Aggeneys 1, Northern Cape Province

Motivation for Amendment of the Environmental Authorisation

Final Motivation Report

DEA Ref.: 14/12/16/3/3/1/2019

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PROJECT DETAILS

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PURPOSE OF THE REPORT

Environmental Authorisation (EA) for Aggeneys 1 solar energy facility in the Northern Cape Province (DEA Ref: 14/12/16/3/3/1/2019) was obtained by ABO Wind Aggeneys 1 PV (Pty) Ltd on 25 July 2019. The project was authorised by the Department of Environment, Forestry and Fisheries (DEFF)[1] for the development of a solar PV facility with a contracted capacity of up to 100MW and associated infrastructure on the Remaining Extent of Farm Bloemhoek 61.

Due to the demand in the utilisation of battery energy storage systems for renewable energy projects, as well as to ensure an adequate supply of electricity to the national grid, ABO Wind Aggeneys 1 PV (Pty) Ltd is proposing the construction and operation of a Battery Energy Storage (BESS) with a capacity of up to 500MW/500MWh within the authorised development footprint of the solar energy facility. The BESS will be developed within the authorised laydown area of the solar energy facility and with an extent of no more than 5ha. It is understood that the BESS may require the storage of dangerous goods for the operation and maintenance of the system, however, this will be limited and will fall within the capacity of what was authorised for the solar energy facility[2].

It is the Developer's intention to bid the solar PV facility, including the battery energy storage system, under the Risk Mitigation Independent Power Producer (IPP) Procurement Programme and/or Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) of the Department of Mineral Resources and Energy (DMRE) and/or any future relevant procurement programme. Ultimately, the development of the solar PV facility as well as the battery energy storage is intended to be part of the renewable energy projects portfolio for South Africa, as contemplated in the Integrated Resources Plan (IRP). For solar energy to be dispatchable it will require the additional battery energy storage applied for in this amendment.

In terms of Condition 5 of the Environmental Authorisation and Chapter 5 of the EIA Regulations of December 2014 (as amended on 07 April 2017 and 13 July 2018), it is possible for an applicant to apply, in writing, to the competent authority for a change or deviation from the project description to be approved. The proposed amendment for the construction and operation of the BESS does not trigger any new listed activities. The BESS will be located within the originally authorised footprint of the solar energy facility, within the already authorised laydown area as assessed during the Basic Assessment (BA) process.

Savannah Environmental has prepared this Final Motivation Report in support of the application for the proposed amendment on behalf ABO Wind Aggeneys 1 PV (Pty) Ltd. The report aimed to provide detail pertaining to the environmental impacts as a result of the proposed amendment in order for interested and affected parties to be informed and submit comments for the competent authority to be able to reach a decision in this regard. This report is supported by specialist input letters to inform the conclusion and recommendations regarding the proposed amendment (refer to **Appendix A to G** of this report). This Final Motivation Report must be read together with these specialist input letters in order to obtain a complete understanding of the proposed amendment and the implications thereof from an environmental perspective.

[1] Then known as the Department of Environmental Affairs (DEA).

[2] Based on the limited storage required for the BESS, no new listed activities will be triggered.

This Motivation Report was made available for a 30-day review and comment period in accordance with Regulation 32(1)(aa) of the EIA Regulations, 2014 (as amended) from **Friday, 16 October 2020** to **Monday, 16 November 2020**. The availability of the Motivation Report for the 30-day comment and review period was advertised in the Gemsbok Newspaper on **Friday, 16 October 2020** (refer to **Appendix H4** of the Final Motivation Report).

The Motivation Report was made available for download from Savannah Environmental's website: https://www.savannahsa.com/public-documents/energy-generation/aggeneys-1-and-2-pv-facilities/.

All comments received during the 30-day review and comment period have been included within the Comments and Responses Report (C&RR), submitted to the DEFF with this Final Motivation Report for consideration and decision-making.

1. OVERVIEW OF THE PROJECT

1.1. Location

The authorised Aggeneys 1 solar energy facility is located 11km south-east of Aggeneys in the Northern Cape Province (refer to **Figure 1.1**). The project is located within the Springbok Renewable Energy Development Zone (REDZ 4), within ward 4 of the Khai-Ma Local Municipality and within the greater Namakwa District Municipality.

The development footprint of the solar PV facility is located on the Remaining Extent of the Farm Bloemhoek 61. It is within this property that Aggeneys 1 (including the proposed BESS) will be constructed and operated.

The following infrastructure components were authorised by the Department during the BA process:

- Arrays of PV panels with a contracted capacity of up to 100MW.
- Mounting structures to support the PV panels.
- Cabling between the project components, to be laid underground where practical.
- On-site inverters to convert the power from a direct current (DC) to an alternating current (AC).
- An on-site substation to facilitate the connection between the solar PV facility and the Eskom electricity grid.
- Site offices and maintenance buildings, including workshop areas for maintenance and storage.
- Temporary laydown areas.
- Internal access roads and fencing around the project site.
- Other infrastructure including but not limited to workshop areas for maintenance, storage, and offices.

1.2. Potential Environmental Impacts as determined through the BA Process

From the specialist investigations undertaken within the BA process for Aggeneys 1 (Savannah Environmental, 2019), the following environmental impacts relevant to the amendment application were identified:

- Impacts on Ecology (including fauna and flora)
- Impacts on Avifauna
- Soil and Agricultural Potential Impacts
- Impacts on Freshwater Resources
- Heritage Impacts (including palaeontology)
- Visual Impacts
- Impacts on the Social Environment
- Impacts on traffic

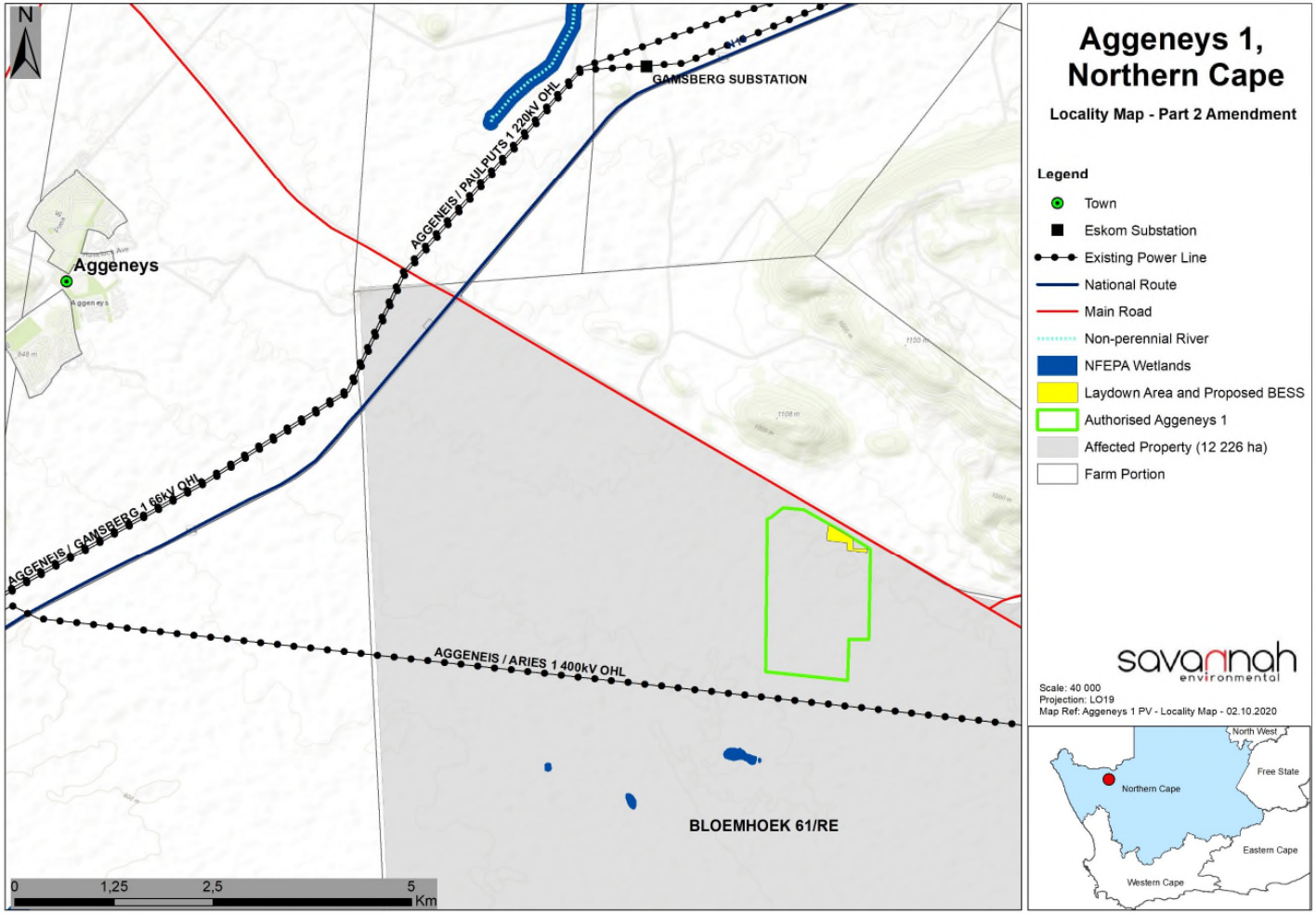

Figure 1.1: A map showing the location of the affected property and the location of the BESS development area within the authorised development footprint of the Aggeneys 1. A3 maps have been included in **Appendix I** of the Motivation Report.

Key conclusions and recommendations of the original BAR pertinent to this application, as reported in the Final BAR Report (Savannah Environmental, 2019):

1.2.1. Summary of environmental findings

The BA Report found that based on the nature and extent of the project, the level of disturbance predicted as a result of the construction and operation of the solar energy facility and the associated infrastructure was assessed as low to medium and that the impacts associated with the proposed development could be managed and mitigated to an acceptable levels. No fatal flaws were identified to be associated with Aggeneys 1.

1.2.2. Impacts on Ecology

The Ecological Impact Assessment assessed the impact of Aggeneys 1 on the sensitive ecological features present within the project site for the life-cycle of the project. The assessment identified impacts within the construction, operation and decommissioning phases of the project.

During the construction phase (and the decommissioning phase), the impacts include impacts on vegetation and listed or protected plant species and direct faunal impacts. The significance of the construction phase impacts range from medium to low, following the implementation of the mitigation measures recommended by the specialist. No impacts of high significance were identified prior to the implementation of mitigation.

During the operation phase, the anticipated impacts include faunal impacts and habitat degradation due to erosion and alien plant invasion. The significance of the impacts for the operation phase will be low, following the implementation of the mitigation measures recommended by the specialist. No impacts of a high significance were identified.

From the findings of the Ecological Impact Assessment it can be concluded that no impacts of high ecological significance were identified which would hinder the development of Aggeneys 1 and its associated infrastructure. The proposed development is considered to be appropriate and acceptable from an ecological perspective and will not result in detrimental impacts to ecosystems and habitat features present within the project site and within the surrounding properties. The specialist has, therefore, indicated that the development may be authorised, constructed and operated, subject to the implementation of the recommended mitigation measures.

1.2.3. Impacts on Avifauna

The Avifauna Impact Assessment is based on the findings of two site visits undertaken in mid-winter (26 to 28 June 2018) and again in late summer (20 to 22 March 2019). The avifauna impacts identified to be associated with Aggeneys 1 will be negative and local in extent. The duration of the impacts will be long-term, for the lifetime of the PV facility.

During the construction phase (and decommissioning phase) of Aggeneys 1 direct avifauna impacts include habitat loss and disturbance related to vegetation clearance, the operation of heavy machinery (noise) and increased human presence. The significance of the construction phase impacts will be medium, with

the implementation of the mitigation measures recommended by the specialist. No impacts of high significance are expected to occur during the construction phase.

Impacts on avifauna during the operation phase include collisions with PV panels, entrapment along perimeter fencing, and disturbance due to traffic and night lighting. The significance of the impacts will be low, with the implementation of the recommended mitigation measures. No impacts of a high significance are expected to occur during operation.

From the results of the avifauna assessment, it can be concluded that the project site for Aggeneys 1 is considered to represent a broadly suitable environment for the location of a solar PV facility. Considering that the study area supports a typical bioregional avifaunal assemblage within an extensive vegetation type, and that there are no known breeding or roosting sites of red-listed priority species within close proximity (<3 km), there are no impacts associated with the development that are considered to be of high residual significance and which cannot be mitigated to a low acceptable level. Therefore, the development of Aggeneys 1 is considered to be acceptable from an avifaunal perspective.

From the results of the avifauna impacts assessment, it can be concluded that no fatal-flaws will be associated with the development of Aggeneys 1.

1.2.4. Impacts on Freshwater Features

The assessment of freshwater features assessed the impact of Aggeneys 1 on the freshwater features present within the project site for the life-cycle of the project.

During the construction phase, impacts include vegetation clearance in watercourses, impacts to water quality in the watercourses and impacts associated with the movement of vehicles through watercourses. The significance of the construction phase impacts will be low, following the implementation of the recommended mitigation measures by the specialist. No impacts of a high significance were identified prior to the implementation of mitigation.

During the operation phase, the impact relates to the movement of vehicles through watercourses located within the development footprint. The significance of the impact will be low following the implementation of the mitigation measures by the recommended specialist. No impacts of a high significance were identified for the project.

From the findings it can be concluded that the development of Aggeneys 1 will have an overall negative impact of low significance with the implementation of the recommended mitigation measures. The construction of the solar PV facility and the associated infrastructure is therefore supported from a freshwater features perspective and considered acceptable subject to obtaining of the necessary water use license from the Department of Human Settlement, Water and Sanitation.

1.2.5. Impacts on Soil and Agricultural Potential

Two impacts have been identified to be associated with the development of Aggeneys 1 from a soils perspective. These impacts include the loss of potentially productive agricultural land through the undertaking of construction activities and panel installation; and increased wind erosion due to disturbance of the soil. Both impacts are expected to occur during the construction and operation phases. No fatal

flaws have been identified from a soils and agricultural potential perspective and all impacts can be mitigated to be within low and acceptable levels of impact. Therefore, the development of Aggeneys 1 is considered to be acceptable from a soils and agricultural perspective.

1.2.6. Impacts on Heritage Resources

The heritage impacts expected during the construction phase include impacts to palaeontological resources, archaeological resources and graves and impacts to the cultural landscape. There are no heritage resources present within the development footprint, although several isolated stone artefacts attributable to background scatter were noted. Impacts to heritage resources were identified to be associated with Aggeneys 1 for the construction phase. No impacts are expected to occur during the operation phase of the solar PV facility.

The significance of the impacts ranges from medium to low, with the implementation of the recommended mitigation measures. No impacts of high significance are expected, and the development of Aggeneys 1 is considered to be acceptable from a heritage perspective.

1.2.7. Visual Impacts

The Visual Impact Assessment identified negative impacts on visual receptors during the construction and the operation phases of Aggeneys 1. The impacts includes a change in the character of a relatively natural area, a change in the character of the landscape as seen from the N14, the Loop 10 road and local homesteads, a change in the landscape as seen from local settlement areas, glare impacts which could affect travellers on the Loop 10 road and the northern flight path of the Aggeneys Aerodrome and visual impacts related to the operational, safety and security lighting of the solar PV facility on observers. The significance of the impacts ranges between medium and low, with the implementation of the recommended mitigation measures. No impacts of a high significance are expected to occur.

The Visual Impact Assessment concluded that the development of Aggeneys 1 will largely impact visually on an area where there currently is strong influence of urban and urban fringe development and therefore changes to the landscape quality are unlikely to be problematic. In conclusion, the development of Aggeneys 1 is considered to be acceptable from a landscape and visual impact perspective.

1.2.8. Social Impacts

The Social Impact Assessment identified that most social impacts associated with the development of Aggeneys 1 will have a short-term duration associated with the construction phase and long-term duration during the operation phase of the project. Both positive and negative impacts have been identified for both the construction and operation phases of the development.

During the construction phase, negative impacts include nuisance, dust and noise impacts, an increase in crime, an increased risk of HIV and AIDS, an influx of construction workers and job seekers to the area, exposure to hazards, disruption of daily living patterns and disruption of services supplied and impacts on infrastructure. The significance of the negative construction phase impacts ranges between low, medium and medium to high, with the implementation of recommended mitigation measures. The positive social impacts associated with the construction of Aggeneys 1 includes positive economic impacts and the

stimulation of the area's economy. The significance of the positive impacts will be medium with the implementation of the recommended enhancement measures.

Impacts associated with the operation of the solar PV facility will be both positive and negative. The negative impacts are related to a transformation in the sense of place which has a significance of medium to high, with the implementation of the recommended mitigation measures. The positive impacts associated with the operation of Aggeneys 1 relates to positive economic impacts, including the creation of jobs, business opportunities and a source of revenue for local authorities. The significance of the positive impacts will be medium to high with the implementation of the recommended enhancement measures.

1.2.9. Impacts on Traffic

During the construction phase, traffic will be generated through the transportation of project components and employees to the site. The significance of the construction phase impacts will be low, with the implementation of the mitigation measures recommended by the specialist.

During the operation phase, traffic will be generated and will relate to the presence of the operation and maintenance staff at the solar energy facility. The significance of the construction phase impacts will be low, with the implementation of the mitigation measures recommended by the specialist.

No fatal flaws and no impacts of high significance are expected, and the development of Aggeneys 1 is therefore considered to be acceptable from a traffic perspective.

2. OVERVIEW OF THE PROPOSED AMENDMENT

The amendments being applied for relate to the project description, as well as a change in the contact details of the contact person of the EA holder, as detailed in the EA dated 25 July 2019. The requested amendment will result in the construction and operation of a BESS with a capacity of up to 500MW/500MWh within the authorised development footprint of Aggeneys 1.

This section of the Final Motivation Report details the amendment considered within this report and by the specialist investigations (refer to **Appendix A – G**). Each amendment request is detailed below.

2.1. A change to the details of the contact person of the EA holder

The details of the contact details of the EA Holder have changed. Therefore, the applicant is lodging a request to amend the details to ensure that the EA lists the contact details of the EA Holder correctly.

EA Page Reference	Current Authorised Details	Amended / Corrected details
EA Cover Page (page 1)	Tel: 021 418 2596 E-mail: Robert.wagener@abo-wind.com	**Tel: 021 276 3620** **E-mail: capetown@abo-wind.com**
Page 3 of the EA (Activities authorised)	Tel: (021) 418 2596 Cell: (064) 030 3633 E-mail: Robert.wagener@abo-wind.com	**Tel: 021 276 3620** **Cell: 076 104 1372** **E-mail: capetown@abo-wind.com**

2.2. An update to the project description of the EA to include the construction and operation of a Battery Energy Storage System (BESS)

The applicant is requesting an update to the project description of the EA to include the construction and operation of a Battery Energy Storage System (BESS) with a capacity of up to 500MW/500Wh within the authorised development footprint of the solar energy facility (refer to **Figure 2.1**). The BESS will be developed within the authorised development footprint of Aggeneys 1, within the authorised laydown area and with an extent of no more than 5ha. It is understood that the BESS may require the storage of dangerous goods for the operation and maintenance of the systems, however this will be limited and will fall within the capacity of what was authorised for the solar energy facility[3]. The BESS will connect to the authorised on-site facility substation of Aggeneys 1 via multi-core 22kV or 33kV underground cables (to follow the internal access roads of the authorised PV facility).

EA Page Reference	Proposed wording
Page 6, Infrastructure associated with this facility include	» **Battery Energy Storage System (29°16'26.46"S; 18°56'32.12"E)**
Page 7, Other Infrastructure Battery Energy Storage System (BESS)	» **Electrochecmical battery storage systems with a maximum height of 3.5m; and** » **Multi-core 22kV or 33kV underground cables, to follow internal access roads of the PV facility, to connect the battery storage area to the on-site facility substation.**

[3] No new listed activity will be triggered.

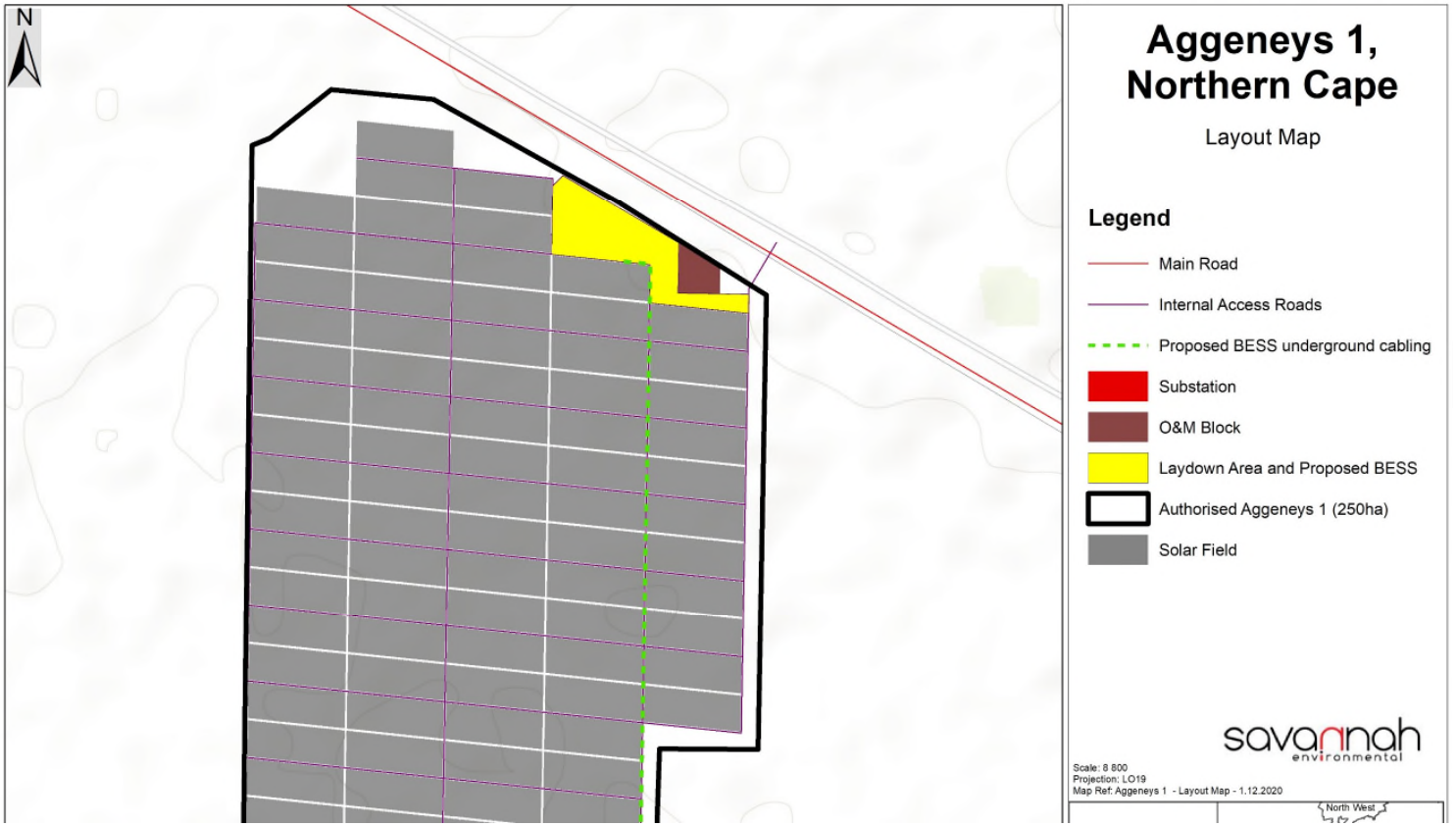

Figure 2.1: A map showing the layout of the BESS within the authorised development footprint of Aggeneys 1. A3 maps have been included in **Appendix I** of the Motivation Report.

10. CONCLUSION

Based on the nature of the proposed amendment for Aggeneys 1, the specialist findings, the fact that the proposed BESS development area avoids areas of high environmental sensitivity (refer to **Figure 10.1**), and that the proposed BESS falls within the property and development footprint which was fully assessed and authorised for the development of the solar PV facility as part of the BA Report in 2019, it can be concluded that the proposed amendment will not lead to any additional impacts other than those identified and assessed within the BA Report.

In terms of the impacts identified in the BA relating to ecology, avifauna, freshwater resources, soil and agricultural potential, heritage (including palaeontology), visual and social aspects, it was concluded that the proposed amendment will not increase the significance of these impacts originally identified and assessed in the BA Report or lead to any additional impacts that cannot be mitigated to a low significance following the implementation of the recommended mitigation measures. Furthermore, the proposed amendment does not constitute a listed activity and the mitigation measures recommended in the BA Report and in this Final Motivation Report are adequate to manage the expected impacts as a result of the proposed amendment.

Therefore, taking into consideration the conclusions from the specialist addendum letters (**Appendix A – G**), and the findings of this report, it is concluded that the proposed amendment is acceptable from an environmental perspective, subject to the implementation of the recommended mitigation measures included in the BA Report as well as the Environmental Management Programme (EMPr) (**Appendix L**) for Aggeneys 1.

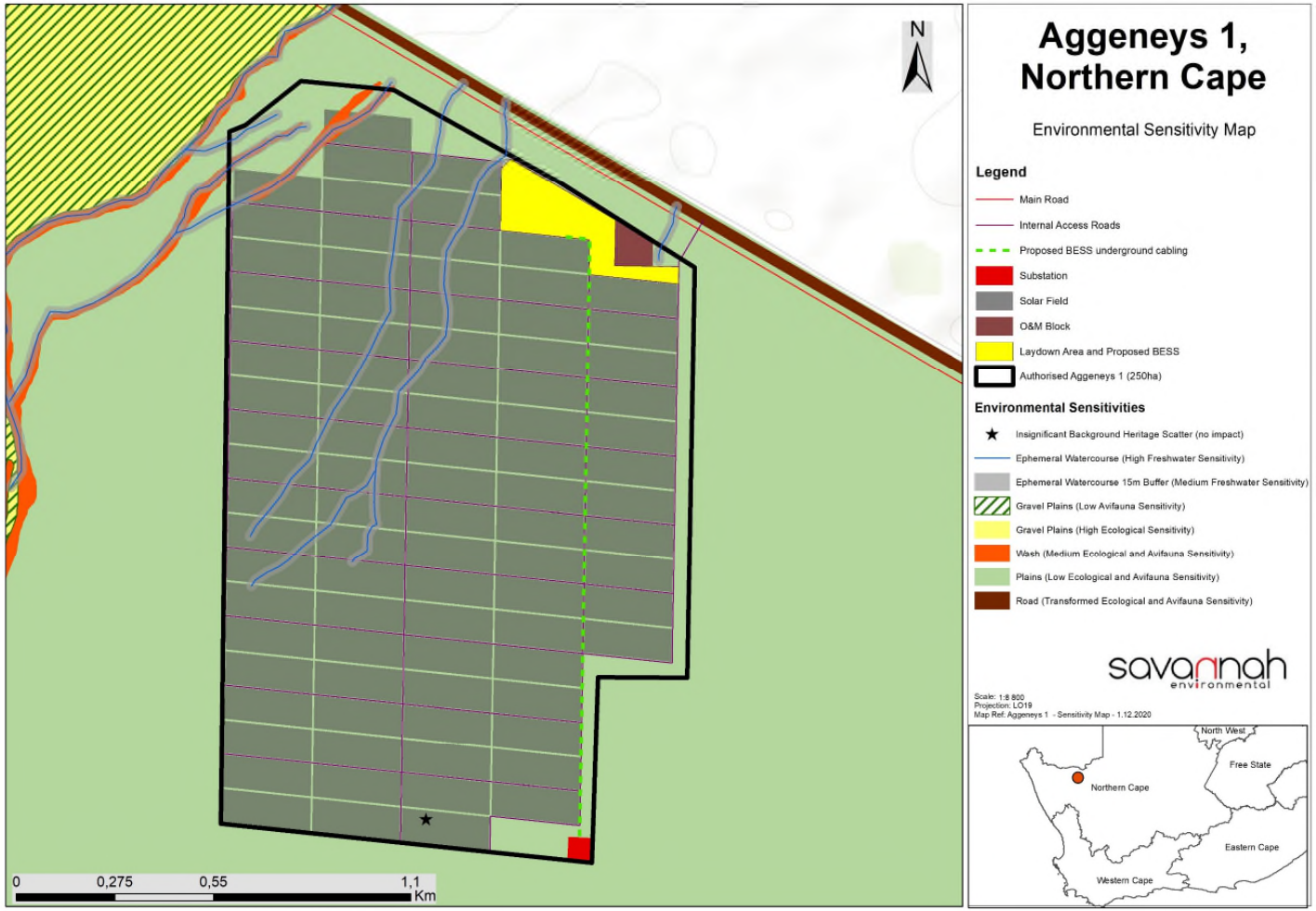

Figure 9.1 Environmental sensitivity map showing the location of the BESS development area located outside of areas of high environmental sensitivity. A3 Maps are included in **Appendix I** of the Final Motivation Report.