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Cathedral Street, George, 6530**PO BOX:** 9087, George, 6530**CAPE TOWN****TEL:** +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869**EMAIL:** betsy@sesc.net **WEBSITE:** www.sesc.net**ADDRESS:** Tableview, Cape Town, 7441**PO BOX:** 443, Milnerton, 7435

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# DRAFT BASIC ASSESSMENT REPORT

FOR THE

## PROPOSED PV SOLAR PLANT AND BATTERY ENERGY STORAGE SYSTEM (BESS) ON REMAINDER OF ERF 2018, RIVERSDALE, WESTERN CAPE

In terms of the National Environmental Management  
Act, 1998 (Act No. 107 of 1998) and the Environmental  
Impact Assessment Regulations, 2014  
(as amended 7 April 2017)

**PREPARED FOR:** *Hessequa Municipality*  
*PO Box 29*  
*Riversdale*  
*6670*

**DATE:** 4 March 2024

**SES REF NO:** 29/DBAR/HM/RPVS/02/24  
**DEA&DP NOI**  
**REF.NO.:** 16/3/3/1/D5/15/0011/24





## **BASIC ASSESSMENT REPORT**

**THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND  
THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.**

**NOVEMBER 2019**

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| (For official use only)                           |  |
|---|--|
| Pre-application Reference Number (if applicable): |  |
| EIA Application Reference Number:                 |  |
| NEAS Reference Number:                            |  |
| Exemption Reference Number (if applicable):       |  |
| Date BAR received by Department:                  |  |
| Date BAR received by Directorate:                 |  |
| Date BAR received by Case Officer:                |  |

### **GENERAL PROJECT DESCRIPTION**

(This must Include an overview of the project including the Farm name/Portion/Erf number)

|  |
|--|
| Proposed PV Solar Plant and Battery Energy Storage System (BESS) on Remainder of Erf<br>2018, Riversdale, Western Cape |
|--|

## IMPORTANT INFORMATION TO BE READ PRIOR TO COMPLETING THIS BASIC ASSESSMENT REPORT

1. **The purpose** of this template is to provide a format for the Basic Assessment report as set out in Appendix 1 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended) in order to ultimately obtain Environmental Authorisation.
2. The Environmental Impact Assessment ("EIA") Regulations is defined in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") hereinafter referred to as the "NEMA EIA Regulations".
3. The required information must be typed within the spaces provided in this Basic Assessment Report ("BAR"). The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided.
4. All applicable sections of this BAR must be completed.
5. Unless protected by law, all information contained in, and attached to this BAR, will become public information on receipt by the Competent Authority. If information is not submitted with this BAR due to such information being protected by law, the applicant and/or Environmental Assessment Practitioner ("EAP") must declare such non-disclosure and provide the reasons for believing that the information is protected.
6. This BAR is current as of **November 2019**. It is the responsibility of the Applicant/ EAP to ascertain whether subsequent versions of the BAR have been released by the Department. Visit this Department's website at <http://www.westerncape.gov.za/eadp> to check for the latest version of this BAR.
7. This BAR is the standard format, which must be used in all instances when preparing a BAR for Basic Assessment applications for an environmental authorisation in terms of the NEMA EIA Regulations when the Western Cape Government Department of Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority.
8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this BAR must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this Report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
9. This BAR must be duly dated and originally signed by the Applicant, EAP (if applicable) and Specialist(s) and must be submitted to the Department at the details provided below.
10. The Department's latest Circulars pertaining to the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must be taken into account when completing this BAR.
11. Should a water use licence application be required in terms of the National Water Act, 1998 (Act No. 36 of 1998) ("NWA"), the "One Environmental System" is applicable, specifically in terms of the synchronisation of the consideration of the application in terms of the NEMA and the NWA. Refer to this Department's Circular EADP 0028/2014: One Environmental Management System.
12. Where Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA") is triggered, a copy of Heritage Western Cape's final comment must be attached to the BAR.
13. The Screening Tool developed by the National Department of Environmental Affairs must be used to generate a screening report. Please use the Screening Tool link

<https://screening.environment.gov.za/screeningtool> to generate the Screening Tool Report. The screening tool report must be attached to this BAR.

14. Where this Department is also identified as the Licencing Authority to decide on applications under the National Environmental Management: Air Quality Act (Act No. 29 of 2004) ('NEM:AQA"), the submission of the Report must also be made as follows, for-  
Waste Management Licence Applications, this report must also (i.e., another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (Tel: 021-483-2728/2705 and Fax: 021-483-4425) at the same postal address as the Cape Town Office.

Atmospheric Emissions Licence Applications, this report must also be (i.e., another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (Tel: 021 483 2888 and Fax: 021 483 4368) at the same postal address as the Cape Town Office.

## DEPARTMENTAL DETAILS

| <b>CAPE TOWN OFFICE: REGION 1 and REGION 2</b><br><b>(Region 1: City of Cape Town, West Coast District)</b><br><b>(Region 2: Cape Winelands District &amp; Overberg District)</b>   | <b>GEORGE OFFICE: REGION 3</b><br><b>(Central Karoo District &amp; Garden Route District)</b>  |
|---|--|
| <p>BAR must be sent to the following details:</p> <p>Western Cape Government<br/>Department of Environmental Affairs and Development Planning<br/>Attention: Directorate: Development Management (Region 1 or 2)<br/>Private Bag X 9086<br/>Cape Town,<br/>8000</p> <p>Registry Office<br/>1<sup>st</sup> Floor Utilitas Building<br/>1 Dorp Street,<br/>Cape Town</p> <p>Queries should be directed to the Directorate:<br/>Development Management (Region 1 and 2) at:<br/>Tel: (021) 483-5829<br/>Fax (021) 483-4372</p> | <p>BAR must be sent to the following details:</p> <p>Western Cape Government<br/>Department of Environmental Affairs and Development Planning<br/>Attention: Directorate: Development Management (Region 3)<br/>Private Bag X 6509<br/>George,<br/>6530</p> <p>Registry Office<br/>4<sup>th</sup> Floor, York Park Building<br/>93 York Street<br/>George</p> <p>Queries should be directed to the Directorate:<br/>Development Management (Region 3) at:<br/>Tel: (044) 805-8600<br/>Fax (044) 805 8650</p> |

## MAPS

| <b>Provide a location map (see below) as Appendix A1 to this BAR that shows the location of the proposed development and associated structures and infrastructure on the property.</b> |   |
|--|---|
| Locality Map:  | <p>The scale of the locality map must be at least 1:50 000.<br/>For linear activities or development proposals of more than 25 kilometres, a smaller scale e.g., 1:250 000 can be used. The scale must be indicated on the map.<br/>The map must indicate the following:</p> <ul style="list-style-type: none"> <li>• an accurate indication of the project site position as well as the positions of the alternative sites, if any;</li> <li>• road names or numbers of all the major roads as well as the roads that provide access to the site(s)</li> <li>• a north arrow;</li> <li>• a legend; and</li> <li>• a linear scale.</li> </ul> <p>For ocean based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken.</p> <p>Where comment from the Western Cape Government: Transport and Public Works is required, a map illustrating the properties (owned by the Western Cape Government: Transport and</p> |

|   |  |
|---|--|
|   | Public Works) that will be affected by the proposed development must be included in the Report.  |
| <b>Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.</b> |  |
| Site Plan:  | <p>Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following:</p> <ul style="list-style-type: none"> <li>• The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be clearly indicated on the plan, preferably together with a linear scale.</li> <li>• The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan.</li> <li>• On land where the property has not been defined, the co-ordinates of the area in which the proposed activity or development is proposed must be provided.</li> <li>• The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be clearly indicated on the site plan.</li> <li>• The position of each component of the proposed activity or development as well as any other structures on the site must be indicated on the site plan.</li> <li>• Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the proposed development <b>must</b> be clearly indicated on the site plan.</li> <li>• Servitudes and an indication of the purpose of each servitude must be indicated on the site plan.</li> <li>• Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): <ul style="list-style-type: none"> <li>o Watercourses / Rivers / Wetlands</li> <li>o Flood lines (i.e., 1:100 year, 1:50 year and 1:10 year where applicable);</li> <li>o Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&amp;DP");</li> <li>o Ridges;</li> <li>o Cultural and historical features/landscapes;</li> <li>o Areas with indigenous vegetation (even if degraded or infested with alien species).</li> </ul> </li> <li>• Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted.</li> <li>• North arrow</li> </ul> <p>A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.</p> |
| Site photographs  | Colour photographs of the site that shows the overall condition of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached to this BAR as <b>Appendix C</b> . The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.   |
| Biodiversity Overlay Map:   | A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as <b>Appendix D</b> .  |
| Linear activities or development and multiple properties  | <p>GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system.</p> <p>Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix.</p> <p>For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as <b>Appendix A3</b>.</p>   |

## ACRONYMS

|          |  |
|----------|--|
| DAFF:    | Department of Forestry and Fisheries                         |
| DEA:     | Department of Environmental Affairs                          |
| DEA& DP: | Department of Environmental Affairs and Development Planning |
| DHS:     | Department of Human Settlement                               |
| DoA:     | Department of Agriculture                                    |
| DoH:     | Department of Health   |
| DWS:     | Department of Water and Sanitation                           |
| EMPr:    | Environmental Management Programme                           |
| HWC:     | Heritage Western Cape  |

|        |   |
|--------|---|
| NFEPA: | National Freshwater Ecosystem Protection Assessment |
| NSBA:  | National Spatial Biodiversity Assessment            |
| TOR:   | Terms of Reference                                  |
| WCBSP: | Western Cape Biodiversity Spatial Plan              |
| WCG:   | Western Cape Government                             |

## ATTACHMENTS

**Note:** The Appendices must be attached to the BAR as per the list below. Please use a ✓ (tick) or a x (cross) to indicate whether the Appendix is attached to the BAR.

The following checklist of attachments must be completed.

| APPENDIX    |  |   | ✓ (Tick) or<br>x (cross) |
|-------------|--|---|--------------------------|
| Appendix A: | <b>Maps</b>  |   |                          |
|             | Appendix A1:   | Locality Map  | ✓                        |
|             | Appendix A2:   | Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning  | X                        |
|             | Appendix A3:   | Map with the GPS co-ordinates for linear activities   | X                        |
| Appendix B: | Appendix B1:   | Site development plan(s)  | ✓                        |
|             | Appendix B2  | A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas; | ✓                        |
| Appendix C: | Photographs  |   | ✓                        |
| Appendix D: | Biodiversity overlay map   |   | ✓                        |
| Appendix E: | Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality. |   |                          |
|             | Appendix E1:   | Final comment/ROD from HWC  | X                        |
|             | Appendix E2:   | Copy of comment from Cape Nature  | X                        |
|             | Appendix E3:   | Final Comment from the DWS  | X                        |
|             | Appendix E4:   | Comment from the DEA: Oceans and Coast  | X                        |
|             | Appendix E5:   | Comment from the DAFF   | X                        |
|             | Appendix E6:   | Comment from WCG: Transport and Public Works  | X                        |
|             | Appendix E7:   | Comment from WCG: DoA   | X                        |

|              |   |   |                               |
|--------------|---|---|-------------------------------|
|              | Appendix E8:  | Comment from WCG: DHS   | X                             |
|              | Appendix E9:  | Comment from WCG: DoH   | X                             |
|              | Appendix E10:   | Comment from DEA&DP: Pollution Management   | X                             |
|              | Appendix E11:   | Comment from DEA&DP: Waste Management   | X                             |
|              | Appendix E12:   | Comment from DEA&DP: Biodiversity   | X                             |
|              | Appendix E13:   | Comment from DEA&DP: Air Quality  | X                             |
|              | Appendix E14:   | Comment from DEA&DP: Coastal Management   | X                             |
|              | Appendix E15:   | Comment from the local authority  | X                             |
|              | Appendix E16:   | Confirmation of all services (water, electricity, sewage, solid waste management) | X                             |
|              | Appendix E17:   | Comment from the District Municipality  | X                             |
|              | Appendix E18:   | Copy of an exemption notice   | X                             |
|              | Appendix E19  | Pre-approval for the reclamation of land  | X                             |
|              | Appendix E20:   | Proof of agreement/TOR of the specialist studies conducted.                       | X                             |
|              | Appendix E21:   | Proof of land use rights  | X                             |
|              | Appendix E22:   | Proof of public participation agreement for linear activities                     | X                             |
| Appendix F:  | Public participation information: including a copy of the register of I&APs, the comments and responses Report, proof of notices, advertisements and any other public participation information as is required. |   | To be included with Final BAR |
| Appendix G1: | Terrestrial faunal and avifaunal species compliance statement report<br>Blue Skies Research<br>Dr Jacobus H. Visser   |   | ✓                             |
| Appendix G2: | Freshwater Compliance Statement<br>Confluent Environmental Pty (Ltd)<br>Dr J.M. Dabrowski & Franco De Ridder  |   | ✓                             |
| Appendix G3: | Botanical Impact Statement<br>Mark Berry Botanical Surveys<br>Dr Mark Berry   |   | ✓                             |

|               |  |   |
|---------------|--|---|
| Appendix G4a: | Heritage Impact Assessment<br>Agency for Cultural Resource Management<br>Jonathan Kaplan   | ✓ |
| Appendix G4b: | Palaeontological Impact Assessment<br>John Pether  | ✓ |
| Appendix G5:  | Agricultural Compliance Statement<br>Johann Lanz   | ✓ |
| Appendix G6:  | Visual Impact Assessment<br>Megan Anderson   | ✓ |
| Appendix G7:  | Civil Aviation Compliance Statement<br>Sharples Environmental Services cc<br>Michael Jon Bennett   | ✓ |
| Appendix H:   | EMPr   | ✓ |
| Appendix I:   | Screening tool report  | ✓ |
| Appendix J:   | Engineering report – Neil Lyners and Associates (PTY) LTD  | ✓ |
| Appendix K:   | Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline | X |
| Appendix..... | Any other attachments must be included as subsequent appendices  | X |



## SECTION A: ADMINISTRATIVE DETAILS

| Highlight the Departmental Region in which the intended application will fall  | CAPE TOWN OFFICE:  |   | GEORGE OFFICE:  |
|--|--|---|---|
|  | REGION 1<br>(City of Cape Town,<br>West Coast District)      | REGION 2<br>(Cape Winelands District<br>&<br>Overberg District) | REGION 3<br>(Central Karoo District &<br>Garden Route District) |
| <b>Duplicate this section where there is more than one Proponent</b><br>Name of Applicant/Proponent:<br>Name of contact person for Applicant/Proponent (if other):<br>Company/ Trading name/State Department/Organ of State:<br>Company Registration Number:<br>Postal address:<br>Telephone:<br>E-mail: | Hessequa Municipality  |   |   |
|  | Angela Marina Griesel  |   |   |
|  | Hessequa Municipality  |   |   |
|  | PO Box 29  |   |   |
|  | Riversdale   |   | Postal code: 6670   |
|  | ( )028 713 8000  |   | Cell:   |
|  | <a href="mailto:mm@hessequa.gov.za">mm@hessequa.gov.za</a>   |   | Fax: ( )  |
|  | Company of EAP: Sharples Environmental Services cc           |   |   |
|  | EAP name: Michael Bennett (Registered EAP)                   |   |   |
|  | Postal address: PO Box 9087                                  |   |   |
| George   |  | Postal code: 6530   |   |
| Telephone: 044 873 4923  |  | Cell:   |   |
| E-mail: <a href="mailto:michael@sesc.net">michael@sesc.net</a>   |  | Fax: ( )  |   |
| Qualifications: BSc: Environmental and Geographic Science & Ocean and Atmospheric Science  |  |   |   |
| EAPASA registration no: Michael Bennett, EAPASA reg. no. 3163  |  |   |   |
| <b>Duplicate this section where there is more than one landowner</b><br>Name of landowner:<br>Name of contact person for landowner (if other):<br>Postal address:<br>Telephone:<br>E-mail:   | Hessequa Municipality  |   |   |
|  | Albert de Klerk  |   |   |
|  | PO Box 29  |   |   |
|  | Riversdale   |   | Postal code: 6670   |
|  | 028 713 8000   |   | Cell:   |
|  | <a href="mailto:mm@hessequa.gov.za">mm@hessequa.gov.za</a>   |   | Fax: ( )  |
|  | Name of Person in control of the land: Hessequa Municipality |   |   |
|  | Name of contact person for person in control of the land:    |   |   |
|  | Postal address: PO Box 29                                    |   |   |
|  | Riversdale   |   | Postal code: 6670   |
| Telephone: 028 713 8000  |  | Cell:   |   |
| E-mail: mm@hessequa.gov.za   |  | Fax: ( )  |   |
| <b>Duplicate this section where there is more than one Municipal Jurisdiction</b><br>Municipality in whose area of jurisdiction the proposed activity will fall:<br>Contact person:<br>Postal address:<br>Telephone:<br>E-mail:  | Hessequa Municipality  |   |   |
|  | Albert de Klerk  |   |   |
|  | PO Box 29  |   |   |
|  | Riversdale   |   | Postal code: 6670   |
|  | 028 713 8000   |   | Cell:   |
|  | <a href="mailto:mm@hessequa.gov.za">mm@hessequa.gov.za</a>   |   | Fax: ( )  |



Planned Capacity: The project will be done in at most three phases (MTEF period), each with distinct capacities:

Phase 1: 4 MWp Solar PV plus 2 MWh BESS

Phase 2: 4 MWp Solar PV plus 4 MWh BESS

Phase 3: 2 MWp Solar PV plus 4 MWh BESS

Construction Timeline: Each phase will be constructed sequentially over the MTEF (3years).

### **SCOPE OF WORK**

The full development to be constructed will consist of the following:

- A 10MW (up to 11MWp) Solar PV Plant.
- A Battery Energy Storage System with a usable (at least 4000 cycles) capacity of 10MWh consisting of containerised Lithium Ion or Redox Flow type batteries.
- LV/MV Transformer stations
- An access road and internal roads that will have a width of up to 8m including drainage on both sides of the road.
- MV cabling operating at 11kV between Substation tie-in point and plant as well as internal cabling.
- Indoor and Outdoor MV switchgear for grid tie-in point
- Fencing and Security

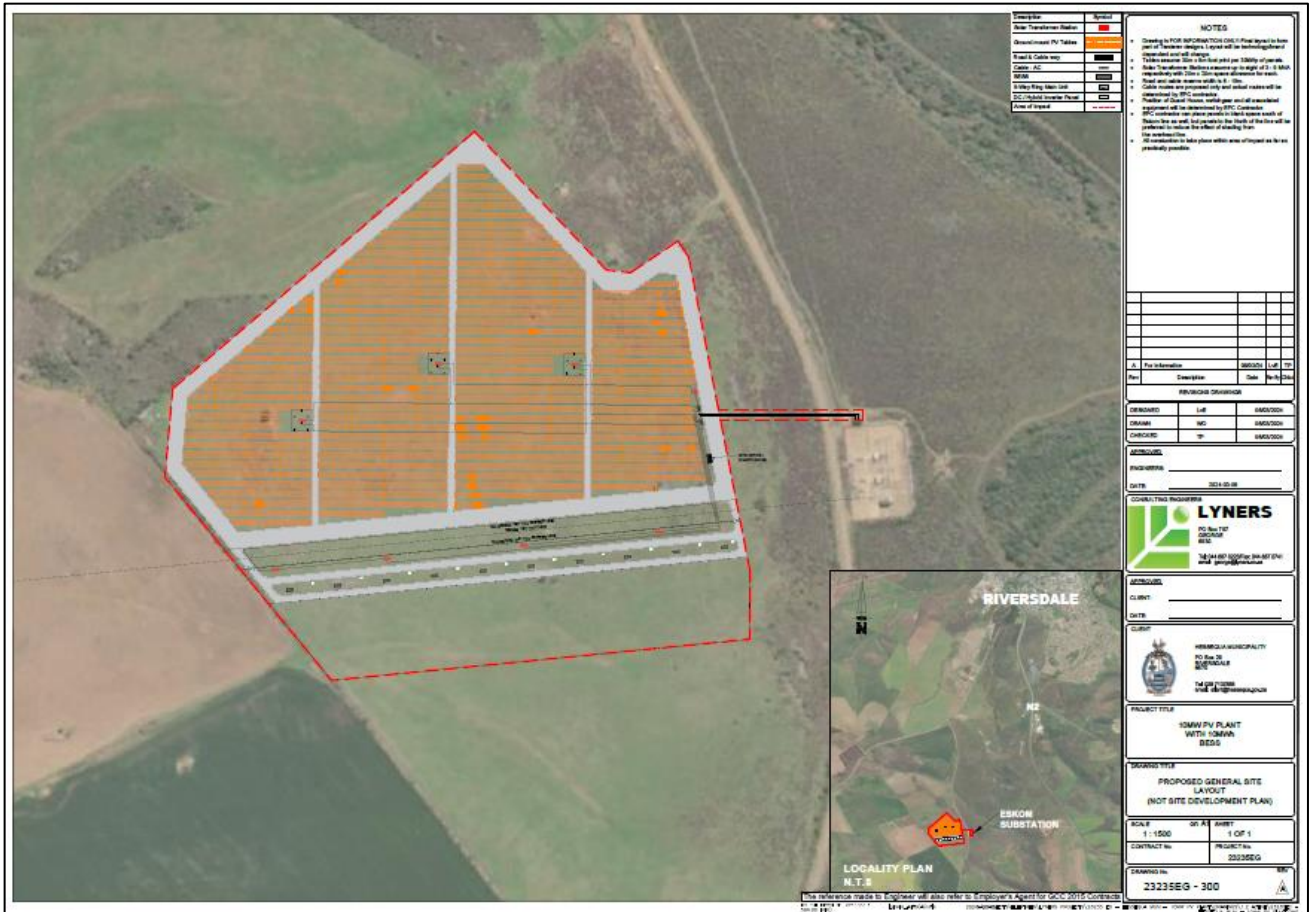
### **Project Objectives:**

- Loadshedding Resilience: Provide supply to critical industrial economy base during power outages and loadshedding.
- Renewable Energy Generation: Generate clean, renewable electricity from the sun, reducing carbon footprint.
- Peak Demand Management: Mitigate peak demand periods by delivering stored energy during high-load times, reducing stress on the grid.
- Cost Savings: Lower energy costs for end-users in Riversdale through embedded generation and assist in absorbing net losses resultant from escalating Eskom Tariffs.



**Figure 1: Property Locality and Potential Sites**

The yellow polygon in figure 1 is the preferred site within the property but the appointed specialists was asked to assess the areas indicated with yellow crosses to find one or two appropriate alternative sites.



**Figure 2: Preliminary Design for the Preferred Site.**

## **1. Solar PV Plant**

The solar PV plant will consist mainly of the following components:

### 1.1 Solar PV Panels and Structures

Solar PV panels consist of several photovoltaic cells that generate a DC electrical current from the photons in light.

The panels to be used shall be reliable modules from a Tier 1 manufacturer with a proven track record in performance. All modules supplied shall be of the same type and from a single manufacturer.

The photovoltaic module technologies to be utilized can be either Monocrystalline Silicon, or Bifacial/Graphene types. The solar PV panel shall be selected to withstand the anticipated climatic conditions based on meteorological data over the past 10 years at the minimum, as well as consideration for changing climatic conditions forecasted for next 20 years.

This solar PV plant will consist mostly of solar PV panels mounted on either fixed axis structures or single axis tracking structures.

Fixed axis structures can be installed directly into the ground or using a small concrete base.

Single axis tracking structures will require additional equipment mounted on the structure to enable movement of the panels along a single axis and may require more robust structures for the additional load on the structures.

Dual axis tracking require the most complex support structures and generally have a higher levelized cost of energy value and will not be preferred for this project since preference will be given to the contractor with the best levelized cost of energy proposal.

## **2. Grid-tied and Hybrid Inverters**

Inverters are power electronic devices required to convert DC electrical power to AC electrical power.

Grid-tied inverters are proposed for the PV plant section of this project. The Inverters act as a current source and follow the reference voltage of the distribution network it is connected to.

The grid-tied inverters can be mounted separately on the PV panel structures or grouped together at the MV/LV step-up transformer.

The BESS plant will however utilize hybrid inverters, which can create their own reference voltage and will be used to charge and discharge the BESS units in the plant. The hybrid inverters used for the BESS plant may be installed separately from the BESS units or as part of the BESS units.

## **3. LV cabling**

DC LV cabling will be installed between the solar PV panels and grid-tied inverters using 6mm<sup>2</sup> or larger DC cables that are fully separated (i.e. positive and negative phase separated and protected independently) The DC cables will be strung between panels on the structures and then reticulated underground through PVC sleeves where necessary. DC cabling should be rated for the conditions it will be installed in, i.e. UV rated, underground rated or both and should be rated to have a suitable insulation level for the PV strings proposed up to 1500V DC.

DC cabling can be combined using DC combiner boxes or wired directly to the inverters with DC fuses and disconnectors installed as necessary.

LV AC Cabling will be required between the inverter outputs and the transformer stations. LV AC cabling will be installed underground at depths of roughly 800mm and should be rated for the application it will be used for.

#### **4. Battery Energy Storage System Plant**

The BESS Plant will consist mainly of containerized Battery energy storage units. These units will store DC electrical power using electrolytic cells that can be recharged and discharged using DC electrical power.

The BESS plant will require hybrid inverters as mentioned above to facilitate the management of the charging and discharging of the BESS units. Should the inverters be installed separately from the containers, DC cabling will need to be installed between the containers and inverter stations and this will be done underground.

Two battery technologies are proposed for this project, depending on which option is the most feasible, Lithium Iron Phosphate (LiFePO<sub>4</sub> or similar) batteries or flow type batteries (vanadium flow or similar).

Lithium batteries will be installed in pre-assembled sealed units with no on-site electrolytic installations allowed due to the high risk of fire posed by the materials. Flow batteries can be installed and filled with their respective electrolytical solutions on site due to the lower fire risk posed. No electrolytical solutions may be stored on site after assembly of the BESS units.

Should it be required fire breaks and possible fire walls may be installed between BESS units to decrease the risks of fire and to contain fires, should they occur. In addition to this all containers must be fitted with fire detection and fire suppression measures.

It is proposed that all the BESS units be installed to the South of the PV plant, to ensure that there is no shading from the BESS units on the PV plant, should it be possible to install the BESS to the Southern Side of the MV Eskom line that is crossing the site, this will be preferred.

#### **5. LV/MV Transformer Stations**

All the generation and energy storage inverters will output an LV Voltage. This output voltage will vary from 400Vac to 800Vac and will need to be stepped up to 11kV to tie into the existing Hessequa distribution network.

Purpose built solar transformers can be built into minisubstations or transformer stations with all the required LV and MV Switchgear necessary.

Various sizes of transformers are available, and it is proposed that sizes between 3 and 9 MVA are used and placed according to the EPC contractor's suggestion.

The BESS and PV plants can share transformers if similar inverter technologies are used, but this should be part of the EPC design. Should this be implemented, less transformers and possibly cables can be installed.

#### **6. Access and internal Roads**

Access roads will be up to 8m in width with wide bellmouths for vehicles to turn onto the various access and service roads. Although service roads are indicated on the drawings, the final position will be determined by the EPC contractor.

Part of the 8m road width will be stormwater drainage on each side of the road that will tie into the EPC contractor's stormwater management plan.

#### **7. MV Cabling**

To tie into the existing MV network, MV cables and switchgear must be installed between the MV side of the Transformer stations and the existing MV distribution network of Hessequa Municipality.

These cables will be installed underground at a depth of approximately 1000mm. The final cable and routing will be done by the EPC contractor. All the internal cabling will be connected to MV switchgear to connect to combine onto larger cables capable of carrying the full 10MVA capacity of the plant to the Municipal distribution network, these larger cables may be installed deeper than 1000mm since they

will be crossing a road. It is recommended that two separate cable be installed with a 10MVA capacity each to have an N-1 redundant supply to the plant.

The contractor will have the option of using PILC or XLPE type single or three core cables for the MV cables.

## **8. MV Switchgear**

In addition to the MV Switchgear at each transformer station, MV Ring Main units will be required to connect combine the entire plants MV cable onto cables that will cross the public road and tie-into the municipal network.

Currently there are 3 indoor MV switchgear panels in a nearby switching station that are supplying two overhead lines that are supplying the town of Riversdale.

The contractor will have to option to tie into one of the existing overhead lines using outdoor MV RMUs similar to those proposed for the PV and BESS plant or to install 2 or more MV panels in the switchgear onto the existing 11kV switchgear board.

The overhead lines will also be upgraded by Hessequa Municipality at a later stage and this may negatively affect the outdoor switchgear option.

The Indoor switchgear option will increase redundancy and simplify control and metering of the plant compared to tying into the existing overhead lines and will be easier to configure for Eskom integration if permission for this is granted to Hessequa Municipality.

## **9. Fencing and security**

Although the municipality has indicated that a fence should be installed around a large portion of the erf. It is recommended that the PV plant and BESS facility be fenced off separately for safety reasons as there are numerous types of electrical infrastructure, that should not be accessible to the general public.

A Clearvu or similar approved or steel palisade fence with a minimum height of 2.4m is proposed for this facility, with additional electric fencing, barbed wires or spikes if necessary.

The EPC contractor will have to operate and maintain the PV and BESS plant for a fixed period after construction and hence they will be responsible to install security measures or appoint a full-time service provider during this time to ensure the safety of the asset.

Should a full-time guard be present on site, small guard house with a working toilet and water source will need to be provided. Should there not be any existing water or sewerage services on site for this purpose, the EPC contractor should provide an alternative water source and a septic tank.

Any lighting that would be required must be determined by the EPC contractor.

## **10. Stormwater Management Plan**

The EPC contractor will ensure stormwater is managed across the site. Natural vegetation shall be kept in place as far as possible to aid with this and all roads shall have a suitable stormwater runoff.

All roads and open spaces shall be designed in such a way that stormwater runoff is managed and if necessary, berms shall be installed to manage stormwater runoff without causing stormwater to accumulate on site or to cause erosion especially between and around all structures on site.

## **PLANNED ACTIVITES AND REQUIREMENTS**

### **a. Engineering Phase**

During the engineering phase of the project the appointed EPC contractor shall design the PV plant within the limits of the environmental authorization provided and will maintain a minimal presence on site.

After the engineering phase the final position of all the equipment as described above and access roads will be determined. Along with all the required designs of the plant including but not limited to the



stormwater management plan, lighting risk assessment, PV plant Design, BESS plant design, control system design, MV reticulation and grid tie-in designs.

All activities shall be done within the proposed footprint of the site, but the final positions will vary from the current layout.

**b. Construction Phase**

During construction phase all electricity and water access will be negotiated with the municipality if available.

A temporary electrical connection can be constructed from the Municipal substation or from the MV integration point, should that be implemented first.

Should a municipal water connection not be present on site, the EPC contractor should arrange for construction water as well as potable water for all staff.

Portable toilets will be acceptable on site during construction and this shall be removed after construction.

No stay-in labour camps will be established and the EPC contractor will have to appoint local labour where possible for unskilled labour and provide lodging in the nearby town of Riverdale for specialized staff, if necessary.

A portion of the site can be used for a laydown area and site office if necessary, this can also be accommodated on portions of the access road reserves, which are 15m in the preliminary layout.

**c. Operation and Maintenance Phase**

During the operations and maintenance phase the EPC contractor will be responsible for security on site as well as potable water and sanitation facilities for maintenance staff, should portable toilets be provided, they must be removed in periods that no maintenance occurs.

No staff shall stay permanently on-site for the maintenance and operation period.

**PV PLANT FOOTPRINT CONSIDERATIONS.**

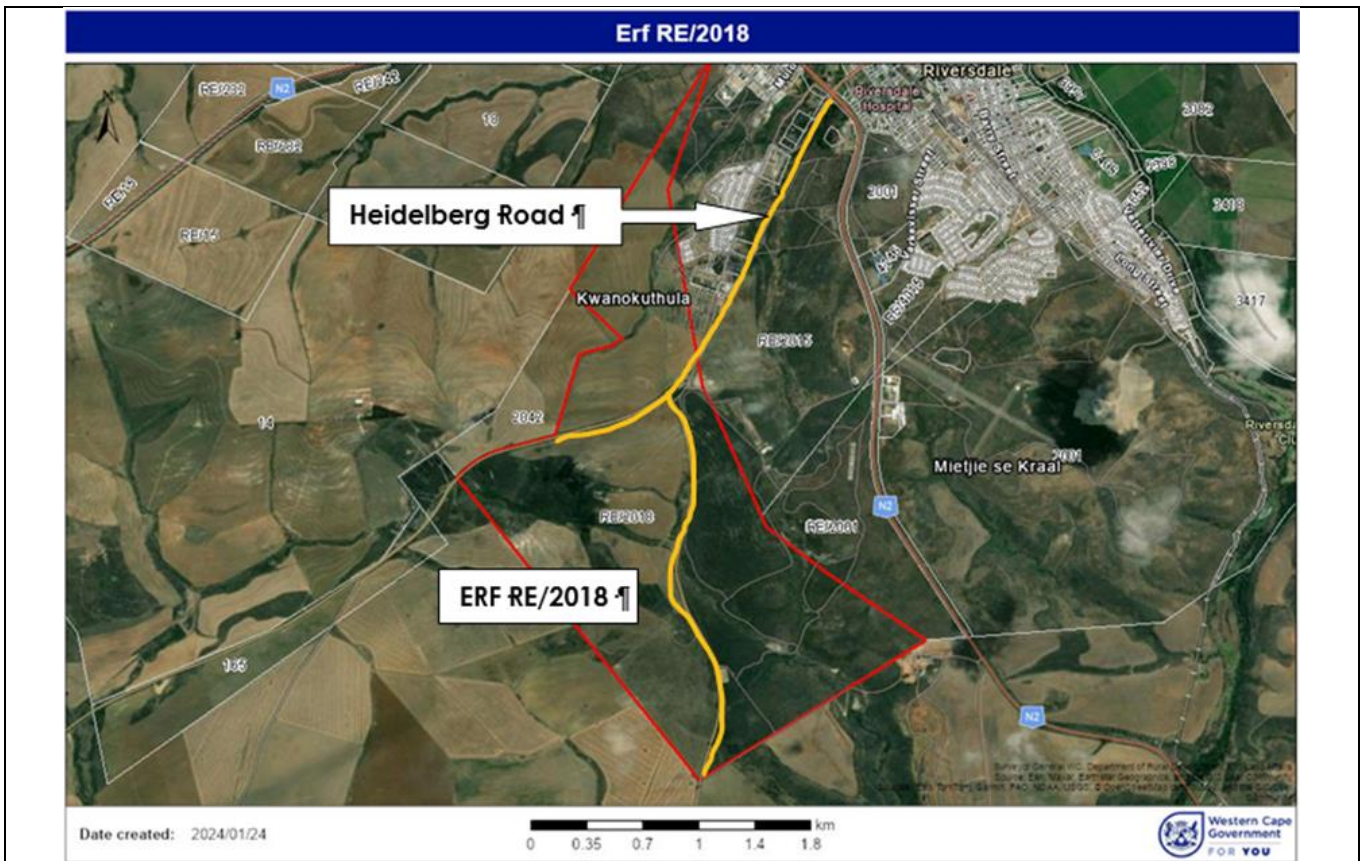
It is estimated that to accommodate PV panels with a total DC power rating of up to 11MWp approximately 11 ha of space is required.

There should be additional space for the BESS plant, additional switchgear, optimal panel spacing; additional equipment; maintenance roads; spacing between any fencing and the panels and to maintain clearances from the Eskom line crossing the site hence the full 18.5ha can possibly be utilized.

|      |  |
|------|--|
| 4.5. | Indicate how access to the proposed site(s) will be obtained for all alternatives. |
|------|--|

|  |  |
|--|--|
| There is an existing access road off Heidelberg Road which is just off the N2. |  |
|--|--|





**Figure 3: Existing access across the property.**

|      |  |     |   |   |   |     |   |   |   |        |   |   |   |   |   |   |   |   |   |   |   |   |  |
|------|--|-----|---|---|---|-----|---|---|---|--------|---|---|---|---|---|---|---|---|---|---|---|---|--|
| 4.6. | SG Digit code(s) of the proposed site(s) for all alternatives: | C   | 0 | 6 | 4 | 0   | 0 | 0 | 3 | 0      | 0 | 0 | 0 | 2 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 |  |
| 4.7. | Coordinates of the proposed site(s) for all alternatives:      |     |   |   |   |     |   |   |   |        |   |   |   |   |   |   |   |   |   |   |   |   |  |
|      | Latitude (S)   | 34° |   |   |   | 7'  |   |   |   | 27.74" |   |   |   |   |   |   |   |   |   |   |   |   |  |
|      | Longitude (E)  | 21° |   |   |   | 14' |   |   |   | 21.11" |   |   |   |   |   |   |   |   |   |   |   |   |  |

## SECTION C: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS

### 1. Exemption applied for in terms of the NEMA and the NEMA EIA Regulations

|   |     |    |
|---|-----|----|
| Has exemption been applied for in terms of the NEMA and the NEMA EIA Regulations. If yes, include a copy of the exemption notice in Appendix E18. | YES | NO |
|---|-----|----|

### 2. Is the following legislation applicable to the proposed activity or development.

|   |     |    |
|---|-----|----|
| The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) ("ICMA"). If yes, attach a copy of the comment from the relevant competent authority as Appendix E4 and the pre-approval for the reclamation of land as Appendix E19. | YES | NO |
| The National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA"). If yes, attach a copy of the comment from Heritage Western Cape as Appendix E1.  | YES | NO |
| The National Water Act, 1998 (Act No. 36 of 1998) ("NWA"). If yes, attach a copy of the comment from the DWS as Appendix E3.  | YES | NO |
| The National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA"). If yes, attach a copy of the comment from the relevant authorities as Appendix E13.  | YES | NO |
| The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")   | YES | NO |
| The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").   | YES | NO |
| The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").   | YES | NO |
| The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). If yes, attach comment from the relevant competent authority as Appendix E5.   | YES | NO |

### 3. Other legislation

|  |
|--|
| List any other legislation that is applicable to the proposed activity or development.   |
| <ul style="list-style-type: none"> <li>• Amended Environmental Impact Assessment Regulations, GN No. R. 324 – 327 (7 April 2017)</li> <li>• The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996)</li> <li>• Spatial Planning and Land Use Management Act, No. 16 of 2013 (SPLUMA)</li> <li>• Western Cape Land Use Planning Act, (Act 3 of 2014) (LUPA)</li> <li>• National Environmental Management Laws Amendment Act 2 OF 2022 (NEMLA)</li> </ul> |

### 4. Policies

|   |
|---|
| Explain which policies were considered and how the proposed activity or development complies and responds to these policies.  |
| <p><b>Western Cape Climate Change Response Strategy</b><br/>Renewable energy is a key area of focus for the Western Cape and forms a fundamental component of the drive towards the Western Cape becoming the green economy hub for Africa. The renewable energy sector in the Western Cape covers large scale wind and solar PV facilities as well as smaller scale, off-grid systems that are becoming more established.</p> <p><b>South Africa's National Climate Change Adaptation Strategy (NCCAS)</b> supports the country's ability to meeting its obligations in terms of the Paris Agreement on Climate Change. The NCCAS outlines a set of objectives, interventions and outcomes to enable the country to give expression to its commitment to the Paris Agreement. Developed in consultation with all relevant stakeholders and approved by Cabinet, it aims to reduce the vulnerability of society, the economy and the environment to the effects of climate change. It gives effect to the National Development Plan's vision of creating a low-carbon, climate resilient economy and a just society</p> |

### 5. Guidelines

|  |  |
|--|--|
| List the guidelines which have been considered relevant to the proposed activity or development and explain how they have influenced the development proposal. |  |
| Guideline on Need and Desirability (2013)  | Guideline considered during the assessment of the Need and Desirability of the proposed development project.   |
| Guideline on Environmental Management Plans (2005)   | Guideline considered in the compilation of the EMP attached to this Basic Assessment Report.   |
| Guideline for the Review of Specialist Input into the EIA Process (2005)   | Guideline considered during the review and integration of specialist input into this Basic Assessment Report   |
| External Guideline: Generic Water Use Authorization Application Process (2007)   | Guideline considered during the process of applying for the required water use authorization   |
| Integrated Environmental Management Information Series 5: Impact Significance (2002)   | Guideline considering during the identification and evaluation of potential impacts associated with the proposed development, and the reporting thereof in this Basic Assessment Report  |
| Integrated Environmental Management Information Series 7: Cumulative Effects Assessment (2004)   | Guideline considering during the assessment of the cumulative effect of the identified impacts.  |
| Guideline on Public Participation (2013)   | Guideline considered in the undertaking of the public participation for the proposed development. All relevant provisions contained in the guideline were adhered to in the basic assessment process as appropriate, except where an exemption/ deviation has been granted by the Competent Authority. |
| Guideline on Alternatives (2013)   | Guideline considered when identifying and evaluating possible alternatives for the proposed development. Alternatives that were considered in  |

|  |   |
|--|---|
|  | the impact assessment process are reported on in this Basic Assessment Report (see section E) |
|--|---|

## 6. Protocols

| Explain how the proposed activity or development complies with the requirements of the protocols referred to in the NOI and/or application form            |  |                            |
|--|--|----------------------------|
| The following Compliance Statements and Impact assessments were compiled by specialists in accordance with their corresponding protocols for the proposal. |  |                            |
| No.  | Specialist Assessment                                  | Assessment Protocol        |
| 1.   | Agricultural Compliance Statement                      | Wind and Solar Agriculture |
| 2.   | Archaeological and Cultural Heritage Impact Assessment | General                    |
| 3.   | Palaeontology Impact Assessment                        | General                    |
| 4.   | Terrestrial Biodiversity Compliance Statement          | Terrestrial                |
| 5.   | Aquatic Biodiversity Compliance Statement              | Aquatic                    |
| 6.   | Plant Species Impact Assessment                        | Terrestrial Plant Species  |
| 7.   | Animal Species Compliance Statement                    | Terrestrial Animal Species |
| 8.   | Visual Impact Assessment                               | General                    |
| 9.   | Civil Aviation Compliance Statement                    | Civil Aviation             |

## SECTION D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations

| Activity No(s): | Provide the relevant <b>Basic Assessment Activity(ies)</b> as set out in <b>Listing Notice 1</b>  | Describe the portion of the proposed development to which the applicable listed activity relates.   |
|-----------------|---|---|
| 1               | <p><b>The development of facilities or infrastructure for the generation of electricity from a renewable resource where—</b></p> <p>(i) the electricity output is more than 10 megawatts but less than 20 megawatts;<br/>or</p> <p><b>(ii) the output is 10 megawatts or less, but the total extent of the facility covers an area in excess of 1 hectare;</b></p> <p>excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs—</p> <p>(a) within an urban area; or</p> <p>(b) on existing infrastructure.</p> | <p>The proposed output is 10 MW, and the total extent of the facility will be more than 1 ha – it will be approx. 18 ha. The size of the facility, both output and area triggers this activity.</p> |
| 24              | <p><b>The development of a road—</b></p> <p>(i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or</p> <p><b>(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;</b></p> <p>but excluding a road—</p> <p>(a) [roads] which [are] is identified and included in activity 27 in Listing Notice 2 of 2014;</p>  | <p>The internal roads will be up to 8m wide and the total length will be approximately 2.5km. This activity is therefore triggered by the proposal.</p>   |

|                 |  |   |
|-----------------|--|---|
|                 | (b) [roads] where the entire road falls within an urban area; or<br>(c) which is 1 kilometre or shorter.   |   |
| 27              | <b>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation</b> , except where such clearance of indigenous vegetation is required for—<br>(i) the undertaking of a linear activity; or<br>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.   | The proposal is not expected to clear much vegetation apart from, the roads, BESS and substation, for the PV solar panels the current pasture grasses will remain as only the PV panel stands legs will displace vegetation. This activity will however be triggered by the proposal. |
| Activity No(s): | Provide the relevant <b>Basic Assessment Activity(ies)</b> as set out in <b>Listing Notice 3</b>   | Describe the portion of the proposed development to which the applicable listed activity relates.   |
| 4               | <b>The development of a road wider than 4 metres with a reserve less than 13,5 metres Western Cape</b><br>i. Areas zoned for use as public open space or equivalent zoning;<br>ii. Areas outside urban areas;<br>(aa) Areas containing indigenous vegetation;<br>(bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined;<br>or<br>iii. Inside urban areas:<br>(aa) Areas zoned for conservation use; or<br>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.  | Internal roads will have a width of up to 8m including drainage on both sides of the road.  |
| 12              | <b>The clearance of an area of 300 square metres or more of indigenous vegetation</b> except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.<br><b>Western Cape</b><br><b>i. Within any critically endangered or endangered ecosystem</b> listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;<br>ii. Within critical biodiversity areas identified in bioregional plans;<br>iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas;<br>iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or<br>v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister. | The proposed site is located on fallow lands that have not been cultivated for more than 10 years, as such the vegetation is considered indigenous. This activity is therefore triggered by the proposal.   |

**Note:**

- The listed activities specified above must reconcile with activities applied for in the application form. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted.
- Where additional listed activities have been identified, that have not been included in the application form, and amended application form must be submitted to the competent authority.

List the applicable waste management listed activities in terms of the NEM:WA

|                 |  |   |
|-----------------|--|---|
| Activity No(s): | Provide the relevant <b>Basic Assessment Activity(ies)</b> as set out in <b>Category A</b> | Describe the portion of the proposed development to which the applicable listed activity relates. |
|                 |  |   |

List the applicable listed activities in terms of the NEM:AQA

|                 |  |   |
|-----------------|--|---|
| Activity No(s): | Provide the relevant <b>Listed Activity(ies)</b> | Describe the portion of the proposed development to which the applicable listed activity relates. |
|                 |  |   |

## SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

|     |   |
|-----|---|
| 1.  | Provide a description of the preferred alternative.   |
|     | The preferred alternative is to develop a 10MW PV Solar Plant, Battery Energy Storage System (BESS) and associated infrastructure on Remainder of Erf 2018, in accordance with the Figure 2, across the gravel road from the existing substation. The preferred site will be approx. 18 ha in size.   |
| 2.  | Explain how the proposed development is in line with the existing land use rights of the property as you have indicated in the NOI and application form? Include the proof of the existing land use rights granted in Appendix E21.   |
|     | The property is zoned Agricultural Zone I and a consent use will be applied for the development of renewable energy structures.   |
| 3.  | Explain how potential conflict with respect to existing approvals for the proposed site (as indicated in the NOI/and or application form) and the proposed development have been resolved.  |
|     | No potential conflicts  |
| 4.  | Explain how the proposed development will be in line with the following?  |
| 4.1 | The Provincial Spatial Development Framework.   |
|     | The Western Cape's energy is primarily drawn from the national grid which is dominated by coal-based power stations. The Province has a small emergent sustainable energy sector in the form of wind and solar generation facilities located in the more rural, sparsely populated areas.   |
|     | <b>POLICY R4: RECYCLE AND RECOVER WASTE, DELIVER CLEAN SOURCES OF ENERGY TO URBAN CONSUMERS, SHIFT FROM PRIVATE TO PUBLIC TRANSPORT, AND ADAPT TO AND MITIGATE AGAINST CLIMATE CHANGE</b>   |
|     | <ul style="list-style-type: none"> <li>• Pursue energy diversification and energy efficiency in order for the Western Cape to transition to a low carbon, sustainable energy future, and delink economic growth from energy use.</li> <li>• Support emergent Independent Power Producers (IPPs) and sustainable energy producers (wind, solar, biomass and waste conversion initiatives) in suitable rural locations (as per recommendations of the Strategic Environmental Assessments for wind energy (DEA&amp;DP) and renewable energy (DEA)).</li> <li>• Encourage and support renewable energy generation at scale.</li> </ul> |
| 4.2 | The Integrated Development Plan of the local municipality.  |
|     | According to the Hessequa Municipality Amended IDP (2022 - 2027):   |
|     | <b>"Energy Sources</b>  |
|     | Identify potential energy sources: The next step is to identify potential energy sources that can be used to supplement or replace the existing energy sources. This can include renewable energy sources such as solar, wind, and hydro, as well as alternative energy sources such as biomass and biogas. Past studies in Hessequa have shown (2010 & 2013) that with, existing technology, towns can individually be   |

completely removed from fossil fuel energy generation. The key factor is the funding mechanism as the municipality do not have the financial ability to invest in such technologies and then generate the required return on investment from current consumers.

**Energy Storage**

Evaluate energy storage options: Once potential energy sources have been identified, the next step is to evaluate energy storage options. Energy storage is critical to ensure a stable and reliable energy supply. The most common energy storage options include batteries, pumped hydro, and thermal storage."

The proposal is therefore aligned with the Integrated Development Plan of the local municipality.

4.3. The Spatial Development Framework of the local municipality.

**Hessequa Environmental Policy**

This policy aims to serve as an over-riding consideration with regard to municipal strategic goals as far as environmental management issues are concerned. The purpose of this policy is to interject key environmental principles into the activities of Hessequa Municipality. The principles are:

- The minimize its impact on the biophysical environment and strives to reduce its ecological footprint on the environment
- To have a positive impact on the quality of life of all citizens
- Ensures the sustainability of all developments within the municipal area
- Strives for a greater equity in the distribution of and access to resources
- For a sustainable use and protection of natural resources where mandated to do so and co-operate with other state organs where co-operation is required

The policy was accepted by Council towards the end of 2015.

4.4. The Environmental Management Framework applicable to the area.

N/A – The Screening Tool Report has indicated that there are no intersections with EMF areas found.

5. Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development.

Comments to be obtained during public participation process.  
To be included in the Final Basic Assessment Report.

6. Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development.

Blue Skies Research (Dr Jacobus H. Visser) was appointed to compile the Terrestrial Faunal and Avifaunal Species Compliance Statement Report for the proposal (Appendix G1)

According to the report:

Critical Biodiversity Areas (CBAs) are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan (Purves and Holmes, 2015). Ecological Support Areas (ESAs) are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of CBAs and/or in delivering ecosystem services.

The study area currently overlaps with terrestrial Critical Biodiversity Areas 1 (CBA1) in the southern section and small part in the northern section, with these CBA 1 corresponding to existing remnants of Eastern Rûens Shale Renosterveld and Rûens Silcrete Renosterveld vegetation (Figure 4). Along with this, aquatic CBA1 characterise the existing drainage lines on the site. The non-perennial stream which feed these drainage lines large intersect with degraded Ecological Support Areas 2 in the central and northern sections of the site (ESA2; Figure 5).



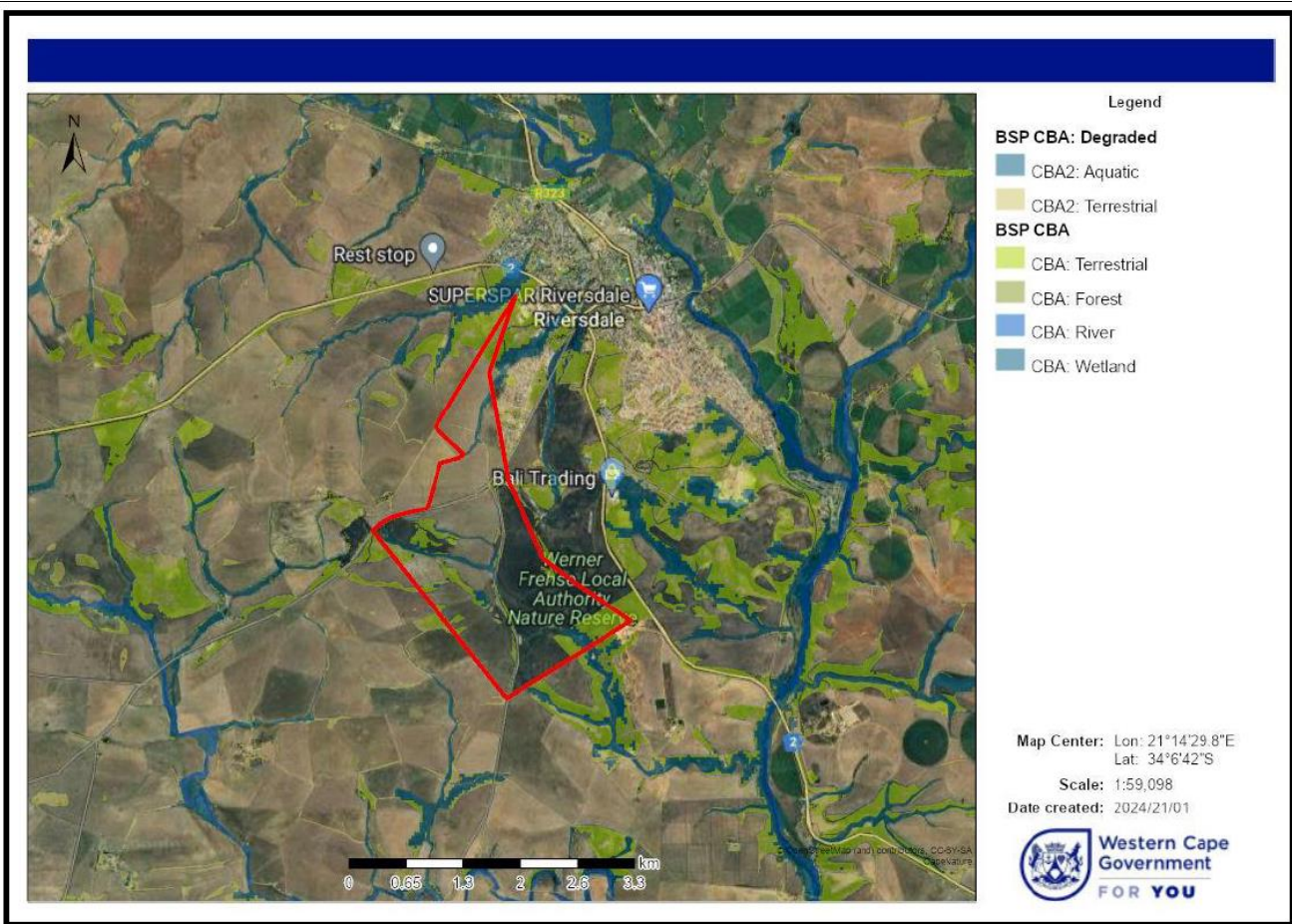


Figure 4: Spatial locations of Critical Biodiversity Areas (CBAs)



**Figure 5: Spatial locations of Ecological Support Areas**

**Overlap with Critical Biodiversity Areas (CBAs)**

The distributions of terrestrial and aquatic CBA 1 align well with the Shrubland and Drainage line habitats in the current study. This follows from the following considerations:

- Shrubland habitats on the site correspond to intact “Critically Endangered” Eastern Rûens Shale Renosterveld and Rûens Silcrete Renosterveld vegetation.
- These Shrubland habitats provide crucial ecosystem services through acting as functional ecological corridors in the study area landscape.
- The Drainage line habitats on the site form crucial links in the Vet River and Klein-Brak River drainage systems, while also acting as functional ecological corridors in the study area landscape.
- Both the Shrubland and Drainage line habitats are retrieved as having a “Very high” SEI.

To this end, these terrestrial and aquatic CBA 1 meet the definition of: “Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure”. Management objectives for these areas therefore are to: “Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate”. To this end, this further bolsters the exclusion of these habitats from development planning.

In contrast, all Farmland habitats on the site exist in a highly modified state, offering little in the way of faunal habitats and further not forming any crucial link in providing ecosystem services. To this end, the placement of the proposed development footprint (or any of the alternative footprints) in this habitat type is not likely to affect biodiversity and ecological patterns within the study area landscape.

|    |  |
|----|--|
| 7. | Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA. |
|----|--|

N/A

|    |  |
|----|--|
| 8. | Explain whether the screening report has changed from the one submitted together with the application form. The screening report must be attached as Appendix I. |
|----|--|

No change to Screening Tool Report

|    |  |
|----|--|
| 9. | Explain how the proposed development will optimise vacant land available within an urban area. |
|----|--|

The property is not situated within an urban area as it is just outside the town of Riversdale. There is, however, an existing substation which makes this property ideal for the development of solar panels, and its associated infrastructure.

|     |  |
|-----|--|
| 10. | Explain how the proposed development will optimise the use of existing resources and infrastructure. |
|-----|--|

There is an existing substation and powerlines which make this property ideal for the development of solar panels and its associated infrastructure as there is a nearby tie into the existing electrical network.

|     |  |
|-----|--|
| 11. | Explain whether the necessary services are available and whether the local authority has confirmed sufficient, spare, unallocated service capacity. (Confirmation of all services must be included in Appendix E16). |
|-----|--|

The proposal will not require unallocated service capacity from the municipality

|     |  |
|-----|--|
| 12. | In addition to the above, explain the need and desirability of the proposed activity or development in terms of this Department’s guideline on Need and Desirability (March 2013) or the DEA’s Integrated Environmental Management Guideline on Need and Desirability. This may be attached to this BAR as Appendix K. |
|-----|--|

In the short term, the proposal will decrease the effects of loadshedding locally.

**Global perspective**

**Sustainable Development Goals**

The Sustainable Development Goals (SDGs), officially known as Transforming our world: the 2030 Agenda for Sustainable Development is a set of 17 ‘Global Goals’ with 169 targets between them. Spearheaded by United Nations through a deliberative process involving its 194 Member States, as well



as global civil society, the goals are contained in paragraph 54 United Nations Resolution A/RES/70/1 of 25 September 2015. Paragraph 51 outlines the 17 Sustainable Development Goals, namely:

1. No Poverty – End poverty in all its forms everywhere.
2. Zero Hunger – End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
3. Good Health and Well-being – Ensure healthy lives and promote well-being for all ages.
4. Quality Education – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Gender Equality – Achieve gender equality and empower all women and girls.
6. Clean Water and Sanitation – Ensure availability and sustainable management of water and sanitation for all.
7. **Affordable and Clean Energy** – Ensure access to affordable, reliable, sustainable and modern energy for all.
8. **Decent Work and Economic Growth** – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. **Industry, Innovation and Infrastructure** – Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.
10. Reduced Inequalities – Reduce income inequality within and among countries.
11. **Sustainable Cities and Communities** – Make cities and human settlements inclusive, safe, resilient and sustainable.
12. Responsible Consumption and Production - Ensure sustainable consumption and production patterns.
13. **Climate Action** – Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy.
14. Life Below Water – Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
15. Life on Land – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
16. Peace, Justice and Strong Institutions – Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
17. Partnerships for the Goals – Strengthen the means of implementation and revitalise the global partnership for sustainable development.

### **Regional Need & Desirability**

The proposed development is in line with the national DoE's IRP 2010-2030 which was instated with the aim of providing a long-term, cost-effective strategy to meet the electricity demand in South Africa. The IRP 2010-2030 objectives align with that of the Government in terms of increased electricity supply sourced from renewable sources, as well as broader environmental and social responsibilities.

At a regional scale, the Western Cape Provincial Spatial Development Framework (WCSDF) (2014) lists a number of provincial spatial policies and plans that are to be read and treated as key components of the PSDF. Of these there are a number that are relevant to the proposed STPs. These include:

Climate change is recognised globally as an 'Emergency', and immediate systems change are required to achieve emissions reductions by 2030 and maintain a habitable planet. In the Western Cape, however, our emphasis is on the impacts of climate change that are already undermining our hard-won social and economic development gains. An accelerated response is required to address

the threats and opportunities posed by climate change across the spectrum of service delivery and economic activities in the Western Cape.

This Western Cape Climate Change Response Strategy (WCCCRS) guides the bold shifts required by 2030 in order to ensure we create social and economic resilience in times of climate destabilisation, whilst meeting our emissions reductions obligations.

Our Vision is to be a net zero emissions and climate resilient province by 2050, built on an equitable and inclusive economy and society that thrives despite the shocks and stresses posed by climate change.

### **Human Needs & Resource Efficiency**

#### Provision of additional energy resources

South Africa's energy resources are currently under immense pressure, with the amount of the load-shedding increasing at least two- fold annually over the course of the last five (5) years.

As indicated by Energyst.com (accessed in November 2022), the immediate causes of loadshedding could be attributed to a number of factors, including but not limited to, stagnated supplies of energy, peak in demand during extreme weather conditions, structurally insufficient production of electricity, and sudden power failures.

Though solar infrastructure projects do have their short-comings (such as lower energy generation during low sunshine events), through proper maintenance and care during the operational phase, the net positive impact of the project would be significantly better than its fossil fuel (coal) counterpart.

#### Safety, Health and Well-Being of the Surrounding Community

No excessive pollution would be generated on site and the nature of the proposed activities would not have any effects on the health of the surrounding community.

#### Construction Materials

As far as reasonably possible, products and materials will be sourced and manufactured in the vicinity of a development. This would reduce the resources required during transporting materials over long distances to the site, which in turn could lower development costs and reduce the overall carbon footprint of the development.

In addition, the new substation building needs to comply with the energy efficiency regulations, as set out in SANS 10400 XA.

## **SECTION F: PUBLIC PARTICIPATION**

The Public Participation Process ("PPP") must fulfil the requirements as outlined in the NEMA EIA Regulations and must be attached as Appendix F. Please note that If the NEM: WA and/or the NEM: AQA is applicable to the proposed development, an advertisement must be placed in at least two newspapers.

1. Exclusively for linear activities: Indicate what PPP was agreed to by the competent authority. Include proof of this agreement in Appendix E22.

N/A

2. Confirm that the PPP as indicated in the application form has been complied with. All the PPP must be included in Appendix F.

To be included in the Final BAR.

3. Confirm which of the State Departments and Organs of State indicated in the Notice of Intent/application form were consulted with.

Breede-Olifants Catchment Management Agency  
Department of Environmental Affairs and development Planning (George)  
Garden Route District Municipality  
WCG: Department of Agriculture  
Breede-Gouritz Catchment Management Agency  
Cape Nature  
South African Civil Aviation Authority  
Eskom: Land Development and Environmental Manager  
Hessequa Municipality  
Heritage Western Cape  
Hessequa Municipality: Ward 7 Councillor  
Eskom: Land Development

4. If any of the State Departments and Organs of State were not consulted, indicate which and why.

Only applicable State Department will be provided an opportunity to comment on the proposal.

5. if any of the State Departments and Organs of State did not respond, indicate which.

To be included in the Final BAR.

6. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated into the development proposal.

To be included in the Final BAR.

**Note:**

A register of all the I&AP's notified, including the Organs of State, and all the registered I&APs must be included in Appendix F. The register must be maintained and made available to any person requesting access to the register in writing.

The EAP must notify I&AP's that all information submitted by I&AP's becomes public information.

Your attention is drawn to Regulation 40 (3) of the NEMA EIA Regulations which states that "*Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans contemplated in subregulation (1) prior to submission of an application but **must** be provided with an opportunity to comment on such reports once an application has been submitted to the competent authority.*"

All the comments received from I&APs on the pre -application BAR (if applicable and the draft BAR must be recorded, responded to and included in the Comments and Responses Report and must be included in Appendix F.

All information obtained during the PPP (the minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded) and must be included in Appendix F.

Please note that proof of the PPP conducted must be included in Appendix F. In terms of the required "proof" the following is required:

- a site map showing where the site notice was displayed, dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
  - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
  - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
  - if a facsimile was sent, a copy of the facsimile Report;
  - if an electronic mail was sent, a copy of the electronic mail sent; and
  - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

## SECTION G: DESCRIPTION OF THE RECEIVING ENVIRONMENT

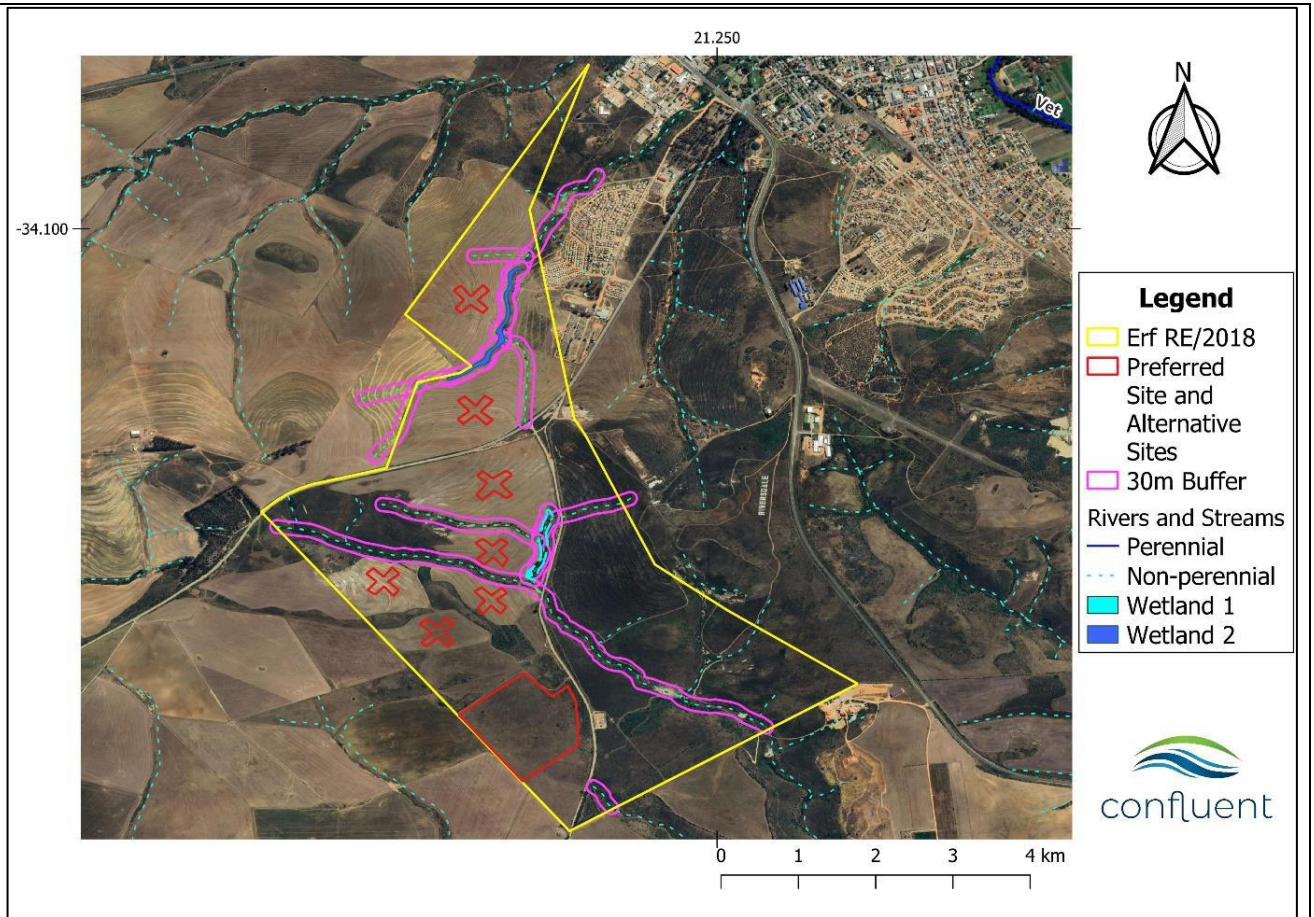
All specialist studies must be attached as Appendix G.

### 1. Groundwater

|      |   |     |           |
|------|---|-----|-----------|
| 1.1. | Was a specialist study conducted?   | YES | <b>NO</b> |
| 1.2. | Provide the name and or company who conducted the specialist study.   |     |           |
| 1.3. | Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.                 |     |           |
| 1.4. | Indicate the depth of groundwater and explain how the depth of groundwater and type of aquifer (if present) has influenced your proposed development. |     |           |

### 2. Surface water

|      |   |            |    |
|------|---|------------|----|
| 2.1. | Was a specialist study conducted?   | <b>YES</b> | NO |
| 2.2. | Provide the name and/or company who conducted the specialist study.   |            |    |
|      | Dr. James Dabrowski from Confluent Environmental, Appendix G2.  |            |    |
| 2.3. | Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.   |            |    |
|      | According to the Freshwater Compliance Statement:   |            |    |
|      | <p>A conservative 30 m buffer has been applied to all watercourses verified on site. While the proposed development is located within a SWSA (only a small proportion of the preferred alternative falls within a SWSA), the implementation of the proposed management recommendations, together with the implementation of the conservative buffer will prevent impacts to aquatic biodiversity and the ability of the land to continue to produce high quantities of good quality water. The preferred alternative falls well outside of the 30 m buffer and therefore the sensitivity of aquatic biodiversity on this site is considered to be Low. The aquatic biodiversity sensitivity of any of the other alternatives is Low, provided that the entire development footprint remains outside any of the 30 m buffers (Figure 6).</p> |            |    |



**Figure 6: Map indicating 30 m buffer zones.**

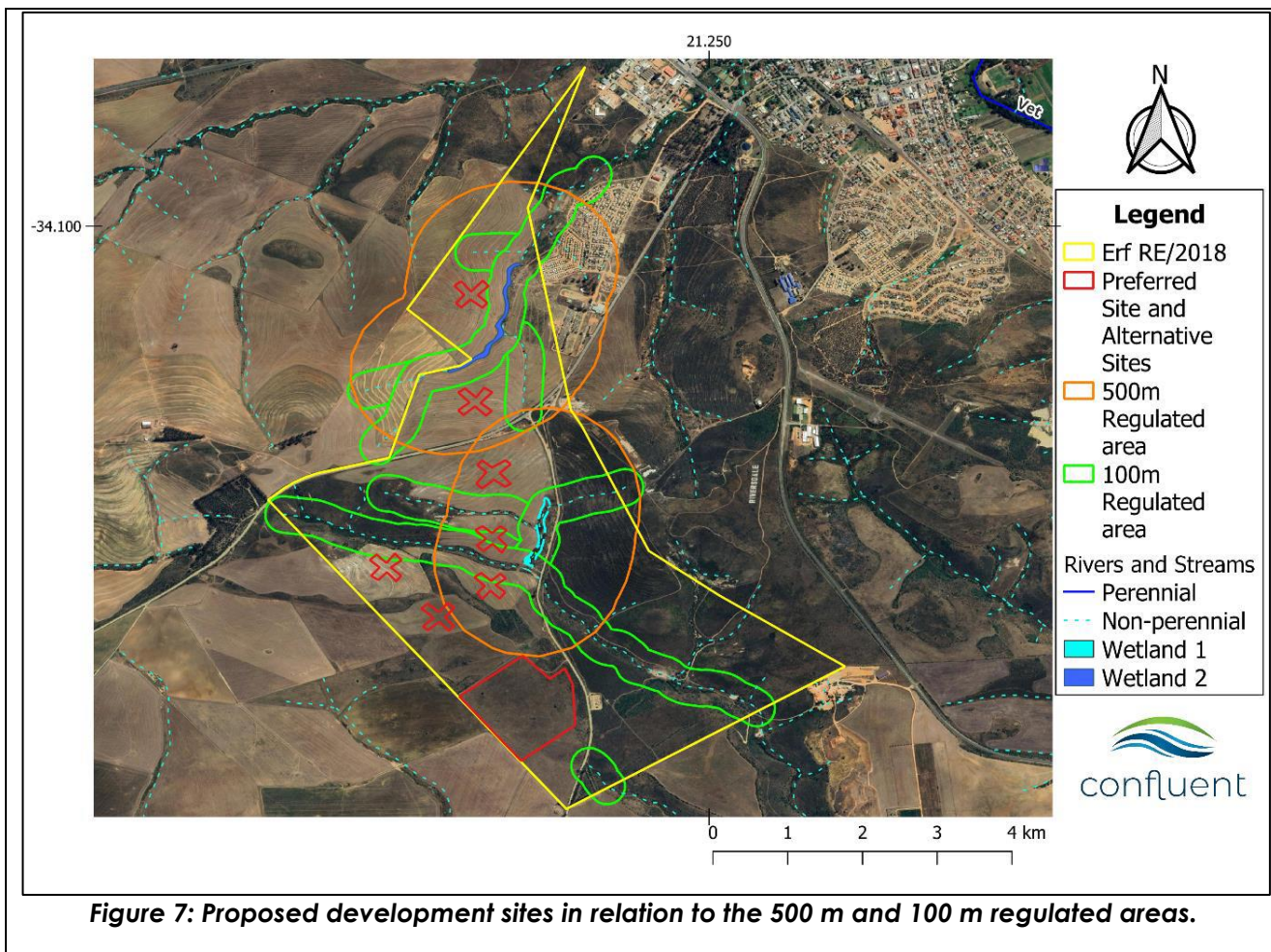
**Water use authorisation**

Based on the results of the newly revised legislation and the site verification, it can be concluded that any development taking place outside the 100 m and 500 m regulated area (as illustrated in Figure 7) would not require any water use authorisation. In this respect the preferred alternative is considered to be ideal and would not require any water use authorisation. Many of the other alternatives would fall in the regulated area and would require a GA (without the need to compile a DWS Risk Assessment Matrix) provided that:

- a) There will be no direct impact/destruction on any watercourse; and
- b) Sewage infrastructure is located more than 100 m away from a watercourse.

Any sites that do not meet these criteria would need to be assessed using the DWS Risk Assessment Matrix to determine whether a GA or WUL would be required.





### 3. Coastal Environment

|      |  |     |    |
|------|--|-----|----|
| 3.1. | Was a specialist study conducted?  | YES | NO |
| 3.2. | Provide the name and/or company who conducted the specialist study.  |     |    |
| 3.3. | Explain how the relevant considerations of Section 63 of the ICMA were taken into account and explain how this influenced your proposed development.                     |     |    |
| 3.4. | Explain how estuary management plans (if applicable) has influenced the proposed development.  |     |    |
| 3.5. | Explain how the modelled coastal risk zones, the coastal protection zone, littoral active zone and estuarine functional zones, have influenced the proposed development. |     |    |

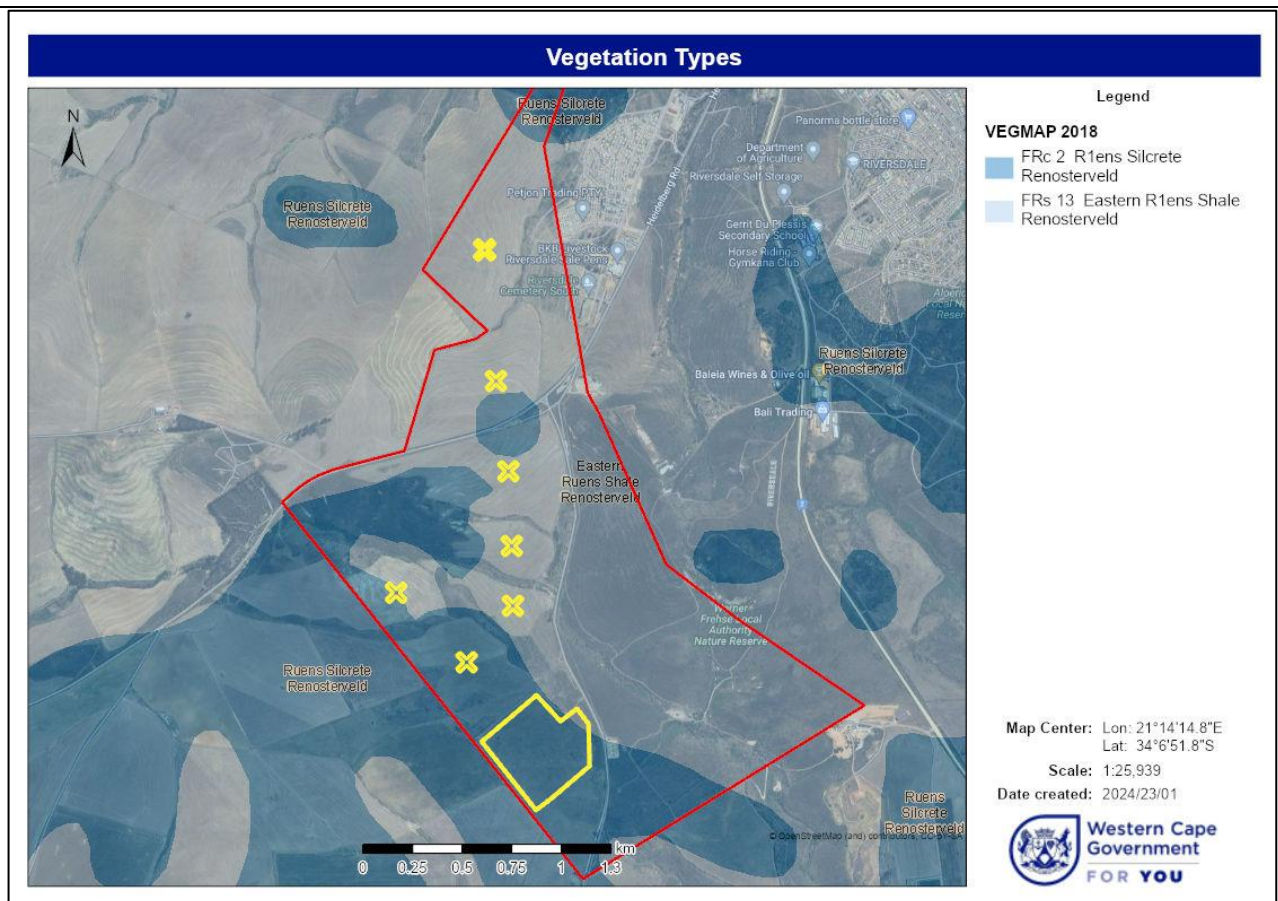
### 4. Biodiversity

|      |  |     |    |
|------|--|-----|----|
| 4.1. | Were specialist studies conducted?   | YES | NO |
| 4.2. | Provide the name and/or company who conducted the specialist studies.  |     |    |
|      | <ul style="list-style-type: none"> <li>• Botanical Impact Assessment by Mark Berry of MB Botanical Surveys (Appendix G3)</li> <li>• Terrestrial Biodiversity &amp; Terrestrial Animal Species Compliance Statement by Dr. Jacobus Visser of Blue Skies Research (Appendix G1)</li> </ul>                           |     |    |
| 4.3. | Explain which systematic conservation planning and other biodiversity informants such as vegetation maps, NFEPA, NSBA etc. have been used and how has this influenced your proposed development.   |     |    |
|      | <p><b>Vegetation map:</b> A product of The Vegetation of South Africa, Lesotho, and Swaziland (VEGMAP) (Mucina &amp; Rutherford, 2006). The South African National Biodiversity Institute (SANBI) has updated the VEGMAP (2018). These shapefiles were used. In addition, the National Web-based Environmental</p> |     |    |

Screening Tool was applied to determine the Relative Plant Species Theme Sensitivity as is required of botanical specialists.

(Source: Botanical Impact Statement for the Proposed PV solar plant & battery storage facility on Remainder of Erf 2018, Riversdale, 2024, prepared by Mark Berry, Appendix G3).

According to the 2018 Vegetation Map of South Africa, the study area is located inside **Rûens Silcrete Renosterveld and Eastern Rûens Shale Renosterveld** (Figure 8). The preferred location for the solar plant is located inside Rûens Silcrete Renosterveld. Rûens Silcrete Renosterveld occurs on the Rûens coastal forelands from Riviersonderend to Riversdale, with a few outliers westwards to Bot River (Mucina, 2006). It is a highly fragmented unit associated with Eastern Rûens Shale Renosterveld and occurring on a well-dissected, old African surface (Mucina, 2006). These habitats support open, low, cupressoid and small-leaved, low to moderately tall shrubland characterised by succulents and often dominated by renosterbos (*Elytropappus rhinocerotis*) (Mucina, 2006). Eastern Rûens Shale Renosterveld occurs from Bredasdorp and the area of the Breede River near Swellendam to the Goukou River at Riversdale (Mucina, 2006). The vegetation is described as a cupressoid and small-leaved, low to moderately tall grassy shrubland, dominated by renosterbos (Mucina, 2006).



**Figure 8: Extract of the 2018 SA Vegetation map.**

The vegetation of the study area (property), as described by Mr. M. Berry. Please refer to Appendix G3 for the full report on the vegetation of each site.

The vegetation types found in the study area can be described as a mixture of Rûens Silcrete Renosterveld and Eastern Rûens Shale Renosterveld. The botanical attributes of the site are presented in Figure 9. The green areas include thicket patches, silcrete and shale renosterveld, as well as fallow land in an advanced stage of recovery. It is difficult to distinguish between the two renosterveld types on site due to weathering. For example, the preferred site for the solar plant is located inside silcrete fynbos (currently fallow land), but it is highly weathered leaving only a loose gravelly surface (Figure 5-2 of Appendix G3). Otherwise, the silcrete renosterveld is more evident on the elevated, rocky areas, and the shale renosterveld on the gentle slopes below (Figures 5-3 to 5-5 of Appendix G3). A







*rhinocerotis*, *Oedera genistifolia*, *Athanasia trifurcata* and *Helichrysum patulum*. The thicket patches can be classified as a tall (2-3 m) closed large-leaved shrubland. The thicket along the drainage lines is often more disturbed and has a more open structure. It includes typical thicket species such as *Aloe arborescens*, *Pterocelastrus tricuspidatus*, *Sideroxylon inerme*, *Gymnosporia buxifolia* and *Carissa bispinosa*. Disturbances, such as farming activities, dumping, farm tracks, grazing (sheep and cattle) and minor alien infestation, were noted.

**Ecosystem threat status:** Due to their transformed state and rate of transformation, both Rûens Silcrete Renosterveld and Eastern Rûens Shale Renosterveld are currently listed as Endangered in the Revised National List of Threatened Ecosystems (DEA, 2022), with only 14% and 15% left, respectively. They have been transformed mainly for intensive agricultural land and cropland (Mucina, 2006). The units are further degraded by ongoing biotic disruption from invasive species and overgrazing, as well as erosion. Both are poorly protected, with only small fractions (<1%) formally protected in the Bontebok National Park, De Hoop and Werner Frehse Nature Reserves (Mucina, 2006). Being part of the Fynbos Biome, renosterveld is maintained by regular fires. Unfortunately, landscape fragmentation is disrupting this 'maintenance' requirement, often leading to localised species loss and bush encroachment or alien infestation (pers. obs.). The high rates of habitat loss place both units at risk of collapse.

**Biodiversity planning:** The 2017 Western Cape Biodiversity Spatial Plan (CapeNature, 2017) GIS (Geographical Information System) shapefiles for the George Municipality is important for determining the conservation importance of the designated habitat. Ground-truthing is an essential component in terms of determining the habitat condition.

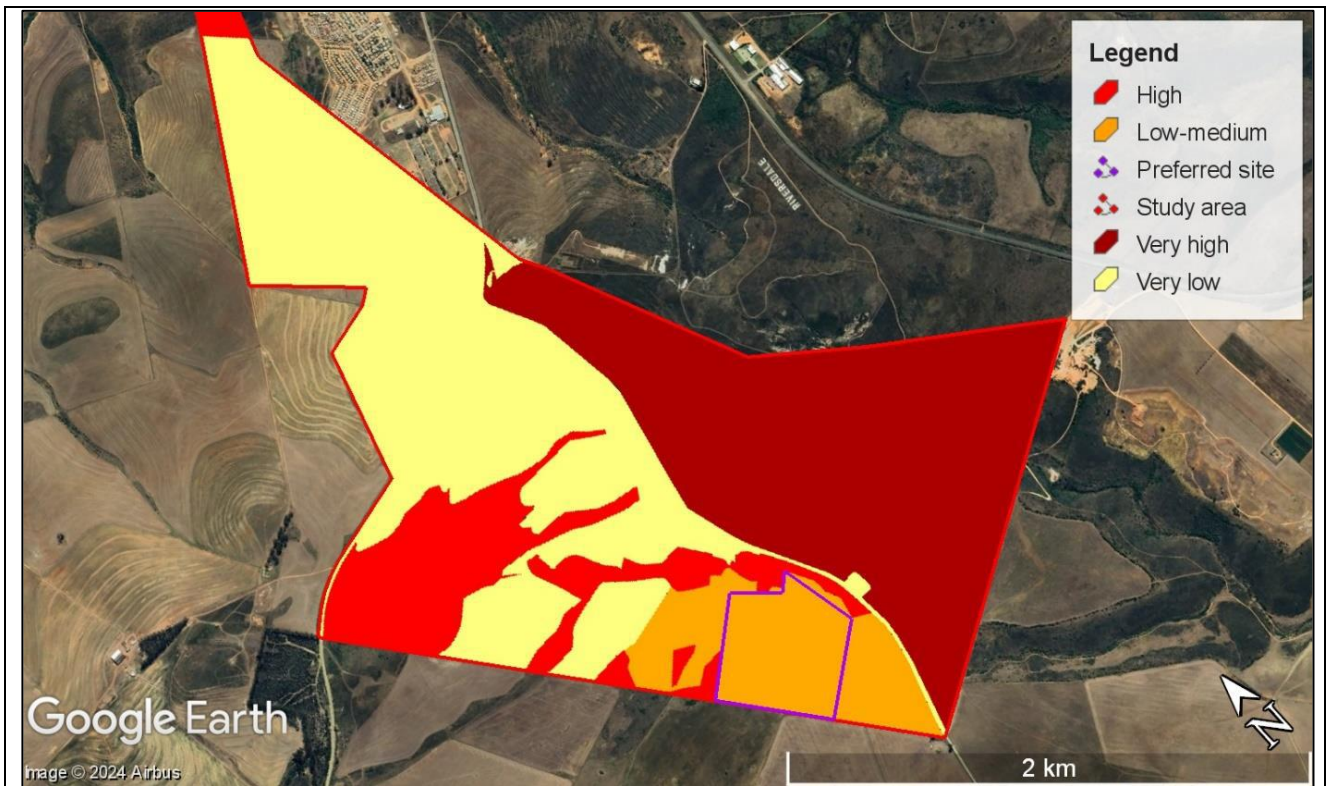
Please see Section 4.5 below for descriptions of the biodiversity categories.

**Important species:** The presence or absence of threatened (i.e., species of conservation concern) and ecologically important species informs the ecological condition and sensitivity of the site. The latest conservation status of species is checked in the Red List of South African Plants (Raimondo et al. 2009) ([www.redlist.sanbi.org](http://www.redlist.sanbi.org)).

**Site boundary:** these and other resource layers were used to define the site boundary and to compile several maps. This information is available on the CapeFarmMapper website (Department of Agriculture: [gis.elsenberg.com](http://gis.elsenberg.com)).

#### **Site Ecological Importance: Plant Species, Appendix G3**

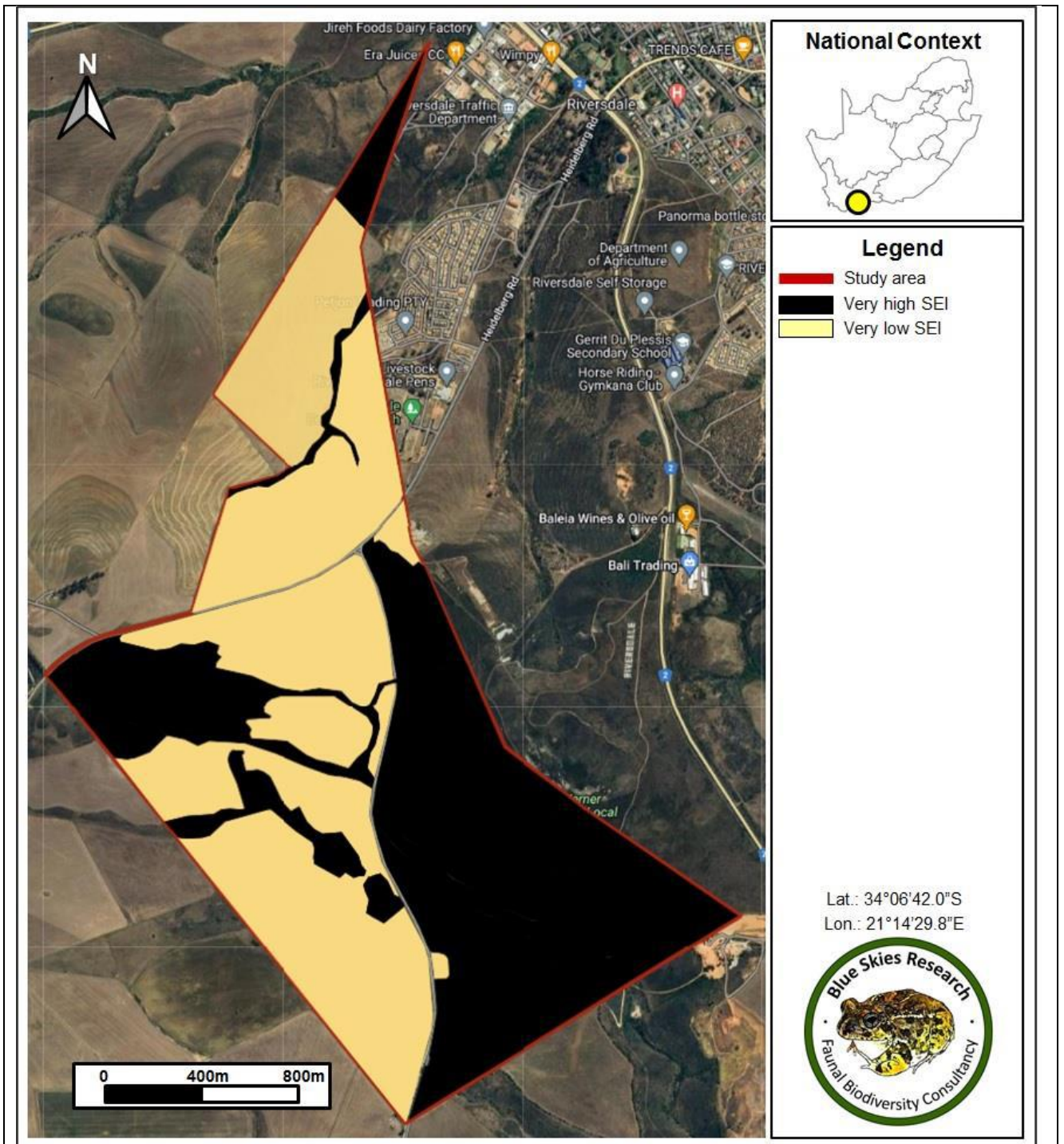
In order to demonstrate the biodiversity sensitivity of the site, a site ecological importance (SEI) map was prepared (Figure 10). This map considers the biodiversity importance of the receptor area and its resilience to impacts. The receptor area is described as the affected habitat (silcrete and shale renosterveld in this instance), which accommodate certain Plant SCC. A Very High SEI value was allocated to the Werner Rehse Nature Reserve, while the cultivated or recently cultivated areas scored a Very Low value due to its transformed state. The preferred site for the solar plant is located inside an area mapped as Low-medium sensitive due to its size and being considered fallow land. The alternative sites between the renosterveld remnants are located in the least sensitive areas.



**Figure 10: Site ecological importance (SEI) map.**

**Site Ecological Importance: Avifaunal Species, Appendix G1**

Evaluation of the Site Ecological Importance (SEI) for the habitats of SCC confirmed or possibly occurring in the study area was performed following the methods and criteria outlined in the Species Environmental Assessment Guideline (SANBI, 2020). Evaluation of SEI was performed for avifauna only (given the recovery *A. paradiseus* on the site, with the further likely presence of *N. denhami*) considering the species' habitat requirements in conjunction with the spatial distribution of their preferred habitat. In short, SEI is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/faunal community or habitat type present on the site) and its resilience to impacts (Receptor Resilience, RR) as follows:  $SEI = BI + RR$ . Biodiversity Importance (BI) is in turn a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor as follows:  $BI = CI + FI$ . \*\*Please refer to Appendix G1 for the full calculation methodology.



**Figure 11: Spatial representation of the SEI of avifaunal SCC habitats within the study area.**

4.4. Explain how the objectives and management guidelines of the Biodiversity Spatial Plan have been used and how has this influenced your proposed development.

The 2017 Western Cape Biodiversity Spatial Plan Handbook (Pool-Stanvliet et al., 2017) distinguishes between the various conservation planning categories. Critical Biodiversity Areas are habitats with high biodiversity and ecological value. Such areas include those that are likely to be in a natural condition (CBA 1) and those that are potentially degraded or represent secondary vegetation (CBA 2). Ecological Support Areas are not essential for meeting biodiversity targets but play an important role in supporting the functioning of Protected Areas or CBAs and are often vital for delivering ecosystem services. A distinction is made between ESAs that are still likely to be functional (i.e., in a natural, near natural or moderately degraded condition; (ESA 1) and Ecological Support Areas that are severely degraded, or have no natural cover remaining, and therefore require restoration (ESA 2). Other Natural Area (ONA) sites are not currently identified as a priority but retain most of their

natural character and perform a range of biodiversity and ecological infrastructure functions. Although not prioritised, they are still an important part of the natural ecosystem.

4.5. Explain what impact the proposed development will have on the site specific features and/or function of the Biodiversity Spatial Plan category and how has this influenced the proposed development.

Please also refer to Section E.6, as a similar question is posed.

According to the Terrestrial Faunal and Avifaunal Species Compliance Statement Report compiled by Blue Skies Research (Dr Jacobus H. Visser):

The distributions of terrestrial and aquatic CBA 1 align well with the Shrubland and Drainage line habitats in the current study. This follows from the following considerations:

- Shrubland habitats on the site correspond to intact "Critically Endangered" Eastern Rûens Shale Renosterveld and Rûens Silcrete Renosterveld vegetation.
- These Shrubland habitats provide crucial ecosystem services through acting as functional ecological corridors in the study area landscape.
- The Drainage line habitats on the site form crucial links in the Vet River and Klein-Brak River drainage systems, while also acting as functional ecological corridors in the study area landscape.
- Both the Shrubland and Drainage line habitats are retrieved as having a "Very high" SEI.

To this end, these terrestrial and aquatic CBA 1 meet the definition of: "Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure". Management objectives for these areas therefore are to: "Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate". To this end, this further bolsters the exclusion of these habitats from development planning.

In contrast, all Farmland habitats on the site exist in a highly modified state, offering little in the way of faunal habitats and further not forming any crucial link in providing ecosystem services. To this end, the placement of the proposed development footprint (or any of the alternative footprints) in this habitat type is not likely to affect biodiversity and ecological patterns within the study area landscape.

4.6. If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.

The site is not located in a protected area.

4.7. Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.

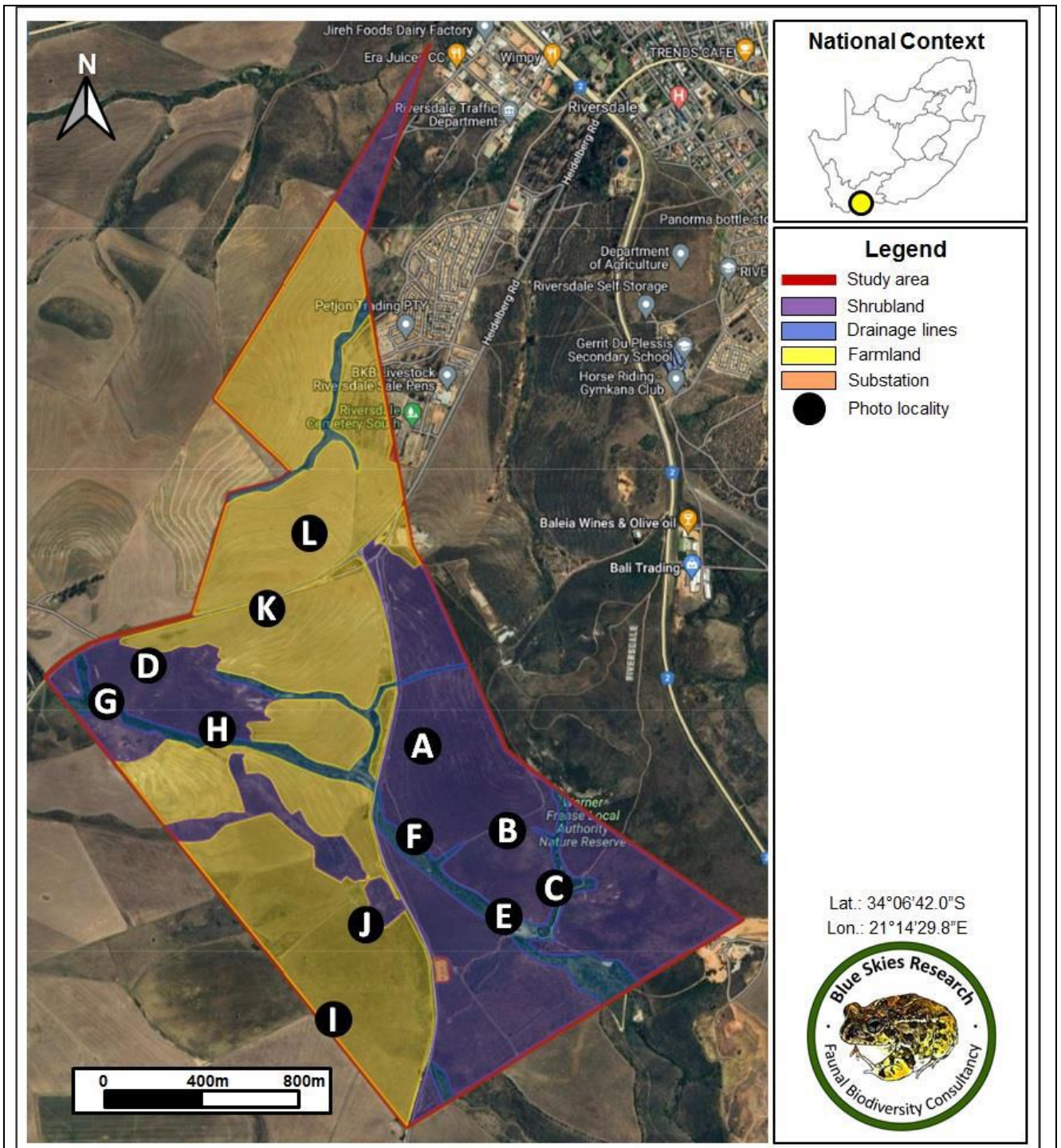
According to the Terrestrial Faunal and Avifaunal Species Compliance Statement Report compiled by Blue Skies Research (Dr Jacobus H. Visser), Appendix G1:

Faunal habitat types within the study area

The study area is comprised of three broadly identified habitat types based on habitat composition and habitat integrity (Figure 12). Habitat in the Werner Frehse Nature Reserve as well as in parts in the north and west of the site are comprised of natural Renosterveld vegetation (Shrubland habitat) along with existing drainage lines (Drainage line habitat) which harbour dense riparian vegetation as well as woody plant species and small trees. Together, these natural areas appear highly intact from an ecological perspective and form important links in the broader study area landscape.

In contrast, large tracts in the western part of the site (along a north-south axis) are comprised of open agricultural areas (Farmland) where all natural vegetation has been removed. These areas offer little in the way of suitable habitat for faunal and avifaunal species, with only a few flying species (avifauna) being present.





**Figure 12: A broad indication of the spatial extent of habitat types overlapping the study area. Photo localities (A to L) correspond to the habitat photos in Table 2 of the Terrestrial Compliance Statement.**

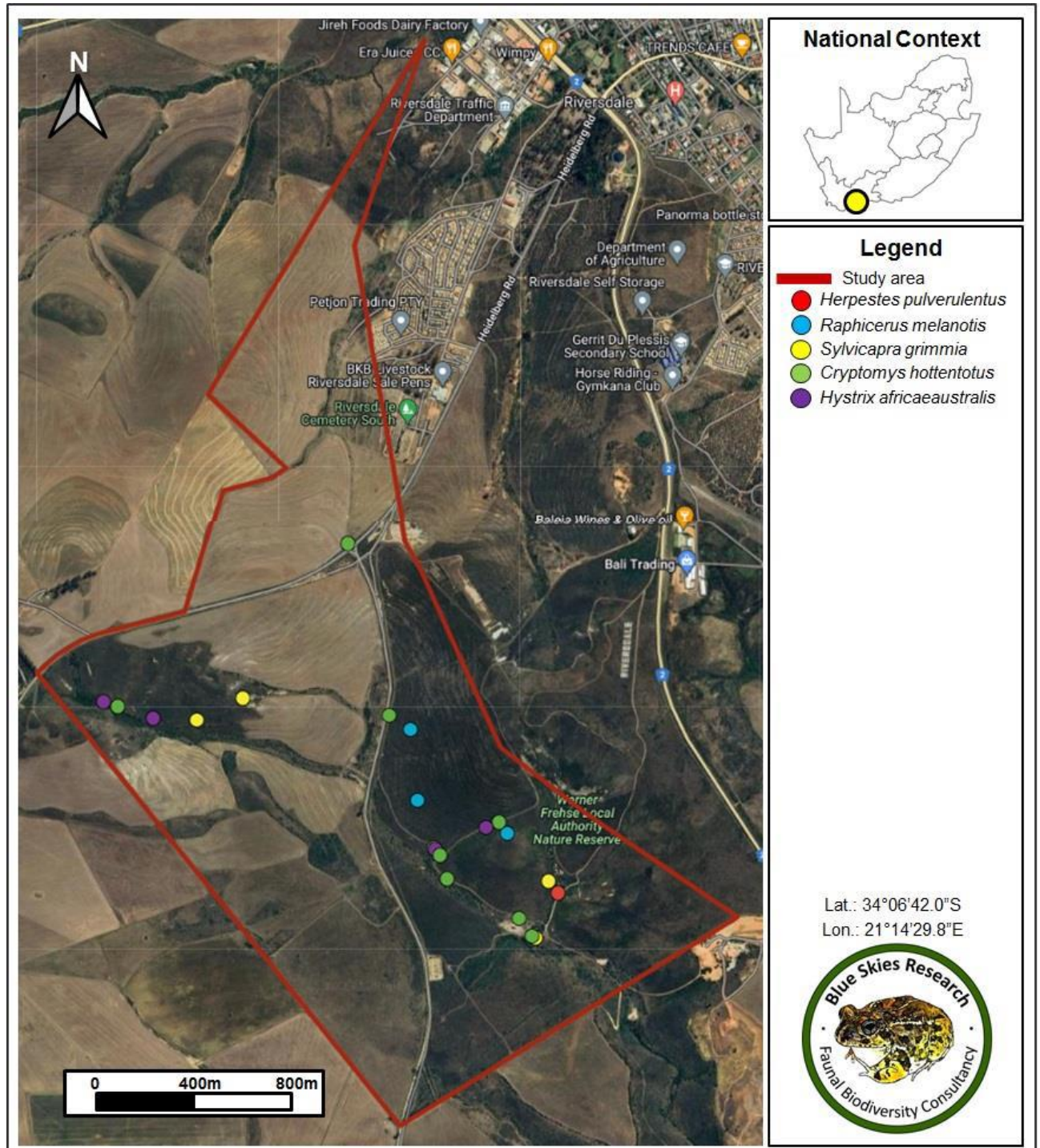
### Faunal and avifaunal composition within the study area

#### 1. Mammals

Evidence of five mammal species were recovered within the study area (Figures 13 and 14), all of which are currently classified as “Least concern” by the IUCN. The African Mole-rat (*Cryptomys hottentotus*) is by far the most abundant mammal species on the site and occurs in the dense soils near drainage lines. Other mammal species which are also abundant in the natural parts (Shrubland and Drainage line habitats) of the site include the Cape Gysbok (*Raphicerus melanotis*), Common Duiker (*Sylvicapra grimmia*) and Cape Porcupine (*Hystrix africae australis*). Evidence of the presence



of a small mammal predatory species, the Cape grey Mongoose (*Herpestes pulverulentus*), was also noted. Taken together, this mammal diversity and -abundances point to an intact ecosystem in the natural parts of the site which supports both small to medium-sized naturally occurring species.



**Figure 13: Spatial locations of the different mammal species recorded within the study area.**

## 2. Avifauna

Field survey

In total, 48 bird species were recorded within the study area, 47 of which are currently classified as "Least concern" (Figure 14) and one, the Blue Crane (*Anthropoides paradiseus*) classified as "Vulnerable" by the IUCN. Although a group of Blue Cranes were observed on the open Farmland in the far south of the site, their presence here is likely ephemeral as they immediately moved to similar Farmland to the south, and outside of the study area.



Aside from this avifaunal SCC, there is a notable presence of raptor species such as the Common Buzzard (*Buteo buteo*), Black-winged Kite (*Elanus caeruleus*) and Yellow-billed Kite (*Milvus aegyptius*) in the natural Shrubland and Drainage line habitats of the site, further pointing to an intact ecosystem in these areas. All other avifauna on the site constitute common vegetation-associated or terrestrial species, with granivorous species traversing the Farmland habitats, and insectivorous species occupying the Shrubland and Drainage line habitats of the site. Some freshwater-associated species are also present, given the presence of an artificial wetland in the Werner Frehse Nature Reserve.

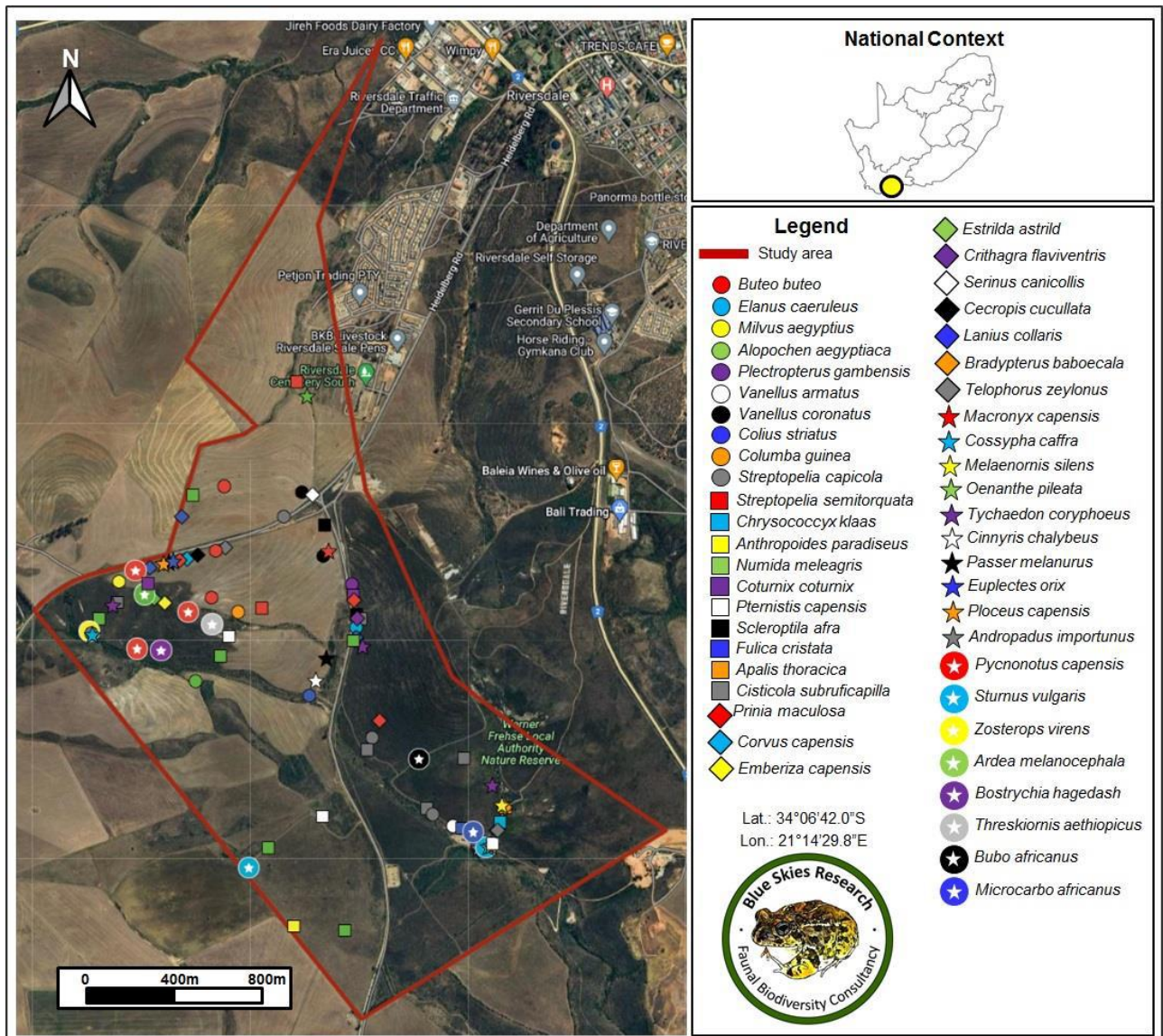
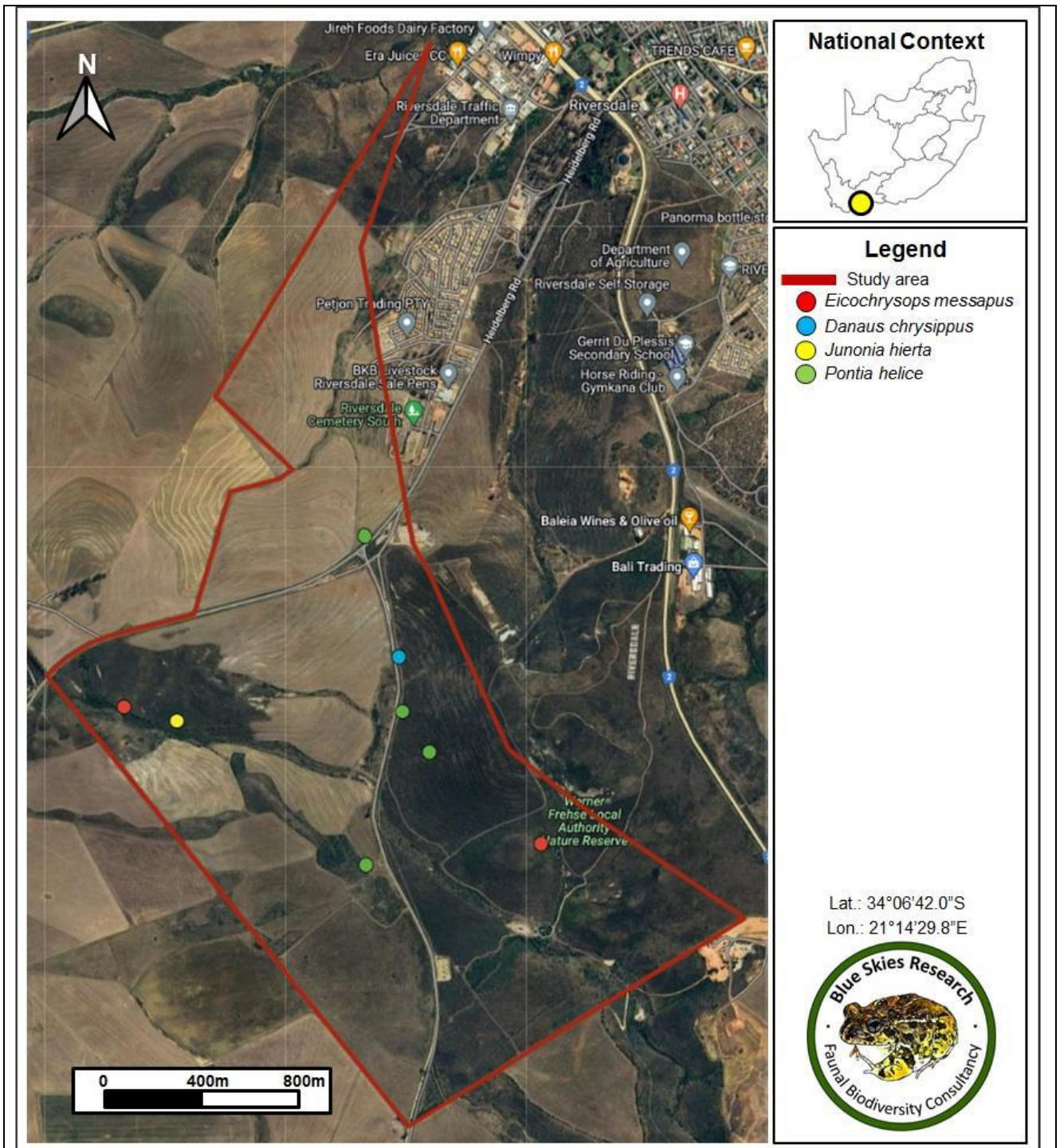


Figure 14: Spatial locations of the different avifaunal species recorded within the study area.

### 3. Butterflies

Four butterfly species were recorded within the study area (Figure 15), all of which are currently classified as “Least Concern” by the IUCN. The Southern Meadow White (*Pontia helice*) is the most abundant butterfly species on the site, with individuals of the Cupreous Blue (*Eicochrysops messapus*), Plain Tiger (*Danaus chrysippus*) and Yellow Pansy (*Junonia hierta*) also noted. Although this diversity appears relatively low, it is likely that the natural areas of the site (Shrubland and Drainage line habitats) will harbour a rich butterfly assemblage in other times of the year when the vegetation is in bloom.



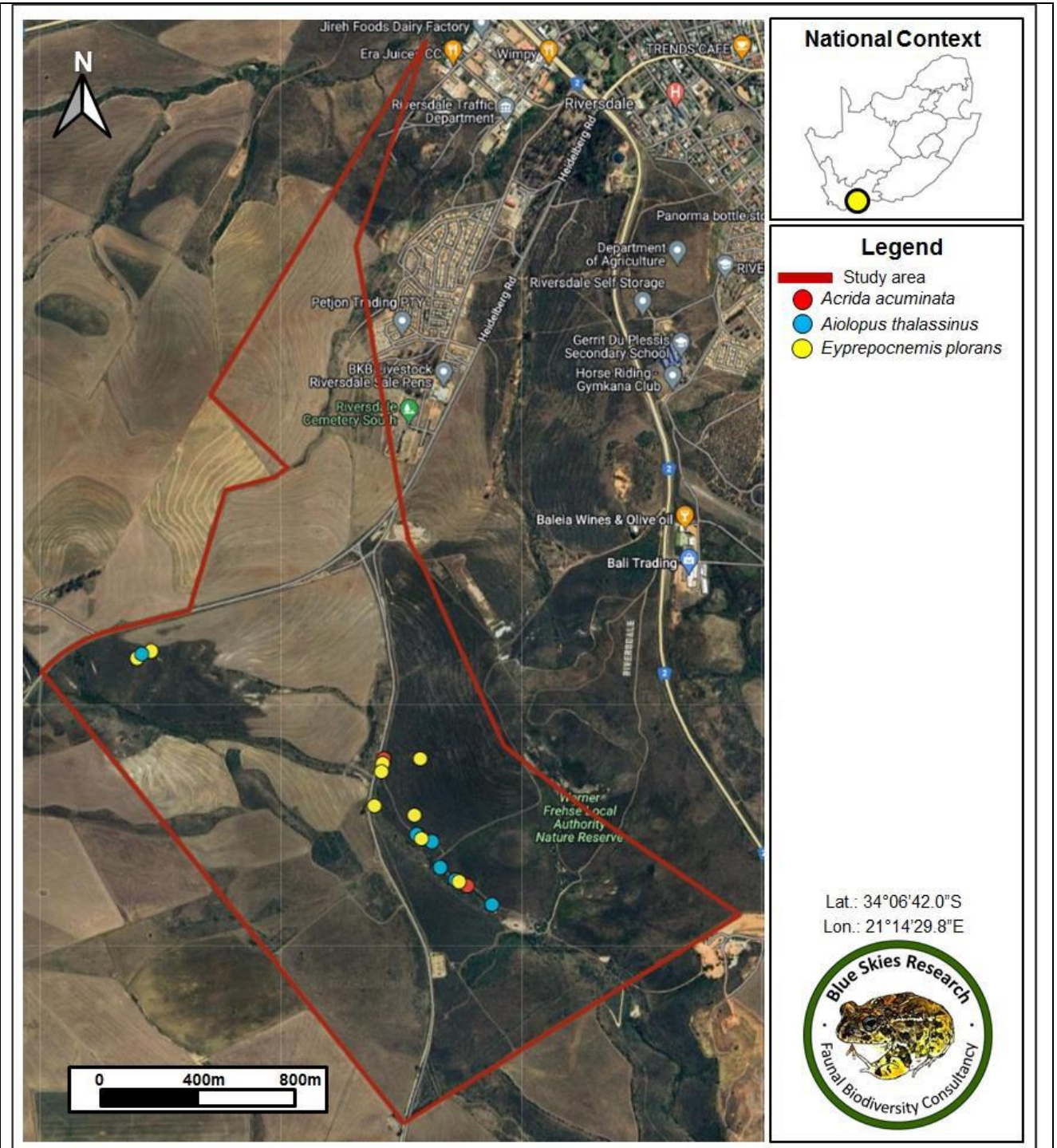


**Figure 15: Spatial locations of the different butterfly species recorded within the study area.**

#### 4. Grasshoppers

Three grasshopper species were recorded within the study area (Figure 16), two of which are currently not assessed and one classified as “Least Concern” by the IUCN. The Lamenting Grasshopper (*Eyprepocnemis plorans*) and Slender Green-winged Grasshopper (*Aiolopus thalassinus*) are abundant in all grass patches of the site, with individuals of the Common Stick Grasshopper (*Acrida acuminata*) also noted.





**Figure 16: Spatial locations of the different grasshopper species recorded within the study.**

**5. Faunal and avifaunal diversity within the study area**

Overall, terrestrial faunal and avifaunal diversity and abundances appears relatively high within the Shrubland and Drainage line habitats of the study area and is largely comprised of relatively common species of “Least Concern” (IUCN, 2021), albeit one avifaunal SCC, the Blue Crane (*Anthropoides paradiseus*) is present on the site. As is expected, avifauna is the most prominent faunal component in the study area landscape, likely owing to the availability of natural vegetation which offers suitable feeding and perching opportunities.

Also notable is the presence of avifaunal and mammal predator species, indicating intact predator-prey dynamics within the natural parts of the study area landscape. To this end, ecosystem dynamics

appear intact within the natural Shrubland and Drainage line habitats on the site with these parts forming a functional ecological link and faunal dispersal corridor in the study area landscape.

Conversely, a large part of the site comprises farmland where previous and current agricultural practices are notable. Given a lack of natural habitats, these parts of the site represent compromised ecological areas where only a few common bird species are evident, and which do not appear to represent functional corridors.

## 5. Geographical Aspects

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.

Several rivers are located on the property, these areas were avoided when selecting potential sites to explore as alternatives to prevent impacts to the watercourses and the sensitive riparian areas.

## 6. Heritage Resources

|      |   |   |    |
|------|---|---|----|
| 6.1. | Was a specialist study conducted?   | YES   | NO |
| 6.2. | Provide the name and/or company who conducted the specialist study.                                   | Heritage Impact Assessment - Dr. Jonathan Kaplan of Agency of Cultural Resource Management, Appendix G4a<br>Palaeontological Impact Assessment – John Pether, Appendix G4b  |    |
| 6.3. | Explain how areas that contain sensitive heritage resources have influenced the proposed development. | No sensitive heritage resources found on site.<br><br>The specialist study has identified no significant impact to pre-colonial Stone Age archaeological resources that will need to be, mitigated prior to construction activities commencing. Early Stone Age may be, exposed during site clearing operations and in shallow excavations for panel footings and underground cables.<br><br>According to Pether (2024), `construction of the SEF and BESS is not anticipated to have an impact on palaeontological heritage resources. Typically, the main excavations are the shallow trenches for connecting cabling, while the solar panel arrays are supported on driven posts or concrete sleepers and the transformers/inverters and BESS are located on concrete slabs. |    |

## 7. Historical and Cultural Aspects

Explain whether there are any culturally or historically significant elements as defined in Section 2 of the NHRA that will be affected and how has this influenced the proposed development.

According to the Heritage Impact Assessment compiled by Dr. Janothon Kaplan of ACRM, Appendix G4a:

### 1. Archaeological context

A search of the South African Heritage Information System (SAHRIS) has shown that no CRM studies have been conducted in Riversdale, and the surrounding area. The Overberg is strongly characterised by agriculture and almost all arable available land in the area has been cultivated (mostly dryland wheat). The proposed PV Solar Energy Plant and BESS will occur within this agricultural landscape, where little is known about the Stone Age archaeological heritage. Early Stone Age (ESA) artefacts are, however, known to occur quite widely in the rural agricultural landscape of the Southern Cape. ESA material would, for example, be found on open terraces, in agricultural land and fields and among alluvial gravels, where such observations have been made in the Riversdale and Heidelberg areas (Webley & Orton 2009). ESA material also occurs prolifically in the agricultural landscape, around Swellendam (Kaplan 2018, 2015, 2010a, b, 2008, 2007, 2006, 2002), and it can be assumed that their presence is replicated across the Overberg, including Riversdale.

## **Results**

A low density, ephemeral scatter of Early Stone Age (ESA) resources was recorded across the proposed development site, which are spread very thinly and unevenly over the surrounding agricultural landscape. All the remains occur in a highly transformed context (old agricultural land). Patches of round quartzite cobbles also occur on the surface in the grazing lands across the eastern portion of the site. Only six lithics (five chunk & a small flake) were recorded in the footprint area of the preferred site alongside the Eskom Riversdale substation.

More than 95% of the pieces recorded comprised chunks, and broken and flaked (cortex) chunks, while a very small number of modified and unmodified flakes, and cores were encountered (Figures 18-28). Only four bifacially flaked tools, including a broken, snapped and incomplete handaxe were recorded during the field assessment. No Large Cutting Tools (LCTs), cleavers or choppers were recorded. All the tools are made on locally available quartzite, struck from rounded colluvial cobbles, while many of the pieces are also burnished/weathered. Some of the pieces across the western portion of the site (dryland wheat) have been brought up to the surface because of ploughing activities, which is a common occurrence confirmed by the literature survey. Several modified pieces (mostly chunks) were also found among the many piles of stone removed from the surrounding fields. Only two Middle Stone Age flakes were found. No Later Stone Age resources or any organic remains such as pottery, or ostrich eggshell were found. No evidence of any human settlement or occupation was noted, and the resources recorded most likely represent discarded flakes and flake debris. Patches of surface cobbles in grazing lands across the eastern portion of the farm were also likely targeted as sources of raw materials for making tools.

## **Grading**

The highly disturbed context in which they were found, and the very small number of cores and retouched tools recorded means that the remains have been graded as Not Conservation Worthy (NCW)/low local archaeological significance.

## **2. Palaeontology**

According to Pether (2024), the upper Bokkeveld Group bedrock occupies the southern portion of Re Erf 2018 and is comprised of marine shelf mudrock shales and thin sandstones of mid-Devonian age (~385 Ma). The northern part of the site is underlain by the succeeding lowermost formation of the Witteberg Group, viz. the Wagen Drift Formation comprised of shallow-marine sandstones with interbedded mudrocks of late Devonian age (~375 Ma). The old "High Coastal Platform" is geomorphologically represented by the higher ground occupied by the Grahamstown Formation silcretes and by the "High-level terrace gravels".

The Bokkeveld Group 'in general' is of high palaeontological sensitivity (Figure 17) due to its unique fossil content but in the Southern Cape coastal region it is tectonized and weathered to the extent that its constituent formations cannot be differentiated. Similarly, the fossil content of the Wagen Drift Fm. has also been compromised. The Grahamstown Fm. silcrete rocks are very poorly fossiliferous. The residual gravels on the downwasted Grahamstown Fm and the High-level terrace remnant palaeosurfaces have been subjected to a long history of pedogenesis, fossils are very unlikely to be preserved and fossil finds are not reported (Pether 2024), Appendix G4b.



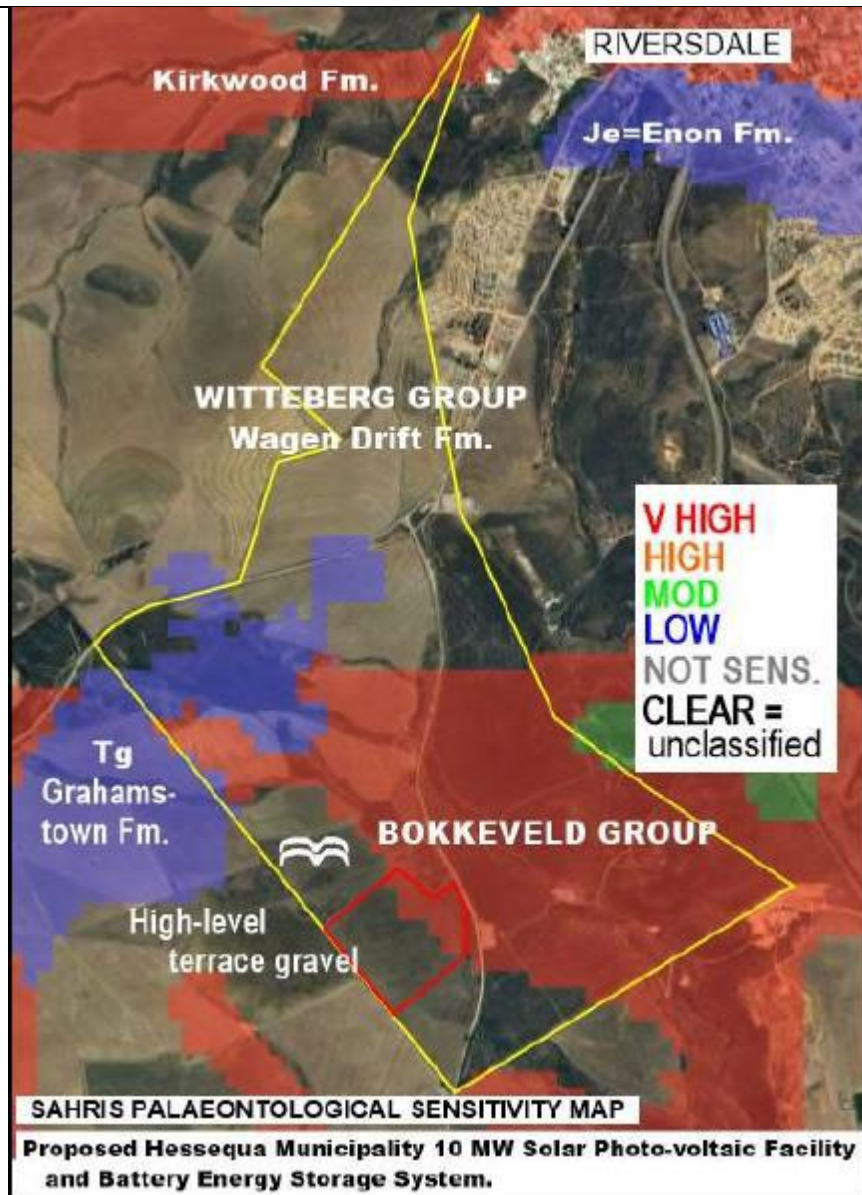


Figure 17: Palaeontological Sensitivity Map. Proposed Hessequa 10MW Solar

**3. Graves**

No graves or typical grave features were encountered during the field assessment.

**4. Built Environment**

There are no buildings, dwellings, structures, or features within the proposed site alternatives. Therefore, no direct impacts to the built environment will occur.

**5. Cultural landscape**

A rural agricultural landscape dominates the Cultural Landscape, with formal and informal housing, small scale farming, and the Riversdale Cemetery located alongside Heidelberg Road.

## 8. Socio/Economic Aspects

| 8.1.  | Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.               |              |              |              |              |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
|---|--|--------------|--------------|--------------|--------------|------|------|---------------|------|------|------|------|------|-------------|------|------|------|------|------|------------------|------|------|------|------|-------|----------------|-----|-----|-----|-----|-----|-------------------------|-----|-----|-----|-----|-----|------------|------|------|------|------|-------|-----------------|------|------|------|------|------|------------|-------|-------|-------|-------|-------|------------------|------|-----|-----|-----|-----|----------------|------|------|------|------|------|----------|------|------|------|------|------|---------|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|-------|--------------|--------------|--------------|--------------|--------------|--------------|
| <p>The Hessequa municipal area is bordered by the Indian Ocean and traversed by the N2. It is the largest municipal area in the Garden Route District in terms of geographical spread, covering 5 733km<sup>2</sup>. The Hessequa municipal area has several scattered settlements, the largest of which include Riversdale, Albertinia and Heidelberg. Coastal towns in the municipal area include Witsand, Jongensfontein, Still Bay and Gouritsmond. These are also popular tourist areas.</p>   |  |              |              |              |              |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| <p><b>Population and Households</b></p>   |  |              |              |              |              |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| <p>When the 2001 and 2011 Census datasets are used to consider population growth, the following table with official Stats SA was developed with projections for 5-year intervals.</p>   |  |              |              |              |              |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| <table border="1"> <thead> <tr> <th>Town</th> <th>2001</th> <th>2011</th> <th>2015</th> <th>2020</th> <th>2025</th> </tr> </thead> <tbody> <tr> <td>Albertinia SP</td> <td>1529</td> <td>1406</td> <td>1360</td> <td>1304</td> <td>1250</td> </tr> <tr> <td>Theronville</td> <td>3163</td> <td>4966</td> <td>5948</td> <td>7453</td> <td>9339</td> </tr> <tr> <td>Albertinia Total</td> <td>4692</td> <td>6372</td> <td>7308</td> <td>8757</td> <td>10589</td> </tr> <tr> <td>Gouritsmond SP</td> <td>459</td> <td>515</td> <td>539</td> <td>571</td> <td>605</td> </tr> <tr> <td>Groot-Jongensfontein SP</td> <td>282</td> <td>355</td> <td>389</td> <td>437</td> <td>490</td> </tr> <tr> <td>Heidelberg</td> <td>7125</td> <td>8259</td> <td>8762</td> <td>9433</td> <td>10156</td> </tr> <tr> <td>Melkhoutfontein</td> <td>1479</td> <td>2533</td> <td>3141</td> <td>4111</td> <td>5380</td> </tr> <tr> <td>Riversdale</td> <td>11678</td> <td>15292</td> <td>17033</td> <td>19492</td> <td>22305</td> </tr> <tr> <td>Riversdale Rural</td> <td>1115</td> <td>885</td> <td>807</td> <td>719</td> <td>640</td> </tr> <tr> <td>Slangrivier SP</td> <td>2352</td> <td>3011</td> <td>3324</td> <td>3761</td> <td>4255</td> </tr> <tr> <td>Stillbay</td> <td>3012</td> <td>3514</td> <td>3737</td> <td>4037</td> <td>4360</td> </tr> <tr> <td>Witsand</td> <td>199</td> <td>321</td> <td>389</td> <td>494</td> <td>627</td> </tr> <tr> <td>Rural</td> <td>11741</td> <td>11586</td> <td>11525</td> <td>11448</td> <td>11372</td> </tr> <tr> <td><b>Total</b></td> <td><b>44134</b></td> <td><b>52642</b></td> <td><b>56488</b></td> <td><b>61693</b></td> <td><b>67378</b></td> </tr> </tbody> </table> |  | Town         | 2001         | 2011         | 2015         | 2020 | 2025 | Albertinia SP | 1529 | 1406 | 1360 | 1304 | 1250 | Theronville | 3163 | 4966 | 5948 | 7453 | 9339 | Albertinia Total | 4692 | 6372 | 7308 | 8757 | 10589 | Gouritsmond SP | 459 | 515 | 539 | 571 | 605 | Groot-Jongensfontein SP | 282 | 355 | 389 | 437 | 490 | Heidelberg | 7125 | 8259 | 8762 | 9433 | 10156 | Melkhoutfontein | 1479 | 2533 | 3141 | 4111 | 5380 | Riversdale | 11678 | 15292 | 17033 | 19492 | 22305 | Riversdale Rural | 1115 | 885 | 807 | 719 | 640 | Slangrivier SP | 2352 | 3011 | 3324 | 3761 | 4255 | Stillbay | 3012 | 3514 | 3737 | 4037 | 4360 | Witsand | 199 | 321 | 389 | 494 | 627 | Rural | 11741 | 11586 | 11525 | 11448 | 11372 | <b>Total</b> | <b>44134</b> | <b>52642</b> | <b>56488</b> | <b>61693</b> | <b>67378</b> |
| Town  | 2001   | 2011         | 2015         | 2020         | 2025         |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Albertinia SP   | 1529   | 1406         | 1360         | 1304         | 1250         |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Theronville   | 3163   | 4966         | 5948         | 7453         | 9339         |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Albertinia Total  | 4692   | 6372         | 7308         | 8757         | 10589        |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Gouritsmond SP  | 459  | 515          | 539          | 571          | 605          |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Groot-Jongensfontein SP   | 282  | 355          | 389          | 437          | 490          |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Heidelberg  | 7125   | 8259         | 8762         | 9433         | 10156        |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Melkhoutfontein   | 1479   | 2533         | 3141         | 4111         | 5380         |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Riversdale  | 11678  | 15292        | 17033        | 19492        | 22305        |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Riversdale Rural  | 1115   | 885          | 807          | 719          | 640          |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Slangrivier SP  | 2352   | 3011         | 3324         | 3761         | 4255         |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Stillbay  | 3012   | 3514         | 3737         | 4037         | 4360         |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Witsand   | 199  | 321          | 389          | 494          | 627          |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| Rural   | 11741  | 11586        | 11525        | 11448        | 11372        |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| <b>Total</b>  | <b>44134</b>   | <b>52642</b> | <b>56488</b> | <b>61693</b> | <b>67378</b> |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| 8.2.  | Explain the socio-economic value/contribution of the proposed development.   |              |              |              |              |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| <ul style="list-style-type: none"> <li> <b>Improve energy security and support the renewable energy sector:</b> South Africa's energy crisis, which started in 2007 and is ongoing, has resulted in widespread rolling blackouts (referred to as load shedding) due to supply shortfalls. The load shedding has had a significant impact on all sectors of the economy and on investor confidence. The establishment of renewable energy facilities not only addresses environmental issues associated with climate change and consumption of scarce water resources, but also create significant socio-economic opportunities and benefits, specifically for historically disadvantaged, rural communities.         </li> <li> <b>Creation of employment opportunities:</b> The direct employment opportunities associated with the operational phase of renewable energy projects are relatively limited. However, most employment will be in the construction phase.         </li> <li> <b>Benefits associated with the socio-economic contributions:</b> The revenue from the proposed development can be used to support a number of social and economic initiatives in the area, including Creation of jobs, education, support for and provision of basic services, school feeding schemes, training and skills development, and support for Small, Medium and Micro Enterprises.         </li> </ul>  |  |              |              |              |              |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| 8.3.  | Explain what social initiatives will be implemented by applicant to address the needs of the community and to uplift the area. |              |              |              |              |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| <p>The project will make use of local labour as much as is practical for unskilled labour. A lot of the works are specialised and therefore will be done by specialists.</p>  |  |              |              |              |              |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |
| <p>The Municipality is implementing the project completely to uplift the community. The upliftment is not a by-product in this case.</p>  |  |              |              |              |              |      |      |               |      |      |      |      |      |             |      |      |      |      |      |                  |      |      |      |      |       |                |     |     |     |     |     |                         |     |     |     |     |     |            |      |      |      |      |       |                 |      |      |      |      |      |            |       |       |       |       |       |                  |      |     |     |     |     |                |      |      |      |      |      |          |      |      |      |      |      |         |     |     |     |     |     |       |       |       |       |       |       |              |              |              |              |              |              |

The project will aim to reduce the impact of rising electricity costs and to alleviate the impact of load shedding.

8.4. Explain whether the proposed development will impact on people's health and well-being (e.g. in terms of noise, odours, visual character and sense of place etc) and how has this influenced the proposed development.

**Construction phase:**

Nearby farms which will temporarily be affected by construction activities (noise and dust), these are however, temporary in nature and can be mitigated or managed by implementing the EMPr.

**Operational phase:**

The proposed development will positively impact on people's health and well-being. Negative health impacts on people and communities' health and well-being as a result of loadshedding, have been reported.

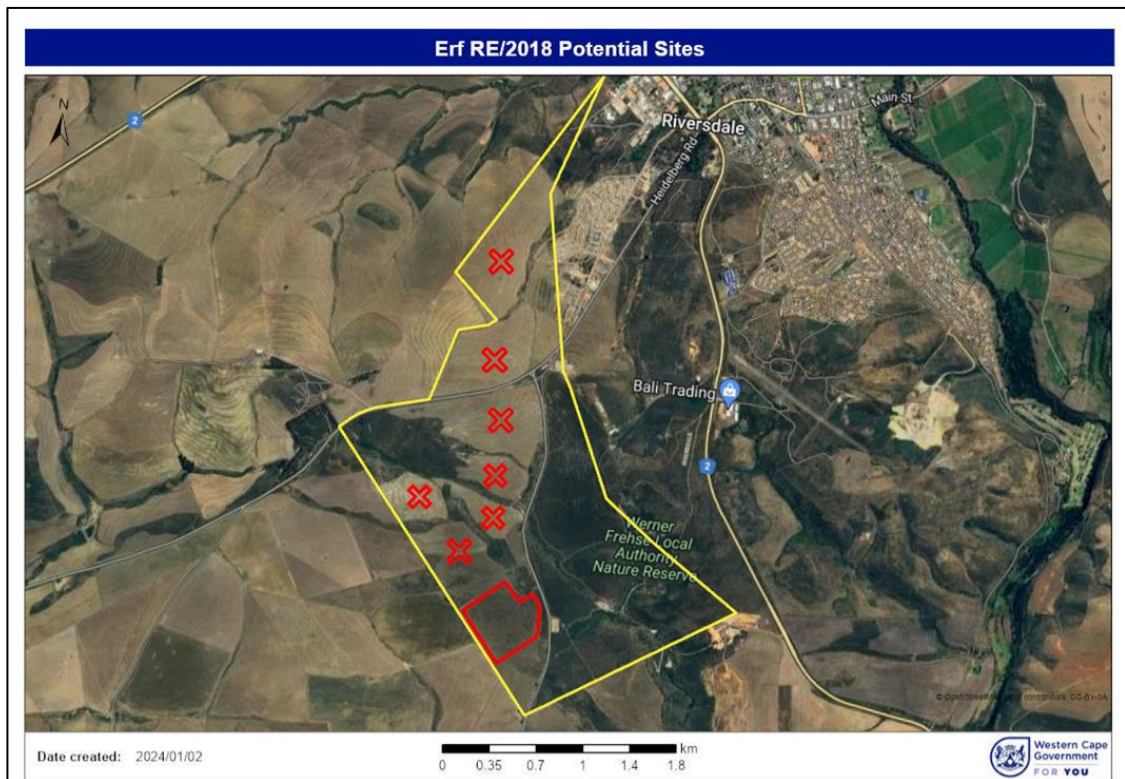
**SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES**

**1. Details of the alternatives identified and considered**

1.1. Property and site alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred property and site alternative.

All alternative sites are located within the municipal property, the Remainder of Erf 2018 (Figure 18). The appointed specialist were provided Figure 18 for them to base their assessments/compliance statements on.



**Figure 18: Alternative Sites initially considered**

Of the sites presented to the specialist only the preferred site and the sites located to the far north thereof are large enough to accommodate the proposal. Once the specialist had been to site other constraints of the alternative sites became clear. These points are explained below in the motivation for the preferred site section to follow.

**Alternatives**

Please note that due to the nature and urgency of the proposal, layouts were not generated for the alternative sites however the site sensitives highlighted by the specialists above meant that the



development of alternative layouts is not necessary. The application of a similar setup at each of the alternative sites in concept was deemed sufficient to determine the site sensitivities and the best Alternative of the sites.

**Alternative A (preferred site location)**

The preferred site, as proposed by the Municipality, is Remainder of Erf 2018 adjacent to the Eskom Intake substation for Riversdale, as shown in Figures 19 and 20. The Erf spans over an area of approximately 426 ha. A proposed layout of approximately 18.5ha was used across from the gravel road entrance to the property and opposite from an existing substation. This is ample space for the establishment of a solar plant of up to 10MW with additional 10MWh of BESS as well as the required MV Switchgear and cabling as required to facilitate the grid connection of the PV plant onto the municipal grid.



**Figure 19: Alternative A (Preferred Alternative)**



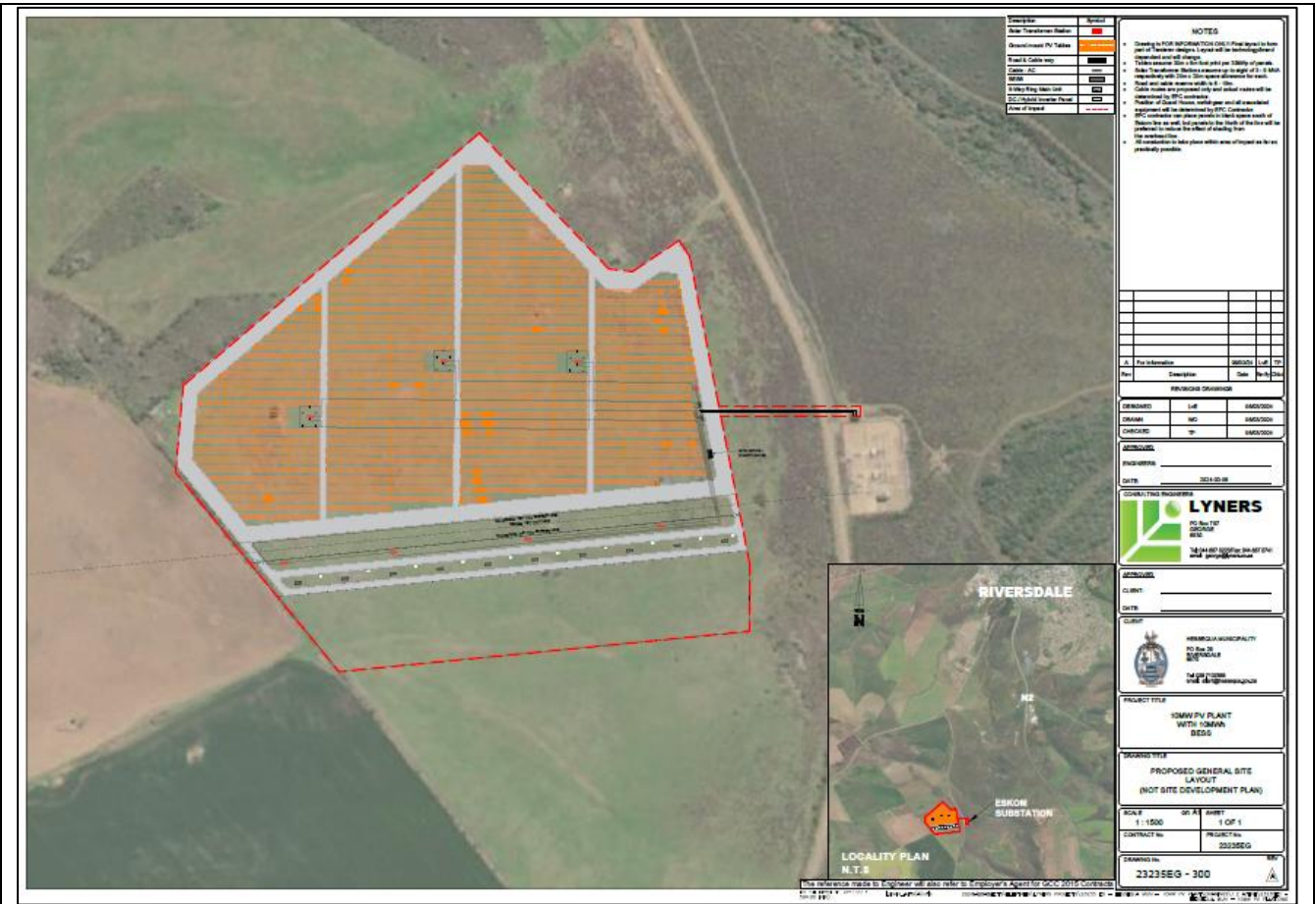
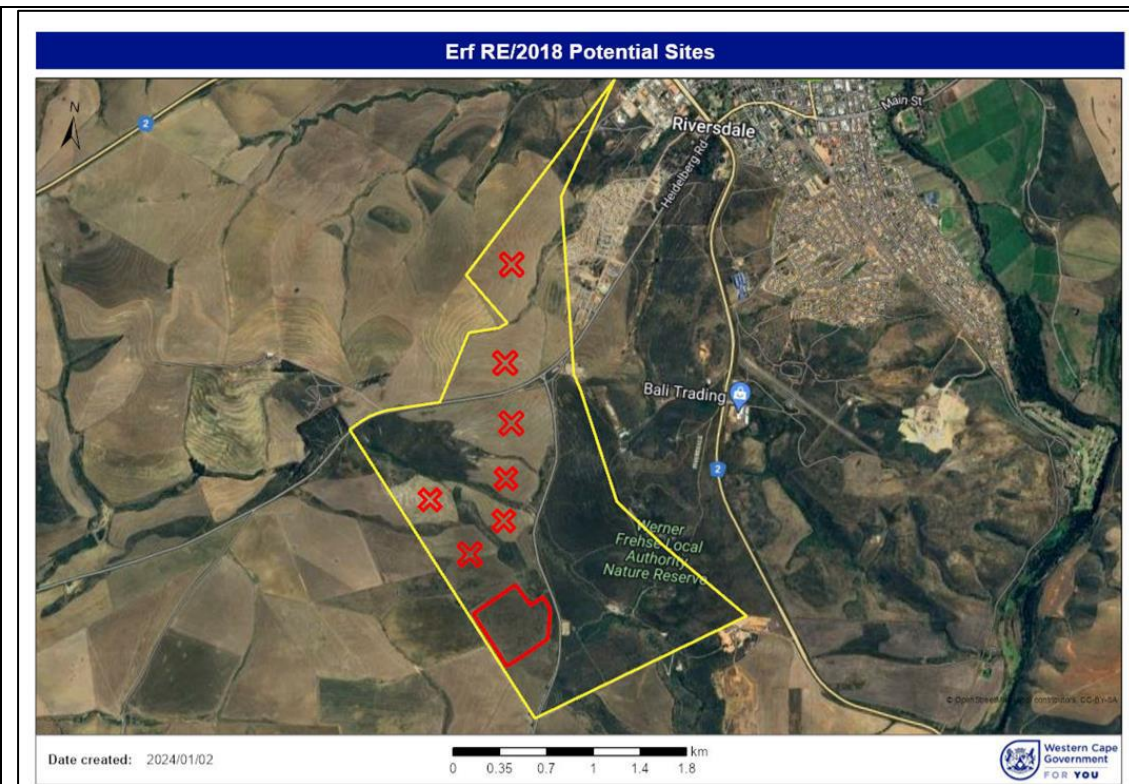


Figure 20: Alternative A general layout (Preferred Site)

**Alternative Sites**

As shown in Figure 21 (duplicate of Figure 18) the “X” marked areas on the map were the alternative sites assessed by all the specialists. The conclusion to all the specialists findings summarised above are why the alternative sites are not preferred over Alternative A.



**Figure 21: Alternative sites (marked "X")**

Provide a description of any other property and site alternatives investigated.

No other property is being considered for this development since the substation is on this property. Alternative sites within the property have been identified and investigated. The appointed specialists were asked to cover the whole property in their assessments.

Provide a motivation for the preferred property and site alternative including the outcome of the site selectin matrix.

**Agriculture:** The agricultural impact assessment revealed that the fallow land of the preferred site has limited cropping potential due to soil constraints. The specialist indicated that, "the dominant constraint is rockiness, limited soil depth and consequent low water holding capacity. Because of this, the site is not viable for rainfed crop production. An agricultural impact is a change to the future agricultural production potential of land. In this case, the preferred development footprint is considered to be below the threshold for needing to be conserved as agricultural production land because it is not viable for cropping. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security. Due to the fact that the development on the preferred site will not occupy scarce, viable cropland, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable.

The overall conclusion of this assessment is that the proposed development on the preferred site is acceptable because it leads to no loss of potential cropland and minimal loss of future agricultural production potential."

Purely from an Agricultural point of view the Alternative A is preferred.

**Vegetation:** The two northern most sites have a low sensitivity due to the active agricultural activities on site with the preferred site having a Low-medium sensitivity. The difference in the sensitivity ratings is because the preferred site has sat fallow for more than 10 years. The botanical specialist does however indicate that "The prospect of the fallow land recovering (reverting back to good quality renosterveld) in the long term is poor since the area is subject to grazing pressure." So purely in terms of vegetation on the alternatives the northern most sites are slightly less sensitive than the preferred alternative however the preferred site is not being used whereas the two northern most sites are contributing to agriculture and as such active agricultural land will be lost to implement the proposal.

**Terrestrial faunal and avifaunal:** The biodiversity specialist came to a similar conclusion as the botanist in that the Site Ecological Importance (SEI) of the farmed areas of the property have a very low SEI and that the riparian areas between the farmlands as having a very high SEI. The difference being that even the fallow land of the preferred alternative is also rated very low SEI. The specialist indicates that, "All Farmland habitats on the site offer little in the way of faunal habitats and further not forming any crucial link in providing ecosystem services. To this end, the placement of the proposed development footprint (or any of the alternative footprints) in this habitat type is not likely to affect biodiversity and ecological patterns within the study area landscape". To this extent all alternative sites are suitable for the proposal in terms of terrestrial biodiversity.

**Heritage resources:** The Palaeontological and Heritage Specialists conclude that "no significant impact to pre-colonial Stone Age archaeological resources that will need to be, mitigated prior to construction activities commencing. Early Stone Age may be, exposed during site clearing operations and in shallow excavations for panel footings and underground cables.

According to Pether (2024), "construction of the SEF and BESS is not anticipated to have an impact on palaeontological heritage resources". Typically, the main excavations are the shallow trenches for connecting cabling, while the solar panel arrays are supported on driven posts or concrete sleepers and the transformers/inverters and BESS are located on concrete slabs."

**Visual:** The visual Specialist found that the preferred site to have a moderate low sensitivity, the smaller sites not large enough for the proposed facility had the lowest sensitivity, however these are unusable, with the northern most sites having a relatively higher rating than the preferred site.

**Freshwater:** According to the Freshwater Specialist, "A conservative 30 m buffer has been applied to all watercourses verified on site. While the proposed development is located within a SWSA (only a small proportion of the preferred alternative falls within a SWSA), the implementation of the proposed management recommendations, together with the implementation of the conservative buffer will prevent impacts to aquatic biodiversity and the ability of the land to continue to produce high quantities of good quality water. The preferred alternative falls well outside of the 30 m buffer and therefore the sensitivity of aquatic biodiversity on this site is considered to be Low. The aquatic biodiversity sensitivity of any of the other alternatives is Low, provided that the entire development footprint remains outside any of the 30 m buffers."

**Water use requirements:** According to the Freshwater Specialist, "Based on the results of the newly revised legislation and the site verification, it can be concluded that any development taking place outside the 100 m and 500 m regulated area would not require any water use authorisation. In this respect the preferred alternative is considered to be ideal and would not require any water use authorisation. Many of the other alternatives would fall in the regulated area and would require a GA."

**Engineering aspects:** The preferred site is located adjacent to an existing substation which makes tying the proposed facility into the grid far easier, more cost effective and would result in the least amount of disturbance to lay cables to the substation.

**Economic aspects:** These are closely aligned with the engineering aspects whereas the preferred site would result in the least amount of cost to achieve the same goal on the other alternative sites. Less disturbance through earth works results in lower cost and additionally the closer the tie into the existing substation the lower the costs for the cables towards the existing substation.

| Theme          | Agri | Aquatic | Faunal Species | Plant Species | Ter. Bio diversity | Heritage Resources | Size | Available services | Socio-Economic |
|----------------|------|---------|----------------|---------------|--------------------|--------------------|------|--------------------|----------------|
| Preferred Site |      |         |                |               |                    |                    |      |                    |                |
| Site 1         |      |         |                |               |                    |                    |      |                    |                |
| Site 2         |      |         |                |               |                    |                    |      |                    |                |
| Site 3         |      |         |                |               |                    |                    |      |                    |                |
| Site 4         |      |         |                |               |                    |                    |      |                    |                |
| Site 5         |      |         |                |               |                    |                    |      |                    |                |
| Site 6         |      |         |                |               |                    |                    |      |                    |                |
| Site 7         |      |         |                |               |                    |                    |      |                    |                |

|  |   |
|--|---|
| Provide a full description of the process followed to reach the preferred alternative within the site.   |   |
| The preferred site was presented for assessment by the Hessequa Municipality and was likely inferred by the Economic and engineering aspects. As the specialists' reports began to become available it became obvious that the presented Preferred Alternative turns out to also be the Environmentally preferred site for the proposal. Please refer to the summarised specialists' findings which help reach the conclusion that the preferred Alternative A is the best Environmental Alternative to implement the proposal while also being the best socio-economic Alternative.   |   |
| Provide a detailed motivation if no property and site alternatives were considered.  |   |
| The proposed property is owned by the municipality and is most suitable for the proposal due to the unutilised nature of the site and the existing and nearby electrical infrastructure to tie into.   |   |
| List the positive and negative impacts that the property and site alternatives will have on the environment.   |   |
| <p><b>Positive</b></p> <ul style="list-style-type: none"> <li>• Capital expenditure and economy stimulation</li> <li>• Temporary construction phase job Opportunities</li> <li>• Shift towards renewable, clean energy supply</li> <li>• Independence from Eskom and fossil fuels for power generation</li> </ul> <p><b>Negative</b></p> <ul style="list-style-type: none"> <li>• Temporary construction phase eyesore</li> <li>• Temporary nuisances from construction vehicles and construction noise</li> </ul>   |   |
| 1.2.   | Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts. |
| Provide a description of the preferred activity alternative.   |   |
| <p><b>Project Objectives:</b></p> <ul style="list-style-type: none"> <li>• Loadshedding Resilience: Provide supply to critical industrial economy base during power outages and loadshedding.</li> <li>• Renewable Energy Generation: Generate clean, renewable electricity from the sun, reducing carbon footprint.</li> <li>• Peak Demand Management: Mitigate peak demand periods by delivering stored energy during high-load times, reducing stress on the grid.</li> <li>• Cost Savings: Lower energy costs for end-users in Riversdale through embedded generation and assist in absorbing net losses resultant from escalating Eskom Tariffs.</li> </ul> <p>The project objectives above will be achieved by implementing the Preferred Activity Alternative in accordance with the Scope of works below:</p> <p><b>Scope of work</b></p> <p>The full development to be constructed will consist of the following:</p> <ul style="list-style-type: none"> <li>• A 10MW (up to 11MWp) Solar PV Plant.</li> <li>• A Battery Energy Storage System with a usable (at least 4000 cycles) capacity of 10MWh consisting of containerised Lithium Ion or Redox Flow type batteries.</li> <li>• LV/MV Transformer stations</li> <li>• An access road and internal roads that will have a width of up to 8m including drainage on both sides of the road.</li> <li>• MV cabling operating at 11kV between Substation tie-in point and plant as well as internal cabling.</li> <li>• Indoor and Outdoor MV switchgear for grid tie-in point</li> <li>• Fencing and Security</li> </ul> |   |
| Provide a description of any other activity alternatives investigated.   |   |
| No other activity alternative was explored.  |   |
| Provide a motivation for the preferred activity alternative.   |   |

PV Solar installations are the best renewable energy activities as they are widely known and implemented and require the least amount of running maintenance and costs.

Provide a detailed motivation if no activity alternatives exist.

Activity alternatives exist however as mentioned above this is the most practical activity approach in providing renewable energy to combat Loadshedding.

List the positive and negative impacts that the activity alternatives will have on the environment.

**Positive**

- Capital expenditure and economy stimulation
- Temporary construction phase job Opportunities
- Shift towards renewable, clean energy supply
- Independence from Eskom and fossil fuels for power generation

**Negative**

- Temporary construction phase eyesore
- Temporary nuisances from construction vehicles and construction noise

1.3. Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts

Provide a description of the preferred design or layout alternative.

NO design alternatives exists however the proposed layout is a general layout and the appointed contractor will have to implement the proposal in accordance with the parameters set out by the Engineering Report, as such there may be slight variations to the final implemented PV Solar plant (within the parameters set out by the engineer.)

Provide a description of any other design or layout alternatives investigated.

Not applicable

Provide a motivation for the preferred design or layout alternative.

Not applicable

Provide a detailed motivation if no design or layout alternatives exist.

PV solar installations are widely accepted as the lowest maintenance renewable energy source and are being implemented nationwide to combat loadshedding.

List the positive and negative impacts that the design alternatives will have on the environment.

Not applicable

1.4. Technology alternatives (e.g., to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred technology alternative:

Not applicable

Provide a description of any other technology alternatives investigated.

Not applicable

Provide a motivation for the preferred technology alternative.

Not applicable

Provide a detailed motivation if no alternatives exist.

Not applicable

List the positive and negative impacts that the technology alternatives will have on the environment.

Not applicable

1.5. Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred operational alternative.



|  |  |
|--|--|
| Not applicable   |  |
| Provide a description of any other operational alternatives investigated.  |  |
| Not applicable   |  |
| Provide a motivation for the preferred operational alternative.  |  |
| Not applicable   |  |
| Provide a detailed motivation if no alternatives exist.  |  |
| Not applicable   |  |
| List the positive and negative impacts that the operational alternatives will have on the environment.   |  |
| Not applicable   |  |
| 1.6.   | The option of not implementing the activity (the 'No-Go' Option).  |
| Provide an explanation as to why the 'No-Go' Option is not preferred.  |  |
| Southern Africa is experiencing rolling backouts (loadshedding) and as such the proposal is to combat this an eventual become self-sufficient from Eskom which has become an unreliable source of power. Although not being the first objective of the proposal and others country wide the shift in independence from Eskom has global benefits by reducing the demand of fossil fuelled power and reducing carbon emissions. |  |
| 1.7.   | Provide and explanation as to whether any other alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist. |
|  |  |
| 1.8.   | Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.  |
| Taking the specialist reports into consideration and the description on how it was determined that the preferred Alternative is the best option, the preferred Alternative A is the best practical environmental option for the implementation of the proposal   |  |

## 2. "No-Go" areas

|  |  |
|--|--|
| Explain what "no-go" area(s) have been identified during identification of the alternatives and provide the co-ordinates of the "no-go" area(s).   |  |
| The No-Go areas for the construction phase will be any areas outside of the development footprint. This is a more conservative approach and satisfies all the No-Go areas presented by the specialists, no sensitive features will be damaged if the contractor goes slightly beyond the development footprint however there is no obvious reason as to why they would need to exceed the boundaries of the development footprint and as such all areas outside of the development footprint must be considered No-Go areas during the construction phase. |  |

## 3. Methodology to determine the significance ratings of the potential environmental impacts and risks associated with the alternatives.

|   |   |
|---|---|
| Describe the methodology to be used in determining and ranking the nature, significance, consequences, extent, duration of the potential environmental impacts and risks associated with the proposed activity or development and alternatives, the degree to which the impact or risk can be reversed and the degree to which the impact and risk may cause irreplaceable loss of resources.                               |   |
| The assessment criteria utilised in this environmental impact assessment is based on, and adapted from, the <i>Guideline on Impact Significance, Integrated Environmental Management Information Series 5</i> (Department of Environmental Affairs and Tourism (DEAT), 2002) and the <i>Guideline 5: Assessment of Alternatives and Impacts in Support of the Environmental Impact Assessment Regulations</i> (DEAT, 2006). |   |
| <b>Determination of Extent (Scale):</b>   |   |
| <b>Site specific</b>  | On site or within 100 m of the site boundary, but not beyond the property boundaries.   |
| <b>Local</b>  | The impacted area includes the whole or a measurable portion of the site and property, but could affect the area surrounding the development, including the neighbouring properties and wider municipal area. |
| <b>Regional</b>   | The impact would affect the broader region (e.g., neighbouring towns) beyond the boundaries of the adjacent properties.   |



|                 |  |
|-----------------|--|
| <b>National</b> | The impact would affect the whole country (if applicable). |
|-----------------|--|

**Determination of Duration:**

|                    |   |
|--------------------|---|
| <b>Temporary</b>   | The impact will be limited to the construction phase.   |
| <b>Short term</b>  | The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than 8 months after the completion of the construction phase.       |
| <b>Medium term</b> | The impact will last up to the end of the construction phase, where after it will be entirely negated in a period shorter than 3 years after the completion of construction activities. |
| <b>Long term</b>   | The impact will continue for the entire operational lifetime of the development but will be mitigated by direct human action or by natural processes thereafter.                        |
| <b>Permanent</b>   | This is the only class of impact that will be non-transitory. Such impacts are regarded to be irreversible, irrespective of what mitigation is applied.                                 |

**Determination of Probability:**

|                        |  |
|------------------------|--|
| <b>Improbable</b>      | The possibility of the impact occurring is very low, due either to the circumstances, design or experience.  |
| <b>Probable</b>        | There is a possibility that the impact will occur to the extent that provisions must therefore be made.  |
| <b>Highly probable</b> | It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up to mitigate the activity before the activity commences. |
| <b>Definite</b>        | The impact will take place regardless of any prevention plans.   |

**Determination of Significance (without mitigation):**

|                        |  |
|------------------------|--|
| <b>No significance</b> | The impact is not substantial and does not require any mitigation action.  |
| <b>Low</b>             | The impact is of little importance but may require limited mitigation.   |
| <b>Medium</b>          | The impact is of sufficient importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.  |
| <b>Medium-High</b>     | The impact is of high importance and is therefore considered to have a negative impact. Mitigation is required to manage the negative impacts to acceptable levels.  |
| <b>High</b>            | The impact is of great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential. |
| <b>Very High</b>       | The impact is critical. Mitigation measures cannot reduce the impact to acceptable levels. As such the impact renders the proposal unacceptable.   |

**Determination of Significance (with mitigation):**

|                        |  |
|------------------------|--|
| <b>No significance</b> | The impact will be mitigated to the point where it is regarded to be insubstantial.  |
| <b>Low</b>             | The impact will be mitigated to the point where it is of limited importance.   |
| <b>Medium</b>          | Notwithstanding the successful implementation of the mitigation measures, the impact will remain of significance. However, taken within the overall context of the project, such a persistent impact does not constitute a fatal flaw. |

|             |  |
|-------------|--|
| <b>High</b> | Mitigation of the impact is not possible on a cost-effective basis. The impact continues to be of great importance, and taken within the overall context of the project, is considered to be a fatal flaw in the project proposal. |
|-------------|--|

**Determination of Reversibility:**

|                              |   |
|------------------------------|---|
| <b>Completely Reversible</b> | The impact is reversible with implementation of minor mitigation measures   |
| <b>Partly Reversible</b>     | The impact is partly reversible but more intense mitigation measures        |
| <b>Barely Reversible</b>     | The impact is unlikely to be reversed even with intense mitigation measures |
| <b>Irreversible</b>          | The impact is irreversible, and no mitigation measures exist                |

**Determination of Degree to which an Impact can be Mitigated:**

|                                |   |
|--------------------------------|---|
| <b>Can be mitigated</b>        | The impact is reversible with implementation of minor mitigation measures   |
| <b>Can be partly mitigated</b> | The impact is partly reversible but more intense mitigation measures        |
| <b>Can be barely mitigated</b> | The impact is unlikely to be reversed even with intense mitigation measures |
| <b>Not able to mitigate</b>    | The impact is irreversible, and no mitigation measures exist                |

**Determination of Loss of Resources:**

|                                      |  |
|--------------------------------------|--|
| <b>No loss of resource</b>           | The impact will not result in the loss of any resources    |
| <b>Marginal loss of resource</b>     | The impact will result in marginal loss of resources       |
| <b>Significant loss of resources</b> | The impact will result in significant loss of resources    |
| <b>Complete loss of resources</b>    | The impact will result in a complete loss of all resources |

**Determination of Cumulative Impact:**

|                   |  |
|-------------------|--|
| <b>Negligible</b> | The impact would result in negligible to no cumulative effects |
| <b>Low</b>        | The impact would result in insignificant cumulative effects    |
| <b>Medium</b>     | The impact would result in minor cumulative effects            |
| <b>High</b>       | The impact would result in significant cumulative effects      |

**Determination of Consequence significance:**

|                   |  |
|-------------------|--|
| <b>Negligible</b> | The impact would result in negligible to no consequences |
| <b>Low</b>        | The impact would result in insignificant consequences    |
| <b>Medium</b>     | The impact would result in minor consequences            |
| <b>High</b>       | The impact would result in significant consequences      |

#### 4. Assessment of each impact and risk identified for each alternative

**Note:** The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. The EAP may decide to include this section as Appendix J to this BAR.

**Please note for the purposes of the impact tables to follow, Alternative A is the preferred and southern most site presented in the maps. The central sites are not large enough to accommodate the proposal and as such the Alternative B in the impact tables are the two northern most sites, their impact significance for the various aspects are vastly similar to one another and as such they will be referred to as Alternative B as it will become evident when reading through the impact tables that this is sufficient to determine the impact significance relative to the Preferred Alternative A.**

##### Freshwater Features

The expected impacts to freshwater features are of low significance and as such only a freshwater compliance statement level investigation was required. No full impact assessment was therefore conducted. Stormwater and erosion management measures were however recommended in the compliance statement and will be incorporated into the impact tables to follow in addition to the EMPr for the management of the implementation of the proposal.

| Alternative:  | A (preferred)  | B | No-Go                                 |
|---|--|---|---------------------------------------|
| <b>DEVELOPMENT AND OPERATIONAL PHASE</b>  |  |   |                                       |
| <b>Potential impact and risk:</b>   | Stormwater Management and erosion prevention   |   | No Impact/No change to the status quo |
| Nature of impact:   | Negative   |   |                                       |
| Extent and duration of impact:  | Site specific and long term  |   |                                       |
| Consequence of impact or risk:  | Erosion and sedimentation of watercourses  |   |                                       |
| Probability of occurrence:  | Probable   |   |                                       |
| Degree to which the impact may cause irreplaceable loss of resources:                                 | Marginal loss of resource  |   |                                       |
| Degree to which the impact can be reversed:   | Completely reversible  |   |                                       |
| Indirect impacts:   | Loss of riparian vegetation and biota habitat  |   |                                       |
| Cumulative impact prior to mitigation:  | Low  |   |                                       |
| Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Medium   |   |                                       |
| Degree to which the impact can be avoided:  | High   |   |                                       |
| Degree to which the impact can be managed:  | High   |   |                                       |
| Degree to which the impact can be mitigated:  | High   |   |                                       |
| Proposed mitigation:  | <ul style="list-style-type: none"> <li>Stormwater generated on site should, as far as possible, be managed according to Sustainable</li> </ul> |   |                                       |

|                                    |  |  |
|------------------------------------|--|--|
|                                    | <p>Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. In this respect the following measures.</p> <ul style="list-style-type: none"> <li>○ Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site;</li> <li>○ Use of permeable paving to encourage infiltration into the soil; and</li> <li>○ Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site.</li> </ul> <ul style="list-style-type: none"> <li>● The steep slopes of the property will be vulnerable to erosion during clearance of the site and the construction phase. It is therefore important that appropriate erosion control measures are implemented, which include inter alia, the following: <ul style="list-style-type: none"> <li>○ Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events.</li> <li>○ Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.</li> <li>○ Reduce transport of sediment through use of structures such as silt fences or biodegradable coir logs placed along a contour below the development footprint</li> <li>○ The steep slopes of the property will be vulnerable to erosion during clearance of the site and the construction phase. It is therefore important that appropriate erosion control measures are implemented, which include inter alia, the following: <ul style="list-style-type: none"> <li>○ Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events.</li> <li>○ Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.</li> <li>○ Reduce transport of sediment through use of structures such as silt fences or biodegradable coir logs placed along a contour below the development footprint</li> </ul> </li> </ul> </li> </ul> |  |
| Residual impacts:                  | Disturbed areas will be vulnerable to erosion until vegetation re-establishes to stabilise the soil.   |  |
| Cumulative impact post mitigation: | None expected  |  |

|  |                                 |                              |           |
|--|---------------------------------|------------------------------|-----------|
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Low (no water use requirements) | Low (water use requirements) | No Impact |
|--|---------------------------------|------------------------------|-----------|

### Visual Aspects

During the construction phase of development, the vegetation will be cleared from the site and earthworks will result in visual scarring - subsoil being visible.

| Alternative:  | A (preferred)  | B             | No-Go     |
|---|--|---------------|-----------|
| <b>DEVELOPMENT PHASE</b>  |  |               |           |
| Potential impact and risk:  | Visual scarring as a result of clearing vegetation and earth-works   |               | No Impact |
| Nature of impact:   | Negative   |               |           |
| Extent and duration of impact:  | Local and temporary  |               |           |
| Consequence of impact or risk:  | Insignificant  | Negligible    |           |
| Probability of occurrence:  | Definite   |               |           |
| Degree to which the impact may cause irreplaceable loss of resources:                                 | Marginal   |               |           |
| Degree to which the impact can be reversed:   | Partly   |               |           |
| Cumulative impact prior to mitigation:  | Low  |               |           |
| Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Medium   | Medium - High |           |
| Degree to which the impact can be mitigated:  | Can be mitigated   |               |           |
| Proposed mitigation:  | Minimise disturbance, revegetate edges of site with indigenous shrubs and trees and the PV areas with low growing indigenous lawn grass and groundcovers |               |           |
| Cumulative impact post mitigation:  | Low  | Low           |           |
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)    | Medium - low   | Medium        | No Impact |
| <b>OPERATIONAL PHASE</b>  |  |               |           |
| Potential impact and risk:  | Visibility from the Receptors namely Werner Frehse Nature Reserve, N2 500m section, Kwanokuthula and road to Vermaklikheid                               |               | No Impact |
| Nature of impact:   | Negative   |               |           |
| Extent and duration of impact:  | Local – Medium to long term  |               |           |

|   |  |               |           |
|---|--|---------------|-----------|
| Consequence of impact or risk:  | Insignificant  | Low           |           |
| Probability of occurrence:  | Highly Probable  |               |           |
| Degree to which the impact may cause irreplaceable loss of resources:                                 | Marginal   |               |           |
| Degree to which the impact can be reversed:   | Partly   |               |           |
| Cumulative impact prior to mitigation:  | Low  |               |           |
| Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Medium   | Medium - high |           |
| Degree to which the impact can be mitigated:  | Can be partially mitigated   |               |           |
| Proposed mitigation:  | Create berms for screening or hedgerows of indigenous trees and hedges |               |           |
| Cumulative impact post mitigation:  | Low  |               |           |
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)    | Insignificant  | Low           | No Impact |

### Terrestrial Fauna and avifaunal aspects

The terrestrial fauna and avifaunal biodiversity of the site is rated very low and as such only a compliance statement level investigation was required. No full impact assessment was therefore conducted.

Mitigation measures recommended by the specialist:

- Shrubland and Drainage Line habitats (not located within the proposed facility footprint) should be excluded from any development planning and considered as a "No-Go" area. (this is already implemented by the preferred layout)
- It is recommend that the development footprint be kept at the provided minimum to minimise disturbance of surrounding natural habitats on the site. Furthermore, every effort should be made to save and relocate any mammal, reptile, amphibian, bird, or invertebrate that cannot flee of its own accord, encountered during site preparation (i.e., to avoid and minimise the direct mortality of faunal species). These animals should be relocated to a suitable habitat area immediately outside the project footprint, but under no circumstance to an area further away.



## Vegetation Aspects

| Alternative:  | A (preferred)   | B | No-Go     |
|---|---|---|-----------|
| <b>DEVELOPMENT PHASE</b>  |   |   |           |
| Potential impact and risk:  | Impact on terrestrial biodiversity <ul style="list-style-type: none"> <li>• Clearing of fallow land</li> <li>• Slight impact on the functionality of biodiversity network.</li> <li>• Increased opportunity for alien infestation.</li> </ul>   |   | No Impact |
| Nature of impact:   | Negative  |   |           |
| Extent and duration of impact:  | Development footprint – Long term   |   |           |
| Consequence of impact or risk:  | Low-medium  |   |           |
| Probability of occurrence:  | High  |   |           |
| Degree to which the impact may cause irreplaceable loss of resources:                                 | Medium  |   |           |
| Degree to which the impact can be reversed:   | Medium  |   |           |
| Cumulative impact prior to mitigation:  | continued erosion of Rûens Silcrete Renosterveld, as well as the loss of SCC. In this instance, the loss of biodiversity and resultant cumulative impact is expected to be medium-low due to the degraded state of the site.  |   |           |
| Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Medium - low  |   |           |
| Degree to which the impact can be mitigated:  | Medium  |   |           |
| Proposed mitigation:  | <ul style="list-style-type: none"> <li>• Use permeable fencing around the development, which will allow the movement of fauna across the site. Restrict all construction activities, such as stockpiling, parking and office infrastructure, to already disturbed areas away from natural vegetation. The contractor(s) must be made aware of the sensitive surroundings. The renosterveld areas outside the footprint must be declared as 'no-go' areas and not be disturbed in any way.</li> <li>• In order to maintain functioning of the biodiversity network, it is recommended that the north-eastern side of the site be pulled further back from the road by straightening out the boundary.</li> <li>• Pollutant substances brought onto site must be properly contained.</li> </ul> |   |           |

|  |  |           |
|--|--|-----------|
|  | <ul style="list-style-type: none"> <li>Remove topsoil and/or seedbearing indigenous plant material from the vegetated areas to be disturbed for use in the rehabilitation of disturbed areas after construction.</li> <li>Where needed or considered practical, rehabilitate/revegetate all the disturbed surfaces. Erosion prevention measures may be needed on steep slopes, such as silt fences, logs or netting, to slow down runoff and potential erosion. Mulching and seeding with indigenous renosterveld seed may also be needed.</li> <li>Allow at least 12 months for the monitoring of rehabilitation success and alien infestation post construction. Repair erosion damage where needed. Rooikrans, prickly pear and silver-leaf bitter apple are category 1b invaders that require compulsory control as part of an invasive species control programme for the entire property. The harbouring of black wattle (category 2 invader) on a property is prohibited without a permit. Therefore, as an operational phase maintenance concern, keep the site and immediate adjacent area clear of invasive aliens. It is recommended that a strip of at least 10 m wide around the site be monitored for aliens during the operational phase.</li> </ul> |           |
| Cumulative impact post mitigation:   | continued erosion of Rûens Silcrete Renosterveld, as well as the loss of SCC. In this instance, the loss of biodiversity and resultant cumulative impact is expected to be medium-low due to the degraded state of the site.   |           |
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Low  | No Impact |
| <b>OPERATIONAL PHASE</b>   |  |           |
| Potential impact and risk:   | Impact on terrestrial biodiversity <ul style="list-style-type: none"> <li>Increased alien infestation.</li> </ul>  | No Impact |
| Nature of impact:  | Negative   |           |
| Extent and duration of impact:   | Development footprint – Long term  |           |
| Consequence of impact or risk:   | Low  |           |
| Probability of occurrence:   | Medium   |           |
| Degree to which the impact may cause irreplaceable loss of resources:                              | Medium - Low   |           |
| Cumulative impact prior to mitigation:   | continued erosion of Rûens Silcrete Renosterveld, as well as the loss of SCC. In this instance, the loss of biodiversity and resultant cumulative impact is expected to be medium-low due to the degraded state of the site.   |           |

|   |   |  |
|---|---|--|
| Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Medium -Low   |  |
| Degree to which the impact can be mitigated:  | High  |  |
| Proposed mitigation:  | <ul style="list-style-type: none"> <li>• Use permeable fencing around the development, which will allow the movement of fauna across the site. Restrict all construction activities, such as stockpiling, parking and office infrastructure, to already disturbed areas away from natural vegetation. The contractor(s) must be made aware of the sensitive surroundings. The renosterveld areas outside the footprint must be declared as 'no-go' areas and not be disturbed in any way.</li> <li>• In order to maintain functioning of the biodiversity network, it is recommended that the north-eastern side of the site be pulled further back from the road by straightening out the boundary.</li> <li>• Pollutant substances brought onto site must be properly contained.</li> <li>• Remove topsoil and/or seedbearing indigenous plant material from the vegetated areas to be disturbed for use in the rehabilitation of disturbed areas after construction.</li> <li>• Where needed or considered practical, rehabilitate/revegetate all the disturbed surfaces. Erosion prevention measures may be needed on steep slopes, such as silt fences, logs or netting, to slow down runoff and potential erosion. Mulching and seeding with indigenous renosterveld seed may also be needed.</li> <li>• Allow at least 12 months for the monitoring of rehabilitation success and alien infestation post construction. Repair erosion damage where needed. Rooikrans, prickly pear and silver-leaf bitter apple are category 1b invaders that require compulsory control as part of an invasive species control programme for the entire property. The harbouring of black wattle (category 2 invader) on a property is prohibited without a permit. Therefore, as an operational phase maintenance concern, keep the site and immediate adjacent area clear of invasive aliens. It is recommended that a strip of at least 10 m wide around the site be monitored for aliens during the operational phase.</li> </ul> |  |
| Cumulative impact post mitigation:  | continued erosion of Rûens Silcrete Renosterveld, as well as the loss of SCC. In this instance, the loss of biodiversity and resultant cumulative impact is expected to be medium-low due to the degraded state of the site.  |  |

|  |     |           |
|--|-----|-----------|
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Low | No Impact |
|--|-----|-----------|

| Alternative:  | A (preferred)   | B | No-Go     |
|---|---|---|-----------|
| <b>DEVELOPMENT PHASE</b>  |   |   |           |
| Potential impact and risk:  | Impact of the project on flora and SCC <ul style="list-style-type: none"> <li>Loss of indigenous flora &amp; SCC</li> </ul>   |   | No Impact |
| Nature of impact:   | Negative  |   |           |
| Extent and duration of impact:  | Development footprint – Long term   |   |           |
| Consequence of impact or risk:  | Low-medium  |   |           |
| Probability of occurrence:  | High  |   |           |
| Degree to which the impact may cause irreplaceable loss of resources:                                 | Low - Medium  |   |           |
| Degree to which the impact can be reversed:   | Medium  |   |           |
| Cumulative impact prior to mitigation:  | continued erosion of Rûens Silcrete Renosterveld, as well as the loss of SCC. In this instance, the loss of biodiversity and resultant cumulative impact is expected to be medium-low due to the degraded state of the site.  |   |           |
| Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Medium - low  |   |           |
| Degree to which the impact can be mitigated:  | Medium  |   |           |
| Proposed mitigation:  | As a duty of care measure, search and rescue of succulents and bulbs from the development footprint is recommended. These can be replanting in the rehabilitation areas after construction. Topsoil, cuttings and seedbearing plant material can also be salvaged for this purpose. Geophytes should be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in |   |           |



|   |  |           |
|---|--|-----------|
|   | the receiving area. Ideally, bulbs should be salvaged during leaf fall, but before or after flowering.   |           |
| Cumulative impact post mitigation:  | continued erosion of Rûens Silcrete Renosterveld, as well as the loss of SCC. In this instance, the loss of biodiversity and resultant cumulative impact is expected to be medium-low due to the degraded state of the site.   |           |
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)    | Low  | No Impact |
| <b>OPERATIONAL PHASE</b>  |  |           |
| Potential impact and risk:  | Impact of the project on flora and SCC.<br>- Alien infestation and resulting displacement of indigenous flora  | No Impact |
| Nature of impact:   | Negative   |           |
| Extent and duration of impact:  | Development footprint – Long term  |           |
| Consequence of impact or risk:  | Low  |           |
| Probability of occurrence:  | Low - Medium   |           |
| Degree to which the impact may cause irreplaceable loss of resources:                                 | Low - Medium   |           |
| Cumulative impact prior to mitigation:  | continued erosion of Rûens Silcrete Renosterveld, as well as the loss of SCC. In this instance, the loss of biodiversity and resultant cumulative impact is expected to be medium-low due to the degraded state of the site.   |           |
| Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Low  |           |
| Degree to which the impact can be mitigated:  | High   |           |
| Proposed mitigation:  | <ul style="list-style-type: none"> <li>Use permeable fencing around the development, which will allow the movement of fauna across the site. Restrict all construction activities, such as stockpiling, parking and office infrastructure, to already disturbed areas away from natural vegetation. The contractor(s) must be made aware of the sensitive surroundings. The renosterveld areas outside the footprint must be declared as 'no-go' areas and not be disturbed in any way.</li> </ul> |           |

|  |   |           |
|--|---|-----------|
|  | <ul style="list-style-type: none"> <li>In order to maintain functioning of the biodiversity network, it is recommended that the north-eastern side of the site be pulled further back from the road by straightening out the boundary.</li> <li>Pollutant substances brought onto site must be properly contained.</li> <li>Remove topsoil and/or seedbearing indigenous plant material from the vegetated areas to be disturbed for use in the rehabilitation of disturbed areas after construction.</li> <li>Where needed or considered practical, rehabilitate/revegetate all the disturbed surfaces. Erosion prevention measures may be needed on steep slopes, such as silt fences, logs or netting, to slow down runoff and potential erosion. Mulching and seeding with indigenous renosterveld seed may also be needed.</li> <li>Allow at least 12 months for the monitoring of rehabilitation success and alien infestation post construction. Repair erosion damage where needed. Rooikrans, prickly pear and silver-leaf bitter apple are category 1b invaders that require compulsory control as part of an invasive species control programme for the entire property. The harbouring of black wattle (category 2 invader) on a property is prohibited without a permit. Therefore, as an operational phase maintenance concern, keep the site and immediate adjacent area clear of invasive aliens. It is recommended that a strip of at least 10 m wide around the site be monitored for aliens during the operational phase.</li> </ul> |           |
| Cumulative impact post mitigation:   | continued erosion of Rûens Silcrete Renosterveld, as well as the loss of SCC. In this instance, the loss of biodiversity and resultant cumulative impact is expected to be medium-low due to the degraded state of the site.  |           |
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | Low   | No Impact |

### Socio-Economic Aspects

| Alternative:                   | A (preferred)   | B | C (No-Go) |
|--------------------------------|---|---|-----------|
| <b>DEVELOPMENT PHASE</b>       |   |   |           |
| Potential impact and risk:     | CAPITAL EXPENDITURE DUE TO CONSTRUCTION COSTS<br>It is anticipated that construction related costs will be in the region of R213million |   |           |
| Nature of impact:              | Positive  |   | No Impact |
| Extent and duration of impact: | Local and Temporary   |   |           |
| Consequence of impact or risk: | Capital influx for businesses involved, and knock on effect as the businesses that will supply services and                             |   |           |

|  |   |                  |
|--|---|------------------|
|  | materials for the development will benefit from the capital influx  |                  |
| Probability of occurrence:   | Definite  |                  |
| Degree to which the impact may cause irreplaceable loss of resources:                                  | No loss of resource   |                  |
| Degree to which the impact can be reversed:  | N/A   |                  |
| Indirect impacts:  | Growth for business involved in the development and general influx of capital into the construction sector support industries |                  |
| Cumulative impact prior to mitigation:   | N/A   |                  |
| Significance rating of impact prior to mitigation (e.g., Low, Medium, Medium-High, High, or Very-High) | Low-medium  |                  |
| Degree to which the impact can be avoided:   | N/A   |                  |
| Degree to which the impact can be managed:   | Can be managed by encouraging proponent to support local business   |                  |
| Degree to which the impact can be mitigated:   | N/A   |                  |
| Proposed mitigation:   | Local business should be supported as far as possible   |                  |
| Residual impacts:  | Certain services or materials may need to be sourced from outside of the Hessequa Municipal area                              |                  |
| Cumulative impact post mitigation:   |   |                  |
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)     | <b>Medium</b>   | <b>No Impact</b> |

| <b>Alternative:</b>               | <b>A (Preferred Alternative)</b>   | <b>B</b> | <b>C (No-Go)</b> |
|-----------------------------------|--|----------|------------------|
| <b>DEVELOPMENT PHASE</b>          |  |          |                  |
| <b>Potential impact and risk:</b> | <b>Temporary Job creation</b> – The development phase is expected to provide jobs for unskilled and skilled labourers. |          |                  |
| Nature of impact:                 | Positive   |          | No Impact        |

|   |   |               |  |
|---|---|---------------|--|
| Extent and duration of impact:  | Local and Temporary   |               |  |
| Consequence of impact or risk:  | <p>Medium</p> <ul style="list-style-type: none"> <li>• Temporary income for those employed during the construction phase</li> <li>• Skill building for first time construction labourers</li> </ul> |               |  |
| Probability of occurrence:  | Definite  |               |  |
| Degree to which the impact may cause irreplaceable loss of resources:                                 | Not Applicable  |               |  |
| Degree to which the impact can be reversed:   | Not Applicable  |               |  |
| Indirect impacts:   | Quality of life for labourers is temporarily uplifted<br>Capital influx for households  |               |  |
| Cumulative impact prior to mitigation:  | Not Applicable  |               |  |
| Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) |   |               |  |
| Degree to which the impact can be avoided:  |   |               |  |
| Degree to which the impact can be managed:  |   |               |  |
| Degree to which the impact can be mitigated:  |   |               |  |
| Proposed mitigation:  |   |               |  |
| Residual impacts:   |   |               |  |
| Cumulative impact post mitigation:  |   |               |  |
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)    |   | <b>Medium</b> |  |

| Alternative:                      | A (preferred)  | B | C (No-Go) |
|-----------------------------------|--|---|-----------|
| <b>Operational PHASE</b>          |  |   |           |
| <b>Potential impact and risk:</b> | <b>RENEWABLE, CLEAN SOURCE OF ENERGY</b><br>Once operational the facility will generate energy from a renewable clean source |   |           |
| Nature of impact:                 | Positive   |   | No Impact |
| Extent and duration of impact:    | Local and permanent  |   |           |



|  |  |                  |
|--|--|------------------|
| Consequence of impact or risk:   | <ul style="list-style-type: none"> <li>• Hessequa Municipality shift towards self-sufficient, clean energy source</li> <li>• Independence from Eskom and fossil fuels for energy</li> <li>• Reduced and eventual completely mitigate the effect of loadshedding</li> </ul> |                  |
| Probability of occurrence:   | Definite   |                  |
| Degree to which the impact may cause irreplaceable loss of resources:                                  | No loss of resource  |                  |
| Degree to which the impact can be reversed:  | N/A  |                  |
| Indirect impacts:  | Global reduction in carbon emissions and dependency on fossil fuels for energy   |                  |
| Cumulative impact prior to mitigation:   | N/A  |                  |
| Significance rating of impact prior to mitigation (e.g., Low, Medium, Medium-High, High, or Very-High) | High   |                  |
| Degree to which the impact can be avoided:   | N/A  |                  |
| Degree to which the impact can be managed:   | N/A  |                  |
| Degree to which the impact can be mitigated:   | N/A  |                  |
| Proposed mitigation:   | N/A  |                  |
| Residual impacts:  | N/A  |                  |
| Cumulative impact post mitigation:   | N/A  |                  |
| Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)     | <b>High</b>  | <b>No Impact</b> |

## SECTION I: FINDINGS, IMPACT MANAGEMENT AND MITIGATION MEASURES

1. Provide a summary of the findings and impact management measures identified by all Specialist and an indication of how these findings and recommendations have influenced the proposed development.

The table below summarises the potential Impacts associated with the proposed development post mitigation. Please refer to the Section I (2) for the proposed mitigation measures to ensure the corresponding rating post mitigation.

**Table 1: Summary of the Impacts Post Mitigation**

| Impact   | Alternative A<br>(Preferred Alternative) | Alternative B                     | No-Go     |
|--|--|-----------------------------------|-----------|
| <b>Construction Phase</b>  |  |                                   |           |
| Stormwater Management and erosion prevention   | Low (-)<br>no water use requirements     | Low (-)<br>water use requirements | No Impact |
| Visual scarring as a result of clearing vegetation and earth-works   | Medium – low (-)                         | Medium (-)                        | No Impact |
| Impact on terrestrial biodiversity   | Low (-)                                  | Low (-)                           | No Impact |
| Impact of the project on flora and SCC   | Low (-)                                  | Low (-)                           | No Impact |
| Capital expenditure  | Medium (+)                               | Medium (+)                        | No Impact |
| Temporary Job opportunities  | Medium (+)                               | Medium (+)                        | No Impact |
| <b>Operational Phase</b>   |  |                                   |           |
| Stormwater Management and erosion prevention   | Low (-)<br>no water use requirements     | Low (-)<br>water use requirements | No Impact |
| Visibility from the Receptors namely Werner Frehse Nature Reserve, N2 500m section, Kwanokuthula and road to Vermaklikheid | Insignificant (-)                        | Low (-)                           | No Impact |
| Impact on terrestrial biodiversity   | Low (-)                                  | Low (-)                           | No Impact |
| Impact of the project on flora and SCC   | Low (-)                                  | Low (-)                           | No Impact |
| Renewable clean source of energy   | High (+)                                 | High (+)                          | No Impact |

**Agriculture:** The agricultural impact assessment revealed that the fallow land of the preferred site has limited cropping potential due to soil constraints. The specialist indicated that, "the dominant constraint is rockiness, limited soil depth and consequent low water holding capacity. Because of this, the site is not viable for rainfed crop production. An agricultural impact is a change to the future agricultural production potential of land. In this case, the preferred development footprint is considered to be below the threshold for needing to be conserved as agricultural production land because it is not viable for cropping. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security. Due to the fact that the development on the preferred site will not occupy scarce, viable cropland, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable.

The overall conclusion of this assessment is that the proposed development on the preferred site is acceptable because it leads to no loss of potential cropland and minimal loss of future agricultural production potential."

Purely from an Agricultural point of view the Alternative A is preferred.

**Vegetation:** The two northern most sites have a low sensitivity due to the active agricultural activities on site with the preferred site having a Low-medium sensitivity. The difference in the sensitivity ratings is because the preferred site has sat fallow for more than 10 years. The botanical specialist does however

indicate that *"The prospect of the fallow land recovering (reverting back to good quality renosterveld) in the long term is poor since the area is subject to grazing pressure."* So purely in terms of vegetation on the alternatives the northern most sites are slightly less sensitive than the preferred alternative however the preferred site is not being used whereas the two northern most sites are contributing to agriculture and as such active agricultural land will be lost to implement the proposal.

**Terrestrial faunal and avifaunal:** The biodiversity specialist came to a similar conclusion as the botanist in that the Site Ecological Importance (SEI) of the farmed areas of the property have a very low SEI and that the riparian areas between the farmlands as having a very high SEI. The difference being that even the fallow land of the preferred alternative is also rated very low SEI. The specialist indicates that, *"All Farmland habitats on the site offer little in the way of faunal habitats and further not forming any crucial link in providing ecosystem services. To this end, the placement of the proposed development footprint (or any of the alternative footprints) in this habitat type is not likely to affect biodiversity and ecological patterns within the study area landscape"*. To this extent all alternative sites are suitable for the proposal in terms of terrestrial biodiversity.

**Heritage resources:** The Palaeontological and Heritage Specialists conclude that *"no significant impact to pre-colonial Stone Age archaeological resources that will need to be, mitigated prior to construction activities commencing. Early Stone Age may be, exposed during site clearing operations and in shallow excavations for panel footings and underground cables. According to Pether (2024), 'construction of the SEF and BESS is not anticipated to have an impact on palaeontological heritage resources'. Typically, the main excavations are the shallow trenches for connecting cabling, while the solar panel arrays are supported on driven posts or concrete sleepers and the transformers/inverters and BESS are located on concrete slabs."*

**Visual:** The visual Specialist found that the preferred site to have a moderate low sensitivity, the smaller sites not large enough for the proposed facility had the lowest sensitivity, however these are unusable, with the northern most sites having a relatively higher rating than the preferred site.

**Freshwater:** According to the Freshwater Specialist, *"A conservative 30 m buffer has been applied to all watercourses verified on site. While the proposed development is located within a SWSA (only a small proportion of the preferred alternative falls within a SWSA), the implementation of the proposed management recommendations, together with the implementation of the conservative buffer will prevent impacts to aquatic biodiversity and the ability of the land to continue to produce high quantities of good quality water. The preferred alternative falls well outside of the 30 m buffer and therefore the sensitivity of aquatic biodiversity on this site is considered to be Low. The aquatic biodiversity sensitivity of any of the other alternatives is Low, provided that the entire development footprint remains outside any of the 30 m buffers."*

**Water use requirements:** According to the Freshwater Specialist, *"Based on the results of the newly revised legislation and the site verification, it can be concluded that any development taking place outside the 100 m and 500 m regulated area would not require any water use authorisation. In this respect the preferred alternative is considered to be ideal and would not require any water use authorisation. Many of the other alternatives would fall in the regulated area and would require a GA."*

**Engineering aspects:** The preferred site is located adjacent to an existing substation which makes tying the proposed facility into the grid far easier, more cost effective and would result in the least amount of disturbance to lay cables to the substation.

**Economic aspects:** These are closely aligned with the engineering aspects whereas the preferred site would result in the least amount of cost to achieve the same goal on the other alternative sites. Less disturbance through earth works results in lower cost and additionally the closer the tie into the existing substation the lower the costs for the cables towards the existing substation.

2. List the impact management measures that were identified by all Specialist that will be included in the EMPr

**Recommended mitigation measures by the botanist, Appendix G3:**

The following mitigation measures are required to ensure that the impact on terrestrial biodiversity and plant species is minimised:

- Use permeable fencing around the development, which will allow the movement of fauna across the site. Restrict all construction activities, such as stockpiling, parking and office infrastructure, to already disturbed areas away from natural vegetation. The contractor(s) must be made aware of the sensitive surroundings. The renosterveld areas outside the footprint must be declared as 'no-go' areas and not be disturbed in any way.
- In order to maintain functioning of the biodiversity network, it is recommended that the north-eastern side of the site be pulled further back from the road by straightening out the boundary.
- Pollutant substances brought onto site must be properly contained.
- Remove topsoil and/or seedbearing indigenous plant material from the vegetated areas to be disturbed for use in the rehabilitation of disturbed areas after construction.
- Where needed or considered practical, rehabilitate/revegetate all the disturbed surfaces. Erosion prevention measures may be needed on steep slopes, such as silt fences, logs or netting, to slow down runoff and potential erosion. Mulching and seeding with indigenous renosterveld seed may also be needed.
- Allow at least 12 months for the monitoring of rehabilitation success and alien infestation post construction. Repair erosion damage where needed. Rooikrans, prickly pear and silver-leaf bitter apple are category 1b invaders that require compulsory control as part of an invasive species control programme for the entire property. The harbouring of black wattle (category 2 invader) on a property is prohibited without a permit. Therefore, as an operational phase maintenance concern, keep the site and immediate adjacent area clear of invasive aliens. It is recommended that a strip of at least 10 m wide around the site be monitored for aliens during the operational phase.
- As a duty of care measure, search and rescue of succulents and bulbs from the development footprint is recommended. These can be replanting in the rehabilitation areas after construction. Topsoil, cuttings and seedbearing plant material can also be salvaged for this purpose. Geophytes should be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area. Ideally, bulbs should be salvaged during leaf fall, but before or after flowering.

**Recommended management measures by the aquatic specialist, Appendix G2:**

***Stormwater Management***

A key impact related to solar developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces. Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. In this respect given the steep slopes within the property, even though the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts.

Given the location of the property in a SWSA, it is therefore important that stormwater generated on site should, as far as possible, be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. In this respect the following measures, inter alia, should be considered:

- Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site;
- Use of permeable paving to encourage infiltration into the soil; and
- Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site.

***Erosion Management***



The steep slopes of the property will be vulnerable to erosion during clearance of the site and the construction phase. It is therefore important that appropriate erosion control measures are implemented, which include inter alia, the following:

- Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events.
- Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.
- Reduce transport of sediment through use of structures such as silt fences or biodegradable coir logs placed along a contour below the development footprint (Figure 12).



**Figure 22: Examples of silt fences (left) and coir logs (right) used to trap sediment mobilised from steep slopes.**

- Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff.
- Revegetate exposed areas, with indigenous vegetation, once construction has been completed.
- Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion.

**Recommended mitigation measures by the faunal specialist, Appendix G1:**

Following from the “Very high” SEI retrieved for the Shrubland and Drainage Line habitats on the site (Figure 23), it is recommended that these habitats should be excluded from any development planning and considered as a “No-Go” area (i.e., avoidance mitigation; Figure 24) given their sensitivity.

In contrast, the Farmland habitats on the site exist in a highly modified state and are retrieved as having a “Very low” SEI, allowing for development activities of medium to high impact without restoration activities being required. To this end, all existing Farmland areas are developable from a faunal perspective (Figure 24). Indeed, the proposed project location (as well as the seven other potential alternative locations) currently intersects with this Farmland habitat of “Very low” SEI (Figure 23) and is therefore supported from a faunal sensitivity perspective.

Should the current development proceed over the proposed layout, it is recommended that the development footprint be kept at the provided minimum to minimise disturbance of surrounding natural habitats on the site. Furthermore, every effort should be made to save and relocate any mammal, reptile, amphibian, bird, or invertebrate that cannot flee of its own accord, encountered during site preparation (i.e., to avoid and minimise the direct mortality of faunal species). These animals should be relocated to a suitable habitat area immediately outside the project footprint, but under no circumstance to an area further away.

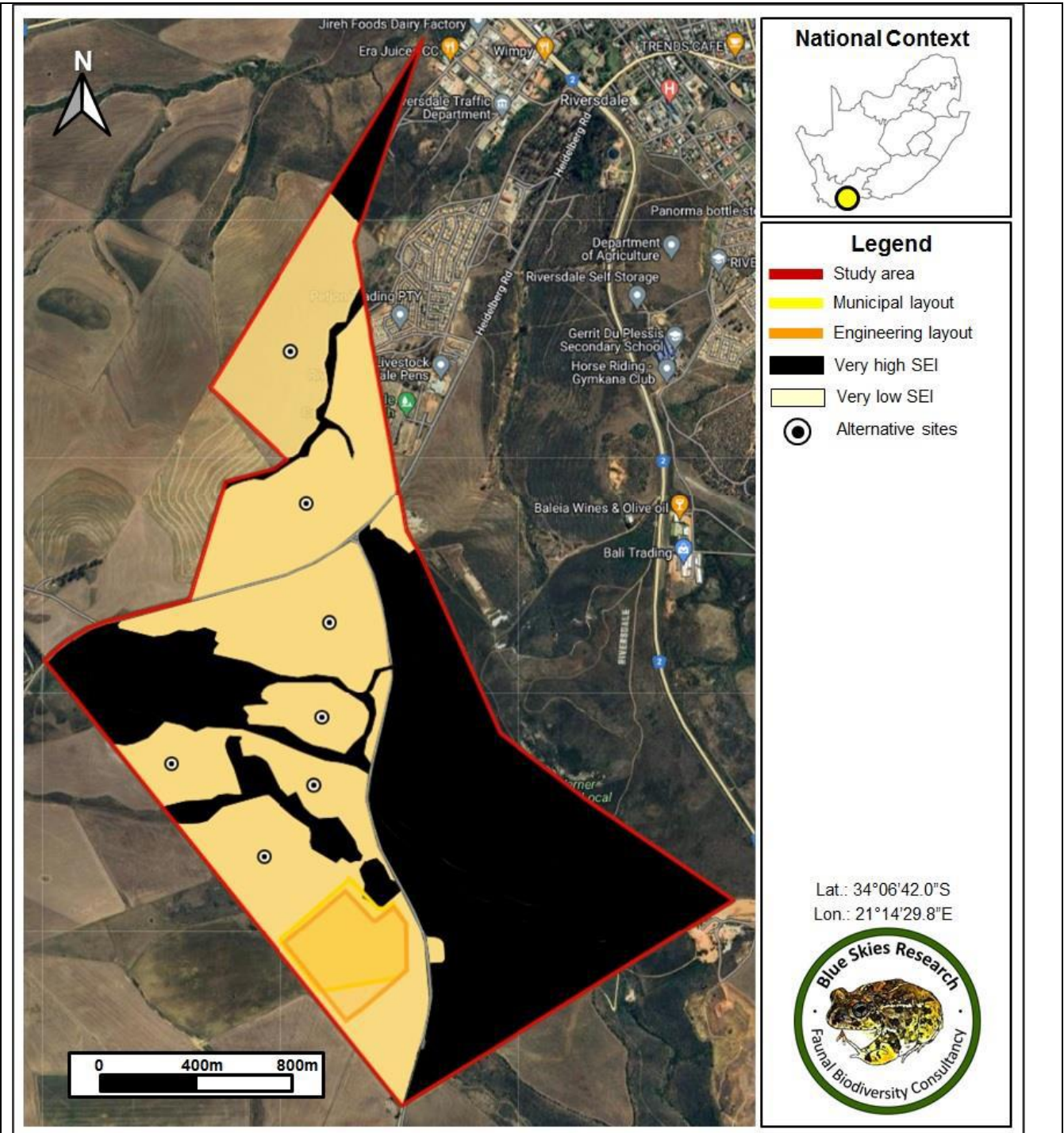
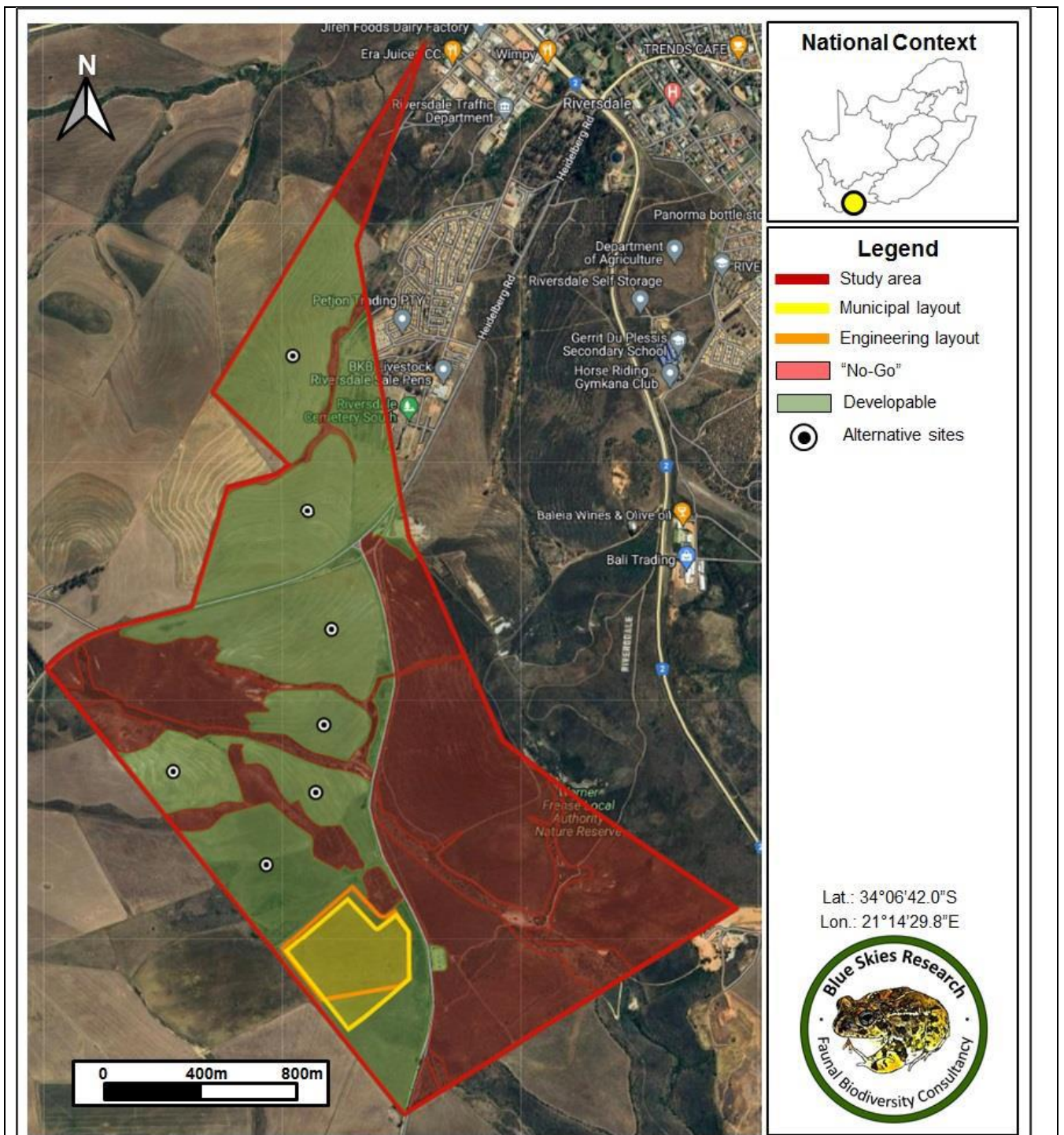


Figure 23: Spatial overlap of the proposed project footprint (also indicating the location of the seven other alternative site) with the SEI of avifaunal SCC habitats in the study area.





**Figure 24: “Constraints and Opportunities” map of the study area showing the spatial overlap of the proposed project footprint (also indicating the location of the seven other alternative site) with areas which are to be excluded from development planning (i.e., “No-Go” areas), and areas which are suitable for potential development without considering mitigation.**

**Recommendations by the Heritage Specialists (Archaeological and Palaeontological), Appendix G4a & G4b:**

- All the proposed site alternatives are acceptable, with no one site being preferred over the other.
- No archaeological mitigation is required prior to construction excavations commencing.
- No archaeological monitoring is required during the Construction Phase.

- In the unlikely event that any human remains are uncovered during construction activities; these must be immediately reported to the archaeologist (J Kaplan 082 3210172) who will inform Heritage Western Cape. Burials must not be disturbed or removed until inspected by a professional archaeologist.
- Although the potential for fossils is very, low (Pether 2024), an occurrence cannot be entirely dismissed. The assessment of fossil potential is of a general nature and the fortuitous preservation of fossils in an otherwise unfavourable context could occur. In case of potential fossils being observed Heritage Western Cape (HWC) must then be informed and provided with information on the nature of the find:
  - A description of the nature of the find.
  - Detailed images of the finds (with scale included).
  - Position of the find and depth.
  - Digital images of the context. i.e. the excavation (with scales).

**Recommended mitigation measures by the agricultural specialist, Appendix G5:**

The most important and effective mitigation of agricultural impacts for any development is avoidance of viable croplands. This development has already applied this mitigation by locating the facility where it avoids all viable croplands on the property.

Generic mitigation measures that are effective in preventing soil degradation are all inherent in the engineering of such a project and/or are standard, best-practice for construction sites.

- A system of storm water management, which will prevent erosion on and downstream of the site, will be an inherent part of the engineering design on site.
- Any excavations done during the construction phase, in areas that will be re-vegetated at the end of the construction phase, must separate the upper 25 cm of topsoil from the rest of the excavation spoils and store it in a separate stockpile. When the excavation is back-filled, the topsoil must be back-filled last, so that it remains at the surface. Topsoil should only be stripped in areas that are excavated. Across most of the site, including construction lay down areas, it will be much more effective for rehabilitation, to retain the topsoil in place. If levelling requires significant cutting, topsoil should be temporarily stockpiled and then re-spread after cutting, so that there is a covering of topsoil over the entire cut surface. It will be advantageous to have topsoil and vegetation cover below the panels during the operational phase to control dust and erosion.

**Recommended mitigation measures by the Visual Specialist, Appendix G6**

- Plant hedgerows of indigenous trees around the edges of the site
- Structures on the site should be painted recessive colours such as charcoal grey and the building materials should also be non - reflective and dark grey colours

|    |  |
|----|--|
| 3. | List the specialist investigations and the impact management measures that will <b>not</b> be implemented and provide an explanation as to why these measures will not be implemented. |
|----|--|

All specialists' recommendations are incorporated into the EMP to be implemented on site.

|    |   |
|----|---|
| 4. | Explain how the proposed development will impact the surrounding communities. |
|----|---|

Positive:

- Temporary job Opportunities during the construction phase
- Shift towards Riversdale being self sufficient in providing electricity to the community
- Permanent work opportunity as 24hour security will be required

Negative:

- Temporary construction related inconveniences (noise, traffic, temporary eyesore)

|    |  |
|----|--|
| 5. | Explain how the risk of climate change may influence the proposed activity or development and how has the potential impacts of climate change been considered and addressed. |
|----|--|

| Climate change is not expected to influence the proposal. PV Solar plants are widely understood to reduce carbon footprints and shift towards clean energy, reducing the global impact of climate change.   |  |  |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
|---|--|--|----------------------|--|--|---|---------------|--|---|------------------|--|---|---------|---|---|--------|--|
| 6.  | Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.  |  |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
| No conflicts  |  |  |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
| 7.  | Explain how the findings and recommendations of the different specialist studies have been integrated to inform the most appropriate mitigation measures that should be implemented to manage the potential impacts of the proposed activity or development. |  |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
| All recommendations have been incorporated into the EMPr to be implemented during the project lifecycle.  |  |  |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
| 8.  | Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.  |  |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
| <table border="1"> <thead> <tr> <th colspan="3">MITIGATION HIERARCHY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>AVOID IMPACTS</td> <td>All the specialists found that there will be very low to no impacts on the biophysical environment. The botanist did however recommend excluding two thicket patches from the development footprint.</td> </tr> <tr> <td>2</td> <td>MINIMISE IMPACTS</td> <td>The implementation of the EMPr during the construction phase will minimise the impacts associated with the construction phase.</td> </tr> <tr> <td>3</td> <td>RECTIFY</td> <td>The disturbances created by the construction phase will be rehabilitated in accordance with the EMPr.</td> </tr> <tr> <td>4</td> <td>OFFSET</td> <td>Not necessary as no residual impacts not addressed by the previous steps of the mitigation hierarchy</td> </tr> </tbody> </table> |  |  | MITIGATION HIERARCHY |  |  | 1 | AVOID IMPACTS | All the specialists found that there will be very low to no impacts on the biophysical environment. The botanist did however recommend excluding two thicket patches from the development footprint. | 2 | MINIMISE IMPACTS | The implementation of the EMPr during the construction phase will minimise the impacts associated with the construction phase. | 3 | RECTIFY | The disturbances created by the construction phase will be rehabilitated in accordance with the EMPr. | 4 | OFFSET | Not necessary as no residual impacts not addressed by the previous steps of the mitigation hierarchy |
| MITIGATION HIERARCHY  |  |  |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
| 1   | AVOID IMPACTS  | All the specialists found that there will be very low to no impacts on the biophysical environment. The botanist did however recommend excluding two thicket patches from the development footprint. |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
| 2   | MINIMISE IMPACTS   | The implementation of the EMPr during the construction phase will minimise the impacts associated with the construction phase.   |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
| 3   | RECTIFY  | The disturbances created by the construction phase will be rehabilitated in accordance with the EMPr.  |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |
| 4   | OFFSET   | Not necessary as no residual impacts not addressed by the previous steps of the mitigation hierarchy   |                      |  |  |   |               |  |   |                  |  |   |         |   |   |        |  |

## SECTION J: GENERAL

### 1. Environmental Impact Statement

|   |   |
|---|---|
| 1.1.  | Provide a summary of the key findings of the EIA. |
| <p>As shown in Table 2 (duplicate of Table 1), the highest negative impact significance rating for the proposed PV Solar plant is a Medium – Low rating for the temporary visual impact associated with the construction phase, all other impact significance ratings will be of a Low rating.</p> <p>The positive impacts will result in capital expenditure into the local economy in the form of bought materials to construct the facility and temporary job opportunities during the construction phase. The largest positive impact will be experienced during the operational phase whereby the community (Hessequa Municipality) will benefit from reduced loadshedding levels with the future goal of becoming completely independent from fossil fuel sourced power (provided by Eskom, which has become increasingly unreliable over the years).</p> |   |

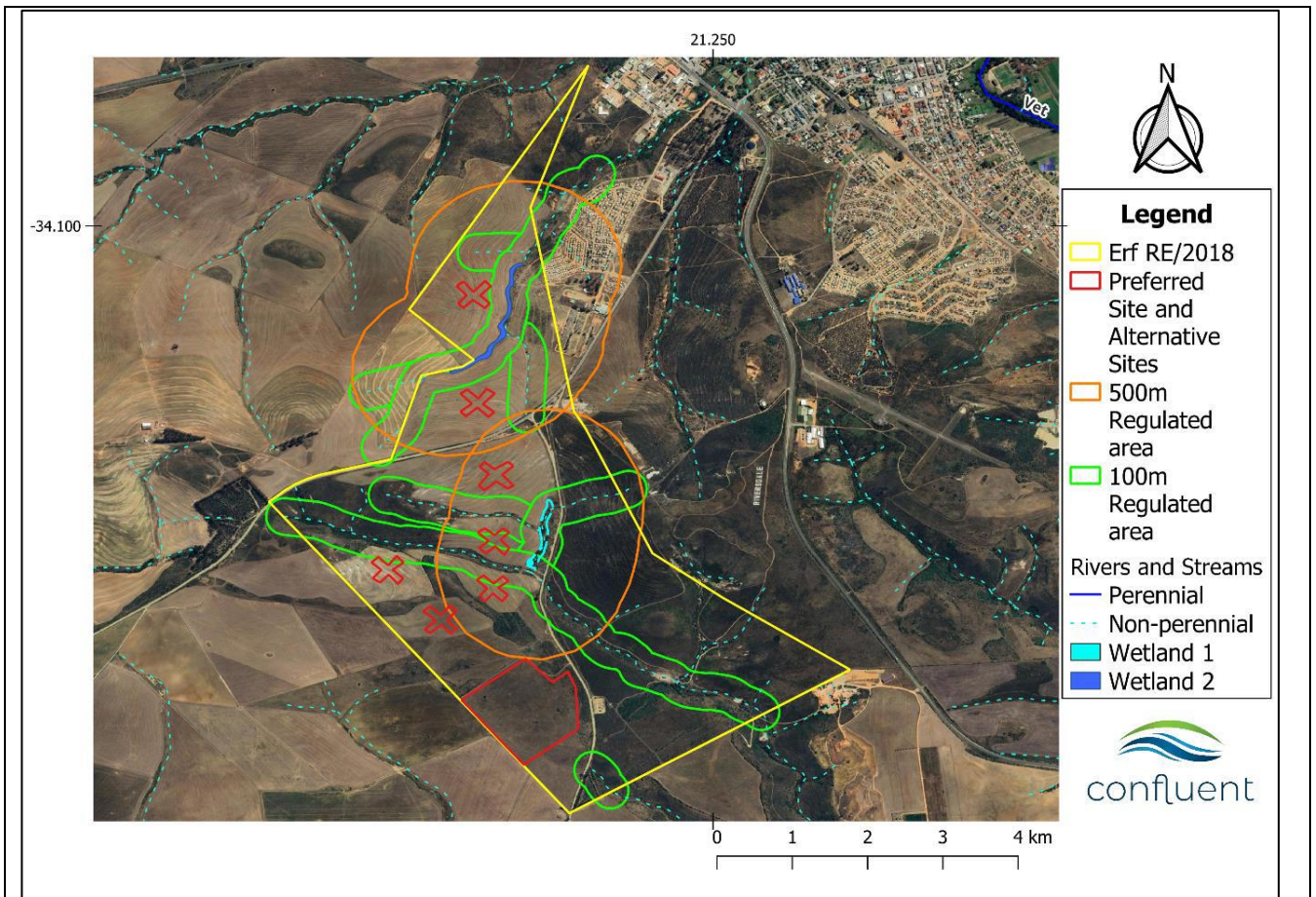


**Table 2: Summary of the Impacts Post Mitigation**

| Impact   | Alternative A<br>(Preferred Alternative) | Alternative B                     | No-Go     |
|--|--|-----------------------------------|-----------|
| <b>Construction Phase</b>  |  |                                   |           |
| Stormwater Management and erosion prevention   | Low (-)<br>no water use requirements     | Low (-)<br>water use requirements | No Impact |
| Visual scarring as a result of clearing vegetation and earth-works   | Medium – low (-)                         | Medium (-)                        | No Impact |
| Impact on terrestrial biodiversity   | Low (-)                                  | Low (-)                           | No Impact |
| Impact of the project on flora and SCC   | Low (-)                                  | Low (-)                           | No Impact |
| <b>Operational Phase</b>   |  |                                   |           |
| Stormwater Management and erosion prevention   | Low (-)<br>no water use requirements     | Low (-)<br>water use requirements | No Impact |
| Visibility from the Receptors namely Werner Frehse Nature Reserve, N2 500m section, Kwanokuthula and road to Vermaklikheid | Insignificant (-)                        | Low (-)                           | No Impact |
| Impact on terrestrial biodiversity   | Low (-)                                  | Low (-)                           | No Impact |
| Impact of the project on flora and SCC   | Low (-)                                  | Low (-)                           | No Impact |

1.2. Provide a map that that superimposes the preferred activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. (Attach map to this BAR as Appendix B2)

The most restrictive buffers/No-Go areas are contained in the Freshwater Compliance Statement and were determined by the National Water Act's zone of regulation (Figure 25). Any activities within those zones require water use authorisation (or GA). For this proposal however there is no obvious requirement for the contractor to extend his disturbance/activities beyond the boundaries of the site. As such all areas outside of the development footprint should be regarded as No-Go areas. If however, the site camp or storage areas are unable to be accommodated within the development footprint, the ECO should be consulted and should utilise the restraints of Figure 25 in determining a suitable site camp nearby the site while ensuring the site remains outside of the NWA ZoR areas and ensuring that no Listed Activities in terms of the current EIA regulations are triggered by the site camp.



**Figure 25: National Water Act Zone of Regulation Map**

1.3. Provide a summary of the positive and negative impacts and risks that the proposed activity or development and alternatives will have on the environment and community.

**Positive**

- Capital expenditure and economy stimulation
- Temporary construction phase job Opportunities
- Shift towards renewable, clean energy supply
- Independence from Eskom and fossil fuels for power generation

**Negative**

- Temporary construction phase eyesore
- Temporary nuisances from construction vehicles and construction noise

**2. Recommendation of the Environmental Assessment Practitioner (“EAP”)**

2.1. Provide Impact management outcomes (based on the assessment and where applicable, specialist assessments) for the proposed activity or development for inclusion in the EMPr

In order to obtain/reach the impact management objects the corresponding mitigation measures prescribed in the BAR and EMPr must be implemented.

The Impact monitoring will be undertaken by an appointed and independent ECO.

The impact management outcomes will be monitored by the appointed ECO, in addition to the implementation of mitigation measures during the duration of the development, if all management mitigation measures are implemented successfully the resulting impact management outcomes will mean that the develop was undertaken with no significant or avoidable impacts to the environment.

Impact management objectives and impact management outcomes included in the EMPr:

| <b>PRE-CONSTRUCTION PHASE</b>   |   |
|---|---|
| <b>IMPACT MANAGEMENT OBJECTIVES</b>   | <b>IMPACT MANAGEMENT OUTCOMES</b>   |
| To appoint a suitably qualified and experienced Environmental Control Officer   | The conditions of Environmental Authorisation and the requirements of the EMPr are implemented and monitored during all phases of the development, which will promote sound environmental management on site.   |
| Identify and demarcate no-go areas, working areas and site facilities   | Future construction activities will be restricted to within the designated areas & environmentally sensitive areas (no-go areas) will be protected from disturbance   |
| To set up and equip the site camp and associated site facilities in a manner that will promote good environmental management.                     | Site camp facilities do not impact significantly on environment. The equipment required to implement the provisions of the EMPr are provided on site.   |
| Environmental Control Officer to conduct an inspection prior to the commencement of construction activities on site                               | Good environmental management is promoted and enforced by the ECO during the full pre-construction and construction phases.<br><br>Site facilities are appropriately located on site.<br><br>Construction workers receive environmental awareness training before commencing work on site |
| <b>CONSTRUCTION PHASE</b>   |   |
| To limit noise generated by construction activities   | No avoidable noise impacts emanate from the site during the construction phase  |
| To create employment opportunities with potential for skills transfer, for members of the local community   | The local community benefits from the employment opportunities created during the construction phase.   |
| Stormwater Management and erosion prevention  | Stormwater is well managed to site and no erosion detected on site  |
| Limit visual scarring   | No unavoidable visual scarring of the site  |
| Limit impacts to terrestrial biodiversity   | Impacts to terrestrial biodiversity are limited and managed   |
| Limit impact of the project on flora and SCC  | Impact of the project on flora and SCC are limited and managed  |
| <b>POST CONSTRUCTION REHABILITATION PHASE</b>   |   |
| Stormwater Management and erosion prevention  | Stormwater is well managed to site and no erosion detected on site  |
| Mitigate Visual impacts from the developed site   | Some of the visual impact is mitigated  |
| Limit impacts to terrestrial biodiversity   | Impacts to terrestrial biodiversity are limited and managed   |
| Limit impact of the project on flora and SCC  | Impact of the project on flora and SCC are limited and managed  |
| 2.2.  | Provide a description of any aspects that were conditional to the findings of the assessment either by the EAP or specialist that must be included as conditions of the authorisation.  |
| The EMPr must be implemented, this is however a standard condition of Environmental Authorisation.  |   |
| All mitigation measures from the specialists have been incorporated into the EMPr and as such are conditional to the environmental authorisation. |   |
| 2.3.  | Provide a reasoned opinion as to whether the proposed activity or development should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be included in the authorisation.  |
| The preferred Alternative A should be authorised.   |   |

As seen in the body of this Basic Assessment Report, the negative impacts associated with the construction phase can be mitigated to that of a mostly a Low negative impact significance. The positives associated with the operational phase far outweigh the negative impacts and once implemented the facility will contribute globally to reducing carbon emissions from fossil fuel derived energy while also alleviating country wide frustrations caused by loadshedding

Proposed Conditions of Authorisation:

- The EMPr must be implemented.
- An ECO must be appointed to monitor compliance with the EMPr

|      |   |
|------|---|
| 2.4. | Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed. |
|------|---|

It is assumed that the proposed mitigation measures as listed in this report and the EMPr (Appendix H) will be implemented and adhered to as the significance of impacts ratings are conditional on implementation of the mitigation measures.

|      |  |
|------|--|
| 2.5. | The period for which the EA is required, the date the activity will be concluded and when the post construction monitoring requirements should be finalised. |
|------|--|

The construction phase is expected to last 16 to 24 months, however the facility may be rolled out in three phases over 3 years

The EA should therefore be issued for 5 to 6 years to allow for enough time to appoint a contractor and obtain construction permits etc, before the phase implementation of the facility and to accommodate potential delays after each phase.

### 3. Water

Since the Western Cape is a water scarce area explain what measures will be implemented to avoid the use of potable water during the development and operational phase and what measures will be implemented to reduce your water demand, save water and measures to reuse or recycle water.

Still to be determined, the panels will have to be cleaned periodically however it will be determined when a services provider is appointed as to where they source their water to clean the PV panels

### 4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.

Only material packaging waste is expected from the construction phase which will be sent to a recycling facility

### 5. Energy Efficiency

|      |  |
|------|--|
| 8.1. | Explain what design measures have been taken to ensure that the development proposal will be energy efficient. |
|------|--|

The proposal will generate energy for the PV solar panels

## SECTION K: DECLARATIONS

### DECLARATION OF THE APPLICANT

**Note:** Duplicate this section where there is more than one Applicant.

I **Angela Maria Griesel**, ID number **6102050054087** in my personal capacity or duly authorised thereto hereby declare/affirm that all the information submitted or to be submitted as part of this application form is true and correct, and that:

- I am fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment ("EIA") Regulations, and any relevant Specific Environmental Management Act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- I am aware of my general duty of care in terms of Section 28 of the NEMA;
- I am aware that it is an offence in terms of Section 24F of the NEMA should I commence with a listed activity prior to obtaining an Environmental Authorisation;
- I appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
  - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
  - meets all the requirements other than the requirement to be independent in terms of Regulation 13 of the NEMA EIA Regulations, but a review EAP has been appointed who does meet all the requirements of Regulation 13 of the NEMA EIA Regulations;
- I will provide the EAP and any specialist, where applicable, and the Competent Authority with access to all information at my disposal that is relevant to the application;
- I will be responsible for the costs incurred in complying with the NEMA EIA Regulations and other environmental legislation including but not limited to –
  - costs incurred for the appointment of the EAP or any legitimately person contracted by the EAP;
  - costs in respect of any fee prescribed by the Minister or MEC in respect of the NEMA EIA Regulations;
  - Legitimate costs in respect of specialist(s) reviews; and
  - the provision of security to ensure compliance with applicable management and mitigation measures;
- I am responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority, hereby indemnify, the government of the Republic, the Competent Authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which I or the EAP is responsible in terms of the NEMA EIA Regulations and any Specific Environmental Management Act.

**Note:** If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.



Signature of the Applicant:

4/3/2024

Date:

Hessequa Municipality

Name of company (if applicable):



**DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")**

I Michael Jon Bennett EAPASA Registration number 2021/3163 as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this BAR and any other documents/reports submitted in support of this BAR;
- The inclusion of comments and inputs from stakeholders and I&APs;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties, and that:
- In terms of the general requirement to be independent:
  - o other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
  - o am not independent, but another EAP that meets the general requirements set out in Regulation 13 of NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review EAP must be submitted);
- In terms of the remainder of the general requirements for an EAP, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- I have disclosed, to the Applicant, the specialist (if any), the Competent Authority and registered interested and affected parties, all material information that have or may have the potential to influence the decision of the Competent Authority or the objectivity of any report, plan or document prepared or to be prepared as part of this application;
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- I have ensured that the comments of all interested and affected parties were considered, recorded, responded to and submitted to the Competent Authority in respect of this application;
- I have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- I have kept a register of all interested and affected parties that participated in the public participation process; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations;

  
Signature of the EAP:

4 March 2024  
Date:

**Sharples Environmental Services cc**

Name of company (if applicable):