PROPOSED BATTERY ENERGY STORAGE SYSTEMS (BESS): PROPOSED HOTAZEL SOLAR, NORTHERN CAPE, SOUTH AFRICA

Visual Statement Report

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Document prepared for Cape EAPrac (Pty) Ltd
on behalf of ABO Wind Hotazel PV (Pty) Ltd

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LIST OF ACRONYMS

APHP	Association of Professional Heritage Practitioners
BLM	Bureau of Land Management (United States)
BPEO	Best Practicable Environmental Option
CALP	Collaborative for Advanced Landscape Planning
DEA&DP	Department of Environmental Affairs & Development Planning (South Africa)
DEM	Digital Elevation Model
DoC	Degree of Contrast
EIA	Environmental Impact Assessment
EMPr	Environmental Management Plan
GIS	Geographic Information System
I&APs	Interested and Affected Parties
IEMA	Institute of Environmental Management and Assessment (United Kingdom)
IEMP	Integrated Environmental Management Plan
KOP	Key Observation Point
MAMSL	Metres above mean sea level
NELPAG	New England Light Pollution Advisory Group
NEMWA	National Environmental Management Waste Act (South Africa)
PSDF	Provincial Spatial Development Framework
ROD	Record of Decision
SAHRA	South African National Heritage Resources Agency
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment
VRM	Visual Resource Management
ZVI	Zone of Visual Influence

GLOSSARY OF TECHNICAL TERMS

Technical Terms	**Definition** (Oberholzer, 2005)
Degree of Contrast	The measure in terms of the form, line, colour and texture of the existing landscape in relation to the proposed landscape modification in relation to the defined visual resource management objectives.
Visual intrusion	Issues are concerns related to the proposed development, generally phrased as questions, taking the form of "what will the impact of some activity be on some element of the visual, aesthetic or scenic environment".
Receptors	Individuals, groups or communities who would be subject to the visual influence of a particular project.
Sense of place	The unique quality or character of a place, whether natural, rural or urban.
Scenic corridor	A linear geographic area that contains scenic resources, usually, but not necessarily, defined by a route.
Viewshed	The outer boundary defining a view catchment area, usually along crests and ridgelines. Similar to a watershed. This reflects the area, or the extent thereof, where the landscape modification would probably be seen.
Visual Absorption Capacity	The potential of the landscape to conceal the proposed project.

Technical Term	**Definition** (USDI., 2004).
Key Observation Point	Receptors refer to the people located in the most critical locations, or key observation points, surrounding the landscape modification, who make consistent use of the views associated with the site where the landscape modifications are proposed. KOPs can either be a single point of view that an observer/evaluator uses to rate an area or panorama, or a linear view along a roadway, trail, or river corridor.
Visual Resource Management	A map based landscape and visual impact assessment method development by the Bureau of Land Management (USA).
Zone of Visual Influence	The ZVI is defined as 'the area within which a proposed development may have an influence or effect on visual amenity.'

1 INTRODUCTION

1.1 Terms of Reference

Visual Resource Management Africa CC (VRMA) was appointed by Cape EAPrac (Pty) Ltd, on behalf of ABO Wind Hotazel PV (Pty) Ltd, to undertake a ***Visual Statement*** for the amendment of the environmental authorisation for the proposed Hotazel Solar Facility to include a Battery Energy Storage System (BESS).

In 2018 Cape Environmental Assessment Practitioners (Pty) Ltd (Cape EAPrac) was appointed by ABO Wind Hotazel PV (Pty) Ltd as independent environmental assessment practitioners (EAP) to conduct the Environmental Impact Assessment (EIA) for the proposed Hotazel Solar project, a commercial PV energy facility and associated infrastructure near Hotazel in the Northern Cape Province.

ABO Wind Hotazel PV (Pty) Ltd now wishes to include a Battery Energy Storage System (BESS), which will cover up to 5ha, adjacent to the on-site substation within the approved project footprint. In terms of Regulation 31 and 32 of the 2014 National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations, ABO Wind Hotazel PV (Pty) Ltd wishes to apply for an amendment to the EA issued. Cape Environmental Practitioners (Pty) Ltd. have been appointed as the EAP to conduct the application for amendment and the associated impact assessment.

One of the potential environmental issues identified during the former EIA process was the potential visual impacts caused by the construction and operation activities. A Visual Impact Assessment (VIA), conducted by Visual Resource Management Africa CC (VRMA) in 2018, was therefore included as one of the specialist studies.

Based on the requirements of Regulation 32 of the EIA Regulations, specialist input regarding the proposed amendments is required to enable the DFFE to make an informed decision on whether to grant or reject the amendment application.

1.2 Study Team

Contributors to this study are summarised in Table 1 below.

Table 1: Authors and Contributors to this Report.

Aspect	Person	Organisation / Company	Qualifications
Landscape and Visual Assessment (author of this report)	Stephen Stead B.A (Hons) Human Geography, 1991 (UKZN, Pietermaritzburg)	VRMA	• Accredited with the Association of Professional Heritage Practitioner and • 16 years of experience in visual assessments including renewable energy, powerlines, roads, dams across southern Africa.

1.3 Visual Assessment Approach

A detailed VIA was undertaken for the Hotazel Solar in 2020. Therefore, this visual statement will provide specialist input to assess the proposed inclusion of a BESS in the context of the former 2020 VIA, to determine the visual impacts resulting from the proposed amendments. This visual statement is to be read in conjunction with the former 2018 VIA as it does not repeat information in that report that is still relevant to the current VIA. The previous VIA can be obtained from Cape EAPrac.

In particular, this visual statement will provide further information on the following:

- The nature of the BESS within the landscape.
- Potential changes to the visual influence of the PV project; and
- Potential impacts experienced by receptors.

Based on the above, a preliminary impact statement, including mitigation measures, will be provided for the inclusion of the BESS.

1.4 Assumptions and Uncertainties

- The use of open-source satellite imagery was utilised for base maps in the report.
- Some of the mapping in this document was created using Bing Maps, Open-Source Map, ArcGIS Online and Google Earth Satellite imagery.
- The project deliverables, including electronic copies of reports, maps, data, shape files and photographs are based on the author's professional knowledge, as well as available information; VRM Africa reserves the right to modify aspects of the project deliverables if and when new/additional information may become available from research or further work in the applicable field of practice, or pertaining to this study.

2 PROJECT DESCRIPTION

The proposed project, Hotazel Solar, will be developed on the Remaining Extent (Portion 0) of the farm York A 279, within the Joe Morolong Local Municipality, in the Northern Cape Province. The nearest large towns to the proposed project are Kuruman, which is located approximately 50km to the southeast, and Kathu located approximately 52km to the south. The small mining town of Hotazel is located approximately 3km to the northwest of the proposed site. The proposed site is accessed via the R31 District Road that connects the town of Hotazel to Kuruman. The proposed amendment is to include a Battery Energy Storage System (BESS), which will cover approximately 5ha, adjacent to the on-site substation within the approved project footprint (see Figure 1 below).

The exact design of the BESS will depend on the specific manufacturer. It is customary to develop the final detailed design of the facility only once an Independent Power Producer (IPP) is awarded a successful bid under the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), **or any other relevant procurement programme** after which major contracts are negotiated and final equipment suppliers identified. Therefore, at this stage the exact supplier/ manufacturer has not yet been identified. However, a BESS typically includes solid state batteries that have been

assembled in containerised/modular enclosures. While each manufacturer has slightly different individual battery container/module dimensions, they all typically fall within the following ranges:

- Length: 6m – 12m
- Width: 1.5m – 2.5m
- Height: maximum of 3m (as they may include a roof the height of 4m is assessed)

Based on research, it is estimated that for BESS with a footprint of up to 5 ha, approximately 200-300 pre-assembled containers/modules would be required.

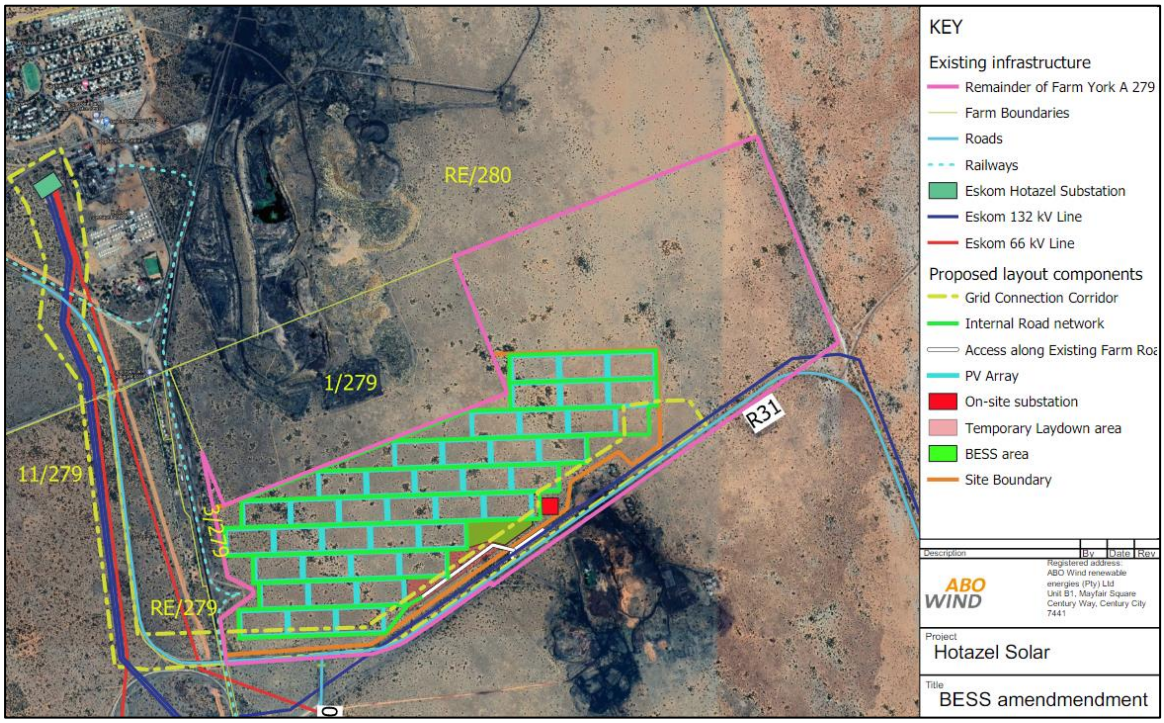

Figure 1. Proposed site layout plan for preferred development option (Hotazel Solar). The proposed BESS area is depicted by the dark green polygon on the south-east of the development footprint.

As a proposed specific manufacturer for the proposed Battery Energy Storage Systems has not been identified, the following information and diagrams are taken from a manufacturer, Tesla, as “utility-scale energy storage products, suitable for power stations and utility companies. The proposed BESS are designed to store energy that can be later used during periods of surplus demand. For example the Tesla Megapack is a large-scale lithium-ion battery storage product manufactured and can be used to store energy generated by intermittent renewable power sources, such as solar and wind. The energy stored can be used by the grid as required, for example during periods of peak electricity demand”. (Tesla, 2020)

“BESS are used to improve the reliability of intermittent renewable energy sources such as solar and wind. Large-scale battery storage solutions such as the Tesla Megapack are becoming more economically viable for utility companies to implement due to the declining price of lithium-ion battery technology. Demand for energy storage is also increasing in some jurisdictions due to transitions towards renewable energy sources.” (Stevens, 2019)

Battery storage is an increasingly important element of the world's transition to sustainable energy. Each Megapack can store up to 3 megawatt-hours (MWh) of electricity. The Megapack is 7.1m wide, 2.5m in height and 1.6m in diameter. (Tesla, 2020)

MECHANICAL AND MOUNTING

Ingress Ratings	IP66/NEMA 3R (Main enclosure) IP20 (Thermal system)
Unit Dimensions	W: 7125 mm (23 ft 5 in) D: 1600 mm (5 ft 3 in) H: 2516 mm (8 ft 3 in)

Figure 2. Photograph of a typical BESS structure and approximate heights (Tesla, 2020)

Figure 3. Photomontage of a Tesla BESS in landscape

3 LEGAL FRAMEWORK

In order to comply with the Visual Resource Management requirements, it is necessary to evaluate the proposed amendment in terms of 'policy fit'. This requires a review of National and Regional policy and planning for the area to ensure that the scale, density and nature of activities or developments are harmonious and in keeping with the planned sense of place and character of the area.

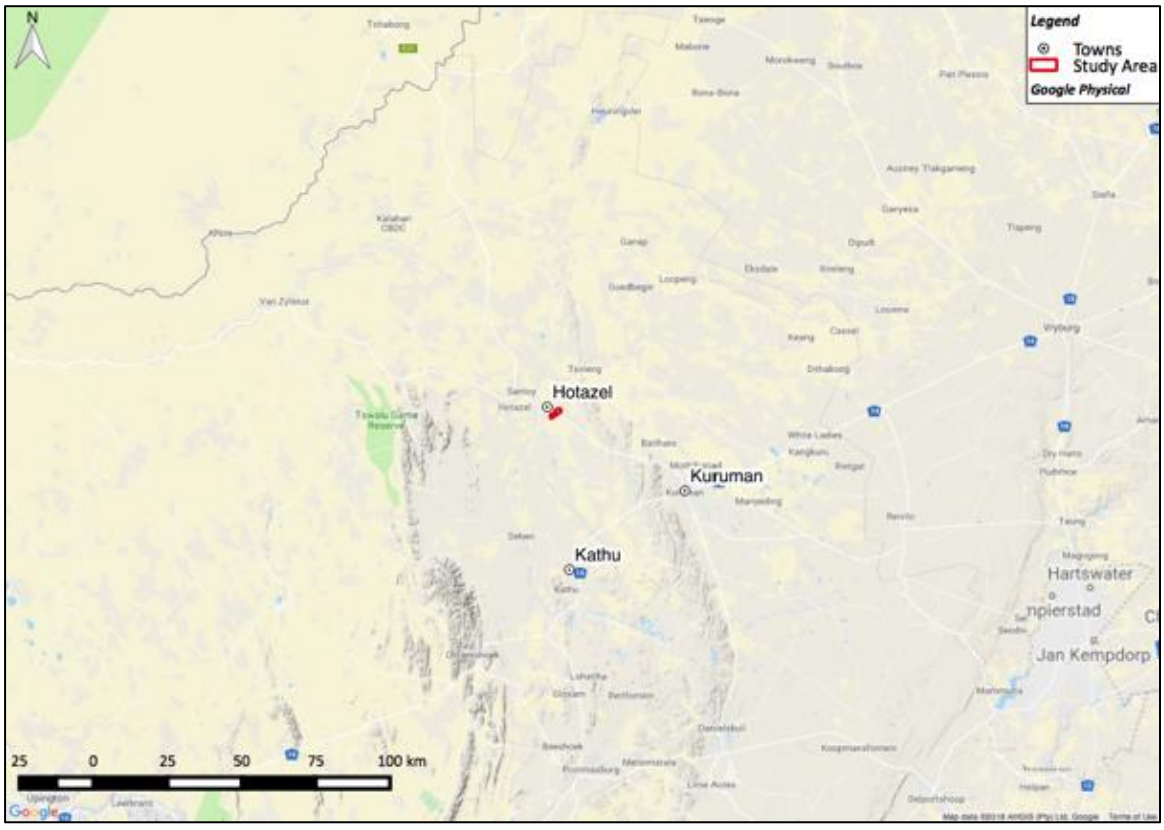

Figure 4. National and Regional Governance Locality Map

3.1 Local Government Legislation and Planning Policy Fit Statement

3.1.1 John Taolo Gaetwewe District Municipality Spatial Development Framework (SDF)

With regard to tourism and solar energy, the John Taolo Gaetwewe District Municipality SDF makes the following statements regarding the importance of these two sectors:

- *Regional Integration/ Cooperation (ZF Mgcawu & Republic of Botswana) with respect to Gamagara Corridor and Eco-Tourism Development Corridor.*
- ***Positioning the John Taolo District as the preferred investment area for solar energy** due to its proximity to the Solar Corridor in ZF Mgcawu District Municipality.*

The planning is strongly supportive of mining, and no restrictions on solar energy were identified in the SDF. The existing PV development has already been authorised and as such, the planning fit is rated High.

4 METHODOLOGY

The process that VRMA followed when determining landscape significance is based on the United States Bureau of Land Management's (BLM) Visual Resource Management method (USDI., 2004). This mapping and GIS-based method of assessing landscape modifications allows for increased objectivity and consistency by using standard assessment criteria. The following key factors determine the suitability of landscape change:

- "Different levels of scenic values require different levels of management. For example, management of an area with high scenic value might be focused on preserving the existing character of the landscape, and management of an area with little scenic value might allow for major modifications to the landscape. Determining how an area should be managed first requires an assessment of the area's scenic values".
- "Assessing scenic values and determining visual impacts can be a subjective process. Objectivity and consistency can be greatly increased by using the basic design elements of form, line, colour, and texture, which have often been used to describe and evaluate landscapes, to also describe proposed projects. Projects that repeat these design elements are usually in harmony with their surroundings; those that don't create contrast. By adjusting project designs so the elements are repeated, visual impacts can be minimized" (USDI., 2004).

As a baseline assessment to define the landscape significance of the greater area as already been undertaken, the visual statement will not review the baseline, but rather focus on the review of the BESS zone of visual influence in relation to the previous defined impacts for the Hotazel PV assessment. The previous VIA findings on Visual Impact Significance pertain:

> *The Pre-mitigation Visual Significance is rated **Medium** as the local sense of place is degraded to some degree by the adjacent mine and is likely to become further degraded by possible expansion. Existing trees along the R31 would offer partial screening, and the existing Eskom power line located along the R31 does increase*

the visual absorption capacity of the locality to some degree. Further moderation of the impact is due to the contained project zone of visual influence. This is due to the surrounding Bushveld vegetation that is fairly prolific in the area and the relatively flat terrain that restricts clear views as seen from local receptors. The Post-mitigation ***Visual Significance*** *was rated* ***Low****. The retention of a natural vegetation buffer along the R31, would effectively screen the high exposure views as seen from the R31 road receptors. Hotazel PV 2 is proposed adjacent to Hotazel Solar and the proposed Juwi PV development located across the R31. Therefore, the intervisibility of these developments is likely to be strongly experienced by the R31 Road receptors. However, as the existing landscape character is not significant (degraded by views of mining landscapes), this intervisibility is rated as* ***Medium Negative****.*

5 LANDSCAPE BASELINE

Landscape character is defined by the U.K. Institute of Environmental Management and Assessment (IEMA) as the 'distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how this is perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement'. It creates the specific sense of place or essential character and 'spirit of the place' (IEMA, 2002). This section of the VIA identified the main landscape features that define the landscape character, as well as the key receptors that make use of the visual resources created by the landscape. A field survey was not undertaken for the BESS amendment, but a full site survey was undertaken for the original PV VIA. The photographs for the surrounding landscape can be obtained from Cape EAPrac (Pty) Ltd.

5.1 Landscape Context

The following key landmarks, falling within the proposed project viewshed, were identified during the desktop assessment:

- Mining and associated infrastructure.
- Renewable energy (proposed); and
- Other rural land use.

A factor that is increasingly influencing the regional landscape character is the recognition of the area around Hotazel Facility as an important solar renewable energy location. A spatial query on the DFFE Renewable Energy mapping found that there are six other projects proposed within 30 km. The two nearest developments are the Juwi PV, which is located directly to the south, and Perth Solar Farm located approximately 4 km southwest of the study area. Also located adjacent to the site to the west is the Hotazel Solar. With the combined views of all the PV projects, the local landscape character will evolve into a renewable energy landscape. Retaining existing trees within the road buffer (as proposed in all the local PV projects undertaken by VRM Africa) will assist in reducing the intensity of the renewable energy landscape. However, it is very likely that the local rural agricultural landscape will change.

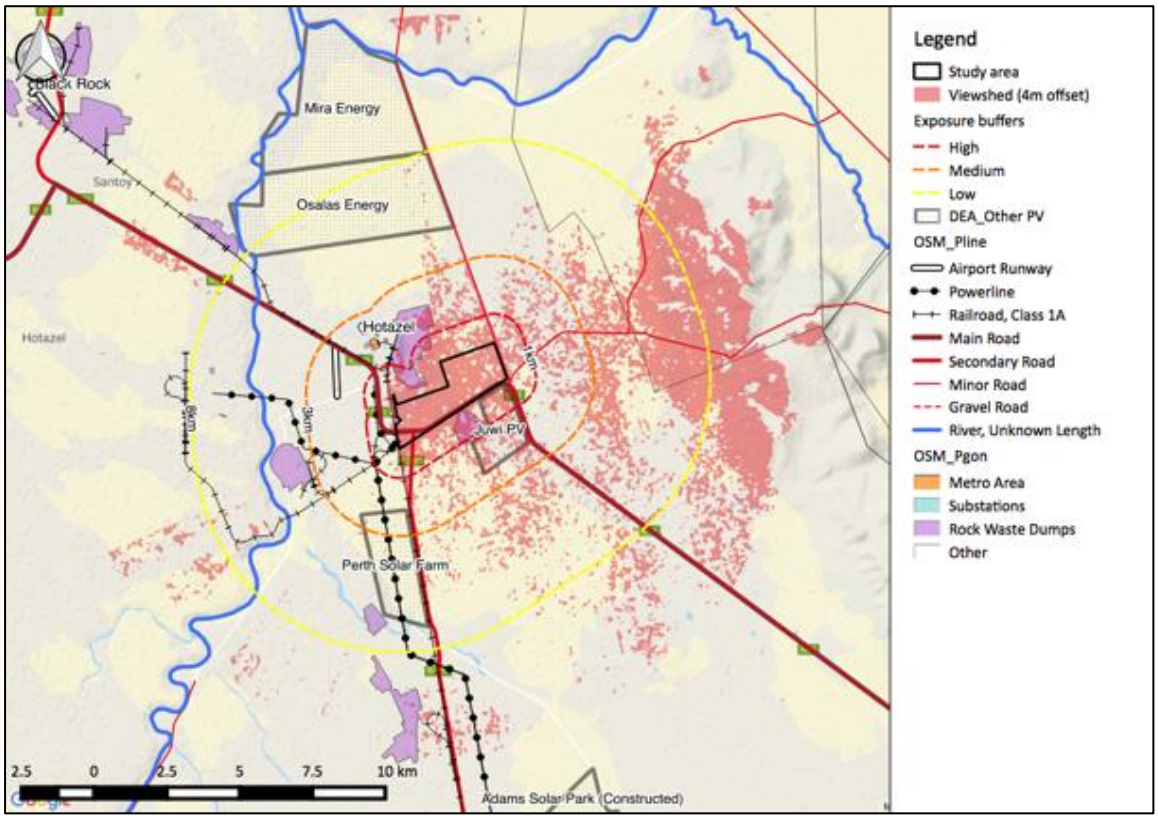

Figure 5: Approximate visibility map generated from a 4m offset reflecting the outer extent of the BESS structures should a roof structure on the container be required.

As indicated in Figure 5 above visible incidence is most likely within the high exposure 2km buffer area as a result of the mainly flat terrain of the study area and immediate surrounds. Due to the medium sized Bushveld vegetation that is found in the area, it is likely that a 4m high structure would be partially visible to the surrounding receptors. Although the nature of the surrounding terrain is mainly flat, the Visual Extent of the project is unlikely to extend beyond the foreground / middle-ground. The contained visibility is mainly due to the Bushveld vegetation and the old Hotazel waste rock dump located to the northwest of the site, and as such the Zone of Visual Influence of PV project landscape modification is likely to have a **Local** influence.

A key factor also influencing the landscape character of the site is the close proximity to mining landscapes. These include four large Manganese Mines that require large structures and generate large waste rock dumps. Also influencing the regional landscape is the associated electrical power and railway infrastructure required by the mines. A 132kV Eskom power line has been construction on the property routed adjacent to the R31 road. The combination of the surrounding mining landscapes, which include large structures and waste rock dumps, in conjunction with the overhead railway structures and power lines, results in some degradation of the general landscape and increased the Visual Absorption Capacity of the landscape. This is especially evident when the mines and infrastructures are viewed in close proximity as there are high levels of visual contrast. Due to the close proximity of the study area to the Intertek Mine site, as well as large existing power line infrastructure, the value of the area's visual resources is reduced.

The regional topography of the greater area surrounding the study area is relatively flat with the exception of the low hill range to the east. The main drainage of the greater region

is to the north via the Gamogara River (approx. 7km west), the only natural topographic feature within the greater area is the Kuruman Hills that are located approximately 15km to the southeast of the study site and rise approximately 100m above the generated terrain. Due to the distance between the site and the hill feature, landscape change on the site is thus highly unlikely to influence the Kuruman Hills sense of place. No significant landscape features are located within direct influence of the BESS ZVI, and no protected areas are located within the Foreground / Mid-ground areas within the expected Zone of Visual Influence (ZVI) of the project.

5.2 Receptors and Key Observation Points

As identified in the viewshed mapping exercise, the proposed development zones of visual influence does not include sensitive receptors as there are no tourist related activities were identified that make use of landscape resources within the zone of visual influence. Due to the close proximity of the R31, which is routed adjacent to the proposed project areas, the Visual Exposure to the R31 is rated **High*.*** However, due to vegetation along the R31, ***direct visibility of the BESS structures is likely to be limited***.

6 ENVIRONMENTAL MANAGEMENT PLAN RECOMMENDATIONS

The original environmental mitigations submitted for the initial PV EIA needs to be incorporated. The only addendum regarding the BESS mitigation is:

- To reduce colour contrast, if permitted by the Original Equipment Manufacturer, the container structure should preferably be painted a grey-brown colour so as to blend with the surrounding arid regional landscapes.
- Retain existing tree vegetation along the boundary between the BESS and the R31 to assist in visual screening.
- Light spillage has the potential to extend the project visual influence at night. Light spillage mitigations need to be incorporated to ensure that lighting enhances security without creating a pool of light. Security lights should not include overhead lighting and be inward and downward facing as much as possible.

7 CONCLUSION

There is a good policy fit for the Hotazel PV Facility and the region already includes a number of large-scaled renewable energy projects that define the sense of place. It is the finding of the visual statement that ***the previous Hotazel PV VIA Significance ratings of Low-Negative will not be changed***. Thus, the recommendation of this visual statement is that ***the incorporation of the BESS development for Hotazel PV Facility is unlikely to result in the loss of significant visual and scenic resources, and as such should be authorised with mitigation.***

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9 ANNEXURE A: SPECIALIST INFORMATION

Curriculum Vitae (CV)

- Position: Owner / Director
- Name of Firm: Visual Resource Management Africa cc *(www.vrma.co.za)*
- Name of Staff: Stephen Stead
- Date of Birth: 9 June 1967
- Nationality: South African
- Contact Details: Tel: +27 (0) 44 876 0020
  Cell: +27 (0) 83 560 9911
  Email: steve@vrma.co.za
- Educational qualifications:
  - University of Natal (Pietermaritzburg):
  - Bachelor of Arts: Psychology and Geography
  - Bachelor of Arts (Hons): Human Geography and Geographic Information Management Systems
- Professional Accreditation
  - Association of Professional Heritage Practitioners (APHP) Western Cape
  - Accredited VIA practitioner member of the Association (2011)
- Association involvement:
  - International Association of Impact Assessment (IAIA) South African Affiliate
  - Past President (2012 - 2013)
  - President (2012)
  - President-Elect (2011)
  - Conference Co-ordinator (2010)
  - National Executive Committee member (2009)
  - Southern Cape Chairperson (2008)
- Conferences Attended:
  i. IAIAsa 2012
  ii. IAIAsa 2011
  iii. IAIA International 2011 (Mexico)

iv. IAIAsa 2010
v. IAIAsa 2009
vi. IAIAsa 2007

- Continued Professional Development:
  - Integrating Sustainability with Environment Assessment in South Africa (IAIAsa Conference, 1 day)
  - Achieving the full potential of SIA (Mexico, IAIA Conference, 2 days 2011)
  - Researching and Assessing Heritage Resources Course (University of Cape Town, 5 days, 2009)

- Countries of Work Experience:
  - South Africa, Mozambique, Malawi, Lesotho, Kenya and Namibia

- Relevant Experience:

  Stephen gained six years of experience in the field of Geographic Information Systems mapping and spatial analysis working as a consultant for the KwaZulu-Natal Department of Health and then with an Environmental Impact Assessment company based in the Western Cape. In 2004 he set up the company Visual Resource Management Africa that specializes in visual resource management and visual impact assessments in Africa. The company makes use of the well-documented Visual Resource Management methodology developed by the Bureau of Land Management (USA) for assessing the suitability of landscape modifications. Stephen has assessed of over 150 major landscape modifications throughout southern and eastern Africa. The business has been operating for eight years and has successfully established and retained a large client base throughout Southern Africa which include amongst other, Rio Tinto (Pty) Ltd, Bannerman (Pty) Ltd, Anglo Coal (Pty) Ltd, Eskom (Pty) Ltd, NamPower and Vale (Pty) Ltd, Ariva (Pty) Ltd, Harmony Gold (Pty) Ltd, Millennium Challenge Account (USA), Pretoria Portland Cement (Pty) Ltd.

- Languages:
  - English – First Language
  - Afrikaans – fair in speaking, reading and writing

- Projects:

  A list of ***some*** of the large scale projects that VRMA has assessed has been attached below with the client list indicated per project (Refer to www.vrma.co.za for a full list of projects undertaken).

  Table 2: VRM Africa Projects Assessments Table

YEAR	NAME	DESCRIPTION	LOCATION
2020	Dysanklip & Re Capital 3C BESS	Battery Storage	Northern Cape (SA)
2020	Hotazel PV 2	Solar Energy	Northern Cape (SA)

2020	Hotazel PV Amend	Solar Energy	Northern Cape (SA)
2020	Penhill Water Reservoir	Infrastructure	Western Cape (SA)
2020	Kenhardt BESS x 6	Battery Storage	Northern Cape (SA)
2020	Humansdorp BESS	Battery Storage	Northern Cape (SA)
2020	Bloemsmond PV BESS x 5	Battery Storage	Northern Cape (SA)
2020	Mulilo Prieska BESS x 5	Battery Storage	Northern Cape (SA)
2020	Mulilo De Arr BESS x 3	Battery Storage	Northern Cape (SA)
2020	Sandpiper Estate	Residential	Western Cape (SA)
2020	Obetsebi Lampley Interchange	Infrastructure	Ghana
2019	Port Barry Residential	Settlement	Western Cape (SA)
2019	Gamsberg Smelter	Plant	Northern Cape (SA)
2019	Sandpiper Nature Reserve Lodge	Residential	Western Cape (SA)
2019	Bloemsmond PV 4 - 5	Solar Energy	Northern Cape (SA)
2019	Mphepo Wind (Scoping Phase)	Wind Energy	Zambia
2018	Mogara PV	Solar Energy	Northern Cape (SA)
2018	Gaetsewe PV	Solar Energy	Northern Cape (SA)
2017	Kalungwishi Hydroelectric (2) and power line	Hydroelectric	Zambia
2017	Mossel Bay UISP (Kwanoqaba)	Settlement	Western Cape (SA)
2017	Pavua Dam and HEP	Hydroelectric	Mozambique (SA)
2017	Penhill UISP Settlement (Cape Town)	Settlement	Western Cape (SA)
2016	Kokerboom WEF * 3	Wind Energy	Northern Cape (SA)
2016	Hotazel PV	Solar Energy	Northern Cape (SA)
2016	Eskom Sekgame Bulkop Power Line	Infrastructrue	Northern Cape (SA)
2016	Ngonye Hydroelectric	Hydroelectric	Zambia
2016	Levensdal Infill	Settlement	Western Cape (SA)
2016	Arandis CSP	Solar Energy	Namibia
2016	Bonnievale PV	Solar Energy	Western Cape (SA)
2015	Noblesfontein 2 & 3 WEF (Scoping)	Wind Energy	Eastern Cape (SA)
2015	Ephraim Sun SEF	Solar Energy	Nothern Cape (SA)
2015	Dyasonsklip and Sirius Grid TX	Solar Energy	Nothern Cape (SA)
2015	Dyasonsklip PV	Solar Energy	Nothern Cape (SA)
2015	Zeerust PV and transmission line	Solar Energy	North West (SA)
2015	Bloemsmond SEF	Solar Energy	Nothern Cape (SA)
2015	Juwi Copperton PV	Solar Energy	Nothern Cape (SA)
2015	Humansrus Capital 14 PV	Solar Energy	Nothern Cape (SA)
2015	Humansrus Capital 13 PV	Solar Energy	Nothern Cape (SA)
2015	Spitzkop East WEF (Scoping)	Solar Energy	Western Cape (SA)
2015	Lofdal Rare Earth Mine and Infrastructure	Mining	Namibia
2015	AEP Kathu PV	Solar Energy	Nothern Cape (SA)
2014	AEP Mogobe SEF	Solar Energy	Nothern Cape (SA)
2014	Bonnievale SEF	Solar Energy	Western Cape (SA)

2014	AEP Legoko SEF	Solar Energy	Northern Cape (SA)
2014	Postmasburg PV	Solar Energy	Northern Cape (SA)
2014	Joram Solar	Solar Energy	Northern Cape (SA)
2014	RERE PV Postmasberg	Solar Energy	Northern Cape (SA)
2014	RERE CPV Upington	Solar Energy	Northern Cape (SA)
2014	Rio Tinto RUL Desalinisation Plant	Industrial	Namibia
2014	NamPower PV * 3	Solar Energy	Namibia
2014	Pemba Oil and Gas Port Expansion	Industrial	Mozambique
2014	Brightsource CSP Upington	Solar Energy	Northern Cape (SA)
2014	Witsand WEF (Scoping)	Wind Energy	Western Cape (SA)
2014	Kangnas WEF	Wind Energy	Western Cape (SA)
2013	Cape Winelands DM Regional Landfill	Industrial	Western Cape (SA)
2013	Drennan PV Solar Park	Solar Energy	Eastern Cape (SA)
2013	Eastern Cape Mari-culture	Mari-culture	Eastern Cape (SA)
2013	Eskom Phantom Pass Substation	Substation /Tx lines	Western Cape (SA)
2013	Frankfort Paper Mill	Plant	Free State (SA)
2013	Gibson Bay Wind Farm Transmission lines	Transmission lines	Eastern Cape (SA)
2013	Houhoek Eskom Substation	Substation /Tx lines	Western Cape (SA)
2013	Mulilo PV Solar Energy Sites (x4)	Solar Energy	Northern Cape (SA)
2013	Namies Wind Farm	Wind Energy	Northern Cape (SA)
2013	Rossing Z20 Pit and WRD	Mining	Namibia
2013	SAPPI Boiler Upgrade	Plant	Mpumalanga (SA)
2013	Tumela WRD	Mine	North West (SA)
2013	Weskusfleur Substation (Koeburg)	Substation /Tx lines	Western Cape (SA)
2013	Yzermyn coal mine	Mining	Mpumalanga (SA)
2012	Afrisam	Mining	Western Cape (SA)
2012	Bitterfontein	Solar Energy	Northern Cape (SA)
2012	Kangnas PV	Solar Energy	Northern Cape (SA)
2012	Kangnas Wind	Solar Energy	Northern Cape (SA)
2012	Kathu CSP Tower	Solar Energy	Northern Cape (SA)
2012	Kobong Hydro	Hydro & Powerline	Lesotho
2012	Letseng Diamond Mine Upgrade	Mining	Lesotho
2012	Lunsklip Windfarm	Wind Energy	Western Cape (SA)
2012	Mozambique Gas Engine Power Plant	Plant	Mozambique
2012	Ncondezi Thermal Power Station	Substation /Tx lines	Mozambique
2012	Sasol CSP Tower	Solar Power	Free State (SA)
2012	Sasol Upington CSP Tower	Solar Power	Northern Cape (SA)
2011	Beaufort West PV Solar Power Station	Solar Energy	Western Cape (SA)
2011	Beaufort West Wind Farm	Wind Energy	Western Cape (SA)
2011	De Bakke Cell Phone Mast	Structure	Western Cape (SA)
2011	ERF 7288 PV	Solar Energy	Western Cape (SA)

2011	Gecko Industrial park	Industrial	Namibia
2011	Green View Estates	Residential	Western Cape (SA)
2011	Hoodia Solar	Solar Energy	Western Cape (SA)
2011	Kalahari Solar Power Project	Solar Energy	Northern Cape (SA)
2011	Khanyisa Power Station	Power Station	Western Cape (SA)
2011	Olvyn Kolk PV	Solar Energy	Northern Cape (SA)
2011	Otjikoto Gold Mine	Mining	Namibia
2011	PPC Rheebieck West Upgrade	Industrial	Western Cape (SA)
2011	George Southern Arterial	Road	Western Cape (SA)
2010	Bannerman Etango Uranium Mine	Mining	Namibia
2010	Bantamsklip Transmission	Transmission	Eastern Cape (SA)
2010	Beaufort West Urban Edge	Mapping	Western Cape (SA)
2010	Bon Accord Nickel Mine	Mining	Mpumalanga (SA)
2010	Etosha National Park Infrastructure	Housing	Namibia
2010	Herolds Bay N2 Development Baseline	Residential	Western Cape (SA)
2010	MET Housing Etosha	Residential	Namibia
2010	MET Housing Etosha Amended MCDM	Residential	Namibia
2010	MTN Lattice Hub Tower	Structure	Western Cape (SA)
2010	N2 Herolds Bay Residental	Residential	Western Cape (SA)
2010	Onifin(Pty) Ltd Hartenbos Quarry Extension	Mining	Western Cape (SA)
2010	Still Bay East	GIS Mapping	Western Cape (SA)
2010	Vale Moatize Coal Mine and Railway	Mining / Rail	Mozambique
2010	Vodacom Mast	Structure	Western Cape (SA)
2010	Wadrif Dam	Dam	Western Cape (SA)
2009	Asazani Zinyoka UISP Housing	Residential Infill	Western Cape (SA)
2009	Eden Telecommunication Tower	Structure	Western Cape (SA)
2009	George SDF Landscape Characterisation	GIS Mapping	Western Cape (SA)
2009	George SDF Visual Resource Management	GIS Mapping	Western Cape (SA)
2009	George Western Bypass	Road	Western Cape (SA)
2009	Knysna Affordable Housing Heidevallei	Residential Infill	Western Cape (SA)
2009	Knysna Affordable Housing Hornlee Project	Residential Infill	Western Cape (SA)
2009	Rossing Uranium Mine Phase 2	Mining	Namibia
2009	Sun Ray Wind Farm	Wind Energy	Western Cape (SA)
2008	Bantamsklip Transmission Lines Scoping	Transmission	Western Cape (SA)
2008	Erf 251 Damage Assessment	Residential	Western Cape (SA)
2008	Erongo Uranium Rush SEA	GIS Mapping	Namibia
2008	Evander South Gold Mine Preliminary VIA	Mining	Mpumalanga (SA)
2008	George SDF Open Spaces System	GIS Mapping	Western Cape (SA)
2008	Hartenbos River Park	Residential	Western Cape (SA)

2008	Kaaimans Project	Residential	Western Cape (SA)
2008	Lagoon Garden Estate	Residential	Western Cape (SA)
2008	Moquini Beach Hotel	Resort	Western Cape (SA)
2008	NamPower Coal fired Power Station	Power Station	Namibia
2008	Oasis Development	Residential	Western Cape (SA)
2008	RUL Sulphur Handling Facility Walvis Bay	Mining	Namibia
2008	Walvis Bay Power Station	Structure	Namibia
2007	Calitzdorp Retirement Village	Residential	Western Cape (SA)
2007	Calitzdorp Visualisation	Visualisation	Western Cape (SA)
2007	Camdeboo Estate	Residential	Western Cape (SA)
2007	Destiny Africa	Residential	Western Cape (SA)
2007	Droogfontein Farm 245	Residential	Western Cape (SA)
2007	Floating Liquified Natural Gas Facility	Structure tanker	Western Cape (SA)
2007	George SDF Municipality Densification	GIS Mapping	Western Cape (SA)
2007	Kloofsig Development	Residential	Western Cape (SA)
2007	OCGT Power Plant Extension	Structure Power Plant	Western Cape (SA)
2007	Oudtshoorn Municipality SDF	GIS Mapping	Western Cape (SA)
2007	Oudtshoorn Shopping Complex	Structure	Western Cape (SA)
2007	Pezula Infill (Noetzie)	Residential	Western Cape (SA)
2007	Pierpoint Nature Reserve	Residential	Western Cape (SA)
2007	Pinnacle Point Golf Estate	Golf/Residential	Western Cape (SA)
2007	Rheebok Development Erf 252 Appeal	Residential	Western Cape (SA)
2007	Rossing Uranium Mine Phase 1	Mining	Namibia
2007	Ryst Kuil/Riet Kuil Uranium Mine	Mining	Western Cape (SA)
2007	Sedgefield Water Works	Structure	Western Cape (SA)
2007	Sulphur Handling Station Walvis Bay Port	Industrial	Namibia
2007	Trekkopje Uranium Mine	Mining	Namibia
2007	Weldon Kaya	Residential	Western Cape (SA)
2006	Farm Dwarsweg 260	Residential	Western Cape (SA)
2006	Fynboskruin Extention	Residential	Western Cape (SA)
2006	Hanglip Golf and Residential Estate	Residential	Western Cape (SA)
2006	Hansmoeskraal	Slopes Analysis	Western Cape (SA)
2006	Hartenbos Landgoed Phase 2	Residential	Western Cape (SA)
2006	Hersham Security Village	Residential	Western Cape (SA)
2006	Ladywood Farm 437	Residential	Western Cape (SA)
2006	Le Grand Golf and Residential Estate	Residential	Western Cape (SA)
2006	Paradise Coast	Residential	Western Cape (SA)
2006	Paradyskloof Residential Estate	Residential	Western Cape (SA)
2006	Riverhill Residential Estate	Residential	Western Cape (SA)
2006	Wolwe Eiland Access Route	Road	Western Cape (SA)
2005	Harmony Gold Mine	Mining	Mpumalanga (SA)

2005	Knysna River Reserve	Residential	Western Cape (SA)
2005	Lagoon Bay Lifestyle Estate	Residential	Western Cape (SA)
2005	Outeniquabosch Safari Park	Residential	Western Cape (SA)
2005	Proposed Hotel Farm Gansevallei	Resort	Western Cape (SA)
2005	Uitzicht Development	Residential	Western Cape (SA)
2005	West Dunes	Residential	Western Cape (SA)
2005	Wilderness Erf 2278	Residential	Western Cape (SA)
2005	Wolwe Eiland Eco & Nature Estate	Residential	Western Cape (SA)
2005	Zebra Clay Mine	Mining	Western Cape (SA)
2004	Gansevallei Hotel	Residential	Western Cape (SA)
2004	Lakes Eco and Golf Estate	Residential	Western Cape (SA)
2004	Trekkopje Desalination Plant	Structure Plant	Namibia (SA)
1995	Greater Durban Informal Housing Analysis	Photogrammetry	KwaZulu-Natal (SA)

10 ANNEXURE B: GENERAL LIGHTS AT NIGHT MITIGATIONS

Mitigation:

- Effective light management needs to be incorporated into the design of the lighting to ensure that the visual influence is limited to the mine, without jeopardising mine operational safety and security (See lighting mitigations by The New England Light Pollution Advisory Group (NELPAG) and Sky Publishing Corp in 14.2).
- Utilisation of specific frequency LED lighting with a green hue on perimeter security fencing.
- Directional lighting on the more exposed areas of operation, where point light source is an issue.
- No use of overhead lighting and, if possible, locate the light source closer to the operation.
- If possible, the existing overhead lighting method utilised at the mine should be phased out and replaced with an alternative lighting using closer to source, directed LED technology.

Mesopic Lighting

Mesopic vision is a combination of photopic vision and scotopic vision in low, but not quite dark, lighting situations. The traditional method of measuring light assumes photopic vision and is often a poor predictor of how a person sees at night. The light spectrum optimized for mesopic vision contains a relatively high amount of bluish light and is therefore effective for peripheral visual tasks at mesopic light levels. *(CIE, 2012)*

The Mesopic Street Lighting Demonstration and Evaluation Report by the Lighting Research Centre (LRC) in New York found that the 'replacement of white light sources (induction and ceramic metal halide) were tuned to optimize human vision under low light levels while remaining in the white light spectrum. Therefore, outdoor electric light sources that are tuned to how humans see under mesopic lighting conditions can be used to reduce the luminance of the road surface while providing the same, or better, visibility. Light sources with shorter wavelengths, which produce a "cooler" (more blue and green) light, are needed to produce better mesopic vision. Based on this understanding, the LRC developed a means of predicting visual performance under low light conditions. This system is called the unified photometry system. Responses to surveys conducted on new installations revealed that area residents perceived higher levels of visibility, safety, security, brightness, and colour rendering with the new lighting systems than with the standard *High-Purity Standards* (HPS) systems. The new lighting systems used 30% to 50% less energy than the HPS systems. These positive results were achieved through tuning the light source to optimize mesopic vision. Using less wattage and photopic luminance also reduces the reflectance of the light off the road surface. Light reflectance is a major contributor to light pollution (sky glow).' *(Lighting Research Center. New York. 2008)*

‘Good Neighbour – Outdoor Lighting’

Presented by the New England Light Pollution Advisory Group (NELPAG) *(http://cfa/ www.harvard .edu /cfa/ps/nelpag.html)* and Sky & Telescope *(http://SkyandTelescope.com/).* NELPAG and Sky & Telescope support the International Dark-Sky Association (IDA) *(http://www.darksky.org/).* (NELPAG)

What is good lighting? Good outdoor lights improve visibility, safety, and a sense of security, while minimizing energy use, operating costs, and ugly, dazzling glare.

Why should we be concerned? Many outdoor lights are poorly designed or improperly aimed. Such lights are costly, wasteful, and distractingly glary. They harm the night-time environment and neighbours’ property values. Light directed uselessly above the horizon creates murky skyglow — the “light pollution” that washes out our view of the stars.

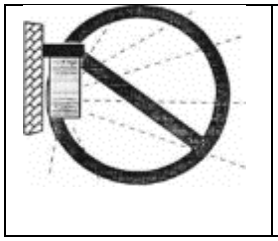
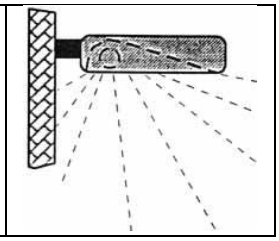
Glare Here’s the basic rule of thumb: If you can see the bright bulb from a distance, it’s a bad light. With a good light, you see lit ground instead of the dazzling bulb. “Glare” is light that beams directly from a bulb into your eye. It hampers the vision of pedestrians, cyclists, and drivers.

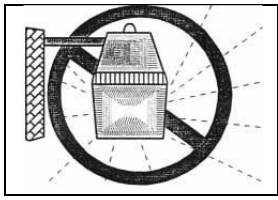
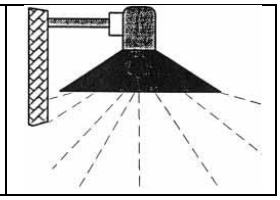
Light Trespass Poor outdoor lighting shines onto neighbours’ properties and into bedroom windows, reducing privacy, hindering sleep, and giving the area an unattractive, trashy look.

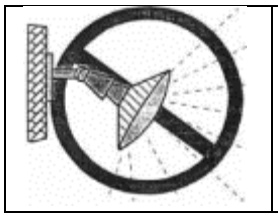
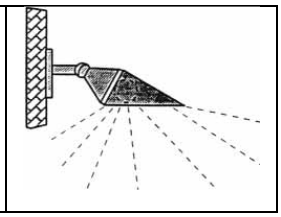
Energy Waste Many outdoor lights waste energy by spilling much of their light where it is not needed, such as up into the sky. This waste results in high operating costs. Each year we waste more than a billion dollars in the United States needlessly lighting the night sky.

Excess Lighting Some homes and businesses are flooded with much stronger light than is necessary for safety or security.

Good and Bad Light Fixtures

Typical “Wall Pack”	**Typical “Shoe Box” (forward throw)**
	
BAD Waste light goes up and sideways	**GOOD** Directs all light down

Typical “Yard Light”	**Opaque Reflector (lamp inside)**
	
BAD Waste light goes up and sideways	**GOOD** Directs all light down

Area Flood Light	**Area Flood Light with Hood**
	
BAD Waste light goes up and sideways	**GOOD** Directs all light down

How do I switch to good lighting?

Provide only enough light for the task at hand; don't over-light, and don't spill light off your property. Specifying enough light for a job is sometimes hard to do on paper. Remember that a full Moon can make an area quite bright. Some lighting systems illuminate areas 100 times more brightly than the full Moon! More importantly, by choosing properly shielded lights, you can meet your needs without bothering neighbours or polluting the sky.

- Aim lights down. Choose "full-cutoff shielded" fixtures that keep light from going uselessly up or sideways. Full-cutoff fixtures produce minimum glare. They create a pleasant-looking environment. They increase safety because you see illuminated people, cars, and terrain, not dazzling bulbs.

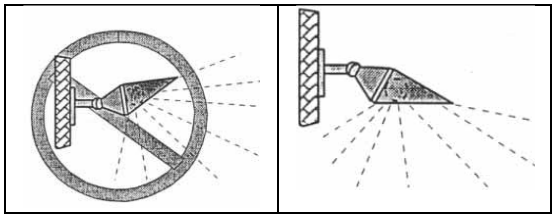
- Install fixtures carefully to maximize their effectiveness on the targeted area and minimize their impact elsewhere. Proper aiming of fixtures is crucial. Most are aimed too high. Try to install them at night, when you can see where all the rays actually go. Properly aimed and shielded lights may cost more initially, but they save you far more in the long run. They can illuminate your target with a low-wattage bulb just as well as a wasteful light does with a high-wattage bulb.

- If colour discrimination is not important, choose energy- efficient fixtures utilising yellowish high-pressure sodium (HPS) bulbs. If "white" light is needed, fixtures using compact fluorescent or metal-halide (MH) bulbs are more energy-efficient than those using incandescent, halogen, or mercury-vapour bulbs.

- Where feasible, put lights on timers to turn them off each night after they are no longer needed. Put home security lights on a motion-detector switch, which turns them on only when someone enters the area; this provides a great deterrent effect!

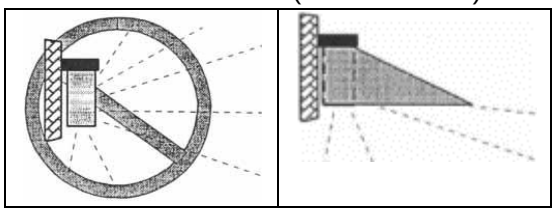
What You Can Do To Modify Existing Fixtures

Change this . . . to this (aim downward)



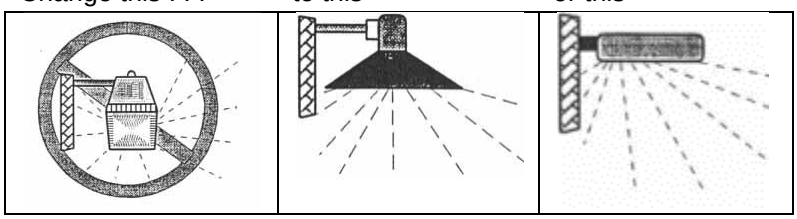
Floodlight:

Change this . . . to this (aim downward)



Wall Pack

Change this . . . to this or this



Yard Light | Opaque Reflecter | Show Box

Replace bad lights with good lights.
You'll save energy and money. You'll be a good neighbour. And you'll help preserve our view of the stars.

HOTAZEL SOLAR,
NORTHERN CAPE PROVINCE

Social Input for the amendment of the Environmental Authorisation

December 2021

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PROJECT DETAILS

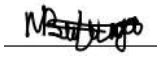
Title	:	Hotazel Solar, Northern Cape Province: Social Input for the Amendment of the Environmental Authorisation.
Authors	:	Savannah Environmental (Pty) Ltd Nondumiso Bulunga
Client	:	ABO Wind Hotazel PV (Pty) Ltd
Report Status	:	Revision 1
Date	:	December 2021

When used as a reference this report should be cited as: Savannah Environmental (2021), Social Input for the amendment of the Environmental Authorisation for authorised Hotazel Solar, Northern Cape Province.

SPECIALIST DECLARATION OF INTEREST

I, Nondumiso Bulunga, 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.
- 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.

Nondumiso Bulunga	
Name	Signature
03 December 2021	
Date	

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1. PROJECT OVERVIEW

In 2019, ABO Wind Hotazel PV (Pty) Ltd, received an Environmental Authorisation (EA) from the Department of Environmental Forestry, Fisheries and the Environment in accordance with the National Environmental Management Act (No.107 of 1998) (NEMA), and the 2014 Environmental Impact Assessment (EIA) Regulations (GNR 326) after the completion of an EIA process. ABO Wind Hotazel PV (Pty) Ltd proposed the development of Hotazel Solar, a commercial PV energy facility and associated infrastructure on a site near Hotazel, in the Northern Cape Province.

A Social Impact Assessment (SIA) Report was prepared by Sarah Watson of Savannah Environmental (Pty) Ltd in November 2018[1], on behalf of Cape EAPrac, to assess the positive and negative social impacts associated with the project. ABO Wind Hotazel PV (Pty) Ltd in 2020 proposed to amend their EA, mainly relating to a shift of the solar panel area within the Remaining Extent of Farm York A 279, which results in a change of the PV panel area and the total project footprint.

ABO Wind Hotazel PV (Pty) Ltd is now proposing to amend the EA to make provision for a Battery Energy Storage System (BESS) within the authorised footprint of the Hotazel Solar on remaining extent of farm York A 279, adjacent to the on-site sub-station.

1.1 Potential Social Impacts as determined through the EIA Process

The SIA that was undertaken as part of the EIA for the solar energy facility identified impacts during both the construction and operation phases. Both positive and negative impacts were identified for these development phases.

The following positive impacts are expected to occur during the construction phase:

- Creation of direct and indirect employment and skills development opportunities; and
- Economic multiplier effects

The following negative impacts are expected to occur during the construction phase:

- In-migration of people (non-local workforce and jobseekers)
- Safety and security impacts
- Impacts on daily living and movement patterns;
- Nuisance impacts (including noise and dust); and
- Visual and sense of place impacts

The following positive impacts are expected to occur during the operation phase:

- Direct and indirect employment and skills development opportunities
- Development of non-polluting, renewable energy infrastructure; and
- Contribution to Local Economic Development (LED) and social upliftment.

The following negative impacts are expected to occur during the operation phase:

- Visual and sense of place impacts
- Impacts associated with the loss of agricultural land; and

[1] Savannah Environmental (2018) Social Impact Assessment (SIA) Report for Hotazel Solar, Northern Cape Province.

- Damage to property as a result of maintenance activities and unauthorised access and throughfare as a result of the power line servitude.

Impacts during the decommissioning phase were also identified and linked to loss of jobs and associated income. Other impacts associated with decommissioning are like the impacts identified during the construction phase. However, it is anticipated that the facility will be refurbished and upgraded to prolong its life and will mitigate these to some extent.

Key conclusions and recommendations of the Social Impact Assessment

The SIA concluded that there are some vulnerable communities within the project area that may be affected by the development. Most of the social impacts are associated with the construction phase of a solar development. Many of the social impacts are unavoidable and will take place to some extent but can be managed through careful planning and the implementation of appropriate mitigation measures. It was concluded that there are no perceived negative impacts that are significant enough to be classified as 'fatal flaws. Hotazel Solar is unlikely to result in permanent damaging social impacts. From a social perspective it was identified that the project could be developed subject to the implementation of recommend mitigation measures as identified in the SIA.

General conclusion made in the SIA include:

- The potential negative social impacts associated with the construction phase are typical of construction related projects and not just focussed on the construction of solar PV projects (these relate to an influx of non-local workforce and jobseekers, intrusion and disturbance impacts (i.e. noise and dust, wear and tear on roads) and safety and security risks), and could be reduced with the implementation of the mitigation measures proposed. The significance of such impacts on the local communities can therefore be mitigated.
- The development will introduce employment opportunities during the construction phase (temporary employment) and a limited number of permanent employment opportunities during the operation phase.
- The proposed project could assist the local economy in creating entrepreneurial growth and opportunities especially if local business is involved in the provision of general material, goods and services during the construction and operational phases, this positive impact is likely to be compounded by the cumulative impact associated with the development of several other solar facilities within the surrounding area, and as a result of the project's location within an area characterised by high levels of solar irradiation.
- The proposed development also represents an investment in infrastructure for the generation of non-pollution, renewable energy which, when compared to energy generated as a result of burning polluting fossil fuels represents a positive social benefit for society as a whole.
- When considering Hotazel Solar, it is also important to consider the cumulative social impacts that may arise with other proposed solar PV projects in the area.
- The perceived benefits associated with the project, which include renewable energy generation and local economic and social development, outweigh the perceived negative impacts associated with the project.

Key recommendation as provided in the SIA were identified for the enhancement of positive impacts and the management and mitigation of negative impacts. These include:

- The appointment of a Community Liaison Officer to assist with the management of social impacts and to deal with community issues, if feasible.

- » It is imperative that local labour be sourced, wherever possible, to ensure that benefits accrue to the local communities. Efforts should be made to involve local business during the construction activities where possible. Local procurement of labour and services/products would greatly benefit the community during the construction and operational phases of the project.
- » Local procurement of services and equipment is required where possible in order to enhance the multiplier effect.
- » Involve the community in the process as far as possible (encourage co-operative decision-making and partnerships with local entrepreneurs.
- » Employ mitigation measures to minimise the dust and noise pollution and damage to existing roads.
- » Safety and security risks should be considered during the planning/construction phase of the proposed project, access control, security and management should be implemented to limit the risk of crime increasing in the area.

The SIA recommended that the Hotazel Solar be supported, subject to the implementation of the recommended enhancement and mitigation measures contained in the SIA report.

2. SCOPE OF THIS AMENDMENT

ABO Wind Hotazel PV (Pty) Ltd is now proposing to amend the EA to make provision for a Battery Energy Storage System (BESS) within the authorised footprint of the Hotazel Solar on remaining extent of farm York A 279, adjacent to the on-site sub-station. The BESS area is confirmed to be accommodated entirely within the authorised footprint and does not encroach into any of the spatially sensitive features identified during the Environmental Assessment process.

The amended layout illustrating the location of the BESS is included as **Figure 2.1**.

The proposed BESS technology is lithium battery technology. The battery units would arrive on the site fully assembled (flow batteries not considered and no assembly of individual battery components will take place on site). The BESS include thermal management systems to mitigate potential risk of fire and leakage, and the proposed BESS technology does not contain heavy metals (Lead, Cadmium, Mercury).

The scope of this assessment is to confirm:

1. Whether the inclusion of a BESS adjacent to the on-site substation will change the nature or significance of any impacts assessed in the study.
2. Whether the BESS is likely to result in any additional impacts that where not previously assessed in the study.
3. Whether any additional management outcomes or mitigation measures in the terms of the social impact assessment would be applicable to the BESS, or if any additional measures are required.

3. POTENTIAL FOR CHANGE IN THE SIGNIFICANCE OF SOCIAL IMPACTS AS A RESULT OF THE PROPOSED AMENDMENT

Savannah Environmental was appointed by Cape EAPrac to assess the positive and negative social impacts associated with development of Hotazel Solar in 2018. As the Social Impact Assessment specialist for the amendment process, the particulars of the proposed amendment have been considered, and an opinion is provided as to whether the proposed changes would result in any additional or increased social impacts to those that were assessed in 2018.

The following has been noted regarding the additional infrastructure which is proposed:

1) The footprint of the proposed BESS is within the authorised development footprint, adjacent to the on-site substation.
2) The requested amendment will not result in any change in layout.

In terms of Regulation 32(1)(a)(i) of the EIA Regulations, the following section provides an assessment of the social impacts related to the proposed amendment for Hotazel Solar. Understanding the nature of the proposed amendment and the fact that the addition of the BESS does not change the assessed and authorised development footprint, which was fully assessed as part of the SIA, it is concluded that the proposed amendment will not introduce any new social impacts, nor significantly alter the social impacts as previously assessed in the SIA. It is understood that the BESS will result in additional employment opportunities during the construction and operation phases, however these are limited and do not affect the significance ratings of the related impacts.

As required in terms of Regulation 32(1)(a)(iii) of the EIA Regulations, consideration was given to the requirement for additional measures to ensure avoidance, management and mitigation of impacts associated with the proposed change. Considering that there will be no change in impacts, no additional mitigation or enhancement measures are required for the addition of the BESS to the layout and the increase of the contracted capacity from a social perspective. The recommendations, mitigation and enhancement measures provided in the SIA are considered to be sufficient for the enhancement of the positive impacts and the management and mitigation of the negative impacts to acceptable levels. Therefore, all enhancement and mitigation measures, as proposed in the SIA are still required to be implemented for the amended Hotazel Solar development.

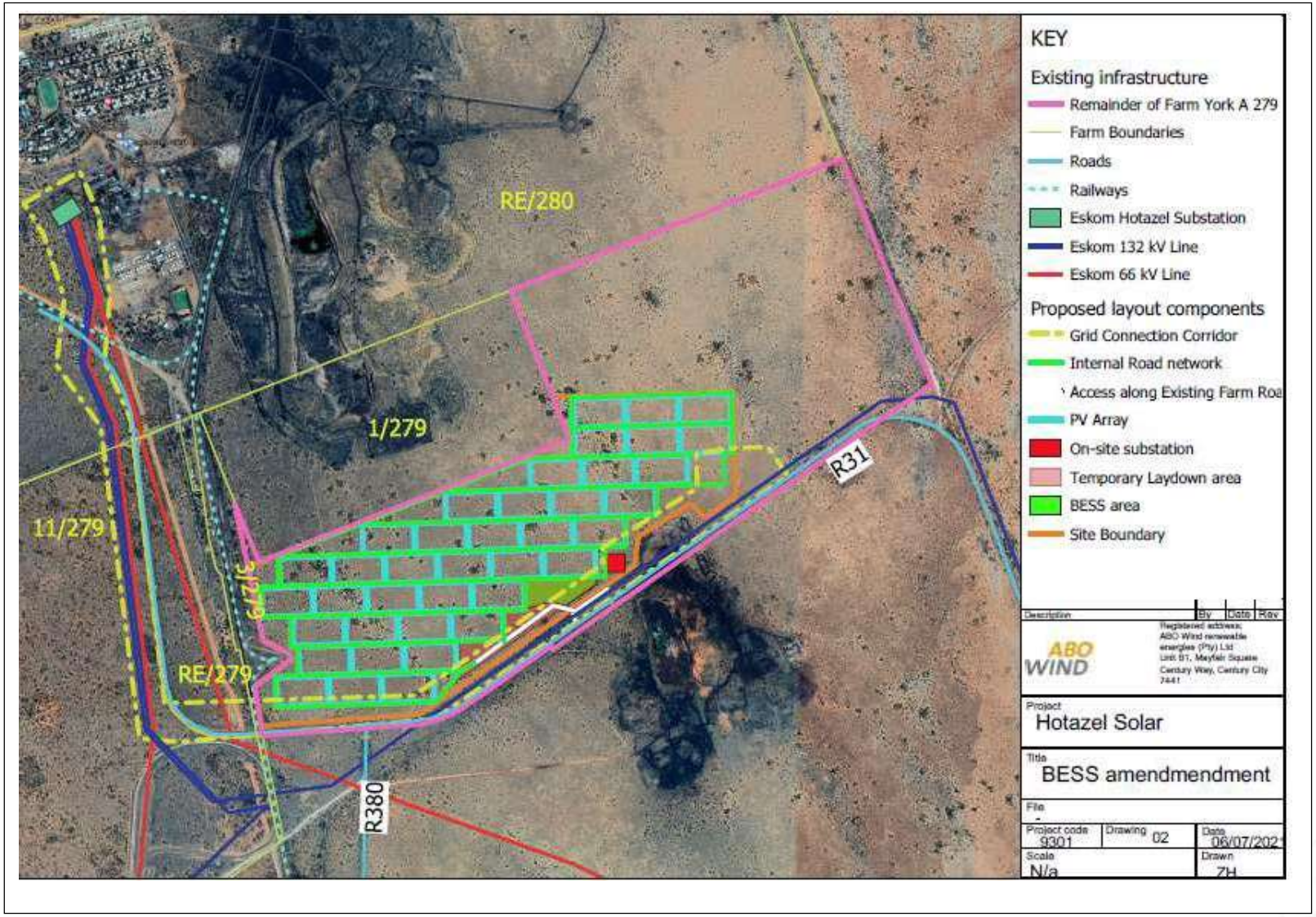

Figure 2.1: Facility layout showing the authorised as well as the proposed infrastructure

4. ADVANTAGES AND DISADVANTAGES OF THE PROPOSED AMENDMENT

In terms of Regulation 32(1)(a)(ii) of the EIA Regulations, this section provides details of the advantages and disadvantages of the proposed amendment from a social perspective.

No specific advantages or disadvantages have been identified from a social perspective with the implementation of the proposed amendment as part of the Hotazel Solar.

5. CONCLUSION

Based on the nature of the proposed amendment for Hotazel Solar, and the fact that the additional BESS falls within the property and development footprint which was fully assessed as part of the SIA (November 2018), it can be concluded that the amendment will not lead to any additional impacts other than those identified and assessed within the SIA. No change in the significance of the impacts is expected to occur and there is no need for any additional recommendations or mitigation measures other than those already specified in the SIA.

Noting the above considerations, I hereby confirm that the proposed inclusion of a Battery Energy Storage System (BESS) within the authorised footprint of the Hotazel Solar:

- Will not change or increase the nature or severity of any of the social impacts originally identified and reported in 2018;
- Will have no additional impacts to those identified previously in the Social Impact Assessment; and
- Will not require any additional management outcomes or mitigation measures in the terms of the social impact assessment, and no additional measures are required applicable to the BESS.

The proposed amendment is acceptable from a social perspective and can be approved, subject to the implementation of the mitigation and enhancement measures as specified in the SIA (November 2018).

EnviroSci (Pty) Ltd
Reg Number 2018/462716/07

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AQUATIC OPINION – PROPOSED PHOTO-VOLTAIC PROJECTS - HOTAZEL SOLAR, ON REMAINING EXTENT OF FARM YORK A 279 NEAR HOTAZEL IN THE NORTHERN CAPE

This letter confirms that I the undersigned was lead author for the Aquatic Opinion submitted for the proposed Hotazel Solar PV Energy Facility. That Opinion was provided to Cape EAPrac in a letter dated 12 July 2018, in which it was indicated that the proposed facility would not have any direct or indirect impact on the aquatic environment due to the lack of any such systems within the greater region.

This opinion letter relates to the inclusion of a Battery Energy Storage System (Figure 1) into the proposed layout. The Figure 2 below indicates the locality of the BESS site in relation to water bodies identified in the studies above and contained within any National databases (e.g. National Wetland Inventory ver 5.2 2018) within the study region.

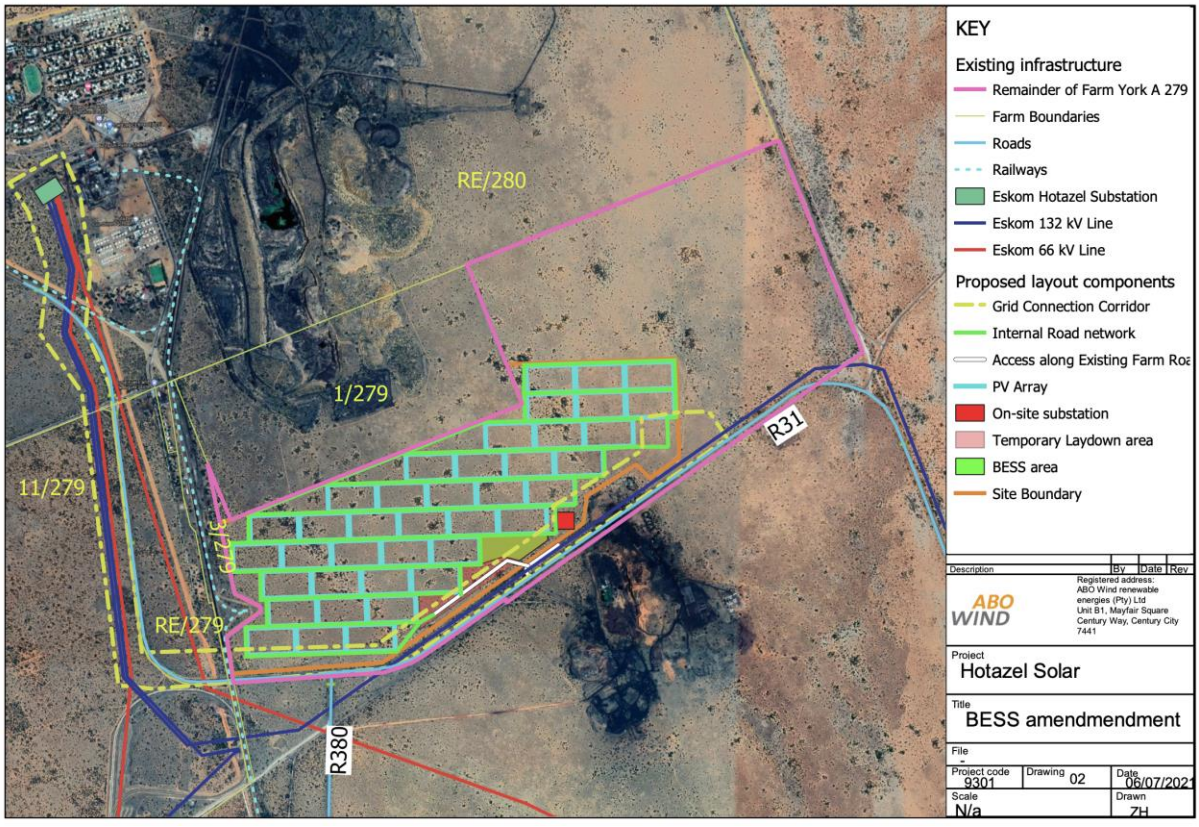

Figure 1: The proposed site layout

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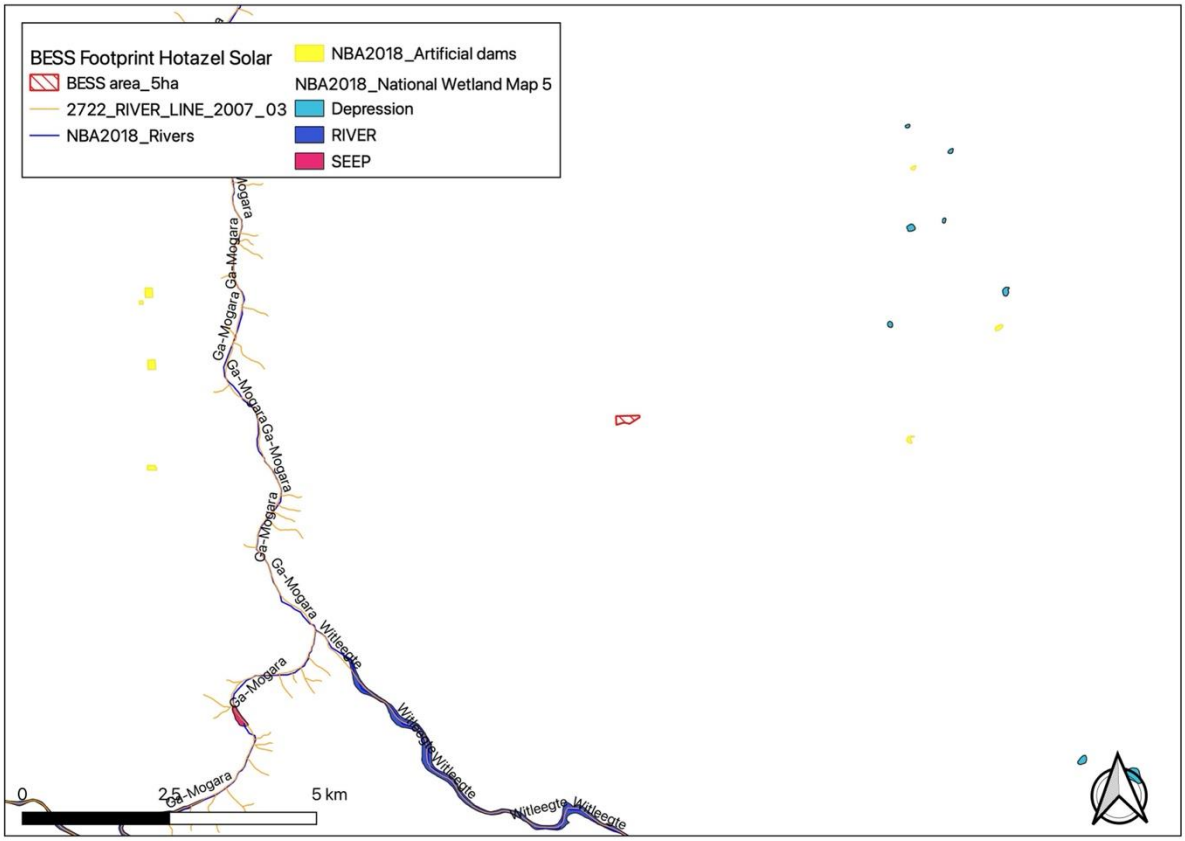

Figure 2: The BESS site and any waterbodies identified within previous studies, available databases and 1:50 000 spatial data.

The site contains no aquatic elements and is not connected to any within the regional catchment (D41K – Ga-Mogara River).

Figure 3 indicates spatial data related to the Northern Cape Critical Biodiversity Area map, which substantiates that no aquatic related areas are associated with the study area.

Figure 3: The project components in Northern Cape Critical Biodiversity Area map (Holness & Oosthuysen, 2016).

It is however recommended that best practice principles are still applied with regard to the prevention of any erosion and sedimentation through the provision of adequate stormwater management, as well as that the proponent must make allowance for water conservation principles to reduce the water demand of the project (i.e. rain water harvesting as intended).

Yours Sincerely

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The Directors
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12 November 2021

Dear Sir(s)

INCLUSION OF A BATTERY ENERGY STORAGE SYSTEM INTO THE AUTHORISED FOOTPRINT OF HOTAZEL Solar ON THE REMAINING EXTENT (PORTION 0) OF THE FARM YORK A 279, SITUATED IN THE DISTRICT OF HOTAZEL IN THE NORTHERN CAPE PROVINCE

ABO Wind Hotazel PV (Pty) Ltd are proposing the addition of a Battery Energy Storage System (BESS) of up to 5ha within the authorised footprint, adjacent to the on-site sub-station. Full particulars on the intended BESS appears in their application for amendment.

As the Agricultural Specialist during the original EIA process, I was requested to study the particulars of the BESS and provide an opinion on whether this inclusion will result in any additional or increased agricultural impacts within the proposed site and surrounding area.

I can, without doubt, confirm that the BESS

- will not change or increase the nature or severity of any of the agricultural impacts originally identified and reported in the original study;
- Will have no additional impacts to those identified previously in my study; and
- Will not require any additional management outcomes or mitigation measures for the agricultural environment that were not indicated during the previous study.

This declaration is made after I have ensured that:

1. the BESS will indeed be placed within the authorised footprint and that no additional agricultural land will be involved or lost;
2. The construction of the BESS will have no additional influence on erosion or drainage patterns on site. During construction, spillage of fuel or concrete is possible, as with the construction of all other components of the facility. Mitigation measures prescribed will be the same in this case.
3. It is likely that the batteries will require solid foundations like concrete pads or steel decks, which is not different from the foundations for the pylons of the connection line foundations for auxiliary buildings and the substation. Mitigation measures and management practices were included in the original study.

From an agricultural view point, there are no additional management or mitigation measures required for the Battery Energy Storage System and I recommend that the EA is amended to include the BESS.

Yours faithfully

Christo Lubbe

C R Lubbe