

Site Sensitivity Verification Report for the Scoping Phase: Proposed Ezelsjacht 110 MW Solar PV Energy Facility and associated infrastructure located near De Doorns, Western Cape Province

FINAL DRAFT

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1. INTRODUCTION

South Africa Mainstream Renewable Power Developments (Pty) Ltd (“Mainstream”) is proposing the construction and operation of one (1) Solar photovoltaic (PV) Energy Facility (SEF), Battery Energy Storage System (BESS), and associated infrastructure with a generation capacity of up to 110 megawatts.

In order to evacuate the energy generated by the SEF to supplement the national grid, Mainstream is also proposing an electrical grid infrastructure/ grid connection project which will be assessed in a separate Basic Assessment Processes (i.e. EGI for SEF).

The proposed SEF site is located approximately 13 km south-east of the town De Doorns, within the Cape Winelands District Municipality of the Western Cape Province. The site proposed for the SEF component falls entirely within the Breede Valley Local Municipality.

Applicant	Project Name	Capacity (MW)	Affected Property
South Africa Mainstream Renewable Power Developments (Pty) Ltd	Ezelsjacht Solar PV Energy Facility (SEF)	110 MW _{ac}	Portion 6 of the Farm Ratelbosch No. 149

The overall objective of the proposed development is to generate electricity by means of renewable energy technologies capturing solar energy to feed into the national grid.

The proposed SEF will consist of PV Panels, internal and access roads (with a width of up to 12 m during construction), a construction laydown area/camp, Operation and Maintenance (O&M) Building and Independent Power Producer (IPP) 33/132kV portion of the onsite substation. The solar PV energy facility will have a generation capacity of up to 110 MW. In addition to the infrastructure mentioned above, the SEF will also potentially include energy storage infrastructure if it is deemed economically feasible to do so. This will consist of an area for a Battery Energy Storage System (BESS) covering an extent of up to approximately 5 hectares (ha). Currently, the battery technologies being considered are either Solid State Batteries or Redox Flow Batteries.

The findings of the respective specialist studies will be used to inform the location of the Solar PV arrays. All identified sensitive and/or no-go areas (including their respective buffers) will be avoided accordingly, as required. However, as part of the proposed application / Scoping & Environmental Impact Assessment (EIA) process for the SEF project, various site area / location alternatives may be assessed for the associated infrastructure such as the O&M Buildings, IPP Substations and BESS. This is however still to be confirmed and will be communicated to the specialists.

The site areas / location alternatives for the associated infrastructure such as the O&M Buildings, IPP Substations and BESS, will also need to be assessed against the ‘no-go’ alternative. The ‘no-go’ alternative is the option of not constructing the respective projects, where the status quo of the current status and/or activities on the site would prevail.

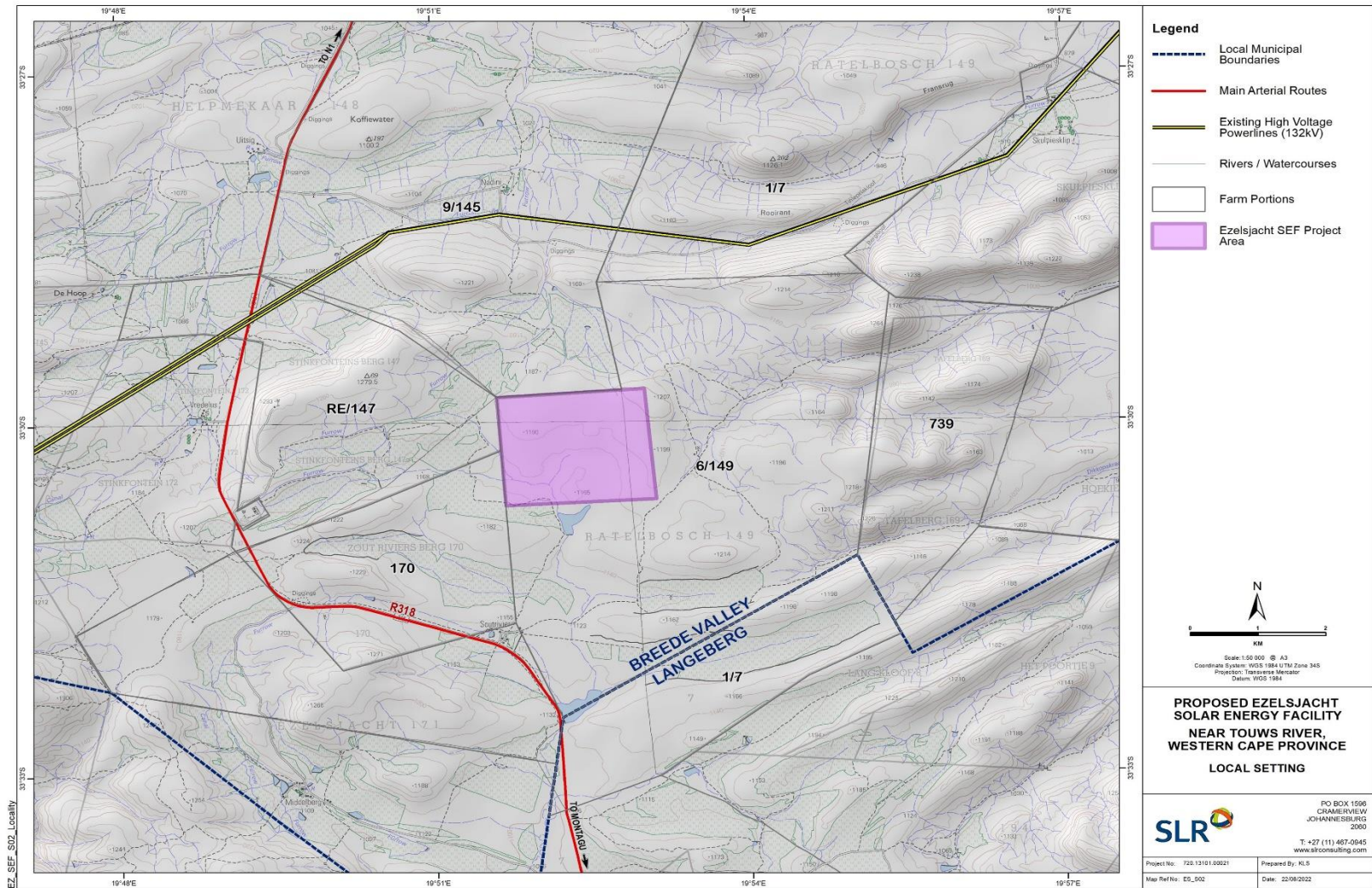


Figure 1-1: Locality Map of the Ezelsjacht SEF

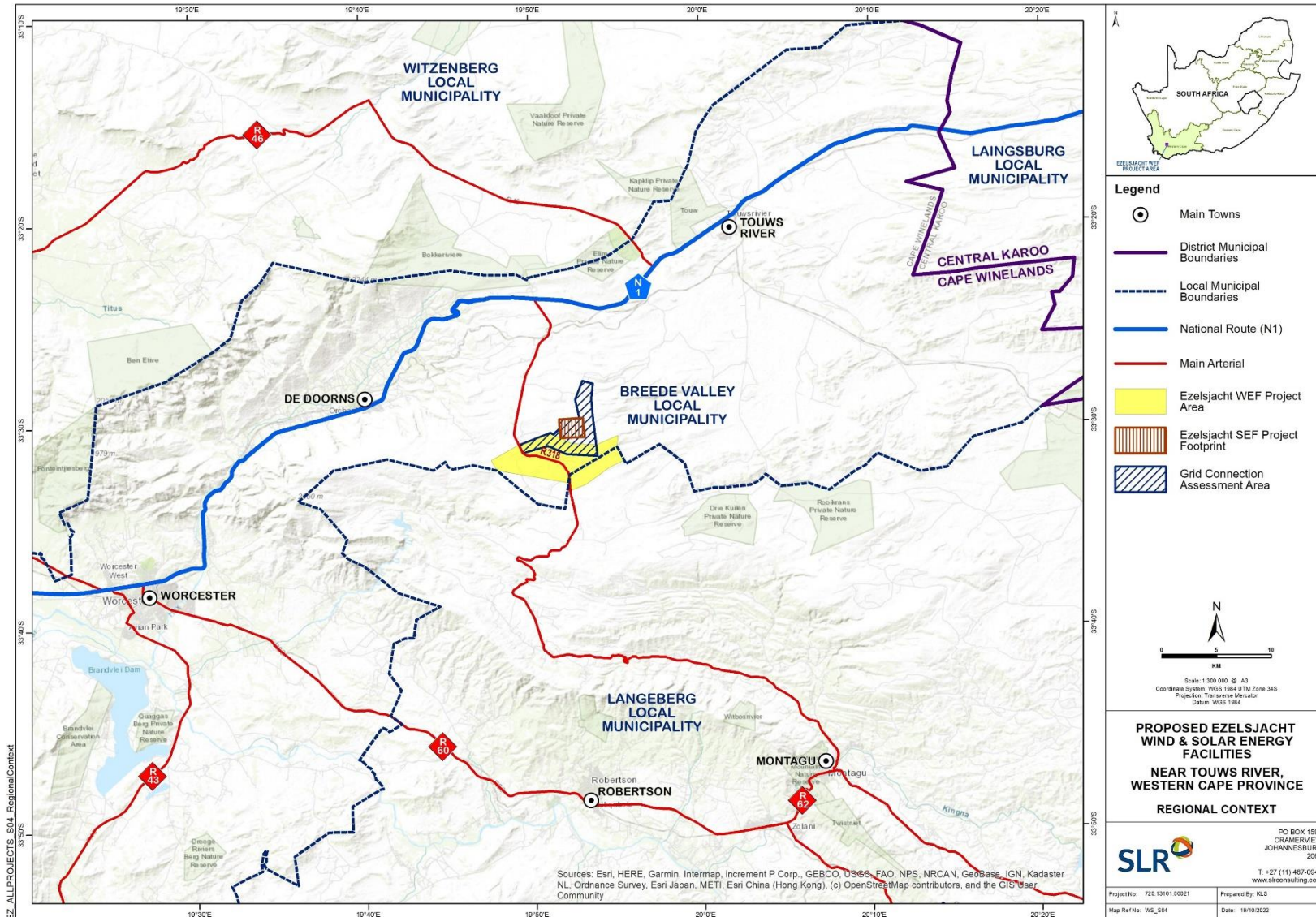


Figure 2-2: Regional Context of the Ezelsjacht SEF in relation to other projects proposed for Ezelsjacht (separate applications)

2. TECHNICAL DETAILS FOR THE PROPOSED DEVELOPMENT

Ezelsjacht SEF infrastructure	
Location of the site (centre point)	33°30'21.04"S 19°53'33.22"E
Application site area	+/- 370 hectares
Affected Farm Portions	Portion 6 of the Farm Ratelbosch No. 149
SG Codes	C08500000000014900006
Export Capacity	110 MW
Height of PV panels	Up to 5m
33kV/132kV IPP portion of onsite substation	<ul style="list-style-type: none"> The 33kV/132kV IPP portion of the onsite substation will be located adjacent to the 132kV Eskom portion of the substation (EGI for WEF EA Application) within the 25ha Infrastructure Area that has been assessed. 33kV/132kV IPP portion of the onsite substation will cover an area of approx. 120m x 120m
Battery Energy Storage System (BESS)	<ul style="list-style-type: none"> BESS storage of up to 500 MWh will be located within the 25ha Infrastructure Area that has been assessed and will cover an area of approx. 5 ha. A Battery Energy Storage System (BESS) will be located next to the IPP portion / yard of the shared onsite 33/132kV substation and will cover an area of 5 ha. The storage capacity and type of technology would be determined at a later stage during the development phase, but will most likely be either solid state or redox flow.
Roads	<ul style="list-style-type: none"> Internal roads will be constructed between turbines, existing roads will be utilized as far as possible. The width of the internal roads will be up to 12m wide
Associated Infrastructure	<ul style="list-style-type: none"> Operations and Maintenance Building of approx. 5ha within the 25ha infrastructure area that has been assessed. Temporary laydown or staging area, approximately 3ha. Overhead 33kV power lines will be constructed, using monopole structures

	<p>where burying is not possible due to technical, geological, environmental or topographical constraints. 33kV overhead power lines supported by 132 kV pylons of approximately 22 m high will be required, as well as tracks for access to the pylons.</p> <ul style="list-style-type: none"> • Galvanized steel fencing of approx. 1.8 m in height. • Other associated infrastructure, stores, workshops,.
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3. SITE SENSITIVITY VERIFICATION METHODOLOGY

In terms of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations [4 December 2014, Government Notice (GN) R982, R983, R984 and R985, as amended], various aspects of the proposed development may have an impact on the environment and are considered to be listed activities. These activities require environmental authorisation (EA) from the National Competent Authority (CA), namely the Department of Forestry, Fisheries and the Environment (DFFE), prior to the commencement thereof. One (1) application for EA for the proposed development will be submitted to the DFFE, in the form of a Scoping & EIA process in terms of the NEMA EIA Regulations of 2014 (as amended). Independent Economic Researchers have been commissioned to verify the socio-economic sensitivity of the Ezelsjacht WEF site under these specialist protocols.

In accordance with GN 320 and GN 1150 (20 March 2020)¹ of the NEMA EIA Regulations of 2014 (as amended), prior to commencing with a specialist assessment, a site sensitivity verification must be undertaken to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (i.e., Screening Tool).

No preliminary socio-economic sensitivities or sensitivity rating was identified or provided based on the DFFE Screening Tool (i.e. a preliminary sensitivity rating was not provided that could then be confirmed or altered based on further assessment). Nevertheless, this Site Sensitivity Verification Report (SSVR) provides an overall sensitivity rating for the site. It is based on desktop research and a site visit in support of the assessment which was undertaken on 21 October 2022.

In terms of socio-economic impacts there are not many significant or fine scale spatial constraints to consider. Constraints screening and associated site sensitivity verification thus has a focus on tourism constraints (including formal protected areas) and compatibility with existing spatial planning as these are the two impact categories with the potential to influence layouts at this stage. Specific impacts, such as visual impacts to specific receptors, or noise/shadow flicker will be assessed separately at later stages of assessment and have specific rather than broad implications.

¹ GN 320 (20 March 2020): Procedures for The Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation

4. OUTCOME OF SITE SENSITIVITY VERIFICATION

As per the methodology above, the outcomes of site sensitivity verification are presented firstly in terms of tourism constraints and sensitivities and secondly in terms of constraints associated with compatibility and planning guidance.

Tourism constraints and sensitivities

To assess tourism constraints, the tourism context was considered and information on current tourism accommodation and other facilities or attractions nearby the proposed SEF was gathered based on a desktop review of tourism information and accommodation websites (including SafariNow, Lekkeslaap, AirBnB, Google Earth and Google Maps). The nature of the project components and of tourism facilities, including their distance from the project components, was then assessed with a view to identifying constraints and sensitivities.

The following Figure 4.1 and Table 4.1 shows the data that was considered, and the accompanying map file provides the location of each facility. A total of three tourism facilities were identified as having a potential view of (e.g. those shielded by mountain ranges were excluded) and being within 6 km of the SEF boundaries. In addition to these tourism receptors, several conservation areas were identified as potentially sensitive to project impacts. These including the following (distances reported are between the nearest boundaries and as the crow flies):

- Matroosberg Mountain Catchment Area (adjacent)
- Bokkerveiere Nature Reserve (~8km)
- Langberg-Wes Mountain Catchment Area (~8km)



Figure 4.1 Map showing the study sites and identified prominent tourism establishments

The establishments shown above, and listed in the table below, will be important to consider during the assessment phase, paying close attention to the findings of other specialist studies including those of the Visual, Heritage and Ecological specialists to ascertain what the impact of the SEF will be on existing tourism, as well as on the continued development of tourism in the area, by way of changes to the area’s ecological characteristics and sense of place.

Table 4.1 Tourism facilities profile and distance from project components

Name of tourism facility	Number of units / rooms	Number of beds	Distance from Solar Farm	Distance from grid corridor boundary
Accommodation				
Ratelbosch Guest Farm	1 farm house	8	1.2	Within
Ezelsjacht Guest Farm	1 farm house	5	1.8	0.7
Middelburg Guest Farm	1 farm house	10	5.5	3

A site visit was conducted on 21 October 2022. This allowed for a better understanding of the area’s topography and informed a very high-level preliminary understanding of the project’s likely visibility from the tourism sites identified above.

A wide-angle photograph taken at the entrance to Ezelsjacht Guest Farm is provided below (Photograph 1). This establishment is owned by a landowner who is participating in the proposed project.



Photograph 1: Entrance to Ezelsjacht Guest Farm facing south-east

The photograph above shows that for establishments like Ezelsjacht Guest Farm the project site could potentially be visible. This will be further investigated during the assessment and once other specialist reports become available.

Summary

The SEF site was not found to have specific tourism constraints that would be significant enough to warrant their inclusion in constraints mapping. However, it should be noted that there are three

tourism establishments within 6 km of the SEF. Future assessment of impacts, on these establishments in particular, will require closer scrutinization of anticipated changes informed by more detailed assessment by the visual specialists. For those within the border of the project area this will also take into account the willing participation of the landowners in the project which assumes they have made their own trade-off with tourism impacts. Similar circumstance may be applicable to other tourism establishments (i.e. their owners may also be participating in the SEF or related WEF).

Constraints associated with compatibility with planning guidance

Applicable legislative and planning frameworks were reviewed with the intention of identifying constraining factors for the proposed project. The review focuses on national-level strategic planning around renewable energy development, as well as on provincial, district and municipal-level socio-economic development and spatial planning guidance documents.

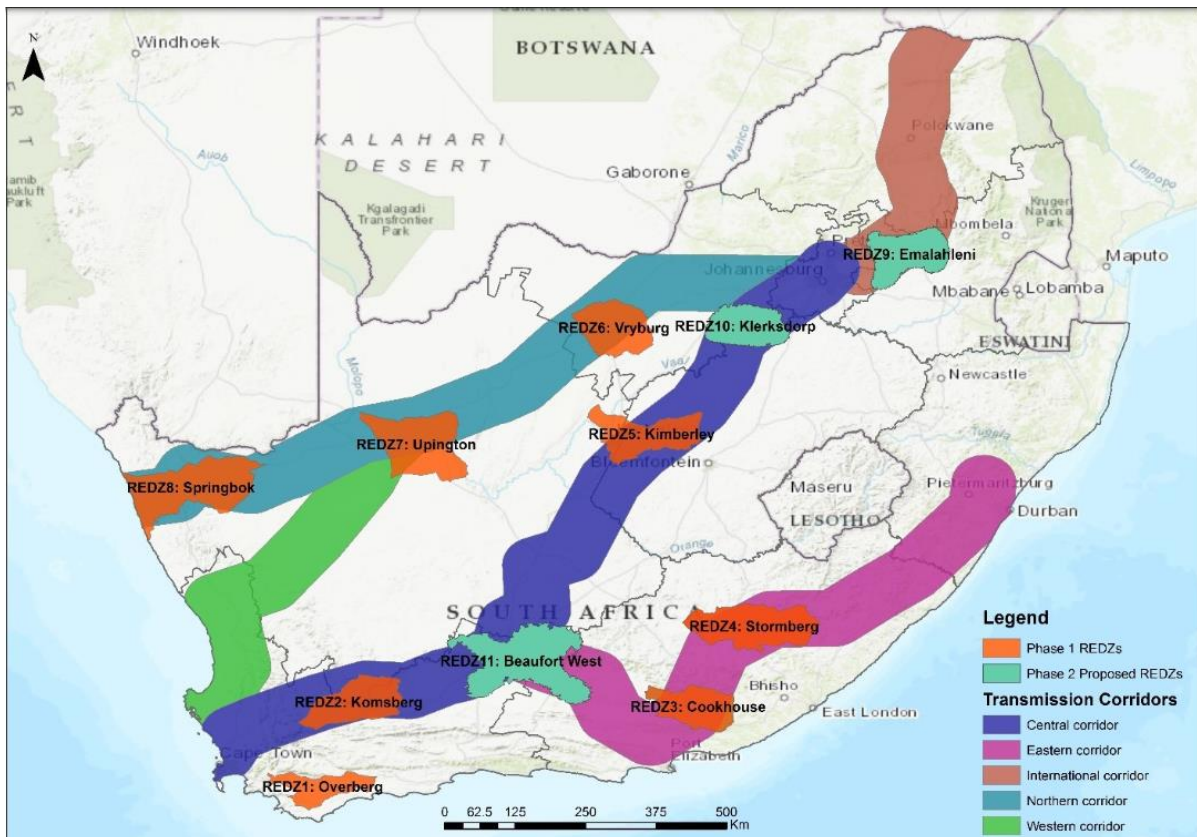
Strategic spatial planning for renewable energy areas and transmission lines in South Africa

The project achieves a relatively high degree of compatibility with national strategic planning focused on renewable energy and associated grid infrastructure development.

Phase 1 of a Strategic Environmental Assessment (SEA) commissioned by the then Department of Environmental Affairs (DEA) identified Renewable Energy Development Zones (REDZs) for the roll-out of wind and solar energy in South Africa. The identification of these zones is aimed at enabling the development of large-scale wind and solar energy facilities in a manner that avoids or minimises significant negative impact on the environment while being commercially attractive and maximizing socio-economic benefit to the country. Phase 2 of the SEA includes additional REDZs which have recently been gazetted.²

The proposed project is located around 15km from the nearest boundary of the Komsberg Zone (Phase 2) and a similar distance from the southern border of the Central Transmission Corridor running between Johannesburg and Cape Town, identified as part of the National Electricity Grid Infrastructure Strategic Environmental Assessment (DEA, 2016) and subsequently gazetted. Overall, the project therefore achieves relatively close alignment with national renewable energy planning.

² See Government Gazette No. 44191, 26 February 2021, Notices 142 and 144.



Source: DEA (2019)

Note: Phase 2 Proposed REDZs in map were subsequently accepted and gazetted without alternations

Figure 4.3 Phase 1 and Phase 2 Renewable Energy Development and Strategic Transmission Corridors

Socio-economic development and spatial planning

In order to assist with screening, socio-economic planning guidance with a spatial focus was reviewed at the provincial, district and local levels. The potential implications for the project are outlined below.

Provincial

The Western Cape Spatial Development Framework (SDF) recognises the importance of the province's cultural and scenic landscapes as assets that underpin the tourism economy. As part of the SDF, a spatial mapping exercise was carried out to identify landscapes and routes of particular importance, considering their rural, archaeological, agricultural and natural significance. Figure 4.4 shows the project site, ~35km north-east of Worcester, falls within the white area on the map, which was not identified by the provincial SDF as particularly important as a cultural landscape. However, there are notable wilderness / natural landscapes (represented by the colour green) adjacent to the project site (DEAD&P, 2014).

In terms of scenic routes, the R318 which connects Montagu to the N1 was identified in the Provincial SDF as a 'secondary scenic route'. It is therefore represented by the narrower of the two red line types in Figure 4.4. As the project is in the immediate vicinity of this route, this raises the issue of the potential for some impact on sense of place and tourism which will be assessed in more detail.

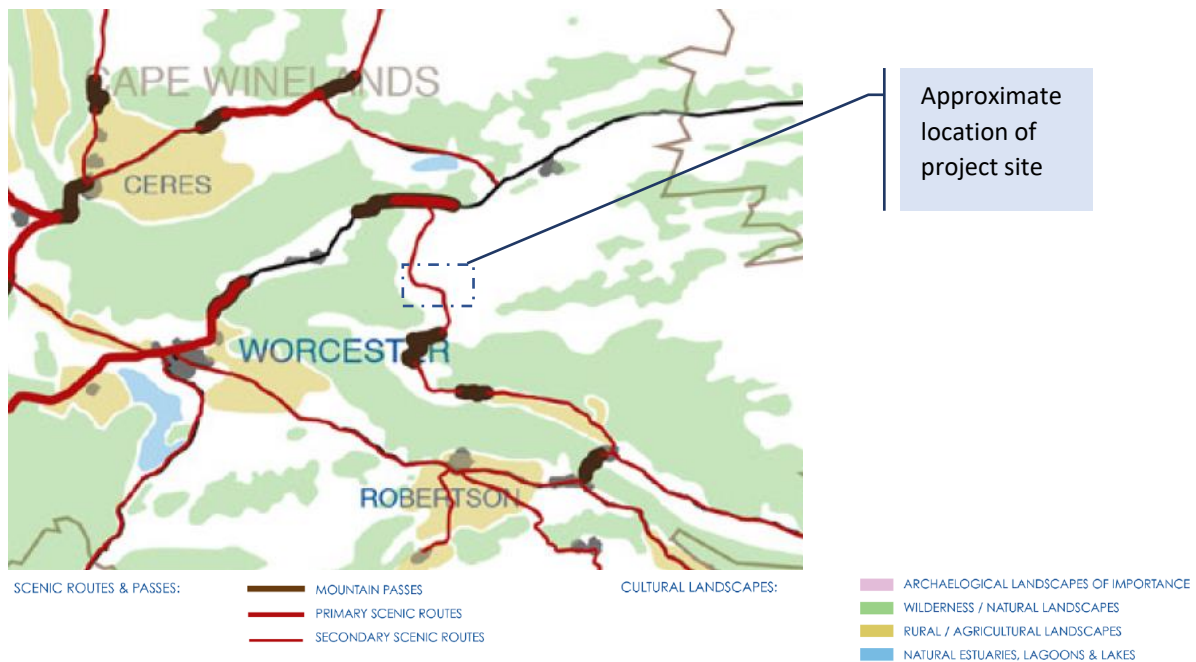


Figure 4.4 Scenic landscapes and routes identified in the Western Cape SDF, 2014

The Rural Areas Guideline of 2019 further recognises the need for appropriate measures to ensure that the development of infrastructure installations harnesses available resources in an efficient way, minimising impacts on other land uses as experienced through heritage or visual channels. The following points are particularly relevant to the proposed project (DEA&DP, 2019):

- “Whilst often unavoidable, every effort should be made not to disturb natural landscapes with the construction of infrastructure installations through landscape-wide impact mitigation measures. For example, a solar structure may not cause any adverse effects due to its reflective nature and must be designed and erected accordingly, as required by the competent authority.
- Avoid establishing infrastructure or facilities with any permanent onsite employees’ residential component in rural areas as on-the-farm accommodation is restricted to agri workers. Employees should be accommodated in existing settlements.
- Installations to include appropriate buffers, landscaping and screening to reduce their visual impact on the rural landscape. Information on the architectural design must be provided, for the purposes of heritage and visual assessments.”

District

The Cape Winelands District SDF of 2021 echoes the provincial SDF in highlighting the importance of appropriately integrated development at the landscape scale. With respect to the topic of Climate Change, the SDF encourages “the development and use of renewable resources of energy, preferably local (e.g., solar, wind power, biomass etc.)” and from this perspective can be considered broadly compatible with the proposed project.

The CWDM SDF also has a section focussed on the district’s cultural landscape, the importance of which is illustrated in the listing of the Cape Winelands Cultural Landscape as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site. As a definition for sense of place, the SDF uses the following: “The degree to which a place can be clearly perceived and mentally differentiated and structured in time and space by its residents, and the degree to which that

mental structure connects with their values and concepts” (Lynch 1998, quoted in CWDM, 2021b). The SDF promotes an approach of ‘critical regionalism’ as defined in the second implementation proposal put forth in the SDF on the topic of cultural landscape (see below) (CWDM, 2021b):

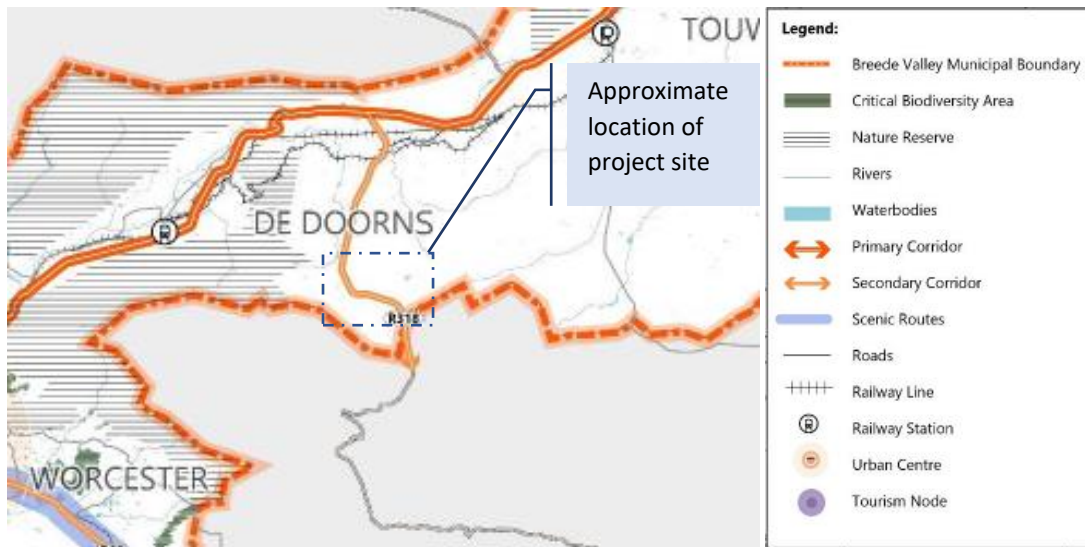
1. “Recognise the principles pertaining to the protection, enhancement and integration of regional attributes in development planning.
2. Consider “critical regionalism” which recognizes the quality and attributes of regional characteristics and builds upon the development of regional idiosyncrasies and variations with regard to spatial planning and design decisions.
3. Changes proposed to landscapes and urban settlements whether they be for agricultural or urban and rural development purposes, should consider any heritage resource policy that may be relevant including those which might be proposed, e.g., Proclaimed Urban Conservation Areas, SAHRA Regulations, World Heritage Site applications etc.
4. Foreign or unsympathetic styles of site layout and buildings should be discouraged in urban settlements and rural areas so as to strengthen the local sense of place and minimise visual impact.
5. Urban design and architectural guidelines should be prepared to control the function and appearance of the main street or streets and squares in all of the urban settlements. These should control, among other things, building styles and heights, materials and colours, advertising, roadways and pavements, encourage colonnades and other devices to shelter pedestrians and landscaping and tree planting, and respect historic buildings and precincts.
6. Tree planting, including appropriate indigenous, ornamental and fruit trees, urban greening (landscaping) and food gardens should be encouraged along streets and in open spaces as part of urban restructuring programmes in villages and towns.
7. Conduct a systematic process, starting at the scale reminiscent of the proposed WHS (or Cape Winelands Biosphere Reserve), to identify and grade sites (and routes) and classify landscapes to protect the cultural landscape; use these findings for the compilation of an inventory of the heritage resources by the planning authority and submission of such inventory to the relevant provincial heritage resources authority”

Local

The Breede Valley Municipality Spatial Development Framework (SDF) does not mention renewable energy, but the development principles outlined in the document are instructive (BVLM, 2018):

- Economic Development
- Vibrant Local Tourism
- Enhanced residential character
- Accessible social and civic facilities
- Outdoor Lifestyle
- Sustainable cities and communities

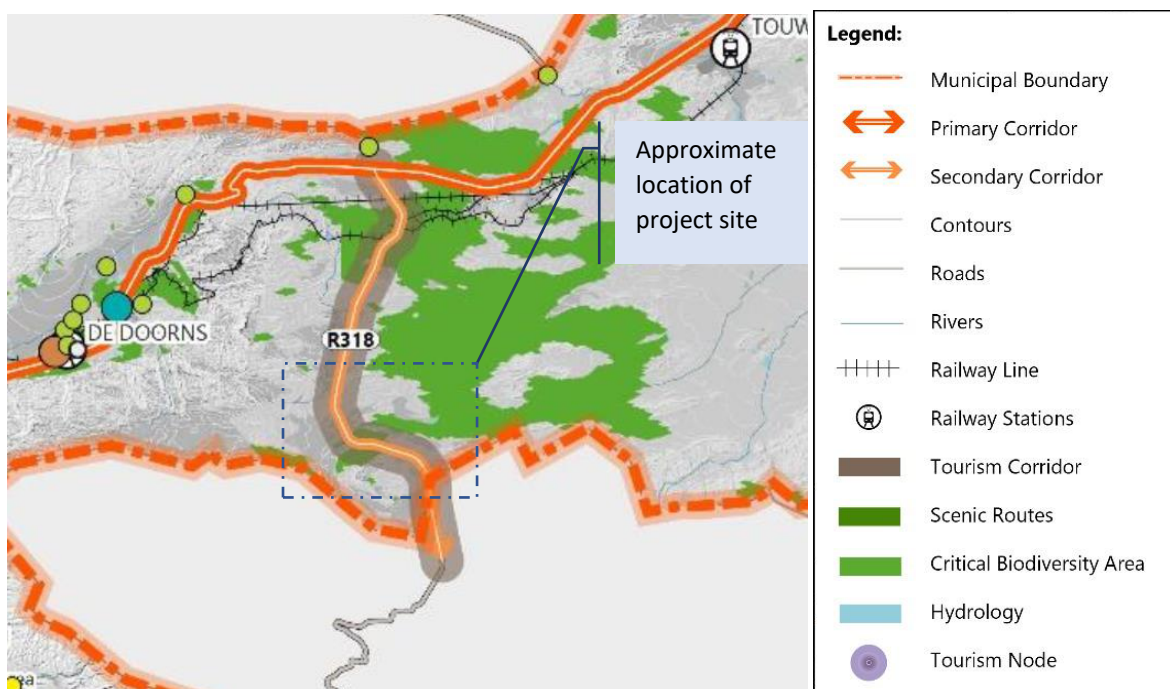
The SDF provides these development principles with the aim of informing decision-making and for the identification of priority projects. Two maps of interest are included in the SDF. An excerpt of the first is shown in the figure below and shows the project area relative to nature reserves.



Source: BVLM, 2018

Figure 4.5 Excerpt of the BVLM SDF Map showing nature reserves

The second map of interest shown tourism areas corridors and critical biodiversity areas (see figure below).



Source: BVLM, 2018

Figure 4.6 Excerpt of the BVLM Tourism Map showing tourism corridors and critical biodiversity areas

Within the broader classification of recreation and tourism, the BVLM distinguishes between five types of land classes, including the following:

- Nature conservation
- Adventure tourism

- Tourism attractions and heritage sites
- Tourism accommodation
- Open space and recreation

The Nature Conservation land class includes proclaimed conservation areas and nature reserves, private nature conservation areas and open spaces. The purpose and description of this land class is “to ensure protection of natural resources and the environment” (BVLM, 2018). The purpose and description of the Adventure Tourism land class is to provide for active outdoor recreation and enjoyment of natural resources. Typical facilities include “hiking trails, mountain climbing, cycling trails, fishing sites, bush camps, 4x4 routes, game farms and hunting farms” (BVLM, 2018).

The SDF identifies ‘Natural Open Space’ as a structural element of the landscape surrounding Touwsrivier. Although the proposed site is almost 20km from Touwsrivier at its nearest point, the guidance seems pertinent for this type of land class given that the specific project site is not mentioned in the SDF. The document states that natural open space should be “protected from intrusive, irresponsible and ad hoc developments that damage the ecological integrity as well as visual quality of these areas. These include urban development, mining activities and agriculture”. The SDF further recommends that the BVLM develop an Environmental Management Framework to provide further place-specific development guidance (BVLM, 2018).

5. CONCLUSION

The constraints screening and sensitivity verification process did not find any socio-economic constraining factors or areas of high sensitivity that would justify recommending spatial constraints on the proposed project at this stage. However, the process did identify potentially sensitive tourism receptors. These receptors, including the Ezelsjacht Guest Farm and others mentioned above, will require particular attention during the assessment phase.

The process also revealed that spatial planning and socio-economic guidance is broadly supportive of the proposed project provided that impacts on biodiversity, visual and heritage resources can be kept to a minimum. Compatibility with planning will be assessed further in the assessment phase as per the plan of study.

A combined consideration of tourism and planning sensitivities indicates that the overall socio-economic sensitivity of the site is low at this early stage of the overall assessment of the project. A Socio-economic Impact Assessment will be undertaken for this project going into the EIA Phase in order to determine the impact of the development on the socio-economic environment of the area.