

SITE SENSITIVITY VERIFICATION & TERRESTRIAL ECOLOGY COMPLIANCE STATEMENT

*FOR THE CONSTRUCTION OF A BATTERY ENERGY STORAGE
SYSTEM ON MIERDAM NEAR PRIESKA, NORTHERN CAPE
PROVINCE, SOUTH AFRICA*

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Specialist Details & Declaration

This report has been prepared in accordance with Section 13: General Requirements for Environmental Assessment Practitioners (EAPs) and Specialists as well as per Appendix 6 of GNR 982 – Environmental Impact Assessment Regulations and the National Environmental Management Act (NEMA, No. 107 of 1998 as amended 2017) and Government Notice 704 (GN 704). It has been prepared independently of influence or prejudice by any parties.

The details of Specialists are as follows –

Table 1: Details of Specialist

| Specialist | Qualification and accreditation | Client | Signature |
|---------------------------------|---------------------------------|--------|---|
| Dr David Hoare (Pr.Sci.Nat.) | PhD Botany | SiVest |  Date: 13/11/2020 |

Details of Author:

Dr David Hoare

PhD (Botany) – Nelson Mandela Metropolitan University, Port Elizabeth

Main areas of specialisation

- Vegetation ecology (grasslands, savanna, Albany thicket, fynbos, coastal systems, wetlands).
- Plant biodiversity and threatened plant species specialist.
- Alien plant identification and control / management plans.
- Remote sensing, analysis and mapping of vegetation.
- Specialist consultant for environmental management projects.

Professional Natural Scientist, South African Council for Natural Scientific Professions, Reg. no. 400221/05 (Ecology, Botany)

Member, International Association of Vegetation Scientists (IAVS)

Member, Ecological Society of America (ESA)

Member, International Association for Impact Assessment (IAIA)

Member, Herpetological Association of Africa (HAA)

Employment history

1 December 2004 – present, Director, David Hoare Consulting (Pty) Ltd. Consultant, specialist consultant contracted to various companies and organisations.

1 January 2009 – 30 June 2009, Lecturer, University of Pretoria, Botany Dept.

1 January 2013 – 30 June 2013, Lecturer, University of Pretoria, Botany Dept.

1 February 1998 – 30 November 2004, Researcher, Agricultural Research Council, Range and Forage Institute, Private Bag X05, Lynn East, 0039. Duties: project management, general vegetation ecology, remote sensing image processing.

1. INTRODUCTION

1.1. Project Background and Description of the Activity

Mainstream Renewable Power South Africa (Pty) Ltd (hereafter referred to as Mainstream) appointed SiVEST to undertake a specialist Terrestrial Biodiversity Impact Assessment for the proposed establishment of a PV Solar Power Plant at Mierdam near Prieska Northern Cape Province. This study formed part of the Basic Assessment and identified and assessed all the potential environmental impacts associated with the proposed project. This study was completed in 2012 but did not include the Battery Energy Storage System (BESS).

In accordance with National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations of 2014, a site sensitivity verification has been undertaken in order to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (Screening Tool). The purpose of this report/statement is to verify the site sensitivity as identified by the screening tool and compile a statement confirming the identified impacts and any changes with the revised layout.

Authorisation has been granted for the PV plant. The BESS will be located adjacent to the approved/authorised Mierdam PV substation. It will be contained within shipping containers placed on a raised concrete plinth. The BESS allows for 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 capacity will up to 200 MWh, and its footprint will be up to 2 hectares.

The layout of the site is indicated in Figure 1.

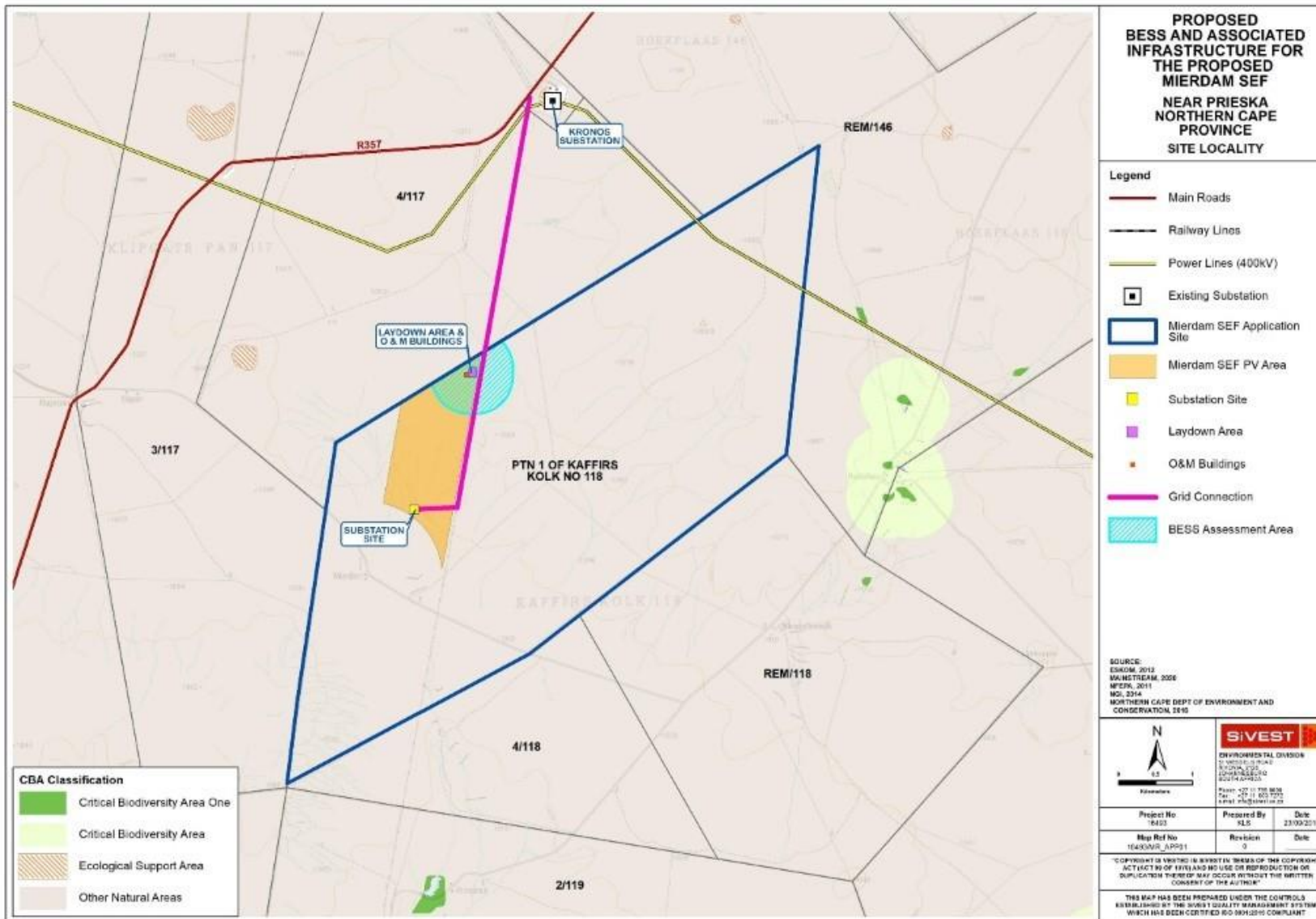


Figure 1 Locality map of the proposed BESS 500m buffer at Mierdam

1.2. Terms of Reference

As per the screening tool, the proposed development area environmental sensitivity is considered to have a low sensitivity for the terrestrial biodiversity theme. As such, the following scope of works are required:

- i. The compliance statement must:
 - o be applicable to the preferred site and the proposed development footprint;
 - o confirm that the site is of “low” sensitivity for terrestrial biodiversity and plant species; and
 - o indicate whether or not the proposed development will have an impact on the terrestrial biodiversity or plant species features.
- ii. The compliance statement must contain, as a minimum, the following information:
 - o contact details of the specialist, their SACNASP registration number, their field of expertise and a *curriculum vitae*;
 - o a signed statement of independence by the specialist;
 - o a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
 - o a baseline profile description of biodiversity and ecosystems of the site;
 - o the methodology used to verify the sensitivities of the terrestrial biodiversity and plant species features on the site including the equipment and modelling used where relevant;
 - o in the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase;
 - o where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;
 - o a description of the assumptions made as well as any uncertainties or gaps in knowledge or data; and
 - o any conditions to which this statement is subjected.
 - o A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

1.3. Identified Theme Sensitivities

The site sensitivity as identified by the National Web-Based Environmental Screening Tool Shows that both the terrestrial biodiversity and plant species themes are of **low sensitivity**.

Table 2: Site sensitivity themes for Mierdam BESS

| Theme | Very High Sensitivity | High Sensitivity | Medium Sensitivity | Low Sensitivity |
|--------------------------------|-----------------------|------------------|--------------------|-----------------|
| Agriculture Theme | | | | X |
| Animal Species Theme | | X | | |
| Aquatic Biodiversity Theme | X | | | |
| Civil Aviation Theme | | | | X |
| Defense Theme | | | | X |
| Paleontology Theme | | X | | |
| Plant Species Theme | | | X | |
| Terrestrial Biodiversity Theme | | | | X |

2. METHODOLOGY

A detailed description of the methods has been provided. The regional context and desktop analysis were used as the point of departure. A detailed site visit was undertaken by SiVest in 2012, prior to the approval of the PV farm. Much of this information was used to confirm the sensitivity of this site.

The verification assessment of these systems considered the following databases where relevant:

Table 3 Data type and source for the site verification assessment

| Data Type | Year | Source/Reference |
|----------------------------------|---------------------|-----------------------------|
| Aerial Imagery | 2013, 2016, present | Surveyor General |
| 1:50 000 Topographical | 2011 | Surveyor General |
| Land Cover | 2006/present | SANBI |
| Previous Assessments | 2012 | SiVest |
| Field data from adjacent project | 2016 | Personal |
| On-line databases | present | POSA, Red List, iNaturalist |

*Data will be provided on request

The following methods were used to undertake the site verification:

- General area desktop site inspection;
- Site photographs from previous studies;
- Satellite imagery (Google Earth);
- Review of existing approvals/authorisations for the site.

The following methods were used to undertake the compliance statement:

- Assessment of alternative sites and “no go” areas;
- summarize previous assessment and identify any areas not covered by this assessment;
- revision of impacts as per the additional BESS; and
- Final recommendations and compliance statement.

3. LIMITATIONS AND ASSUMPTIONS

The following assumptions and constraints may have affected this assessment –

- As an extensive site visit has already been undertaken by SiVest, therefore an additional site visit was not required.
- The impacts for the site are specific to the BESS.
- The databases used may not be complete or up to date.
- This statement assumes that the work undertaken by SiVest (2012) is unbiased and the methods adopted appropriately followed.

4. SITE DESCRIPTION

The study area (as described by Koch, 2012) occurs on flat and gently undulating topography. The north-eastern part of the site is characterised by grassy plains dominated by *Stipagrostis* species. This area scattered *Boscia foetida* and the tree layer is dominated by *Acacia mellifera*. The majority of the study area is characterised by bossieveld of low bushes of Asteraceae and patches of *Rhigozum obovatum*. There are also some local depressions which have developed into pans. Although these do not hold water for long, they are unique in comparison to surrounding areas. The area is used for grazing of domestic livestock, primarily sheep, and is partly degraded due to overgrazing.

The site is relatively uniform with few distinct sensitive areas. There is one low ridge on site that provides important habitat different to surrounding areas. These areas are considered to be more sensitive relative to surrounding areas. The site has been classified as having a mixture of low and medium sensitivity areas.

5. SITE SENSITIVITY VERIFICATION

The site verification aims to confirm or dispute the **Low Sensitivity** identified by the screening tool. This is done through a desktop investigation using more recent databases and aerial/remote imaging.

1 Preferred Site Location

An extensive investigation has been previously undertaken at the site. The land cover is uniform throughout the site. The selected site is located at the furthest point away from sensitive ecological receptors. As such, this option is considered the best location for this particular site. The areas identified as sensitive by Koch (2012), are still relevant for the additional area.

1.4. Confirmation of Site Sensitivity

Through the interrogation of various databases, imagery and the previous ecological assessment, it is clear that no sensitive features are present within or near the proposed BESS footprint. As such, it is hereby confirmed that the BESS site should be considered to have **Low Sensitivity**.

6. ASSESSMENT OF IMPACTS

Significance of impacts

The key impact identified for the proposed BESS is:

- Clearing of natural vegetation that is habitat for plant and animal species.

Table 4 Impact assessment (after Taylor, 2012)

| Impact | Significance (with Mitigation) | Mitigation Measures |
|------------------------|--------------------------------|--|
| Clearing of vegetation | Low | The loss of vegetation is inevitable and necessary for the proposed development to take place. Sensitive areas have been identified outside the proposed BESS site. These relate to low ridges. The approved footprint will not result in losses of habitat of high sensitivity, only habitat of medium to low sensitivity. Mitigation measures primarily will relate to the protection of sensitive species and minimization of habitat loss. |

Environmental Management Programme (EMPr) Input

The objectives of the amendment to the EMPr is to ensure that any impacts remain at a low risk/sensitivity. Furthermore, this also allows for the additional battery area to be incorporated into the existing EMPr.

Table 5 Rehabilitation actions for inclusion into the EMPr

| Objective | Action | Timing |
|------------------------------|--|-----------------------|
| Manage alien invasive plants | 1. Manage the invasive alien plants at any disturbed or spoil areas | With immediate effect |
| | 2. Manage the invasive alien plants around the BESS during operation | With immediate effect |

7. TERRESTRIAL BIODIVERSITY AND PLANT SPECIES COMPLIANCE STATEMENT

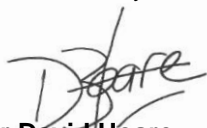
Through the site verification, background investigation and impact assessment, the following are confirmed by the specialist:

1. The site is **low sensitivity** in a plant species context. Although indicated as high sensitivity from a terrestrial biodiversity perspective, this is not reflected in the patterns seen on site.
2. The proposed location of the BESS is optimal on the site.
3. The site is relatively flat, located on sparse vegetation and is a significant distance from any sensitive ecological feature. This is confirmed by Koch (2012) who's study covered the whole BESS area.
4. Impacts have been identified with proposed mitigation measures. Should these measures be adhered to, the additional BESS area would remain a low sensitivity.
5. A list of conditions has been provided that should be included in the EMPr. Where relevant, additional measures unrelated to terrestrial biodiversity systems should be extended from the original EMPr.
6. Since the inception of the project, there have been no visible impacts from the existing PV areas, indicating that the impact of this activity is low and that the EMPr has been adhered to.
7. Although potential spillage from batteries has been noted, the recent technology upgrades and enclosed nature of solid-state batteries further reduces the risk of contamination.

8. IMPACT STATEMENT

The overall impact of the Mierdam BESS, on the terrestrial biodiversity and plant species 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.

Yours sincerely



Dr David Hoare

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