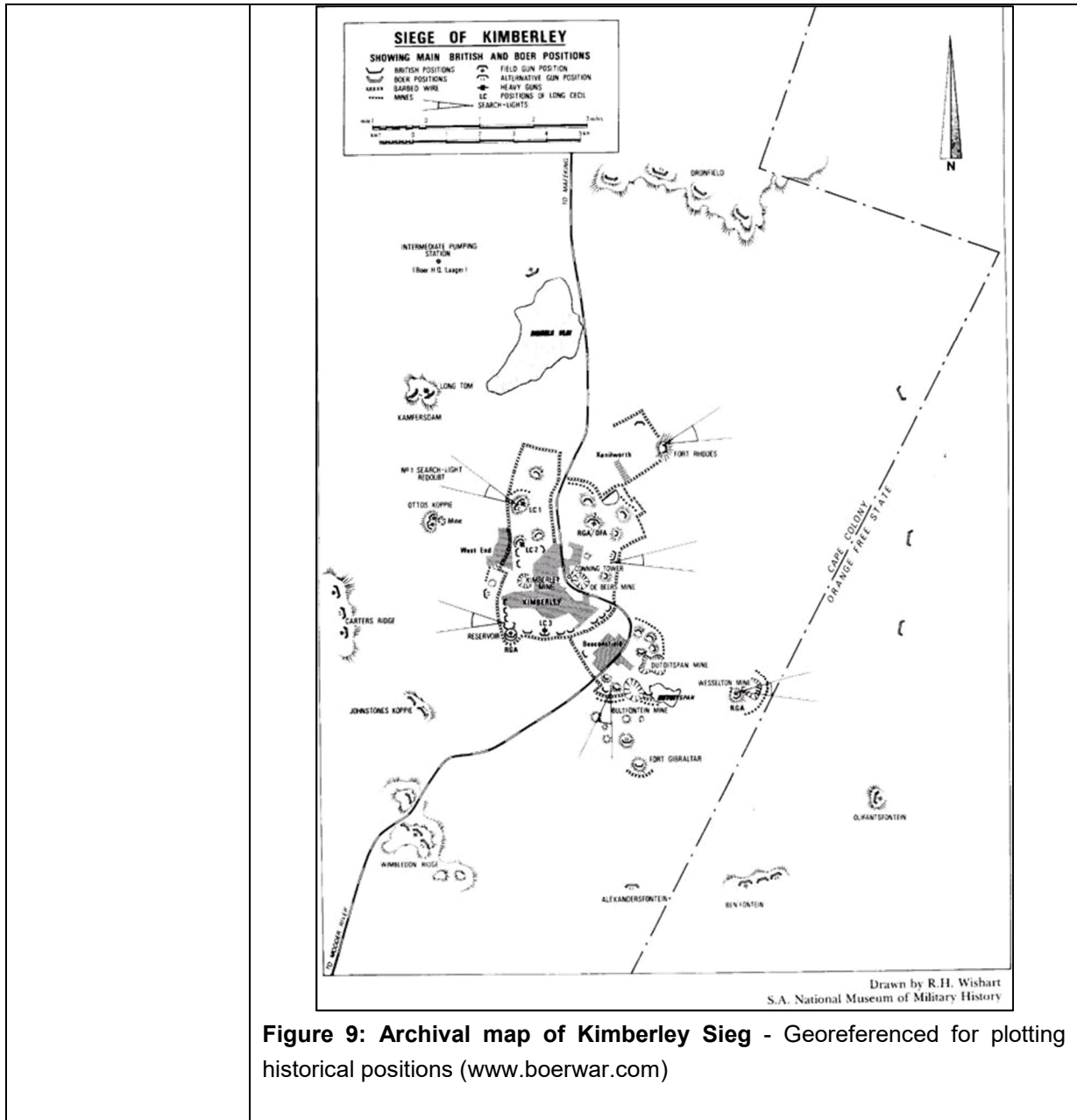


Figure 9: Archival map of Kimberley Sieg - Georeferenced for plotting historical positions (www.boerwar.com)

6.2 Previous reports from the area

What follows is a list of past heritage and archaeological impact assessments performed in and around the Kimberley area are listed in **Table 5**.

Table 5: List of reports completed in the general Kimberley area

<u>Title</u>	<u>Phase</u>	<u>Author</u>	<u>Authoring Body</u>	<u>Finds</u>
Phase 1 Heritage Impact Assessment Hotazel to Kimberley and De Aar to Port of Ngqura	HIA Phase 1	Elize Becker	Hatch	Historical structures, archaeological finds
Archaeological Impact Assessment of the Proposed Telecommunications Project, Kimberley - De Aar Network, Northern Cape	AIA Phase 1	David Morris	McGregor Museum	Archaeological finds, historical materials
Archaeological Impact Assessment of Portion 37, a Portion of Portion 27 (Boland) of the Farm Zoutpansfontein No 34, Kimberley District, Northern Cape	AIA Phase 1	Peter Beaumont	McGregor Museum	Later Stone Age artefacts
Cultural Resources Management Impact Assessment: (Portion of) Paardeberg 12; Paardeberg-East, Kimberley District, Northern Cape, South Africa	AIA Phase 1	Karen Van Ryneveld	McGregor Museum	none
Archaeological and Cultural Historical Investigation of the Proposed Diamond Mining Developments on the Farm Slypklip North 32, Kimberley, NC	AIA Phase 1	Cobus Dreyer		Later Stone Age artefacts, circular structure
Cultural Resources Management Impact Assessment: Rooipoort: (Portions of) Klipfontein 99, Berg Plaats 100, Vogelstruis Pan 98, Vogelstruis Pan 101 and Zand Plaats 102, Kimberley District, Northern Cape, South Africa	AIA Phase 1	Karen Van Ryneveld	McGregor Museum	Middle and Later Stone Age artefacts
Report on a Phase 1 Archaeological Assessment of a Proposed Clay Quarry at Roodepan 70, Kimberley, Northern Cape. NC 30/5/1/3/3/2/1/358Em	AIA Phase 1	David Morris	McGregor Museum	Middle Stone Age artefacts

<u>Title</u>	<u>Phase</u>	<u>Author</u>	<u>Authoring Body</u>	<u>Finds</u>
Phase 1 Archaeological Impact Assessment: Portion of the Farm Platfontein 68, Kimberley District, Northern Cape, South Africa	AIA Phase 1	Karen Van Ryneveld	National Museum Bloemfontein - Archaeology Contracts Office	Middle Stone Age artefacts
Phase 1 Heritage Impact Assessment Report on the Farm Eureka 200 near Kimberley, Frances Baard District Municipality, Northern Cape Province	AIA Phase 1	Peter Beaumont	McGregor Museum	Historical structures and artefacts
Report on a Phase 1 Archaeological Impact Assessment of Proposed Prospecting on Uitkyk 106, Locks Verdriet 105 and Brakpan 107, West of Kimberley, Northern Cape	AIA Phase 1	David Morris	McGregor Museum	Middle Stone Age artefacts, historical features and graves
Heritage Impact Assessment of alternative routes of a proposed 132 kV power line between the existing Kimberley DS Substation and the Homestead Substation at the northern edge of Kimberley, Northern Cape.	AIA Phase 1	David Morris	McGregor Museum	Stone Age artefacts and industrial heritage
Cultural Resources Management Impact Assessment: Portion 1 of Roode Pan 146, Kimberley District, Northern Cape, SA	AIA Phase 1	Karen Van Ryneveld	McGregor Museum	Stone Age artefacts and historic structures
Heritage Impact Assessment: proposed 10mw Photovoltaic (PV) Power Plant on the Farm Slypklip (Farm 198) near Kimberley, Northern Cape Province	AIA Phase 1	Wouter Fourie	PGS Heritage	none
HIA for the proposed Carodex Solar Park near Kimberley	HIA Phase 1	Marko Hutten	Hutten Heritage Consultants	Historic Structures

7. SPECIALIST FINDINGS / IDENTIFICATION AND ASSESSMENT OF IMPACTS

A selective survey of the study area was conducted on 15 September 2020. Due to the nature of cultural remains, with the majority of artefacts occurring below surface, an archaeologist from PGS conducted a vehicle and foot-survey of the general vicinity of the BESS footprint. The area was previously surveyed for the Droogfontein PV project and a confirmatory visit was thus conducted. The fieldwork was logged with a GPS to provide a tracklog of the area covered (**Figure 7**). Focus was placed on the most probably area of placement within the larger assessment area.

No heritage resources were identified during the site survey.

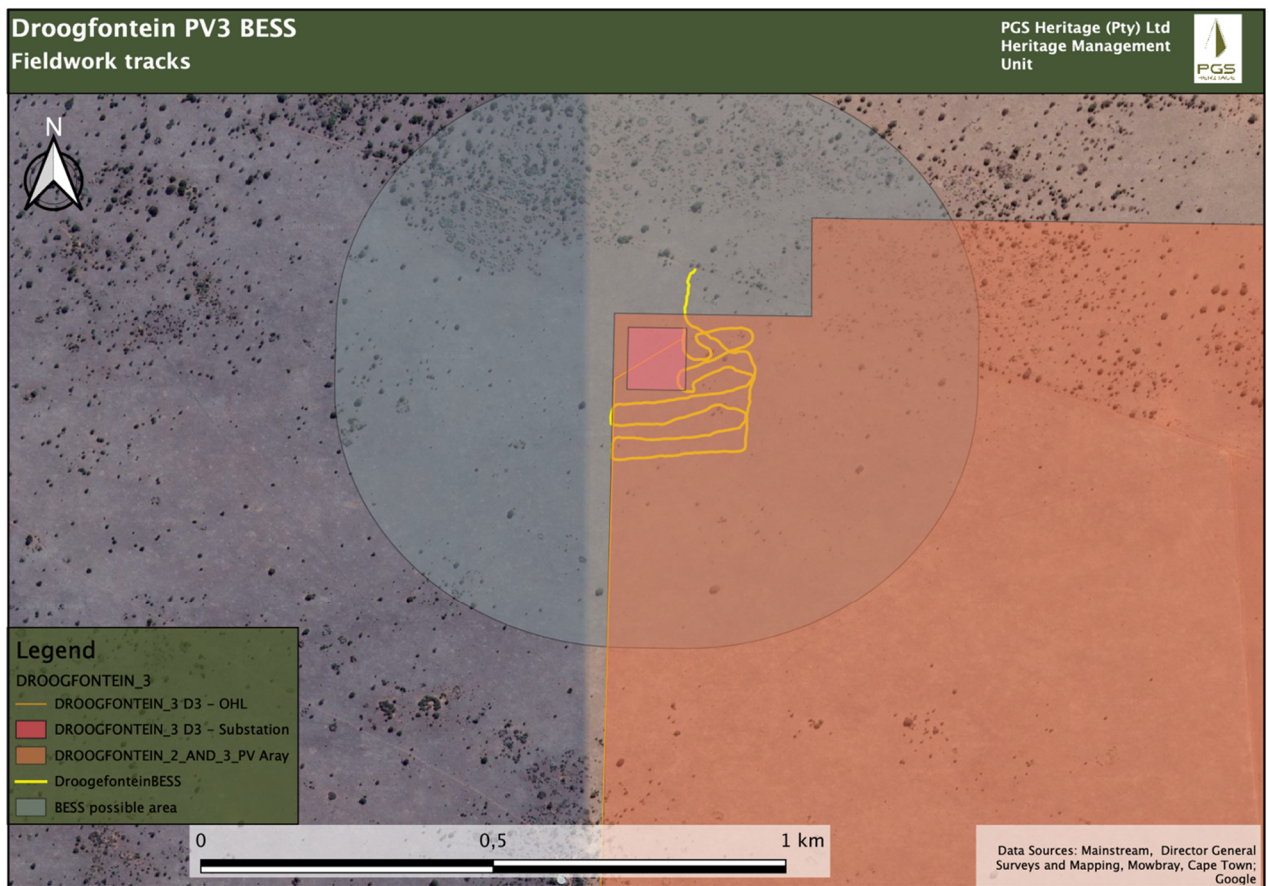


Figure 10: Field work map during site visit

The impact ratings and calculation as discussed below can be seen in **Table 6**.

7.1 Planning / Pre construction

In the absence of identified heritage resources, the pre and post mitigation impact on heritage resources is project as having a low impact rating pre-construction.

7.2 Construction

In the absence of identified heritage resources, the pre and post mitigation impact on heritage resources is project as having a low impact rating during the construction phase.

7.3 No go Impact

The current status quo will be kept in the event of a no-go option. A low positive impact is envisaged.

7.4 Cumulative Impacts

From a heritage perspective the addition of the BESS will not add to the possible impact on heritage resources from the existing and future PV infrastructure on Droogfontein.

7.5 Overall Impact Rating

Table 6 provides a summary of the projected impacts on the construction of the BESS on heritage resources. No addition the cumulative or direct impacts on unidentified heritage resources is foreseen.

Table 6: Rating of impacts on heritage resources

Droogfontein BESS																					
ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION												
		E	P	R	L	D	I / M		STATUS +	OR -	TOTAL	S	E	P	R	L	D	I / M	STATUS +	OR -	TOTAL
Construction Phase																					
Heritage resources	Impact on archaeological and historical heritage resources	1	1	4	1	3	1		1. Include heritage chance finds procedure in EMP for project development	1	1	4	1	3	1		-	10		10	Low
Operational Phase																					
Heritage resources	Impact on archaeological and historical heritage resources	1	2	4	4	4	1		1. Include heritage chance finds procedure in EMP for project development	1	1	4	4	4	1		-	14		14	Low
Decommissioning Phase																					
Heritage resources	Impact on archaeological and historical heritage resources	1	2	4	4	4	1		1. Include heritage chance finds procedure in EMP for project development	1	1	4	4	4	1		-	14		14	Low

Droogfontein BESS																				
ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION											
		E	P	R	L	D	I / M		STATUS (+ OR -)	TOTAL	S	E	P	R	L	D	I / M	STATUS (+ OR -)	TOTAL	S
Cumulative																				
Heritage resources	Impact on archaeological and historical heritage resources	1	2	4	4	4	4	1	-	15	Low	1	1	4	4	4	1	-	14	Low
No-go options																				
Impact on archaeological and historical heritage resources	In the event that the BESS will not be implemented and operational	1	2	4	4	4	4	1	+	15	Low	1	2	4	4	4	1	+	15	Low

8. COMPARATIVE ASSESSMENT OF ALTERNATIVES

No alternatives were assessed in the positioning of the BESS.

8.1 No-Go Alternative

Consideration must be given to the 'no-go' option in the BA process. The "no-go" option assumes that the site remains in its current state, i.e. there is no construction of a BESS in the proposed project area and the status quo would proceed.

9. CONCLUSION AND SUMMARY

9.1 Summary of Findings

The fieldwork conducted for the evaluation of the possible impact of the new BESS as part of the Droogfontein 3 PV plant has revealed no heritage resources.

9.2 Conclusion

The completed and approved HIA (Fourie, 2012) has shown that the possibility of archaeological finds in the general vicinity of the Droogfontein PV3 does exist. However, the probability is seen as very low.

The current study has confirmed this finding and with the implementation of a chance finds procedure as part of the EMPr will mitigate possible impacts on unidentified heritage resources.

The calculated impact as summarised in section 7 of this report confirms the low negative impact rating pre- and post-mitigation.

9.3 Impact Statement

In the event that heritage resources are discovered during site clearance, construction activities must stop in the vicinity, and a qualified archaeologist must be appointed to evaluate and make recommendations on mitigation measures.

The overall impact of the Droogfontein BESS, on the heritage resources, is seen as acceptably low after the recommendations have been implemented and therefore, impacts can be mitigated to acceptable levels allowing for the development to be authorised.

10. REFERENCES

- Berna, F., Goldberg, P., Horwitz, L. K., Brink, J., Holt, S., Bamford, M. & Chazan, M. 2012. Microstratigraphic evidence of in situ fire in the Acheulean strata of Wonderwerk Cave, Northern Cape province, South Africa. *Proceedings of the National Academy of Sciences*, 109(20): 1215-1220.
- Forsman, T. R., Kuman, K., Leader, G. M. & Gibbon, R. J. 2010. A Later Stone Age assemblage from Canteen Kopje, Northern Cape. *The South African Archaeological Bulletin*, 65(192): 204-214.
- Fourie, W. 2012. Heritage Impact Assessment Report for the Proposed Droogfontein PV3 Plant and infrastructure.
- Gaigher & Associates. 2014. Heritage Impact Assessment Report for the Proposed Expansion to the Samy's Wholesalers Warehouse, Kimberley – Northern Cape Province. Archival research final report.
- Hatch. 2013. Phase 1 Heritage Impact Assessment Hotazel to Kimberley and De Aar to Port of Ngqura . Archival research final report.
- Herries, A. I. 2011. A chronological perspective on the Acheulian and its transition to the Middle Stone Age in southern Africa: the question of the Fauresmith. *International Journal of Evolutionary Biology*, 2011.
- Humphreys, A. J. 1976. Note on the southern limits of Iron Age settlement in the northern Cape. *The South African Archaeological Bulletin*, 31(121/122): 54-57.
- Humphreys, A. J. B. & Thackeray, A. I. 1983. Ghaap and Gariep: Later Stone Age studies in the northern Cape (No. 2). *South African Archaeological Society*.
- Küsel, U. 2006. Heritage risk and impact assessment for de Beers Consolidated Mines Limited Kimberley of the area known as Wesselton, Dutoitspan, Bultfontein, de Beers and Kimberley
- Lombard, M., Wadley, L., Deacon, J., Wurz, S., Parsons, I., Mohapi, M. & Mitchell, P. (2012). South African and Lesotho Stone Age sequence updated. *The South African Archaeological Bulletin*, 67(195), 123-144.
- Lunderstedt, S. 2013. "Today in Kimberley's History". Retrieved from <http://www.kimberley.org.za/tag/wesselton-mine/>.
- Morris, D. 2000. AIA of the Kimberley – De Aar Telecommunications Network, Northern Cape. Archival research final report.
- Morris, D. 2008. Archaeological and Heritage Phase 1, Impact Assessment for proposed upgrading of Sishen Mine Diesel Depot Storage Capacity at Kathu, Northern Cape. Kimberley: McGregor Museum.
- Sampson, C.G. 1988. Stylistic boundaries among mobile hunter-gatherers. Washington DC: Smithsonian

Van der Merwe, A. E., Morris, D., Steyn, M. & Maat, G. J. R. 2010. The history and health of a nineteenth-century migrant mine-worker population from Kimberley, South Africa. The South African Archaeological Bulletin: 185-195.



Appendix A

The Impact Assessment Scales used for this project

1. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) METHODOLOGY

The Environmental Impact Assessment (EIA) Methodology assists in evaluating the overall effect of a proposed activity on the environment. Determining of the significance of an environmental impact on an environmental parameter is determined through a systematic analysis.

1.1 Determination of Significance of Impacts

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale (i.e. site, local, national or global), whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in **Table 1**.

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

1.2 Impact Rating System

The impact assessment must take account of the nature, scale and duration of effects on the environment and whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the various project stages, as follows:

- Planning;
- Construction;
- Operation; and
- Decommissioning.

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance has also been included.

1.2.1 Rating System Used to Classify Impacts

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the possible mitigation of the impact. Impacts have been consolidated into one (1) rating. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

CLIENT NAME South Africa Mainstream Droogfontein PV 3 (Pty) Ltd
Description.... Heritage Impact Assessment – Droogfontein BESS
Version No. 0.1

Prepared by: PGS

Table 7: Rating of impacts criteria

ENVIRONMENTAL PARAMETER		
A brief description of the environmental aspect likely to be affected by the proposed activity (e.g. Surface Water).		
ISSUE / IMPACT / ENVIRONMENTAL EFFECT / NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity (e.g. oil spill in surface water).		
EXTENT (E)		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
PROBABILITY (P)		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
REVERSIBILITY (R)		
This describes the degree to which an impact on an environmental parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES (L)		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.

4	Complete loss of resources	The impact is result in a complete loss of all resources.
DURATION (D)		
This describes the duration of the impacts on the environmental parameter. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 – 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
INTENSITY / MAGNITUDE (I / M)		
Describes the severity of an impact (i.e. whether the impact has the ability to alter the functionality or quality of a system permanently or temporarily).		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible

		due to extremely high costs of rehabilitation and remediation.
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SIGNIFICANCE (S)

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula:

Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.

The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.

Points	Impact Rating	Significance	Description
5 to 23	Negative Low impact		The anticipated impact will have negligible negative effects and will require little to no mitigation.
5 to 23	Positive Low impact		The anticipated impact will have minor positive effects.
24 to 42	Negative Medium impact		The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
24 to 42	Positive Medium impact		The anticipated impact will have moderate positive effects.
43 to 61	Negative High impact		The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
43 to 61	Positive High impact		The anticipated impact will have significant positive effects.
62 to 80	Negative Very high impact		The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
62 to 80	Positive Very high impact		The anticipated impact will have highly significant positive effects.



Appendix B

Project team CV's

WOUTER FOURIE

Professional Heritage Specialist and Professional Archaeologist and Director PGS Heritage

Summary of Experience

Specialised expertise in Archaeological Mitigation and excavations, Cultural Resource Management and Heritage Impact Assessment Management, Archaeology, Anthropology, Applicable survey methods, Fieldwork and project management, Geographic Information Systems, including *inter alia* -

Involvement in various grave relocation projects (some of which relocated up to 1000 graves) and grave “rescue” excavations in the various provinces of South Africa

Involvement with various Heritage Impact Assessments, within South Africa, including -

- Archaeological Walkdowns for various projects
- Phase 2 Heritage Impact Assessments and EMPs for various projects
- Heritage Impact Assessments for various projects
- Iron Age Mitigation Work for various projects, including archaeological excavations and monitoring
- Involvement with various Heritage Impact Assessments, outside South Africa, including -
- Archaeological Studies in Democratic Republic of Congo
- Heritage Impact Assessments in Mozambique, Botswana and DRC
- Grave Relocation project in DRC

Key Qualifications

BA [Hons] (Cum laude) - Archaeology and Geography - 1997

BA - Archaeology, Geography and Anthropology - 1996

Professional Archaeologist - Association of Southern African Professional Archaeologists (ASAPA) - Professional Member

Accredited Professional Heritage Specialist – Association of Professional Heritage Practitioners (APHP)

CRM Accreditation (ASAPA) -

Principal Investigator - Grave Relocations

Field Director – Iron Age

Field Supervisor – Colonial Period and Stone Age

Accredited with Amafa KZN

Key Work Experience

2003- current - Director – Professional Grave Solutions (Pty) Ltd

2007 – 2008 - Project Manager – Matakoma-ARM, Heritage Contracts Unit, University of the Witwatersrand

2005-2007 - Director – Matakoma Heritage Consultants (Pty) Ltd

2000-2004 - CEO– Matakoma Consultants

1998-2000 - Environmental Coordinator – Randfontein Estates Limited. Randfontein, Gauteng

1997-1998 - Environmental Officer – Department of Minerals and Energy. Johannesburg, Gauteng

Worked on various heritage projects in the SADC region including, Botswana, Mozambique, Malawi, Mauritius and the Democratic Republic of the Congo



Appendix B

Terms of Reference (Tor) for Specialist Studies



PROPOSED CONSTRUCTION AND OPERATION OF THE BATTERY ENERGY STORAGE SYSTEM (BESS) AND ASSOCIATED INFRASTRUCTURE FOR THE AUTHORISED DROOGFONTEIN 3 SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY LOCATED NEAR KIMBERLEY IN THE SOL PLAATJE LOCAL MUNICIPALITY, FRANCIS BAARD DISTRICT MUNICIPALITY, IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA.

TERMS OF REFERENCE (ToR) FOR SPECIALIST STUDIES

1 INTRODUCTION

The purpose of the Terms of Reference (ToR) is to provide the specialist team with a consistent approach to the specialist studies that are required as part of the Basic Assessment (BA) process being conducted in respect of the proposed Battery Energy Storage System (BESS) development. This will enable comparison of environmental impacts, efficient review, and collation of the specialist studies into the BA report, in accordance with the latest requirements of the EIA Regulations, 2014 (as amended).

2 PROCESS

In terms of the Environmental Impact Assessment (EIA) Regulations, which were published on 04 December 2014 and amended on 07 April 2017 [promulgated in Government Gazette 40772 and Government Notice (GN) R326, R327, R325 and R324 on 7 April 2017], various aspects of the proposed development are considered listed activities under GNR 327 and GNR 324 which may have an impact on the environment and therefore require authorisation from the National Competent Authority (CA), namely the Department of Environment, Forestry and Fisheries (DEFF), prior to the commencement of such activities. Specialist studies have been commissioned to assess and verify the BESS under the new Gazetted specialist protocols.

3 PROJECT BACKGROUND

The Droogfontein 3 Solar Photovoltaic (PV) Energy Facility (hereafter referred to as “Droogfontein PV” received environmental Authorisation in 2015 (12/12/20/2024/1/1).

South Africa Mainstream Droogfontein PV 3 (Pty) Ltd, has appointed SiVEST (Pty) Ltd to undertake a Basic Assessment Process to add a proposed Battery Energy Storage System (BESS) to the Droogfontein PV.

4 PROJECT DESCRIPTION

South Africa Mainstream Droogfontein PV 3 (Pty) Ltd is proposing the construction and operation of Battery Energy Storage System (BESS) and associated infrastructure for the authorised Droogfontein 3 Solar Photovoltaic (PV) Energy Facility (12/12/20/2024/1/1), located near Kimberley in the Sol Plaatje Local Municipality, Francis Baard District Municipality, in the Northern Cape Province of South Africa. The need for a BESS stems from the fact that electricity is only produced by the Renewable Energy Facility while the sun is shining, while the peak demand may not necessarily occur during the day-time. Therefore, the storage of electricity and supply thereof during peak-demand will mean that the facility is more efficient, reliable and electricity supply more constant.

The BESS will:

- Store and Integrate a greater amount of renewable energy from the Renewable Energy Facility into the electricity grid;
- This will assist with the objective to generate electricity by means of renewable energy to feed into the National Grid which will be procured under either the Renewable Energy Independent Power Producer Procurement Program (REIPPPP), other government run procurement programmes or for sale to private entities if required

The Droogfontein PV BESS will be located adjacent to the approved Droogfontein PV substation associated with the approved Droogfontein PV. To reduce electrical losses the BESS must be in close proximity to the on-site 33/132kV substation. A ~5ha study site has been established around the approved substation (500m zone) to allow for the micrositing / specialist guidance regarding placement can be made.

The need for a BESS stems from the fact that electricity is only produced by the Renewable Energy Facility (REF) while the sun is shining, while the peak demand may not be necessarily occur during day-time. Therefore, the storage of electricity and supply thereof during peak-demand will mean that the facility is more efficient, reliable and stable electricity supply.

5 BA ALTERNATIVES

5.1 Location alternatives

No site alternatives for this proposed development were considered as the placement of the proposed BESS is dependent on the location of the Droogfontein 3 Solar Photovoltaic (PV) Energy Facility (12/12/20/2024/1/1).

5.2 Technology alternatives

Technology alternatives are limited to battery types, namely Redox flow batteries and Solid State Batteries. No other activity alternatives are being considered.

The BESS alternatives:

BESS Specifications	
BESS Footprint	Up to 2Ha
BESS Capacity	200MWh
BESS Technology	Lithium Ion
BESS Alternative- Solid State Batteries	Type Containerised systems assembled within shipping containers and delivered to the project site. Dimensions are approximately 17 m long x 3.5 m wide x 4 m high. Containers will be placed on a raised concrete plinth (30 cm) and may be stacked on top of each other to a maximum height of approximately 15 m. Additional instrumentation, including inverters and temperature control equipment, may be positioned between the battery containers.

5.3 'No-go' alternative

The 'no-go' alternative is the option of not constructing and operating a BESS in support of the authorised Renewable Energy (RE) facility. This alternative would result in no additional environmental impact other than that assessed during the EIA for the RE facility

The 'no-go' option is an option; however, this would prevent the Droogfontein PV 3 Solar Energy Facility from contributing to the environmental, social and economic benefits associated with the development of the renewables sector.

The above-mentioned alternatives (including 'no-go' alternative) will all be assessed by the appointed specialists as part of the BA process. All the above-mentioned location alternatives will be informed by the identified environmental sensitive and/or 'no-go' areas (i.e. *status quo*). The respective alternatives being considered as part of the BA process for the proposed development will also be comparatively assessed.

6 SPECIALIST STATEMENT/ REPORT REQUIREMENTS

The specialist assessments should include the following sections:

6.1 Project Description

The specialist report must include the project description as provided above.

6.2 Terms of Reference (ToR)

The terms of reference for the appointment have two elements (1) Site Verification Report and (2) a specialist study/compliance statement as per Government Notice 320 of 20 March 2020. The specialist report must include an explanation of the Terms of Reference (ToR) applicable to the specialist study. In addition, if the report is written as per Appendix 6 of the EIA Regulations, 2014 (as amended), a table must be provided at the beginning of the specialist report listing the requirements for specialist reports in accordance with and cross referencing these requirements with the relevant sections in the report. An MS Word version of this table will be provided by SiVEST.

6.3 Legal Requirements and Guidelines

The specialist report must include a thorough overview of all applicable best practice guidelines, relevant legislation and authority requirements.

6.4 Methodology

The report must include a description of the methodology applied in carrying out the specialist assessment.

6.5 Specialist Findings / Identification of Impacts

The report must present the findings of the specialist studies and explain the implications of these findings for the proposed development (e.g. permits, licenses etc.). This section of the report should also identify any sensitive and/or 'no-go' areas on the development site which should be avoided.

The reports should be accompanied with spatial datasets (shapefiles, KML) and accompanying text documents if required.

6.6 Impact Rating Methodology

The impacts of the proposed substation (during the Construction, Operation and Decommissioning phases) are to be assessed and rated according to the methodology developed by SiVEST. Specialists will be required to make use of the impact rating matrix provided (in Excel format) for this purpose. Please note that the significance of Cumulative Impacts should also be rated in this section. Both the methodology and the rating matrix will be provided by SiVEST.

Please be advised that this section must include mitigation measures aimed at minimising the impact of the proposed development.

6.7 Input to The Environmental Management Program (EMPr)

The report must include a description of the key monitoring recommendations for each applicable mitigation measure identified for each phase of the proposed development for inclusion in the Environmental Management Program (EMPr) or Environmental Authorisation (EA).

Please make use the Impact Rating Table (in Excel format) provided for each of the phases (i.e. Design, Construction, Operation and Decommissioning).

6.8 Cumulative Impact Assessment

Cumulative impact assessments must be undertaken for the proposed substation in order to determine the cumulative impact that will materialise should other Renewable Energy Facilities (REFs), associated substations and large-scale industrial developments be constructed within 50km of the proposed development.

The cumulative impact assessment must contain the following:

- A cumulative environmental impact statement noting whether the overall impact is acceptable; and
- A review of the specialist reports undertaken for other REFs and an indication of how the recommendations, mitigation measures and conclusion of the studies have been considered.

In order to assist the specialists in this regard, SiVEST will provide the following documentation / data:

- A summary table listing all REFs identified within 50km of the proposed substation;
- A map showing the location of the identified REFs;
- KML files; and
- Relevant EIA / BA reports that could be obtained.

The list of renewable energy facilities that must be assessed as part of the cumulative impact will be provided.

6.9 'No Go' Alternative

Consideration must be given to the 'no-go' option in the BA process. The 'no-go' option assumes that the site remains in its current state, i.e. there is no construction of a substation in the proposed project area and the *status quo* would proceed.

6.10 Comparative Assessment of Alternatives

As mentioned, layout alternatives, which subsequently informed the area for the potential construction of the proposed substation, were identified and comparatively assessed as part of the BA process undertaken in 2016. In addition, despite that fact that the position of the proposed substation has already been determined taking the identified environmental sensitive and/or 'no-go' areas into consideration, two (2) different location alternatives for the substation site were identified and assessed by the respective specialists as part of this BA process. As such, the specialist is to undertake a comparative assessment of substation site alternatives as per the latest table provided by SiVEST.

6.11 Conclusion / Impact Statement

The conclusion section of the specialist reports must include an Impact Statement, indicating whether any fatal flaws have been identified and ultimately whether the proposed development can be authorised or not (i.e. whether EA should be granted / issued or not).

6.12 Executive Summary

Specialists must provide an Executive Summary which summarises the findings of their report to allow for easy inclusion in the BA reports.

7 DELIVERABLES

All specialists will need to submit the following deliverables:

- 1 x Site Verification Report and Specialist Report/ Compliance statement no later than the 06th November 2020;
- A copy of the Specialist Declaration of Interest (DoI) form, containing original signatures. This form will be provided to the specialists. **Please note that the undertaking / affirmation under oath section of the report must be signed by a Commissioner of Oaths;** and
- All data relating to the studies, such as shape files, photos and maps (see **Section 8** below).

8 GENERAL SUBMISSION REQUIREMENTS

Please ensure that your specialist report includes the following:

- The Site Verification Report and Compliance Statement / Specialist Report must in line with the DEA Screening Tool Specialist theme Protocols (As gazetted 20 March 2020) if they apply. If they do not, the report must be written in accordance with Appendix 6 of the EIA Regulations, 2014 (as amended);
- A table at the beginning of your report cross referencing how the requirements for specialist according to Appendix 6 of the EIA Regulations, 2014 (as amended) has been adhered to. An MS Word version will be provided;
- A thorough overview of all applicable legislation, policies, guidelines. etc.;
- Identification of sensitive and/or 'no-go' areas to be avoided;
- Recommend mitigation measures in order to minimise the impact of the proposed development;
- Provide implications of specialist findings for the proposed development (e.g. permits, licenses etc.);
- Specify if any further assessment will be required;
- Include an Impact Statement, concluding whether any fatal flaws have been identified and ultimately whether the proposed development can be authorised or not (i.e. whether EA should be granted / issued or not); and
- A copy of the Specialist Declaration of Interest (DoI) form, containing original signatures, must be appended to all Draft and Final Reports. This form will be provided to the specialists. ***Please note that the undertaking / affirmation under oath section of the report must be signed by a Commissioner of Oaths.***

9 DEADLINES AND REPORT SUBMISSION

- Site Verification Report and Compliance Statement / Specialist Report no later than 06 November 2020.
- Any changes arising based on stakeholder engagement no later than 12 December 2020

10 REPORT / DATA FORMATS

- All specialist reports must be provided in MS Word format;
- Where maps have been inserted into the report, SiVEST will require a separate map set in PDF format for inclusion in our submission;
- Where figures and/or photos have been inserted into the report, SiVEST will require the original graphic in .jpg format for inclusion in our submission; and

- Delineated areas of sensitivity must be provided in either ESRI shape file format or Google Earth KML format. Sensitivity classes must be included in the attribute tables with a clear indication of which areas are 'No-Go' areas.

SPECIALIST SPECIFIC ISSUES

Heritage

- Describe and map the heritage features of the site and surrounding area. This is to be based on desk-top reviews, fieldwork, available databases, and findings from other heritage studies in the area, where relevant. Include reference to the grade of heritage feature and any heritage status the feature may have been awarded;
- Assess the impacts and provide mitigation measures to include in the environmental management plan;
- Map heritage sensitivity for the site. Clearly show any “no-go” areas in terms of heritage (i.e. “very high” sensitivity) and provide recommended buffers or set-back distances;
- Identify and assess potential impacts from the project on the full scope of heritage features, including archaeology, palaeontology and the cultural-historical landscape, as required by heritage legislation;
- Liaise with the relevant authority in order to obtain a final comment in terms of section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), including Regulations issued thereunder, as necessary; and
- Load the relevant documents on the South African Heritage Resources Information System (SAHRIS) to obtain a comment from SAHRA.