

GRID CONNECTION EXTENSION INFRASTRUCTURE FOR THE GUNSTFONTEIN WIND FARM, NORTHERN CAPE PROVINCE

Basic Assessment Report
December 2020

DEFF Reference: 14/12/16/3/3/1/2228

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PROJECT DETAILS

Title	:	Grid connection extension infrastructure for the Gunstfontein Wind Farm, Northern Cape Province (<u>DEFF Ref: 14/12/16/3/3/1/2228</u>)
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Client	:	Gunstfontein Wind Farm (Pty) Ltd
Report Revision	:	<u>Revised draft</u> for public review
Date	:	<u>December</u> 2020

When used as a reference this report should be cited as: Savannah Environmental (2020) Basic Assessment Report for the Grid Connection Extension Infrastructure for the Gunstfontein Wind Farm, Northern Cape Province.

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PURPOSE OF THE BASIC ASSESSMENT REPORT AND INVITATION TO COMMENT

Gunstfontein Wind Farm (Pty) Ltd has appointed Savannah Environmental as the independent environmental consultant to undertake the Basic Assessment (BA) for the grid extension infrastructure for the Gunstfontein Wind Farm, Northern Cape. The project development site is located within the Komsberg Renewable Energy Development Zone (REDZ) and within the central corridor of the Strategic Transmission Corridors. The BA process is being undertaken in accordance with the requirements of the 2014 EIA Regulations promulgated in terms of the National Environmental Management Act (NEMA; Act No. 107 of 1998).

This Basic Assessment (BA) report has been compiled in accordance with Appendix 1 of the EIA Regulations, 2014 (as amended) and consists of the following sections:

- » **Chapter 1** provides background to the Gunstfontein Grid Extension and the BA process.
- » **Chapter 2** provides a description of the proposed development, the identified and assessed project alternatives and the need and desirability of the project.
- » **Chapter 3** outlines the approach to undertaking the BA process and the strategic regulatory and legal context for energy planning in South Africa, specifically relating to the Gunstfontein Grid Extension.
- » **Chapter 4** describes the approach to undertaking the basic assessment process, the legal requirements as per the EIA regulations and the relevant legislative permitting requirements
- » **Chapter 5** provides a description of the existing biophysical, regional, and social environment within and surrounding the assessed grid connection corridor.
- » **Chapter 6** provides an assessment of the potential impacts associated with the proposed development and presents recommendations for the mitigation of significant impacts.
- » **Chapter 7** provides an assessment of the cumulative impacts associated with the proposed development and presents recommendations for the mitigation of significant impacts.
- » **Chapter 8** presents the conclusions and recommendations based on the findings of the BA Report and lastly provides the references used in the compilation of the BA Report.

A BA Report for the project has been compiled and was made available for public review from 04 September to 05 October 2020. Subsequently, an extension notice was submitted in terms of Regulation 19(1)(b) of the EIA regulations, 2014 (as amended), following further layout refinements. Changes to the report have been underlined for ease of reference. The report and updated layout has been made available for further review and comment and is available for download on the Savannah Environmental website: <https://www.savannahsa.com/public-documents/grid-infrastructure/gunstfontein-wind-farm/>. The 30-day review and comment period of the updated BA Report is from **11 December 2020 to 01 February 2021**. Please submit any further written comments on the project to the contact person below on or before **01 February 2021**.

Please submit your comments by **01 February 2021** to:

Nicolene Venter

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Tel: 011-656-3237

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Email: publicprocess@savannahsa.com

Comments can be made as written submission via fax, post or email.

EXECUTIVE SUMMARY

Gunstfontein Wind Farm (Pty) Ltd proposes the construction and operation of a grid connection extension solution (DEFF reference: 14/12/16/3/3/1/2228) for the authorised Gunstfontein Wind Farm (DEFF Ref: 14/12/16/3/3/2/826), near Sutherland, Northern Cape Province. The grid connection extension solution will include the development of a single- or double-circuit 132kV overhead power line to connect the Gunstfontein Wind Farm to the national grid, via the Hidden Valley substation. The proposed 132kV Overhead line (OHL) extension will be an extension of the already authorised Gunstfontein Grid Connection (DEFF Ref: 14/12/16/3/3/1/1619).

The 200MW Gunstfontein Wind Farm received an Environmental Authorisation in 2016, from the Department of Environment, Forestry and Fisheries (DEFF) (DEFF ref.: 14/12/16/3/3/2/826). A second Environmental Authorisation for the Gunstfontein Grid Connection (14/12/16/3/3/1/1619), including switching station, 132kV overhead power line and ancillary infrastructure, was granted on 17 February 2017. The authorised grid connection infrastructure currently terminates at the Heuwels Substation (located on Soetwater Wind Farm), however upon further investigation it has been identified that Heuwels substation will not have sufficient capacity to export the power from the Gunstfontein Wind Farm to the national grid. It is therefore necessary to by-pass Heuwels substation and extend the authorised grid connection to connect to the Hidden Valley substation (located on Karusa Wind Farm) located ~7.5km south of the Heuwels substation. This connection will operate together with the authorised power line from the Gunstfontein Wind Farm and will include the development of specific grid extension infrastructure in order to enable the Gunstfontein Wind Farm to connect to the national Eskom grid. The infrastructure includes:

- » A single- or double-circuit 132kV overhead power line on a single set of pylon structures (up to 32m in height); and
- » Associated infrastructure:
 - Laydown areas (temporary).
 - Access and service tracks.
 - A single 132kV incoming line bay at the Hidden Valley substation of up to 1ha, located within the HV yard of the substation (separately authorised).

A corridor 300m wide and approximately 7.5km long as well as a 200m wide assessment zone around each of the two relevant substations (collectively known as the grid extension corridor) is being assessed to allow for the optimisation of the grid and associated infrastructure (i.e. micro siting), and to accommodate environmental sensitivities and other energy infrastructure currently under construction on the properties. The grid extension infrastructure will be developed within the assessed grid corridor.

The full length of the assessed 300m corridor traverses four (4) affected properties, namely:

- » RE of Portion 1 of the Farm Orange Fontein No. 203;
- » RE of the Farm Annex Orange Fontein No. 185;
- » RE of the Farm Leeuwe Hoek 183; and

» The Farm De Hoop No. 202.

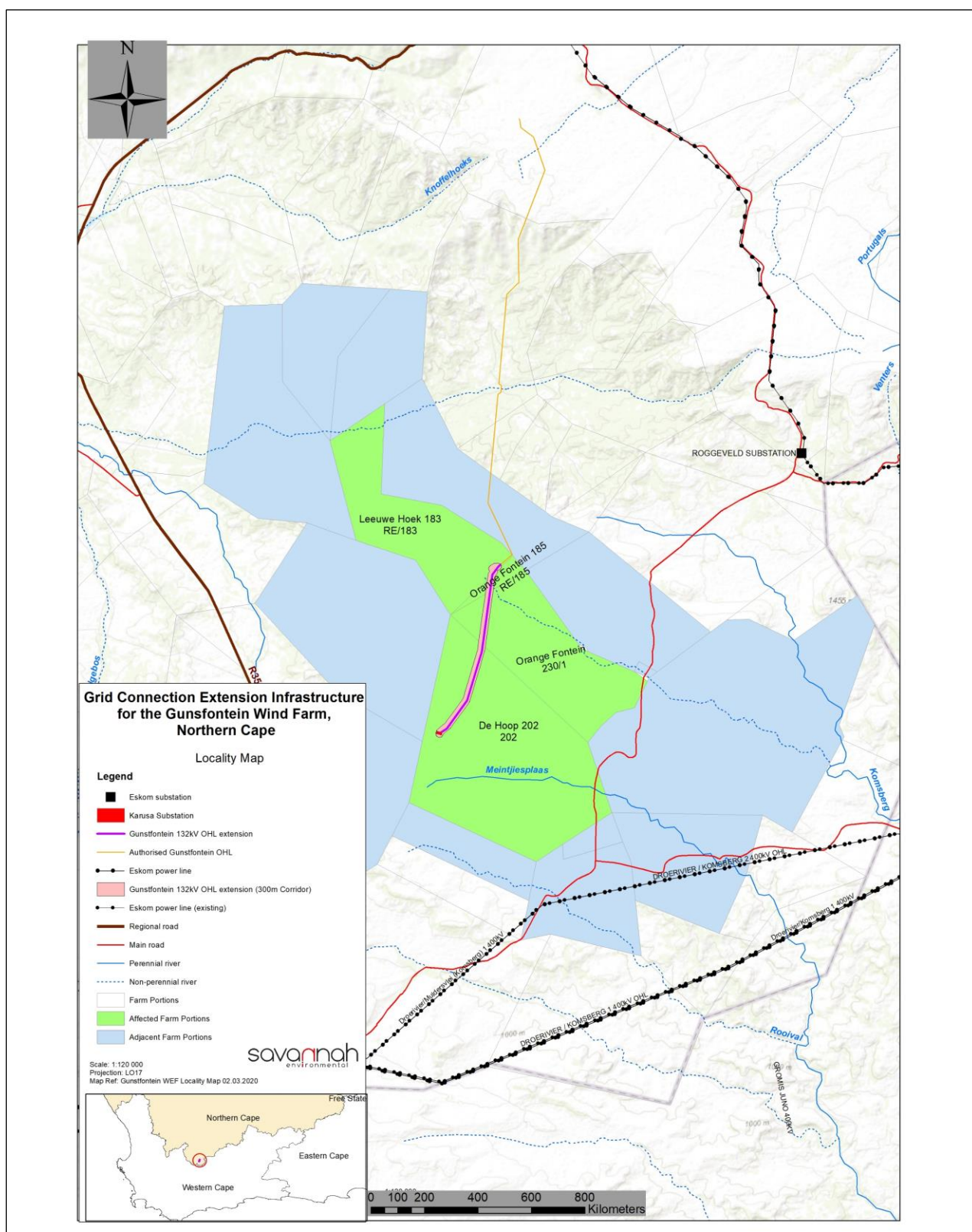


Figure 1: Locality map showing the grid extension connection corridor proposed for the development of the grid connection extension infrastructure for the authorised Gunstfontein Wind Farm.

No environmental fatal flaws were identified in the detailed specialist studies conducted for the grid extension infrastructure for the Gunstfontein Wind Farm. All impacts associated with the project establishment within the grid extension corridor can be mitigated to acceptable levels or enhanced through the implementation of the recommended mitigation or enhancement measures.

The potential environmental impacts associated with the grid extension infrastructure for the Gunstfontein Wind Farm identified and assessed through the BA process include:

Ecological Impacts - From the findings of the Ecological Impact Assessment it can be concluded that the grid extension corridor assessed for the development of the grid extension infrastructure is of medium to low ecological sensitivity. There are no impacts associated with the establishment of Gunstfontein WEF Grid Connection Extension that cannot be mitigated to a low significance. As a result, there are no specific long-term impacts associated with the grid extension infrastructure that cannot be reduced to an acceptable level through mitigation. There are no high residual impacts or fatal flaws associated with the development and it can be supported from a terrestrial ecology perspective. The specialist has indicated that the grid extension infrastructure for the Gunstfontein Wind Farm should be authorised, from an ecological perspective, subject to the implementation of the recommended mitigation measures.

Avifauna Impacts – From the findings of the Avifaunal Impact Assessment it was concluded that the impacts on the avifauna would potentially be expected to be of high importance, but due to the relatively low frequency of occurrence of priority species throughout the site, the impacts are likely to be medium low and no high post-mitigation impacts are expected. The proposed grid connection extension route is considered viable from an avifaunal perspective for the following reasons: 1) the power line extension is relatively short (ca. 7.5km) and follows a relatively direct pathway between the Heuwels and Hidden Valley Substations, 2) the route intersects only one flight zone along a mountain ridge, and 3) the proposed grid connection corridor will follow a 132kV power line (currently under construction which will also be fitted with bird anti-collision devices, where required and applicable) for the entire length which may further reduce potential collision rates. There are no impacts associated with the grid connection extension that are considered to be of high significance and which cannot be mitigated to a medium to low level. Therefore, there are no fatal flaws from an avifaunal perspective that should prevent the development from proceeding.

Impacts on Heritage Resources – Impacts on archaeology, palaeontology and cultural landscape have been assessed, and no fatal flaws have been identified from a heritage perspective. The significance of the impacts will be low, with the implementation of the recommended mitigation measures. No heritage impacts of high significance are expected, and the development of the grid extension infrastructure is considered to be acceptable, subject to the implementation of the recommendations made by the specialist.

Social Impacts – The majority of the social impacts associated with the development of the grid connection extension infrastructure will have a very short-term duration associated with the construction and decommissioning phases, and long-term duration during the operation phase. Only positive impacts have been identified for both the construction and operation phases of the grid extension infrastructure. Overall, the development of the grid extension infrastructure will be associated with positive socio-economic impacts of medium significance during the construction, operation and decommissioning phases. (Soetwater Switching Station Complex - Final Basic Assessment Report, January 2015)

Cumulative Impacts - The contribution of the project to cumulative impacts will range from low significance to medium significance, depending on the impact being considered. There are, however, no identified impacts considered as presenting an unacceptable risk. In addition, no impacts that will result in whole-scale change are expected.

Figure 2 provides an environmental sensitivity map of the grid connection corridor assessed as part of the BA process, as well as the environmental sensitivities identified.

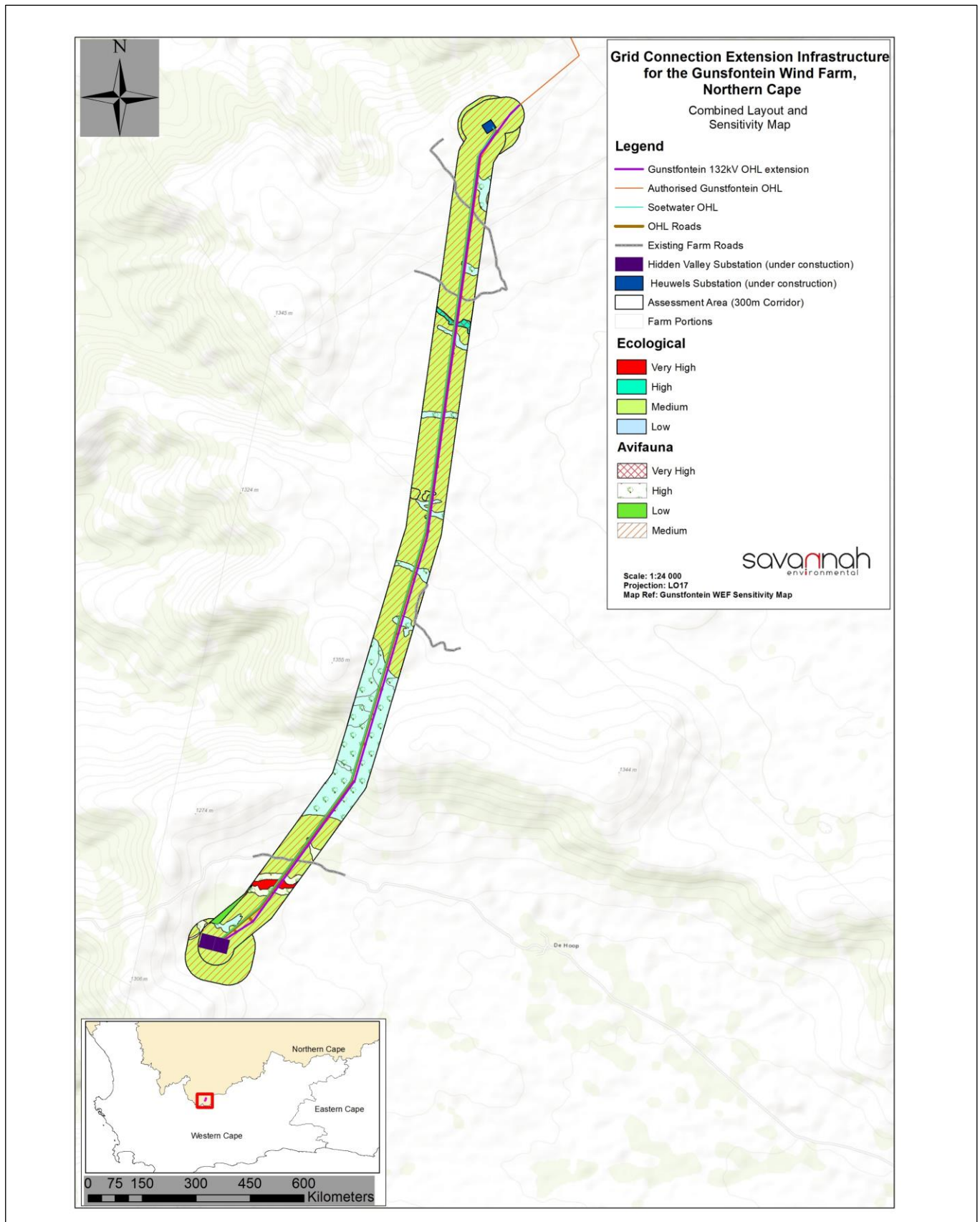


Figure 2: Environmental sensitivity map for the proposed corridor. Please refer to the figures in section 5.8 for all the historical maps.

DEFINITIONS AND TERMINOLOGY

Alternatives: Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

Commence: The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

Commissioning: Commissioning commences once construction is completed. Commissioning covers all activities including testing after all components of the wind turbine are installed.

Construction: Construction means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity. Construction begins with any activity which requires Environmental Authorisation.

Cumulative impacts: Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.

Decommissioning: To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned. This usually occurs at the end of the life of a facility.

Direct impacts: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation, or maintenance of an activity and are generally obvious and quantifiable.

'Do nothing' alternative: The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Endangered species: Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Emergency: An undesired/ unplanned event that results in a significant environmental impact and requires the notification of the relevant statutory body, such as a local authority.

Endemic: An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

Environment: the surroundings within which humans exist and that are made up of:

- i. The land, water and atmosphere of the earth;
- ii. Micro-organisms, plant and animal life;
- iii. Any part or combination of (i) and (ii) and the interrelationships among and between them; and
- iv. The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental impact: An action or series of actions that have an effect on the environment.

Environmental management: Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental management programme: An operational plan that organises and co-ordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of a proposal and its ongoing maintenance after implementation.

Heritage: That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act of 2000).

Indigenous: All biological organisms that occurred naturally within the study area prior to 1800.

Indirect impacts: Indirect or induced changes that may occur because of the activity (e.g. the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place because of the activity.

Interested and affected party: Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups, and the public.

Method statement: A written submission to the ECO and the site manager (or engineer) by the EPC Contractor in collaboration with his/her EO.

Mitigation hierarchy: The mitigation hierarchy is a framework for managing risks and potential impacts related to biodiversity and ecosystem services. The mitigation hierarchy is used when planning and implementing development projects, to provide a logical and effective approach to protecting and conserving biodiversity and maintaining important ecosystem services. It is a tool to aid in the sustainable management of living, natural resources, which provides a mechanism for making explicit decisions that balance conservation needs with development priorities

No-go areas: Areas of environmental sensitivity that should not be impacted on or utilised during the development of a project as identified in any environmental reports.

Pollution: A change in the environment caused by substances (radio-active or other waves, noise, odours, dust or heat emitted from any activity, including the storage or treatment or waste or substances.

Pre-construction: The period prior to the commencement of construction, this may include activities which do not require Environmental Authorisation (e.g. geotechnical surveys).

Rare species: Taxa with small world populations that are not at present Endangered or Vulnerable, but are at risk as some unexpected threat could easily cause a critical decline. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range. This category was termed Critically Rare by Hall and Veldhuis (1985) to distinguish it from the more generally used word "rare."

Red data species: Species listed in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, and/or in terms of the South African Red Data list. In terms of the South African Red Data list, species are classified as being extinct, endangered, vulnerable, rare, indeterminate, insufficiently known or not threatened (see other definitions within this glossary).

Significant impact: An impact that by its magnitude, duration, intensity, or probability of occurrence may have a notable effect on one or more aspects of the environment.

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CHAPTER 1: INTRODUCTION

Gunstfontein Wind Farm (Pty) Ltd proposes the construction and operation of a grid connection extension solution, for the authorised Gunstfontein Wind Farm (DEFF Ref: 14/12/16/3/3/2/826), near Sutherland, Northern Cape Province. The grid connection extension solution will include the development of a single- or double-circuit 132kV overhead power line to connect the Gunstfontein Wind Farm to the national grid, via the Hidden Valley substation. The proposed 132kV OHL will be an extension of the already authorised Gunstfontein Grid Connection (DEFF Ref: 14/12/16/3/3/1/1619). Other associated infrastructure will also be required for the grid connection solution, such as access tracks/roads and laydown areas and a single 132kV incoming line bay at the Hidden Valley substation of up to 0.1ha located within the existing HV yard of the substation. A corridor 300m wide and approximately 7.5km long along with an assessment zone of 200m around the starting and terminating substation boundaries (collectively known as the grid extension corridor) is being assessed to inform the optimisation of the grid (i.e. micro siting) and associated infrastructure and to accommodate environmental sensitivities and other energy infrastructure currently under construction on the properties.

The 200MW Gunstfontein Wind Farm received an Environmental Authorisation in 2016 from the Department of Environment, Forestry and Fisheries (DEFF) (DEFF ref.: 14/12/16/3/3/2/826). A second Environmental Authorisation for the Gunstfontein Grid Connection (14/12/16/3/3/1/1619), including switching station, 132kV overhead power line and ancillary infrastructure, was granted on 17 February 2017. The authorised Gunstfontein grid connection infrastructure currently terminates at the Heuwels substation (on Soetwater Wind Farm), however upon further investigation it has been identified that Heuwels substation will not have sufficient capacity to export the power from Gunstfontein Wind Farm to the national grid. It is therefore necessary to by-pass Heuwels substation and extend the Gunstfontein grid connection to connect to the Hidden Valley substation (on Karusa Wind Farm) located ~7.5km south of the Heuwels substation. This Basic Assessment Report focusses on the extension of the already authorised 132kV power line and the associated infrastructure.

The development of grid connection extension infrastructure supports the identified objectives of the national and provincial government, and local and district municipalities to develop renewable energy facilities for power generation purposes. The project development site is located within the Komsberg Renewable Energy Development Zone (REDZ) and within the Central corridor of the Strategic Transmission Corridors. From a regional perspective, this area is considered favourable for the development of the proposed grid connection extension infrastructure.

The nature and extent of the proposed grid connection extension infrastructure, as well as the potential environmental impacts associated with the construction, operation and decommissioning phases of the proposed infrastructure are assessed in this Basic Assessment Report. Site specific environmental issues and constraints within the grid corridor are considered within independent specialist studies in order to test the environmental suitability of the corridor for the proposed project, delineate areas of sensitivity within the corridor, and ultimately inform the placement of the grid connection extension infrastructure within the grid connection extension corridor.

1.1 Overview of the Grid Connection Extension Infrastructure for the Gunstfontein Wind Farm

One grid connection extension option exists within the corridor, namely:

- » A 132kV single- or double-circuit overhead power line extending from the already authorised 132kV Gunstfontein power line, bypassing Heuwels Substation and linking up to the Hidden Valley Substation, which will be the end point of the proposed 132kV overhead power line grid extension connection. The proposed power line will be located parallel and approximately 15m away from an existing power line (currently under construction by Soetwater Wind Farm) that connects the Heuwels and Hidden Valley substations and is approximately 7.5km long. A single 132kV incoming line bay (of up to 0.1ha) at the Hidden Valley substation will also be developed within the existing HV yard of the substation (the latter is however separately authorised under the existing Environmental Authorisation for the Hidden Valley Substation).

Table 1.1 provides a summary of the proposed grid connection infrastructure. Further details of the Grid Connection Infrastructure are included within section 2.2.

The full length of the grid connection extension corridor traverses four (4) affected properties, namely:

- » RE Portion 1 of the Farm Orange Fontein No. 203;
- » RE of the Farm Annex Orange Fontein No. 185;
- » RE of the Farm Leeuwe Hoek No. 183; and
- » The Farm De Hoop 202.

Table 1.1: Details of the grid connection corridor

Province	Northern Cape Province
District Municipality	Namakwa District Municipality (DC6)
Local Municipality	Karoo Hoogland Municipality
Ward number(s)	3
Nearest town(s)	Sutherland (+/- 39km) Laingsburg (+/- 49km)
Affected Properties: Farm name(s), number(s) and portion numbers	Grid Connection Corridor (300m wide): <ul style="list-style-type: none"> » RE Portion 1 of the Farm Orange Fontein No. 203; » RE of the Farm Annex Orange Fontein 185; » RE of the Farm Leeuwe Hoek 183; and » <u>The Farm De Hoop 202;</u>
SG 21 Digit Code (s): Affected Properties	Grid Connection Corridor (300m wide): <ul style="list-style-type: none"> » RE Portion 1 of the Farm Orange Fontein 203 - C07200000000020300001 » RE of the Farm Annex Orange Fontein 185 - C07200000000018500000 » RE of the Farm Leeuwe Hoek 183 - C07200000000018300000 » <u>The Farm De Hoop 202 - C07200000000020200000</u>

1.2 Requirements for an Environmental Impact Assessment Process

The construction and operation of the grid connection extension infrastructure for the Gunstfontein Wind Farm is subject to the requirements of the EIA Regulations, 2014 (as amended), published in terms of Section 24(5) of the National Environmental Management Act (NEMA) 107 of 1998. NEMA is the national legislation that provides for the authorisation of certain controlled activities known as “listed activities”. In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed, and reported on to the Competent Authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation.

The main listed activity triggered by the proposed grid connection extension infrastructure is Activity 11 (i) of Listing Notice 1 (GNR 327 of the EIA Regulations, 2014 (as amended)), which relates to the development of facilities or infrastructure for the transmission and distribution of electricity outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts. As a result, a Basic Assessment process must be undertaken in support of an application for Environmental Authorisation.

In terms of GNR 779 of 01 July 2016, the national Department of Environment, Forestry and Fisheries (DEFF) has been determined as the Competent Authority (CA) for all projects which relate to the Integrated Resource Plan for Electricity (IRP) 2010 – 2030, and any updates thereto. As this project is associated with a renewable energy development intended to form part of the country's national energy supply (which is included in the IRP), the DEFF is considered as the CA. Through the decision-making process, the DEFF will be supported by the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform as the commenting authority.

1.3 Legal Requirements as per the EIA Regulations, 2014 (as amended)

This Basic Assessment Report (BAR) has been prepared in accordance with the requirements of the EIA Regulations published on 08 December 2014 (as amended in April 2017) promulgated in terms of Chapter 5 of the National Environmental Management Act (Act No 107 of 1998).

This chapter of the BAR Report includes the following information required in terms of the EIA Regulations - Appendix 1: Content of Basic Assessment Reports:

Requirement	Relevant Section
3(a) the details of the (i) EAP who prepared the report and (ii) the expertise of the EAP, including a curriculum vitae.	The details of the EAP who prepared the report and the expertise of the EAP is included in section 1.5. The curriculum vitae of the EAP, project team and independent specialists are included in Appendix A .
3(b) the location of the activity including (i) the 21 digit Surveyor General code of each cadastral land parcel, (ii) where available the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the co-ordinates of the boundary of the property or properties.	The location of the grid connection corridor, within which the 132kV power line is proposed, is included in section 1.3, Table 1.1 and Figure 1.1. The information provided includes the 21-digit Surveyor General code of the affected properties and the farm names. Additional information is also provided regarding the location of the development which includes the relevant province, local and district municipalities, ward and current land zoning.

This Basic Assessment (BA) report has been compiled in accordance with Appendix 1 of the EIA Regulations, 2014 (as amended) and consists of the following sections:

- » **Chapter 1** provides background to the Gunstfontein Grid Extension and the BA process.
- » **Chapter 2** provides a description of the proposed development, the identified and assessed project alternatives and the need and desirability of the project.
- » **Chapter 3** outlines the approach to undertaking the BA process and the strategic regulatory and legal context for energy planning in South Africa, specifically relating to the Gunstfontein Grid Extension.
- » **Chapter 4** describes the approach to undertaking the basic assessment process, the legal requirements as per the EIA regulations and the relevant legislative permitting requirements
- » **Chapter 5** provides a description of the existing biophysical, regional, and social environment within and surrounding the assessed grid connection corridor.
- » **Chapter 6** provides an assessment of the potential impacts associated with the proposed development and presents recommendations for the mitigation of significant impacts.
- » **Chapter 7** provides an assessment of the cumulative impacts associated with the proposed development and presents recommendations for the mitigation of significant impacts.
- » **Chapter 8** presents the conclusions and recommendations based on the findings of the BA Report and lastly provides the references used in the compilation of the BA Report.

1.4 Details of the Environmental Assessment Practitioner and Expertise to conduct the BA process

In accordance with Regulation 12 of the 2014 EIA Regulations (GNR 326), Gunstfontein Wind Farms (Pty) Ltd has appointed Savannah Environmental (Pty) Ltd (Savannah Environmental) as the independent Environmental Assessment consultant to undertake the Basic Assessment and prepare the BA Report for the grid connection extension infrastructure for the authorised Gunstfontein Wind Farm. Neither Savannah Environmental nor any of its specialists are subsidiaries of or are affiliated to Gunstfontein Wind Farm (Pty) Ltd. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consulting company providing a holistic environmental management service, including environmental assessment and planning to ensure compliance and evaluate the risk of development, and the development and implementation of environmental management tools. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team.

The Savannah Environmental team have considerable experience in basic assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with electricity generation.

The Environmental Assessment Practitioners (EAPs) from Savannah Environmental responsible for this project include:

- » **Gideon Raath**, the principle EAP for this project, holds an MSc (Geography and Environmental Management; SU), a BSc Honours (Ecology and Environmental Studies - Cum laude; Wits) and a BSc (Geography and Environmental Management; UJ). His MSc thesis focused on the hydrological impact on the spatial distribution of invasive Eucalyptus trees along the Breede River; while his honours thesis evaluated ethnobotanical relationships around the Rio Tinto copper mine in Phalaborwa. Gideon's experience includes EIA permitting for ~72 different projects, ranging from infrastructure, mining, energy, housing, renewable energy and the conservation industries. These include Environmental Authorisations (BAR, S&EIR), Water Use Licencing, Waste Licencing, Environmental Compliance Officer compliance

auditing, GIS studies and MPRDA permitting. He therefore has wide ranging experience in NEMA, NHRA, NEM:WA, NEM:BA, MPRDA and NWA regulations, having applied them for numerous private and public sector clients across various industries, for small, medium and large projects. Gideon is also an experienced Ecological & Wetland Specialist having conducted ~21 specialist studies, accredited with SACNASP as a professional natural scientist (Pr.Sci.Nat) since 2017. Gideon also has experience beyond the permitting sphere through numerous screening assessments for potential developers, including fatal flaw screenings, regulatory and permitting approval screening as well as ecological and hydrological sensitivity screening. Gideon has also served in an advisory role for various infrastructure and mining projects, assisting with environmental due diligence, bankable feasibility study input and assistance towards financial close.

- » **Nicolene Venter** is responsible for the public participation process for the BA. She is a Board Member of IAPSA (International Association for Public Participation South Africa). She has over 21 years of experience in public participation, stakeholder engagement, awareness creation processes and facilitation of various meetings (focus group, public meetings, workshops, etc.). She is responsible for project management of public participation processes for a wide range of environmental projects across South Africa and neighbouring countries.
- » **Jo-Anne Thomas** provides technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental auditing and monitoring, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management. Her Key focus is on integration of the specialist environmental studies and findings into larger engineering-based projects, strategic assessment, and providing practical and achievable environmental management solutions and mitigation measures. Responsibilities for environmental studies include project management (including client and authority liaison and management of specialist teams); review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures.

The EAP Declaration of Independence and Affirmation is included in **Appendix J**.

CHAPTER 2: PROJECT DESCRIPTION

This chapter provides an overview of the grid connection extension infrastructure for the Gunstfontein Wind Farm and details the project scope, which includes the planning/design, construction, operation and decommissioning activities required for the development.

2.1. Legal Requirements as per the EIA Regulations, 2014 (as amended)

This chapter of the BAR report includes the following information required in terms of the EIA Regulations, 2014 - Appendix 1: Content of Basic Assessment Reports:

Requirement	Relevant Section
3(b) the location of the activity including (i) the 21 digit Surveyor General code of each cadastral land parcel, (ii) where available the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	The location of the proposed grid connection infrastructure for the Gunstfontein Wind Farm is detailed in Chapter 1, Table 1.1 , as well as in section 2.2.1 below.
3(c)(i)(ii) a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined, the coordinates within which the activity is to be undertaken	A layout map illustrating the grid connection corridor (300m wide) <u>and the</u> grid connection infrastructure planned to be developed for the Gunstfontein Wind Farm is included as Figure 2.2 . <u>Please note that the layout map is submitted for approval together with the application for environmental authorisation.</u>
3(d)(ii) a description of the scope of the proposed activity, including a description of the activities to be undertaken including associated structures and infrastructure	A description of the activities to be undertaken with the development of the grid connection infrastructure is included in Table 2.1 and Table 2.2 .
3(f) a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location.	The need and desirability of the development of the Gunstfontein OHL Extension is included and discussed as a whole within section 2.3.
3(g) a motivation for the preferred site, activity and technology alternative	The motivation for the alternatives associated with the development of the grid extension infrastructure for the Gunstfontein Wind Farm are included in section 2.3. It must be noted that no activity or technology alternatives are associated with the development of the grid extension infrastructure due to the specific requirements for the infrastructure to connect the Gunstfontein Wind Farm to the national grid. Therefore, no activity and technology alternatives are considered for the project.
3(h)(i) details of the alternative considered	The details of all alternatives considered as part of the grid extension infrastructure for the Gunstfontein Wind Farm are included in section 2.3.
3(h)(ix) the outcome of the site selection matrix	The site selection process followed by the developer in order to identify the grid extension corridor for the development of the grid extension infrastructure is described in section 2.3.

Requirement	Relevant Section
3(h)(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such	Where no alternatives have been considered, motivation has been included. This is included in section 2.3.

2.2 Nature and extent of the Grid Connection Extension Infrastructure for the Gunstfontein Wind Farm

Gunstfontein Wind Farm (Pty) Ltd is proposing the establishment of the grid connection extension infrastructure to allow for evacuation of the generated electricity from the authorised 200MW Gunstfontein Wind Farm to the national grid. For the Authorised Gunstfontein Wind Farm to evacuate the generated wind power to the national grid, an extension of the currently authorised power line, currently connected to Heuwels Substation, is required which will by-pass Heuwels Substation and connect to the authorised Hidden Valley Substation (currently under construction). This connection extension will operate together with the authorised power line from the Gunstfontein Wind Farm and will include the development of specific extension infrastructure in order to enable the connection establishment. The connection extension infrastructure includes:

- » A single- or double-circuit 132kV overhead power line on a single set of pylon structures (up to 32m high); and
- » Associated infrastructure:
 - * Laydown areas.
 - * Access roads and service tracks.
 - * A single 132kV incoming line bay at the Hidden Valley substation of up to 1ha, located within the HV yard of the substation (separately authorised).

A corridor 300m wide and approximately 7.5km long as well as a 200m wide assessment zone around each of the two substations is being assessed to allow for the optimisation of the grid extension and associated infrastructure and to accommodate environmental sensitivities. The grid extension infrastructure (including the power line and associated infrastructure) will be developed within the assessed corridor. The proposed power line will be located parallel and approximately 15m away from an existing power line (currently under construction by Soetwater Wind Farm) that connects the Heuwels and Hidden Valley Substations. Existing roads within the assessed corridor will be utilised as far as possible to access the powerline for construction and operational purposes. Where necessary, the existing roads may be upgraded, or new sections of access service tracks will be developed if none exist for a particular section of the line.

The height of the power line towers of the 132kV double-circuit power line will be up to 32m and the servitude width of the power line will be up to 40m. Pylon spacing will be approximately 250m apart, with an approximate footprint for each pylon foundation of 10x10m (100m²). Accounting for crane disturbance during erection and stringing, the total disturbance footprint of each pylon will be ~25m x 25m (625m²).

2.2.1. Project Site

The grid connection extension corridor is located within the Karoo Hoogland Local Municipality and the Namakwa District Municipality (DC6) and traverses the following four (4) affected properties:

- » RE Portion 1 of the Farm Orange Fontein No. 203;
- » RE of the Farm Annex Orange Fontein No. 185;

- » RE of the Farm Leeuwe Hoek No. 183; and
- » The Farm De Hoop 202.

The entire extent of the corridor proposed for the development is located within the Komsberg Renewable Energy Development Zone (REDZ) and within the central corridor of the Strategic Transmission Corridors (**Figure 2.1**).

Access to the grid connection extension corridor is possible via numerous existing smaller farm roads in close vicinity to the corridor, primarily off the Regional 354 (R354) tarred road running between Matjiesfontein and Sutherland towns. Apart from these existing roads, the authorised Gunstfontein 132kV power line provides for an access/service track along its length that can also be used to access the corridor. In addition, existing access roads / service tracks to the Heuwels and Hidden Valley substations (currently under construction) will be used to access the start- and end- point of the OHL extension. Access for maintenance purposes will be via either dedicated access roads or jeep tracks running along the length of the line. Where possible, the existing service track for the Soetwater power line will be utilised.

2.2.2. Components of the Grid Connection Extension Infrastructure for the Gunstfontein Wind Farm

A summary of the details and dimensions of the planned grid connection extension infrastructure associated with the project is provided in **Table 2.1**.

Table 2.1: Details of the proposed grid connection extension infrastructure for the Gunstfontein Wind Farm.¹

Infrastructure	Footprint, dimensions and details				
Corridor width (for assessment purposes)	A 300m wide grid connection corridor and a 200m wide assessment zone around each of the existing substations is being assessed within which the grid connection extension infrastructure will be constructed and operated. The corridor represents 150m on either side of the power line corridor centre line, increased to 200m around the Heuwels and Hidden Valley Substations.				
Power line capacity	132kV (single- or double-circuit)				
Tower height	Up to 32m				
Power line servitude width	Up to 40m				
<u>Pylon spacing along line</u>	<u>~250m apart</u>				
<u>Approximate pylon foundation footprint</u>	<u>Accounting for crane disturbance during erection and stringing, the total disturbance footprint of each pylon will be ~25m x 25m (625m²).</u>				
Length of the power line	Approximately 7.5km				
A description and coordinates of the corridor in which the proposed activity or activities is to be undertaken	<p>Please refer to Figure 1.1 for the location of the assessment corridor within which the proposed grid connection extension infrastructure will be located. The co-ordinates of the <u>route (each node a bend point along the preferred power line route within the corridor)</u> are:</p> <table border="1"> <tr> <th>Latitude</th><th>Longitude</th></tr> <tr> <td><u>32°44'45.67"S</u></td><td><u>20°38'52.98"E</u></td></tr> </table>	Latitude	Longitude	<u>32°44'45.67"S</u>	<u>20°38'52.98"E</u>
Latitude	Longitude				
<u>32°44'45.67"S</u>	<u>20°38'52.98"E</u>				

¹ The confirmed details and dimensions of the grid extension infrastructure was assessed as part of the independent specialist studies.

Infrastructure	Footprint, dimensions and details	
	<u>32°44'47.97"S</u>	<u>20°38'49.93"E</u>
	<u>32°45'0.13"S</u>	<u>20°38'40.93"E</u>
	<u>32°46'41.76"S</u>	<u>20°38'28.30"E</u>
	<u>32°47'50.16"S</u>	<u>20°38'7.26"E</u>
	<u>32°48'28.90"S</u>	<u>20°37'36.22"</u>
	<u>32°48'34.16"S</u>	<u>20°37'27.18"E</u>
	<u>32°48'35.40"S</u>	<u>20°37'26.89"E</u>

Figure 2.2 illustrates the grid connection extension corridor proposed for the development of the grid connection extension infrastructure for the Gunstfontein Wind Farm, which has been assessed within this BA report.

Table 2.2 provides the details regarding the requirements and the activities to be undertaken during the grid connection extension infrastructure development phases (i.e. construction phase, operation phase and decommissioning phase).

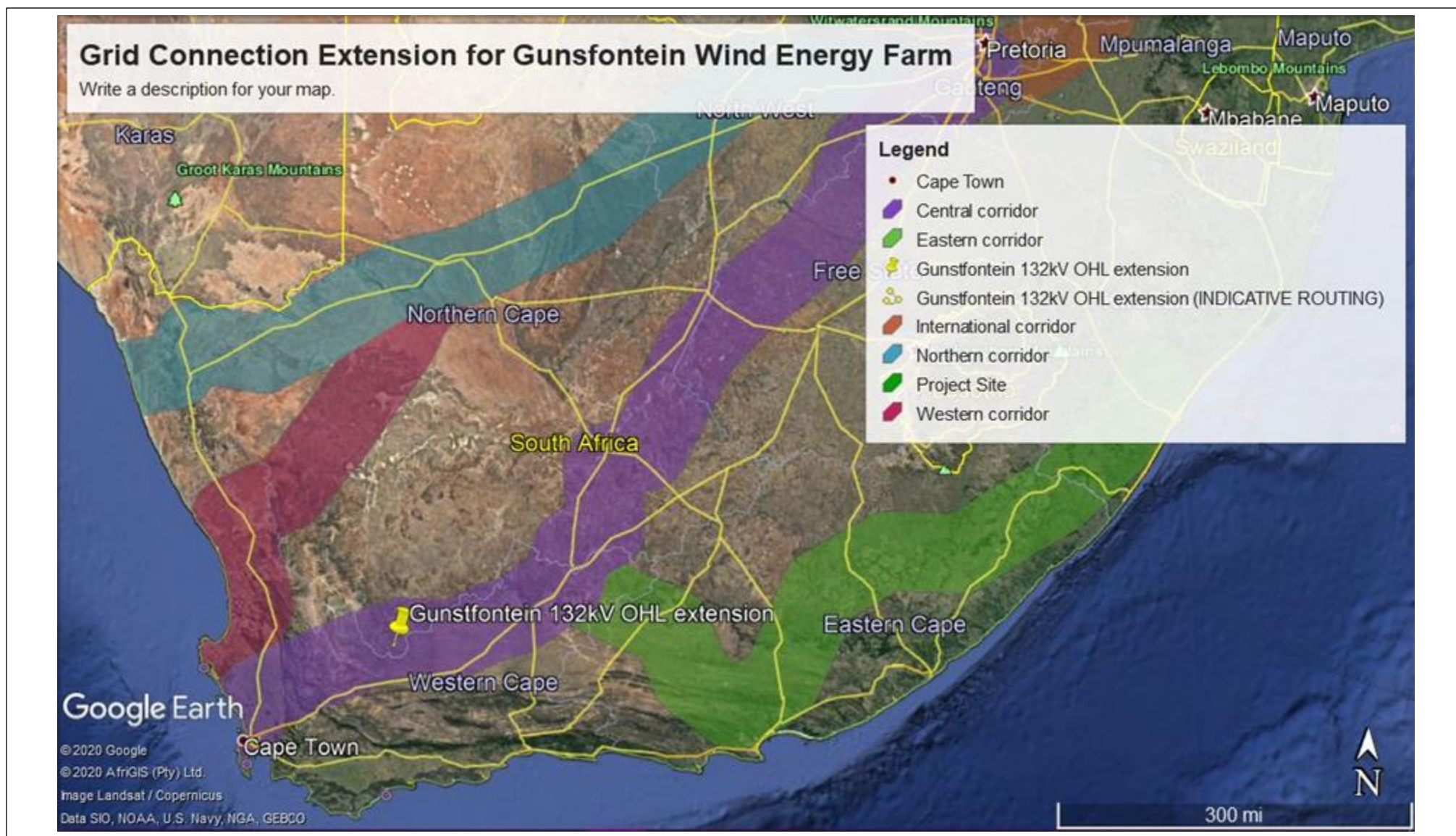


Figure 2.1: The location of the grid connection extension corridor within the central corridor of the Strategic Transmission Corridors (GNR 113).

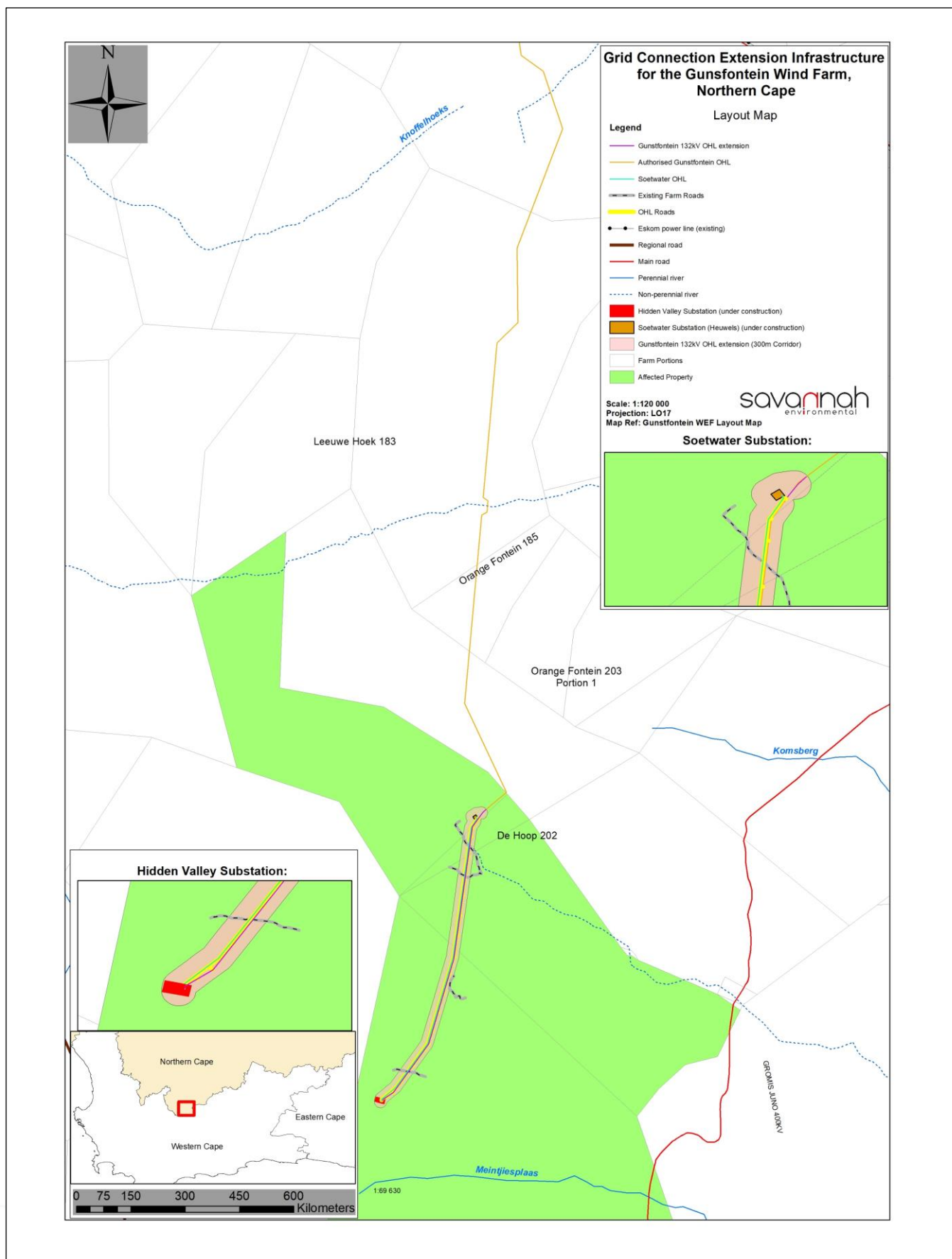


Figure 2.2: Grid connection corridor associated with the extension of the grid connection solution for the Gunstfontein Wind Farm (refer to Appendix H for A3 map)

2.2.3 Project Development Phases associated with the Grid Connection Extension Infrastructure for the Gunstfontein Wind Farm

Table 2.2: Details of the grid connection extension infrastructure development phases (i.e. construction, operation and decommissioning)

Construction Phase	
Requirements	<ul style="list-style-type: none"> » Duration of the construction phase is expected to be 9-12 months. » Create direct construction employment opportunities. Up to 40 employment opportunities will be created during the construction phase. » No on-site labour camps. Employees to be accommodated in the nearby towns such as Sutherland (+/- 39km), Laingsburg (+/- 49km) or Matjiesfontein (+/- 46km) and transported to and from site daily. » Overnight on-site worker presence would be limited to security staff. » Construction waste will be temporarily stored on site and waste removal and sanitation will be undertaken by a sub-contractor on a regular basis. » Electricity required for construction activities will be generated by a generator or will be sourced from available Eskom distribution networks in the area. » Negligible water will be required for the construction phase and potable needs. If required, water will be sourced from the local municipality, existing borehole/s on or near the project site (subject to agreement with landowners and authorisation from DWS), or water will be extracted from any bulk water supply pipelines near the corridor.
Construction sequence	<p>Overhead power lines are constructed in the following simplified sequence:</p> <p>Step 1: Surveying of the development area, engaging with affected landowners, environmental specialist walkthroughs <u>as may be needed for search-and-rescue purposes</u>;</p> <p>Step 2: Vegetation clearance and construction of access roads/tracks (where required);</p> <p>Step 3: Construction of tower foundations;</p> <p>Step 4: Assembly and erection of infrastructure on site;</p> <p>Step 5: Stringing of conductors;</p> <p>Step 6: Rehabilitation of disturbed areas;</p> <p>Step 7: Continued maintenance.</p> <p>It is anticipated that the construction of the 132kV power line extension will take up to 9-12 months to complete.</p>
Activities to be undertaken	
Conduct surveys prior to construction	<ul style="list-style-type: none"> » Including, but not limited to: a geotechnical survey and environmental <u>walkthroughs if required search-and-rescue purposes</u>.
Undertake site preparation	<ul style="list-style-type: none"> » Including the clearance of vegetation at the pylon foundations, trimming of vegetation along the power line route (if required to ensure sufficient clearance between vegetation and the powerline), establishment of the laydown areas, the establishment of access roads/tracks and excavations for foundations. » Stripping of topsoil to be stockpiled, backfilled, removed from site and/or spread on site. » To be undertaken in a systematic manner to reduce the risk of exposed ground being subjected to erosion.
Establishment of laydown areas and batching plant on site	<ul style="list-style-type: none"> » A laydown area for the storage of grid infrastructure components, including the civil engineering construction equipment. » The laydown area will also accommodate building materials and equipment associated with the construction of buildings. » No borrow pits will be required. Infilling or depositing materials (if required) will be sourced from third-party suppliers or licenced borrow pits within the surrounding areas.

	» If necessary, a temporary concrete batching plant of 50m x 50m in extent to facilitate the concrete requirements for grid infrastructure foundations. Other options include the use of mobile batching plants that allow for in situ batching of concrete.
Undertake site rehabilitation	<ul style="list-style-type: none"> » Commence with rehabilitation efforts once construction is completed in an area, and all construction equipment is removed. » On commissioning, access points to the site that will not be required for the operation phase will be closed and prepared for rehabilitation.
<u>Operation Phase</u>	
Requirements	<ul style="list-style-type: none"> » Duration will be 20-25 years, or longer as needed for the operation of the Gunstfontein Wind Farm. » Requirements for security and maintenance of the grid connection infrastructure. » Employment opportunities relating mainly to operation activities and maintenance. Very limited employment opportunities will be available.
Activities to be undertaken	
Operation and Maintenance	<ul style="list-style-type: none"> » Ad hoc infrastructure maintenance activities. Once built, the line will likely be ceded to Eskom, and it will be Eskom's full-time employees undertaking maintenance » Disposal of waste products (e.g. oil) in accordance with relevant waste management legislation. » On-going rehabilitation of those areas which were disturbed during the construction phase. » During this operation phase vegetation within the power line servitude (up to 40m), will require management only if it impacts on the safety and operational objectives of the project. » The maintenance of the grid connection infrastructure will be the responsibility of the holder of the Environmental Authorisation. Please note: the power line and the Environmental Authorisation will be ceded to Eskom upon completion of construction, where after responsibility will reside with Eskom as the new holder of the EA.
<u>Decommissioning Phase</u>	
Requirements	<ul style="list-style-type: none"> » Decommissioning of the grid connection infrastructure for the Gunstfontein Wind Farm may occur at the end of its economic life, unless the infrastructure is required by Eskom. » Expected lifespan of approximately 20 - 25 years (with maintenance) before decommissioning is required. » Decommissioning activities to comply with the legislation relevant at the time.
Activities to be undertaken	
Site preparation	<ul style="list-style-type: none"> » Confirming the integrity of access to the grid connection infrastructure to accommodate the required equipment. » Mobilisation of decommissioning equipment.
Disassemble components and rehabilitation	<ul style="list-style-type: none"> » The grid connection infrastructure components will be disassembled and reused and recycled (where possible). » Where components cannot be reused or recycled it will be disposed of in accordance with the regulatory requirements at the time of decommissioning. » Disturbed areas, where infrastructure has been removed, will be rehabilitated, if required and depending on the future land-use of the affected areas and the relevant legislation applicable at the time of decommissioning.

It is expected that the areas affected by the grid connection extension infrastructure will revert back to the original land-use (i.e. primarily agricultural use) once the Gunstfontein Wind Farm (and by implication the proposed Gunstfontein OHL Extension) has reached the end of its economic life and all infrastructure has been decommissioned.

2.3. Alternatives Considered during the BA Process

In accordance with the requirements of Appendix 1 of the EIA Regulations (GNR 326), 2014 (as amended) a BA Report must contain a consideration of alternatives including site (i.e. development footprint), activity, technology alternatives, as well as the "do-nothing" alternative. Alternatives are required to be assessed in terms of social, biophysical, economic and technical factors.

2.3.1 Location Alternatives

The proposed overhead line (OHL) is an extension of an already authorised 132kV OHL, and as such no alternate start-points or locations are available. The proposed grid connection extension will connect to the authorised 132kV OHL, by-pass Heuwels substation and terminate at the Hidden Valley substation, as this is the only substation in the vicinity with sufficient capacity to evacuate the power generated by the Gunstfontein Wind Farm into the national grid. The proposed power line extension route runs directly parallel to an already authorised 132kV OHL (currently under development by Soetwater Wind Farm) in order to minimise the overall development corridor in the landscape and the associated environmental impacts. The area is considered to be suitable for the proposed development considering its location within the central corridor of the Strategic Grid Corridors.

2.3.2 Design and Layout Alternatives

The design of the power line extension is required to conform to Eskom's technical standards as it will form part of the national electricity supply network and must therefore be in-line with the existing network systems, technology, and infrastructure. As such, technical specifications as determined by Eskom will be adhered to by the proponent. Therefore, no design alternatives are assessed within this BA Report.

A broader grid connection corridor was assessed within this BA Report in order to accommodate a site-specific layout of the power line extension such that identified environmental sensitivities can be avoided, where possible, and any specific landowner conditions complied with. The Karusa and Soetwater Wind Farms are also currently under construction on the properties, and the assessed corridor will allow for placement of the extension OHL so as to accommodate the as-built layouts of the aforementioned wind farms. The location of specific towers within the corridor will be finalised following negotiations with the affected landowners and detailed technical surveys of the area and will be designed to avoid any sensitive watercourse feature or drainage line. No layout alternatives are therefore assessed within this BA Report.

A more direct routing between the substations discussed was initially considered, as this would have been shorter and more cost effective. However, this would result in an additional disturbance corridor / servitude on the property, which is not preferred by the landowners. This option was therefore discounted and was not assessed further.

2.3.3 Technology Alternatives

No technology alternatives exist for similar large-scale distribution of electricity, with conductor technology having been refined for numerous years by Eskom and employed throughout the country. As such, the selected technology is regarded the most suitable and appropriate for this development type, as well as being recognised and acceptable for use by Eskom, and no further technology alternative is assessed for the project as part of this BA process.

2.3.5 The 'Do Nothing' Alternative

The 'do-nothing' alternative is the option of Gunstfontein Wind Farm (Pty) Ltd not constructing the grid connection extension infrastructure. This would result in no environment or social impacts (positive or negative) as a result of the development of the 132kV power line extension. This alternative is assessed in Chapter 6.

2.4. Need and Desirability of the Gunstfontein OHL Extension

One of the requirements of Appendix 1 of the EIA Regulations, 2014, as amended, is to motivate for "*the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location*". The need and desirability of a development needs to consider whether it is the right time and place for locating the type of land-use / activity within the proposed location.

The need and desirability for the proposed project is directly linked to the need for the Gunstfontein Wind Farm which was authorised in 2016 (DEFF ref.: 14/12/16/3/3/2/826), as the main purpose of the grid infrastructure is to connect this facility to the national grid at a feasible connection point (i.e. the Hidden Valley Substation).

Given the relationship between, and the necessity of, the proposed OHL for the proposed Gunstfontein Wind Farm, similar need and desirability considerations are applicable. These are aligned with national, regional, and local policies and plans, as detailed below:

- » The need for the country to respond to the international commitments regarding climate change and reduction in carbon emissions.
- » The need at a national level to diversify the power generation technology mix to include up to 17.8GW of renewables, as defined in the Integrated Resource Plan (IRP), 2019 (as discussed in detail in **Chapter 3**).
- » The need to align development with the requirements of the National Development Plan in order to address the identified socio-economic issues affecting development in South Africa.
- » The need for sustainable development at a Provincial level, including the need to utilise its extensive resources for the benefits of the local area.
- » The identification of the need for potential IPP projects to become operational in the local municipality as per the Karoo Hoogland Local Municipality Integrated Development Plan.

From an overall environmental sensitivity and planning perspective, the proposed grid connection extension supports the broader strategic context of the municipality as it is linked to a renewable energy facility which is considered a driver for economic growth in the region as per the Namaqua District Municipality's Integrated Development Plan. It is also in line with broader societal needs and the public interest as it is linked to a renewable energy facility, for which there is national policy and support. In addition, specialist results (refer 6 of this report) indicated that a medium negative cumulative impact was anticipated for ecological impact on CBAs and broad-scale ecological processes, as well as medium negative impact on avifaunal habitats, migration routes and nesting areas due to cumulative loss and fragmentation of habitat. The heritage specialist further determined that it is unlikely that the proposed development will negatively impact on significant heritage resources, and that there was no heritage objection to the proposed development and it was not expected that the project would contribute significantly to cumulative impacts. Based on the discussion above, and the findings of the specialists (direct and cumulative impacts) it was determined that no exceedance of social, ecological, heritage or avifaunal limits will result from the construction of the

proposed project, and no significant disturbance of biological diversity is anticipated, as detailed in this Basic Assessment Report.

The project will not compromise IDP objectives but will assist in reaching these objectives as the IDP of the municipality aims to ensure that the quality of life of the Namakwa District community through purposeful and quality service, and the effective and optimal utilisation of resources is achieved. This project will assist in supporting the local and national electricity supply through its contribution to the National Eskom Grid. The project will further assist in local job creation which will further help achieve IDP objectives and inject money into the local and regional economy.

CHAPTER 3: REGULATORY AND PLANNING CONTEXT

This chapter provides insight into the policy and legislative context within which the development of the proposed Gunstfontein OHL Extension will be undertaken. It identifies environmental legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process which may be applicable to or have bearing on the proposed project.

3.1. Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Basic Assessment Report (BA)

This chapter of the BA Report includes the following information required in terms of Appendix 1: Content of Basic Assessment reports:

Requirement	Relevant Section
3(e)(i) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report	Chapter 3 as a whole provides an overview of the policy and legislative context which is considered to be associated and relevant to the development of the Gunstfontein OHL Extension. The regulatory and planning context has been considered at international, national, provincial and local level.
3(e)(iii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools, frameworks and instruments.	Tables 3.1, 3.2, 3.3 and 3.4 illustrate the compliance of the proposed Gunstfontein OHL Extension with the legislation, policies, plans, guidelines, tools, frameworks and instruments.

The regulatory hierarchy of policy and planning documentation that supports the development of a project of this nature consists of three tiers of authority who exercise control through both statutory and non-statutory instruments – that is National, Provincial and Local levels. These policies are discussed in more detail in the following sections, along with the provincial and local policies or plans that have relevance to the proposed development of the Gunstfontein OHL Extension.

At **National Level**, the main regulatory agencies are:

- » **Department of Environment, Forestry and Fisheries** This Department is responsible for environmental policy and is the controlling authority in terms of NEMA and the 2014 EIA Regulations (GN R326) as amended. DEFF is the competent authority for this project (as per GNR 779 of 01 July 2016), based on its association with the authorised Gunstfontein Wind Farm.
- » **South African Heritage Resources Agency (SAHRA):** SAHRA is a statutory organisation established under the National Heritage Resources Act (No. 25 of 1999) (NHRA), as the national administrative body responsible for the protection of South Africa's cultural heritage.
- » **Department of Human Settlements, Water and Sanitation:** This Department is responsible for effective and efficient water resources management to ensure sustainable economic and social development. This Department is also responsible for evaluating and issuing licenses pertaining to water use (i.e. Water Use Licenses (WUL) and General Authorisation), where these may be applicable.
- » **Department of Mineral Resources and Energy (DMRE):** This Department is responsible for granting approvals for the use of land which is contrary to the objects of the Mineral and Petroleum Resource

Development Act (No. 28 of 2002) (MPRDA) in terms of Section 53 of the MPRDA. Therefore, in terms of the Act, approval from the Minister is required to ensure that the proposed activities do not sterilise mineral resource that July occur within the broader study area and development area.

- » **Department of Environment, Forestry and Fisheries (DEFF):** This Department is the custodian of South Africa's agricultural resources and is primarily responsible for the formulation and implementation of policies governing the agriculture sector. Furthermore, the Department is also responsible for issuing permits for the disturbance or destruction of protected tree species listed under Section 15 (1) of the National Forest Act (No. 84 of 1998) (NFA).
- » **National Energy Regulator of South Africa (NERSA):** This body is responsible for regulating all aspects of the electricity sector and will ultimately issue licenses for IPP projects to generate electricity.

At **Provincial Level**, the main regulatory agencies are:

- » **Department of Agriculture, Environmental Affairs, Rural Development and Land Reform:** The Department of Agriculture, Environmental Affairs, Rural Development and Land Reform is a Commenting Authority for the project and is also responsible for issuing any biodiversity and conservation-related permits. The Department of Agriculture, Environmental Affairs, Rural Development and Land Reform involvement relates specifically to sustainable resource management, conservation of protected species and land care.
- » **Northern Cape Department of Roads and Public Works (NCDRPW):** NCDRPW is responsible for roads and the granting of exemption permits for the conveyance of abnormal loads on public roads.
- » **Ngwao Boswa Kapa Bokone (NBKB):** NBKB, the Northern Cape Provincial Heritage Resources Authority is responsible for the identification, conservation and management of heritage resources, as well as commenting on heritage related issues within the Province.
- » **Northern Cape Department of Transport, Safety and Liaison:** This Department provides effective co-ordination of crime prevention initiatives, provincial police oversight, traffic management and road safety towards a more secure environment.

At the **Local Level** the local and municipal authorities are the principal regulatory authorities responsible for planning, land use and the environment. In the Northern Cape, both the local and district municipalities play a role. The local municipality traversed by the grid line extension corridor is the Karoo Hoogland Municipality, which forms part of the Namakwa District Municipality (DC6). In terms of the Municipal Systems Act (Act No 32 of 2000) it is compulsory for all municipalities to go through an Integrated Development Planning (IDP) process to prepare a five-year strategic development plan for the area under their governance.

The relevant legislation and policies listed and discussed below are relevant to the Gunstfontein OHL Extension project and the Gunstfontein Wind Farm. This is due to the fact that the proposed grid extension connection infrastructure is directly linked to the operation of the Gunstfontein Wind Farm. Neither Gunstfontein Wind Farm or the grid connection extension infrastructure can operate on its own and require the other to be developed in order to fulfil the need for the development in its entirety.

3.3. Policy and Planning Considerations on International, National, Provincial and Local Levels

3.3.1. Policy and Planning on an International Level

South Africa has committed to various international policies which relate to environmental concerns, specifically that of climate change and global warming. **Table 3.1** below provides a summary of the international policies and plans that South Africa has made commitments towards, and how the proposed development of the Gunstfontein OHL Extension aligns with the thinking or commitments of these agreements.

Table 3.1: International policies and plans relevant to Gunstfontein OHL Extension

Policy or Plan	Is the development of the Gunstfontein OHL Extension aligned with this policy or plan?
The Kyoto Protocol, 1997	Yes. The protocol calls for the reduction of South Africa's greenhouse gas emissions through actively cutting down on using fossil fuels, or by utilising more renewable resources. The development of Gunstfontein OHL Extension will enable the evacuation of additional capacity to the renewable energy sector of the country and strengthen the commitment and action plan to achieve the requirements as set out in the protocol.
United Nations Framework Convention on Climate Change and COP21 – Paris Agreement	<p>Yes. The Conference of the Parties (COP), established by Article 7 of the UNFCCC, is the supreme body and highest decision-making organ of the Convention. It reviews the implementation of the Convention and any related legal instruments and takes decisions to promote the effective implementation of the Convention.</p> <p>The Conference of the Parties (COP) 21 was held in Paris from 30 November to 12 December 2015. From this conference, an agreement to tackle global warming was reached between 195 countries. This Agreement is open for signature and subject to ratification, acceptance or approval by States and regional economic integration organisations that are Parties to the Convention from 22 April 2016 to 21 April 2017. Thereafter, this Agreement shall be open for accession from the day following the date on which it is closed for signature. The agreement can only be sanctioned once it has been ratified by 55 countries, representing at least 55% of emissions.</p> <p>South Africa signed the Agreement in April 2016 and ratified the agreement on 01 November 2016. The Agreement was assented to by the National Council of Provinces on 27 October 2016, and the National Assembly on 1 November 2016. The Agreement was promulgated on 04 November 2016, thirty days after the date on which at least 55 Parties to the Convention, which account for at least 55% of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depositary.</p> <p>Following COP21, countries met in Katowice, Poland from 2 December to 14 December 2018 for COP24. Countries agreed on various elements from COP21 held in Paris in 2015, which pertained to how governments will measure, report and verify their emission-cutting efforts, which was a key element as it ensured all countries are held to proper standards and will find it difficult to renege from the signed agreements.</p> <p>There was, however, a disagreement amongst countries over carbon credits which are awarded to countries for their emission-cutting efforts and their carbon sinks, such as forests, which absorb carbon. The emission count towards countries' emission-cutting targets. Brazil, which hoped to benefit from its large rainforest cover, insisted on a new form of wording which would allow double counting of credits, undermining the integrity of the system. This issue was put on hold and will be discussed at the COP25, to be held</p>

Policy or Plan	Is the development of the Gunstfontein OHL Extension aligned with this policy or plan?
	<p>in Santiago de Chile, Chile. Largely absent from the COP24 discussions was the question of how countries will step up their targets on cutting emissions. On current targets, the world is set for 3° of warming from pre-industrial levels, which scientists have said would be disastrous, resulting in droughts, floods, sea level rises and the decline of agricultural productivity. However, in 2019, the United Nations will meet again in Chile to discuss the final elements of the COP21 agreement and begin to work on future emission targets³.</p> <p>South Africa's National Climate Change Response Policy (NCCRP) establishes South Africa's approach to addressing climate change, including adaptation and mitigation responses. The NCCRP formalises Government's vision for a transition to a low carbon economy, through the adoption of the 'Peak, Plateau and Decline' (PPD) GHG emissions trajectory whereby South Africa's emissions should peak between 2020 and 2025, plateau for approximately a decade, and then decline in absolute terms thereafter, and based on this the country has pledged to reduce emissions by 34% and 42% below Business As Usual (BAU) emissions in 2020 and 2025, respectively.</p> <p>The policy provides support for the Gunstfontein OHL Extension which will contribute to managing climate change impacts, supporting the emergency response capacity, as well as assist in reducing GHG emissions in a sustainable manner.</p>
The Equator Principles III, June 2013	<p>Yes. The Equator Principles (EPs) III constitute a financial industry benchmark used for determining, assessing, and managing a project's environmental and social risks. The EPs are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. The EPs are applicable to large infrastructure projects and apply globally to all industry sectors. In terms of the EPs, South Africa is a non-designated country, and as such the assessment process for projects located in South Africa evaluates compliance with the applicable IFC Performance Standards on Environmental and Social Sustainability and Environmental Health and Safety (EHS) Guidelines. The Gunstfontein OHL Extension is currently being assessed in accordance with the requirements of the 2014 EIA Regulations, as amended (GNR 326), published in terms of Section 24(5) of the National Environmental Management Act (No. 107 of 1998) (NEMA), which is South Africa's national legislation providing for the authorisation of certain controlled activities. Through this assessment, all potential social and environmental risks are identified and assessed, and appropriate mitigation measures proposed.</p>
International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability, January 2012	<p>Yes. The overall objectives of the IFC performance standards are to fight poverty, do no harm to people or the environment, fight climate change by promoting low carbon development, respect human rights, promote gender equality, provide information prior to project development, collaborate with the project developer in order to achieve the performance standard, provide advisory services and notify countries of trans boundary impacts. When considering the development of the grid connection extension infrastructure associated with the development of the Gunstfontein OHL Extension the following performance standards are anticipated to be applicable at this stage of the BA process:</p> <ul style="list-style-type: none"> » <i>Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts</i> » <i>Performance Standard 2: Labour and Working Conditions</i> » <i>Performance Standard 3: Resource Efficiency and Pollution Prevention</i> » <i>Performance Standard 4: Community Health, Safety and Security</i>

³ <https://www.theguardian.com/environment/2018/dec/16/what-was-agreed-at-cop24-in-poland-and-why-did-it-take-so-long>

Policy or Plan	Is the development of the Gunstfontein OHL Extension aligned with this policy or plan?
	<p>» Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</p> <p>Performance Standard 8: Cultural Heritage</p>
Environmental, Health, and Safety General Guidelines April 2007	Yes. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the environment, and other project factors, are taken into account. The applicability of specific technical recommendations should be based on the professional opinion of qualified and experienced persons.
Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution April, 2007	Yes. The EHS Guidelines for Electric Power Transmission and Distribution include information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas. Annex A of this document provides a summary of industry sector activities.

3.3.2. Policy and Planning on a National Level

National policies and plans adopted by South Africa, which are considered to be relevant to the development of Gunstfontein OHL Extension Corridor have been summarised in **Table 3.2**.

Table 3.2: National policies, plans and legislation relevant to the Gunstfontein OHL Extension Corridor

Policy, Plan or Legislation	Is the development of the Gunstfontein OHL Extension Corridor aligned with this policy, plan or legislation?
Constitution of the Republic of South Africa, 1996	<p>Yes. Section 24 of the Constitution pertains specifically to the environment. It states that Everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</p> <p>The Constitution outlines the need to promote social and economic development. Section 24 of the Constitution therefore requires that development be conducted in such a manner that it does not infringe on an individual's environmental rights, health, or well-being. This is especially significant for previously disadvantaged individuals who are most at risk to environmental impacts.</p>
National Environmental Management Act (No. 107 of 1998) (NEMA)	<p>Yes. South Africa's environmental legislation sets the framework for environmental management in South Africa. NEMA is founded on the principle that everyone has the right to an environment that is not harmful to their health or well-being as contained within the Bill of Rights.</p> <p>The national environmental management principles states that the social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed, evaluated, and decisions must be appropriate in the light of such consideration and assessment.</p>

Policy, Plan or Legislation	Is the development of the Gunstfontein OHL Extension Corridor aligned with this policy, plan or legislation?
	The need for responsible and informed decision-making by government on the acceptability of environmental impacts is therefore enshrined within NEMA.
The National Energy Act (2008)	Yes. One of the objectives of the Act is to promote the diversity of the supply of energy and its sources. In this regard, the preamble makes direct reference to renewable resources and states that provision must be made for increased generation and consumption of renewable energies. The development of the Gunstfontein OHL Extension Corridor enables the evacuation of renewable power into the national grid and thereby promotes diversity of supply of energy and the source of supply, in line with the Act's objectives.
White Paper on the Energy Policy of South Africa, 1998	Yes. The South African Energy Policy of 1998 identifies five key objectives, namely increasing access to affordable energy services, improving energy sector governance, stimulating economic development, managing energy related environmental impacts and securing supply through diversity. In order to meet these objectives South Africa needs to optimally use available energy resources. The development of the Gunstfontein OHL Extension Corridor will enable the contribution, albeit only to a limited extent, to the achievement of the five objectives of the Energy Policy of the country.
White Paper on the Renewable Energy Policy of the Republic of South Africa (2003)	Yes. This White Paper fosters the uptake of renewable energy in the economy and has a number of objectives that need to be met, including that equitable resources are invested in renewable technologies. South Africa is also endowed with renewable energy resources that can be sustainable alternatives to fossil fuels. The development of additional renewable energy projects (including Gunstfontein OHL Extension Corridor) will promote the use of the abundant South African renewable energy resources and contribute to long-term energy security and diversification of the energy mix. The development of the grid connection infrastructure enables the evacuation of the generated power into the national grid and thereby enables the use of renewable energy technologies for the country.
The Electricity Regulation Act, 2006 (Act No. 4 of 2006), as amended	Yes. The Act establishes a national regulatory framework for the electricity supply industry of the country and introduces the National Energy Regulator as the custodian and enforcer of the National Electricity Regulatory Framework. The Act also provides for licences and registration as the manner in which generation, transmission, distribution, trading and the import and export of electricity are regulated. The developer of the Gunstfontein OHL Extension Corridor project will have to ensure compliance with this Act for the distribution of the generated power into the national grid.
Renewable Energy Policy in South Africa	<p>Yes. Support for the Renewable Energy Policy is guided by a rationale that South Africa has a very attractive range of renewable energy resources, particularly solar and wind, and that renewable applications are, in fact, the least cost energy service in many cases from a fuel resource perspective (i.e. the cost of fuel in generating electricity from such technology); more so when social and environmental costs are taken into account. However, the National Energy Policy acknowledges that the development and implementation of renewable energy applications has been largely neglected in South Africa. Challenges regarding the implementation of renewable energy have been identified. Through the development of renewable energy projects (including the Gunstfontein Wind Farm and the Gunstfontein OHL Extension Corridor), additional renewable energy will be made available which will assist with the further growth and development of the renewable energy sector.</p> <p>The development of the grid connection infrastructure enables the evacuation of the generated power into the national grid and thereby enables further growth and development of the renewable energy sector.</p>
National Development Plan (NDP)	Yes. The NDP aims at eliminating poverty and reducing inequality by 2030 and identifies 9 key challenges and associated remedial plans. Managing the transition towards a low

Policy, Plan or Legislation	Is the development of the Gunstfontein OHL Extension Corridor aligned with this policy, plan or legislation?
	<p>carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of commercial renewable energy is identified as a key intervention strategy. The plan also sets out steps that aim to ensure that, in 20 years, South Africa's energy system looks very different to the current situation: coal will contribute proportionately less to the primary-energy needs, while gas and renewable energy resources – especially wind, solar and imported hydroelectricity – will play a much larger role. Through the development of renewable energy projects (including the Gunstfontein Wind Farm and the associated Gunstfontein OHL Extension Corridor) additional renewable energy will be available which will assist in expanding the renewable energy sector of the country and add to the diversification of the energy mix, which is moving away from coal and towards the use of gas and renewable energy.</p>
Integrated Energy Plan (IEP)	<p>Yes. The IEP takes into consideration the crucial role that energy plays in the entire economy of the country and is informed by the output of analyses founded on a solid fact base. Eight key objectives were identified which relate mainly to the security, cost, access, diversity, efficiency, impact in terms of emissions, conservation and social benefits in terms of energy planning. The IEP recognises the potential of renewable energy for power generation. With the additional renewable energy to be generated by Gunstfontein Wind Farm and to be evacuated to the national grid via the proposed grid connection infrastructure, a contribution to this objective will be made. Also, with the previously developed Gunstfontein Wind Farm and the proposed grid connection extension infrastructure, the eight key objectives in terms of energy planning will be met, even if only to a limited extent.</p>
Integrated Resource Plan (IRP) 2010 - 2030	<p>Yes. The IRP attempts to harmonize the dichotomy, especially with regard to nuclear, gas and energy storage technologies, which technologies require more consideration of future developments.</p> <p>The South African power system consists of the generation options, which are 38 GW installed capacity from coal, 1.8 GW from nuclear, 2.7 GW from pumped storage, 1.7 GW from hydro, 3.8 GW from diesel and 3.7 GW from renewable energy. The electricity generated is transmitted through a network of high-voltage transmission lines that connect the load centres and Eskom and municipalities distribute the electricity to various end users. Eskom also supply a number of international customers, including electricity utilities, in the SADC region.</p> <p>Energy security in the context of this IRP is defined as South Africa developing adequate generation capacity to meet its demand for electricity, under both the current low-growth economic environment and even when the economy turns and improves to the level of 4% growth per annum. Generation capacity must accordingly be paced to restore the necessary reserve margin and to be ahead of the economic growth curve at least possible cost, including renewable energy projects such as the Gunstfontein Wind Farm.</p> <p>The IRP Update (2019) confirms the Government's commitment to the procurement of additional 14.4 GW of energy from wind power projects, from the present day up to 2030. The development of the proposed grid connection extension infrastructure enables the evacuation of the generated power from the Gunstfontein Wind Farm into the national grid and thereby contributes to the energy mix of the country as set out in the IRP.</p>
Strategic Integrated Projects (SIP)	<p>Yes. In 2010, a National Development Plan was drafted to address socio-economic issues affecting development in South Africa. These issues were identified and placed under 18 different Strategic Integrated Projects (SIPs) to address the spatial imbalances of the past by addressing the needs of the poorer provinces and enabling socio-economic development. The development the Gunstfontein OHL Extension Corridor will support the</p>

Policy, Plan or Legislation	Is the development of the Gunstfontein OHL Extension Corridor aligned with this policy, plan or legislation?
	<p>Strategic Integrated Projects within one SIP, which relates to the development of the associated infrastructure. This is known as SIP 10 – electricity transmission and distribution for all.</p> <p>In support of SIP 10, the Department of Environmental Affairs undertook a Strategic Environmental Assessment (SEA) which aims to provide guidance for the efficient and sustainable expansion of strategic electricity grid infrastructure in South Africa. This SEA identified the optimal location for strategic corridors where transmission infrastructure expansion is needed to enable the balancing of future demand and supply requirements, while minimising negative impacts to the environment. These areas are referred to as Power Corridors, and were gazetted within GNR113 of February 2018. The grid connection corridor proposed for the development of the grid connection extension infrastructure is located within the Central Transmission Corridor and is therefore considered to be aligned with national planning in this regard.</p>
New Growth Path (NGP) Framework, 2010	<p>Yes. The purpose of the New Growth Path (NGP) Framework is to provide effective strategies towards accelerated job-creation through the development of an equitable economy and sustained growth. The target of the NGP is to create 5 million jobs by 2020. With economic growth and employment creation as the key indicators identified in the NGP. To achieve this, government will seek to, amongst other things, identify key areas for large-scale employment creation, as a result of changes in conditions in South Africa and globally, and to develop a policy package to facilitate employment creation in these areas. The proposed Gunstfontein OHL Extension Corridor will assist with the creation of both temporary and permanent employment opportunities during the construction and operation phases, which will contribute, albeit to a limited extent, to the economy and sustainable growth.</p>
National Climate Change Response Strategy	<p>Yes. This strategy aims to address issues identified as priorities for dealing with climate change in the country. The focus of the strategy is adapting to climate change; developing a sustainable energy programme; adopting an integrated response by the relevant government departments; compiling inventories of greenhouse gases; accessing and managing financial resources; and research, education, and training. The development the Gunstfontein OHL Extension Corridor (through the Gunstfontein Wind Farm) will enable additional uptake of renewable energy into the national grid which will reduce the need for the use of coal as an energy resource and thereby assist in addressing climate change and global warming.</p>
Climate Change Bill, 2018	<p>Yes, with limited relevance. The Bill provides a framework for climate change regulation in South Africa aimed at governing South Africa's sustainable transition to a climate resilient, low carbon economy and society. The Bill provides a procedural outline that will be developed through the creation of frameworks and plans. The bill aims to provide for the coordinated and integrated response to climate change and its impacts, provide effective management of inevitable climate change impacts and to make a fair contribution to the global effort to stabilise greenhouse gas concentrations. The Gunstfontein OHL Extension Corridor relates only to the evacuation of renewable energy into the national grid, and would therefore not result in the generation or release of emissions during its operation.</p>

3.3.3. Policy and Planning at a Provincial Level

Policies and plans have been adopted by the Northern Cape Province for the management of the area and are considered to be relevant to the development of the Gunstfontein OHL Extension Corridor. **Table 3.3** provides a summary of the relevant provincial plans and policies.

Table 4.3: Provincial policies and plans relevant to the Gunstfontein OHL Extension Corridor

Policy or Plan	Is the development of the Gunstfontein OHL Extension Corridor aligned with this policy or plan?
Northern Cape Provincial Spatial Development Framework (PSDF), 2012	<p>Yes. The Northern Cape Provincial Spatial Development Framework (PSDF) 2012 states that the overarching goal for the province is to enable sustainability through sustainable development. The province considers social and economic development as imperative in order to address the most significant challenge facing the Northern Cape, which is poverty.</p> <p>The PSDF identifies key sectoral strategies and plans which are considered to be the key components of the PSDF. Sectoral Strategy 19 refers to a provincial renewable energy strategy. Within the PSDF a policy has been included which states that renewable energy sources (including the utilisation of solar energy) are to comprise 25% of the province's energy generation capacity by 2020.</p> <p>The overall energy objective for the province also includes promoting the development of renewable energy supply schemes which are considered to be strategically important for increasing the diversity of domestic energy supply and avoiding energy imports, while also minimising the detrimental environmental impacts. The implementation of sustainable renewable energy is also to be promoted within the province through appropriate financial and fiscal instruments. With the developed and proposed independent power producer capacity (including the Gunstfontein Wind Farm), the Province will produce more than 100% of its own electrical power needs from renewable energy resources (although this energy will be fed into the national grid for national use). The development of the Gunstfontein OHL Extension Corridor (through the Gunstfontein Wind Farm) will enable additional uptake of renewable energy into the national grid which will promote the province's objectives.</p>
The Northern Cape Climate Change Response Strategy	<p>Yes. The key aspects of the Northern Cape Climate Change Response Strategy (NCCCRS) Report are summarised in the MEC's (NCPG: Environment and Nature Conservation) 2011 budget speech: <i>"The Provincial Climate Change Response Strategy will be underpinned by specific critical sector climate change adaptation and mitigation strategies that include the Water, Agriculture and Human Health sectors as the 3 key Adaptation Sectors, the Industry and Transport alongside the Energy sector as the 3 key Mitigation Sectors with the Disaster Management, Natural Resources and Human Society, livelihoods and Services sectors as 3 remaining key. Sectors to ensure proactive long-term responses to the frequency and intensity of extreme weather events such as flooding and wildfire, with heightened requirements for effective disaster management"</i>.</p> <p>Key points from the MEC address include the NCPG's commitment to develop and implement policy in accordance with the National Green Paper for the National Climate Change Response Strategy (2010), and an acknowledgement of the NCP's extreme vulnerability to climate-change driven desertification. The development and promotion of a provincial green economy, including green jobs, and environmental learnership is regarded as an important provincial intervention in addressing climate change. The renewable energy sector, including solar and wind energy (but also biofuels and energy from waste), is explicitly indicated as an important element of the Provincial Climate Change Response Strategy. The MEC further indicated that the NCP was involved in the processing 7 wind energy facility and 11 solar energy facility EIA applications (March 2011)⁴.</p>

⁴ (www.info.gov.za/speech/DynamicAction?pageid=461&sid=22143&tid=45200).

Policy or Plan	Is the development of the Gunstfontein OHL Extension Corridor aligned with this policy or plan?
	The development of Gunstfontein OHL Extension Corridor will assist in achieving (although only to a limited extent) the promotion of the provincial green economy of the Northern Cape through the evacuation of generated solar power from the Gunstfontein Wind Farm.

3.3.4. Policy and Planning on a District and Local Level

Strategic policies at the district and local level have similar objectives for the respective areas, namely the delivery of basic services, including the provision of electricity. The development of the proposed grid extension infrastructure is considered to align with the aims of these policies. **Table 3.4** below provides a summary of the district and local level policies and plans considered to be relevant to the development of the Gunstfontein OHL Extension Corridor.

Table 3.4: District and local policies and plans relevant to the Gunstfontein OHL Extension Corridor

Policy or Plan	Is the development of the Gunstfontein OHL Extension Corridor aligned with this policy or plan?
Namakwa Municipality District Rural Development Plan (RDP), 2017	Yes. Renewable energy developments are considered to be development priorities within the RDP. The need to evaluate localisation possibilities for all renewable energy technologies is emphasised in the Plan. The development of renewable energy projects (including the proposed associated grid connection infrastructure for the Gunstfontein Wind Farm) will contribute to the achievement of the need for the development of renewable energy developments within the Province.
Namakwa Municipality District Integrated Development Plan (IDP), 2017 - 2022	Yes. The plan identifies the need for support to the local municipalities to deliver basic services such as water, sanitation, housing, electricity and waste management. The IDP also seeks to establish good governance by enforcing the climate change response plan. The development of the grid connection infrastructure for the Gunstfontein Wind Farm may contribute to the delivery of basic services, however only to a limited extent. The proposed wind farm and the associated grid infrastructure will contribute to the application of the climate change response plan through zero production of greenhouse gas emissions during the operation of the facility.
Karoo Municipality Hoogland Draft Integrated Development Plan (IDP), 2018/2019	Yes. The National Development Plan, under its priority to transition to a low-carbon economy, it promotes that there is a need to move away from the unsustainable use of natural resources. It warns that changes in energy generation, water conservation and the uses of both are likely to be challenging and potentially disruptive for society and that competent institutions, innovative economic instruments, clear and consistent policies and an educated and understanding electorate will be required. Key proposals to support the transition to low-carbon economy include: <ul style="list-style-type: none"> » Support for a carbon budgeting approach, linking social and economic considerations to carbon reduction targets » Introducing an economy-wide price for carbon complemented by a range of programmes and incentives to raise energy efficiency and manage waste better » A target of 5 million solar water heaters by 2030 » Building standards that promote energy efficiency » Simplifying the regulatory regime to encourage renewable energy, regional hydroelectric initiatives and independent power producers » Set of indicators for natural resources accompanied by publication of annual reports on health of identified resources to inform policy » Target for the amount of land and ocean under protection

Policy or Plan	Is the development of the Gunstfontein OHL Extension Corridor aligned with this policy or plan?
	<ul style="list-style-type: none">» Achieve the peak, plateau and decline trajectory for greenhouse gas emission with the peak being reached about 2025» By 2030 an economy-wide carbon price should be entrenched» Zero emission building standards by 2030» Absolute reduction in total volume of waste disposed to landfill each year» At least 20 000MW of renewable energy should be contracted by 2030» Improved disaster preparedness for extreme climate events» Increased investment in new agricultural technologies, research and the development of adaption strategies to protect rural livelihoods and expansion of commercial agriculture

CHAPTER 4: APPROACH TO UNDERTAKING THE BASIC ASSESSMENT PROCESS

In terms of the EIA Regulations of December 2014 (and amended) published in terms of NEMA (Act No. 107 of 1998) as amended, the construction and operation of the grid extension infrastructure for the Gunstfontein OHL Extension is a listed activity requiring environmental authorisation. Due to the triggering of *inter alia* Activity 11 (i) of Listing Notice 1, of the EIA Regulations, 2014 (as amended), a BA process must be undertaken in support of the application for authorisation.

The BA process aims at identifying and describing potential environmental issues associated with the development of the grid extension infrastructure within the identified grid corridor, and providing recommendations regarding appropriate mitigation measures required to be implemented.

In order to ensure that a comprehensive assessment is provided to the competent authority and I&APs regarding the impacts of the proposed infrastructure, detailed independent specialist studies were undertaken as part of the BA process. In addition, a comprehensive consultation process was conducted, and includes I&APs, the competent authority, directly impacted landowners/occupiers, relevant Organs of State departments, ward councillors and other key stakeholders. This chapter serves to outline the process that was followed during the BA process.

4.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Basic Assessment Report

This chapter of the BA Report includes the following information required in terms of Appendix 1: Content of the BA Report:

Requirement	Relevant Section
3(d)(i) a description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for.	All listed activities triggered as a result of the development of the grid extension infrastructure have been included in section 4.2, Table 4.1 . The specific project activity relating to the relevant triggered listed activity has also been included in Table 4.1 .
3(h)(ii) details of the public participation process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs.	The details of the public participation process undertaken for the grid extension infrastructure have been included and described in section 4.3.2.
3(h)(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	<p>A comments and responses (C&R) Report has been compiled that includes all comments raised on the Gunstfontein OHL Extension prior to the commencement of the 30-day review period of the BA Report. The C&R Report is included as Appendix C6.</p> <p>All comments raised during the 30-day review period of the BA Report and through consultation with I&APs will be included as part of the C&R Report to be submitted as part of the final BA Report to DEFF for decision-making. The C&R Report will also include the relevant responses on the submitted comments from the relevant responding party.</p>

Requirement	Relevant Section
3(h)(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.	The methodology used to assess the significance of the impacts of the grid extension infrastructure has been included in section 4.4.
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed.	The assumptions and limitations of the BA process being undertaken for the Gunstfontein OHL Extension is included in section 4.5.

4.2 Relevant legislative permitting requirements

The legislative permitting requirements applicable to the development of the Gunstfontein OHL Extension as identified at this stage in the process, are described in more detail under the respective sub-headings:

4.2.1 National Environmental Management Act (No. 107 of 1998) (NEMA)

NEMA is South Africa's key piece of national environmental legislation that provides for the authorisation of certain controlled activities known as "listed activities". In terms of Section 24(1) of NEMA, the potential impact on the environment associated with listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant EA.

The need to comply with the requirements of the EIA Regulations published under NEMA ensures that developers are provided the opportunity to consider the potential environmental impacts of their activities early in the project development process, and also allows for an assessment to be made as to whether environmental impacts can be avoided, minimised or mitigated to acceptable levels. Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations to provide the competent authority with sufficient information in order for an informed decision to be taken regarding the project.

The BA process being conducted for the grid connection extension infrastructure is being undertaken in accordance with Section 24 (5) of NEMA. Section 24 (5) of NEMA pertains to Environmental Authorisations (EAs), and requires that the potential consequences for, or impacts of, listed or specified activities on the environment be considered, investigated, assessed, and reported on to the competent authority. Listed Activities are activities identified in terms of Section 24 of NEMA which are likely to have a detrimental effect on the environment, and which may not commence without an EA from the competent authority subject to the completion of an environmental assessment process (either a Basic Assessment (BA) or full Scoping and EIA).

Table 4.1 details the listed activities in terms of the EIA Regulations of December 2014 (as amended) that apply to the development of the grid connection extension infrastructure, and for which an Application for Environmental Authorisation has been submitted. The table also includes a description of the specific project activities that relate to the applicable listed activities.

Table 4.1: Listed activities as per the EIA regulations that are triggered by the Gunstfontein OHL Extension

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice):	Describe each listed activity as per the project description
GN 327, 08 December 2014 (as amended on 07 April 2017)	11 (i)	<p>The development of facilities or infrastructure for the transmission and distribution of electricity -</p> <p>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.</p> <p>One <u>Single</u> or Double Circuit 132kV Overhead Powerline on a single set of pylon structures. The proposed OHL will act as an extension of the authorised Gunstfontein 132kV OHL and will connect to the Authorised Gunstfontein 132kV OHL near the end-point of the currently authorised line and will then extend southwards and connect to the Hidden Valley Substation, located on Karusa Wind Farm.</p>
GN 327, 08 December 2014 (as amended on 07 April 2017)	12 (ii)	<p>The development of—</p> <p>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or</p> <p>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</p> <p>where such development occurs—</p> <p>(a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —</p> <p>excluding—</p> <p>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</p> <p>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</p> <p>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</p> <p>(dd) where such development occurs within an urban area;</p> <p>[or]</p> <p>(ee) where such development occurs within existing roads, [or] road reserves or railway line reserves; or</p> <p>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.</p> <p>The construction of access roads/tracks required for the construction and maintenance activities of the proposed Project will have a physical footprint of up to 100m² or more within a watercourse or within 32m of a watercourse, as some road crossings in/near drainage lines may be required.</p>
GN R327, 08 December 2014 (as	19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice):	Describe each listed activity as per the project description
amended on 07 April 2017)		<p>soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies. 19A</p> <p>The construction of access roads/tracks required for the construction and maintenance activities of the proposed Project will require the infilling or depositing of material more than 10 cubic metres into a watercourse.</p>
GN 327, 08 December 2014 (as amended on 07 April 2017)	28(ii)	<p>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;</p> <p>excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</p> <p>The total area of land to be developed for the power line is larger than 1 hectare. The land is currently used for agricultural (i.e. grazing) purposes. The single-circuit power line will be ~7.5km in length and will be developed within a servitude of up to 40m wide.</p>
GN 324, 08 December 2014 (as amended on 07 April 2017)	4(g)(ii)(ee)	<p>The development of a road wider than 4 meters with a reserve less than 13,5 meters (g) in the Northern Cape (ii) outside urban areas (bb) National Protected Area Expansion Strategy Focus areas (ee) Critical biodiversity areas as identified in systemic biodiversity plans adopted by the competent authority.</p> <p>The Project will require the development of a road wider than 4 metres with a reserve less than 13.5 metres in an area that falls within a critical biodiversity area (CBA 1 and CBA 2) identified in the Northern Cape CBA Map</p>

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice):	Describe each listed activity as per the project description
GN 324, 08 December 2014 (as amended on 07 April 2017)	12(g)(ii)	<p>The clearance of an area of 300 square meters or more of indigenous vegetation (g) in the Northern Cape Province (ii) within critical biodiversity areas identified in bioregional plans.</p> <p>More than 300 square metres of indigenous vegetation will be cleared during the construction of this project. Approximately 100m² will be cleared per tower/ pylon foundation. The Project falls within the critical biodiversity areas (CBA 1 and 2) which are located along the route within which towers will be placed, thereby triggering this activity</p>
GN 324, 08 December 2014 (as amended on 07 April 2017)	14 (ii)(c)(g)(ii)(ff)	<p>The development of (iii) infrastructure or structures with a physical footprint of 10 square meters or more; Where such development occurs – (c) If no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of the watercourse.</p> <p>(a) In the Northern Cape: (ii) Outside urban areas, in: (bb) National Protected Area Expansion Strategy Focus Area; (ff) Critical biodiversity areas or ecosystem service areas as identified in system Biodiversity plans adopted by the competent authority or in bioregional plans</p> <p>The threshold will be exceeded on the basis of the access roads that must be established will cross over the drainage lines and/or extend within 32m of a watercourse</p> <p>The infrastructure required for the Project will exceed 10 square metres in size and falls within a critical biodiversity area (CBA 1 and CBA 2) and may extend within 32m of a watercourse.</p> <p>The project specifications include:</p> <p>A 4m wide, access/service road, which will cross several drainage lines and their buffer zones (32m)</p>
GN 324, 08 December 2014 (as amended on 07 April 2017)	18(g)(ii)(ee)	<p>The widening of a road by more than 4 metres; or the lengthening of a road by more than 1 kilometre (g) In Northern Cape Province (ii) Outside urban areas, in: (bb) National Protected Area Expansion Strategy Focus Area ee) Critical biodiversity areas or ecosystem service areas as identified in system Biodiversity plans adopted by the competent authority or in bioregional plans.</p> <p>Where possible, existing roads will be utilised as access roads. The authorised service track/ access road for the approved Gunstfontein OHL may be lengthened by 1km or more within CBA or ESA areas.</p>

4.2.2 National Water Act (No. 36 of 1998) (NWA)

Water uses under S21 of the Act must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation.

In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.

A water use license (WUL) or General Authorisation could be required in terms of Section 21 of the Act should the drainage lines on the site be impacted by the proposed project. The relevant Authority for such applications will be the National Department of Water and Sanitation and the Northern Cape Department of Water and Sanitation.

4.2.3 National Heritage Resources Act (No. 25 of 1999) (NHRA)

The National Heritage Resources Act (No. 25 of 1999) (NHRA) provides an integrated system which allows for the management of national heritage resources and to empower civil society to conserve heritage resources for future generations. Section 38 of NHRA provides a list of activities which potentially require the undertaking of a Heritage Impact Assessment.

Section 38: Heritage Resources Management

- 1). *Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as –*
- a. *the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
 - b. *the construction of a bridge or similar structure exceeding 50m in length;*
 - c. *any development or other activity which will change the character of a site –*
 - i). *exceeding 5 000m² in extent; or*
 - ii). *involving three or more existing erven or subdivisions thereof; or*
 - iii). *involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
 - iv). *the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*

Must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of a development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. As the power line exceeds 300m, a Heritage Impact Assessment has been undertaken for this project (refer to Appendix F). Should heritage resources of significance be affected by the Gunstfontein OHL Extension, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the SAHRA Permit Regulations (GNR 668).

4.3. Overview of the Basic Assessment Process

Key tasks undertaken for the BA included:

- » Consultation with relevant decision-making and regulating authorities (at National, Provincial and Local levels).
- » Submission of the completed Application for Environmental Authorisation to the competent authority (i.e. DEFF) in terms of Regulations 5 and 6 of the EIA Regulations, 2014 (GNR 326), as amended.
- » Undertaking a public participation process in accordance with Chapter 6 of GNR326, and the Department of Environmental Affairs (2017), Public Participation guidelines in terms of the NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa (hereinafter referred to as "the Guidelines") in order to identify issues and concerns associated with the proposed project.
- » Undertaking of independent specialist studies in accordance with Appendix 6 of the EIA Regulations, 2014 (GNR326), as amended.
- » Preparation of a BA Report in accordance with the requirements of Appendix 1 of GNR326.
- » Preparation of EMPs through the use of the Generic Environmental Management Programmes (EMPs) for the development of overhead power line and substation infrastructure for the transmission and distribution of electricity. This is in line with GNR 435 of March 2019
- » 30-day public and authority review period of the BA Report.
- » Compilation of a Comments and Responses (C&R) report detailing the comments raised by I&APs prior to and during the 30-day review period of the BA Report, addressing these comments in detail and finalisation of the BA Report.
- » Submission of a final BA Report to the DEFF for review and decision-making.

The tasks are discussed in detail in the sub-sections below.

4.3.1. Authority Consultation and Application for Authorisation in terms of the 2014 EIA Regulations (as amended)

Consultation with the regulating authorities (i.e. DEFF and Department of Agriculture, Environmental Affairs, Rural Development and Land Reform), as well as with all other relevant Organs of State, will continue throughout the BA process. To date, this consultation has included the following:

- » Submission of the application form for Environmental Authorisation to the DEFF.
- » Submission of the BA Report for review and comment by:
 - * The competent and commenting authorities.
 - * State departments that administer laws relating to a matter affecting the environment relevant to an application for Environmental Authorisation.
 - * Organs of State that have jurisdiction in respect of the activity to which the application relates.

A record of all authority correspondence undertaken during the BA process is included in **Appendix B** and **Appendix C6** as part of the Comments and Responses Report (CRR).

An authority site visit will be undertaken should the case officer require such a visit, to be confirmed once the final Basic Assessment report has been submitted to the department for decision making.

4.3.2. Public Participation Process

Public Participation is an essential and regulatory requirement for an environmental authorisation process and is guided by Regulations 41 to 44 of the EIA Regulations 2014 (GNR 326) (as amended). The purpose of public participation is clearly outlined in Regulation 40 of the EIA Regulations 2014 (GNR 326) (as amended) and is being followed for this project.

The sharing of information forms the basis of the Public Participation Process (PPP) and offers the opportunity for I&APs to become actively involved in the BA process from the outset. The public participation process is designed to provide sufficient and accessible information to I&APs in an objective manner. The public participation process affords I&APs opportunities to provide input into and receive information regarding the BA process in the following ways:

During the BA process:

- » provide an opportunity to submit comments regarding the project;
- » assist in identifying reasonable and feasible alternatives;
- » contribute relevant local information and knowledge to the environmental assessment;
- » allow registered I&APs to verify that their comments have been recorded, considered and addressed, where applicable, in the environmental investigations;
- » foster trust and co-operation;
- » generate a sense of joint responsibility and ownership of the environment; and
- » comment on the findings of the environmental assessments.

During the decision-making phase:

- » to advise I&APs of the outcome of the competent authority's decision, and how and by when the decision can be appealed.

The public participation process therefore aims to ensure that:

- » Information containing all relevant facts in respect of the application is made available to potential stakeholders and I&APs for their review.
- » The information presented during the public participation process is presented in such a manner which ensures that the information is carried over to all parties in an understandable manner such that it avoids the possible alienation of the public and prevents them from participating.
- » Public participation is facilitated in such a manner that I&APs are provided with a reasonable opportunity to comment on the project.
- » Various ways are provided to I&APs to correspond and submit their comments i.e. fax, post, email.
- » An adequate review period is provided for I&APs to comment on the findings of the BA Report.

In terms of the requirement of Chapter 6 of the EIA Regulations of December 2014, as amended, the following key public participation tasks have been undertaken:

- » Fixing of a notice board at a place conspicuous to the public at the boundary or on the fence of—
 - (i) the site where the activity to which the application relates is or is to be undertaken; and
 - (ii) any alternative site mentioned in the application;
- » Give written notice to:
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;

- (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (v) the municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
 - (vii) any other party as required by the competent authority.
- » Place an advertisement in one local newspaper.
 - » Open and maintain a register of I&APs and Organs of State.
 - » Prepare a Comments and Responses (C&R) Report which documents the comments received on the BA process and the responses provided by the project team prior to the release of the BA Report for a 30-day review period.
 - » Release a BA Report for a 30-day review period, including the notification of I&APs of the availability and review thereof.
 - » Update the C&R Report with all comments raised during the 30-day review period for submission with the final BA Report.

In compliance with the requirements of Chapter 6: Public Participation of the EIA Regulations, 2014 (as amended), the following summarises the key public participation activities conducted to date.

As a result of the COVID-19 Alert Levels, Alternative means of undertaking consultation has been designed and will be implemented by Savannah Environmental to ensure that I&APs are afforded sufficient opportunity to raise comments on the project through an interactive web-based platform readily available and accessible to any person illustrating interest in the project and enables the public participation process to be undertaken in line with Regulations 41 to 44 of the EIA Regulations, 2014, as amended.

This online stakeholder engagement platform allows the EAP to visually present details regarding the project and our consultation documentation, including project maps and plans, presentations and posters regarding the project, and reports available for review. The use of online tools enables stakeholders and I&APs to explore the project-specific content in their own time and allow them to participate in a meaningful way in the consultation process. The online platform allows for instant feedback and comments to be submitted, in so doing saving time for the stakeholder and giving the assurance that their comments have been submitted for inclusion in the project reporting. The online stakeholder engagement platform considers the limitations applied by the Disaster Management Act Regulations prohibiting the gathering of people, as well as limitations which certain I&APs may have in terms of access to computers and internet as well as access to public spaces not open for operation or which have restricted access.

The benefits of the online stakeholder engagement platform include:

- Ability to create a dedicated project-specific online platform to enable easy access to project-related information.
- Ability to reach a wider audience, allowing more widespread consultation for major infrastructure projects.
- Allowing stakeholders and I&APs the opportunity to engage on a project without leaving their office or home.
- Enabling stakeholders and I&APs to register their interest in a project (for inclusion on the project database), and automatically gaining access to comprehensive project documentation.

- Enabling the EAP to maintain a complete database of I&APs through maintaining a record of persons accessing the online stakeholder consultation platform.
- Enabling the EAP and stakeholders/I&APs to meet virtually.
- Provides a resilient solution to a public consultation process.

Where I&APs do not have the applicable facilities i.e. access to internet, mobile phones, or computers, provision has been made to include these I&APs in the consultation process by consulting with any of the following, where available: the Ward Councillor, the ward committee members, community representatives and local community forum members.

The schematic illustration below provides an overview of the tools that are available to I&APs and stakeholders to access project information and interact with the public participation team to obtain project information and resolve any queries that may arise, and to meet the requirements for public participation.



The PP plan, as set out in the table above, has been drafted for the above-mentioned project to ensure that reasonable opportunity is provided to I&APs and that all administrative actions are reasonable. Proof of all notifications will be included in the public participation appendix included in the Basic Assessment report.

The PP plan was submitted to the Department of Environmental Affairs, for discussion and agreement before the PP process was undertaken for the proposed project.

Please see below the detailed Public Participation Plan: “Discussion of approach and methodology to meet the requirements of the Regulations”:

Table 4.2: Public Participation Plan - Discussion of approach and methodology to meet the requirements of the Regulations

Regulation	Approach & Methodology to meet requirements
Regulation 40(1), Regulation 40(3) & Regulation 43 – provide all potential or registered interested and affected parties, including the competent authority, access to project related information , access to the BA report which will be made available for a period of at least 30 days to submit comments on draft reports prior to submission of final reports for decision-making.	<p><u>Notification of Basic Assessment (BA) process to be undertaken for application for Environmental Authorisation (EA) to be distributed using the following means:</u></p> <ul style="list-style-type: none"> • E-mail • Dedicated project page on the Savannah Environmental online stakeholder engagement platform • Post (where email or telephonic notifications is not possible) • Process notices placed at locations that are accessible to I&APs • Advertisement in the printed media. <p><u>Notification of availability of report and period for review using the following means:</u></p> <ul style="list-style-type: none"> • Newspaper advert, including details of where the report can be accessed and details of the Savannah Environmental website. • Notification letter (to be sent via email, fax or post) to registered I&APs. • Notifications to communities via any of the following where available: Ward Councillor, ward committee members, identified and confirmed community representatives, and local community forum members. • SMS and/ or WhatsApp notifications where no other means are available. <p><u>Availability of report for review:</u></p> <ul style="list-style-type: none"> • Report available on the Savannah Environmental website for download. • Electronic copies can be made available to parties via a secure Dropbox link that will be emailed upon request for the documentation. • CDs to be posted, if requested. • Hard copy report to be available only where appropriate sanitary conditions can be maintained. • Report will be submitted to the DEFF using the DEFF online portal. • Report will be submitted to Organs of State and commenting authorities via an agreed electronic platform (such as on CD, or via a secure Dropbox link). <p><u>Submission of comments to EAP:</u></p> <ul style="list-style-type: none"> • Comments will be able to be submitted directly to the EAP using the Savannah Environmental online stakeholder engagement platform. A customised reply form is available on this webpage. • The online platform allows for instant feedback and comments to be submitted, in so doing saving time for the stakeholder and also giving the assurance that their comments have been submitted for inclusion in the project reporting. • Written comments can also be submitted via email, post or fax.

Regulation	Approach & Methodology to meet requirements
	<ul style="list-style-type: none"> Any comments provided telephonically or via instant message will be transcribed and recorded as formal comments.
<p>Regulation 40(2) - Provide access to all project information that has the potential to influence any decision regarding the application, unless protected by law, and must include consultation with Competent Authority, Organs of State & registered I&APs.</p> <p>Regulation 41(6) – Relevant information available and accessible</p>	<p>Provision of project information and consultation via various means including:</p> <ul style="list-style-type: none"> Telephonic consultation. Email correspondence. Correspondence sent via post (where email or telephonic correspondence is not available). SMS and/or WhatsApp. The Savannah Environmental online stakeholder engagement platform will ensure that I&APs are afforded sufficient opportunity to participate in the project and raise comments on the project to any person with interest in the BA process for the project. This online stakeholder engagement platform which will include the following: <ul style="list-style-type: none"> A means to register on the project database and provide details of their interest in the project Background information on the project Project maps (including locality map, layout map, sensitivity map, landowner map, etc) Photos of the project site and surrounds Presentation with narration providing a summary of the project details and the findings of the BA Posters providing a summary of the findings of the BA A means of submitting written comment or queries. Virtual meetings using an appropriate platform agreeable to all parties (such as Zoom, Skype or Teams). The meeting will be recorded and the attendees' details captured in an attendance register. Confirmation of their attendance will also be requested by e-mail and the correspondence will be included in the report. Communities will be consulted via one of the following where available: the relevant Ward Councillor, ward committee members, community representative or local community forum members, as determined and confirmed during the consultation process.
<p>Regulation 41(2)(a) – Site notice</p>	<ul style="list-style-type: none"> Site notices will be placed at affected properties by the EAP, landowner or specialist, depending on specific travel restrictions applicable at the time. Size and content will be in accordance with Regulation 41(3) & 41(4).
<p>Regulation 41(2)(b) – Written notification to affected and neighbouring landowners and occupiers; municipality; ward councillors; Organs of State & other parties required by the CA</p>	<ul style="list-style-type: none"> Notification letter to be sent via email, fax or post.
<p>Regulation 41(2)(c) – (e) – Advertisements</p>	<ul style="list-style-type: none"> Advert to be placed in a local newspaper.
<p>Regulation 42 – Project database</p>	<ul style="list-style-type: none"> I&APs to be identified through a process of networking and referral, obtaining information from the Savannah Environmental existing stakeholder database, liaison with potentially affected parties in the greater surrounding area and a registration process involving the completion of a reply form. Organs of State, key stakeholders and affected and surrounding landowners will be identified and registered on the project database. Other stakeholders will be required to formally register their interest in the project through either directly contacting the Savannah Environmental Public Participation team via email or fax or use of the Savannah Environmental website. In order to access the Savannah Environmental online stakeholder engagement platform for a specific project, I&APs will be required to provide their details such that they are automatically registered on the project database. The register of I&APs will contain the names of:

Regulation	Approach & Methodology to meet requirements
	<ul style="list-style-type: none"> o all persons who requested to be registered on the database through the use of the Savannah Environmental website, or in writing and disclosed their interest in the project; o all Organs of State which hold jurisdiction in respect of the activity to which the application relates; and o all persons who submitted written comments or attended virtual meetings and viewed virtual presentations on the Savannah Environmental website during the public participation process. <ul style="list-style-type: none"> • The information captured on the project database will contain the names, organisation and contact details, as required.
Regulation 44 – Comments to be recorded	<ul style="list-style-type: none"> • Comments will be able to be submitted directly to the EAP using the Savannah Environmental online stakeholder engagement platform. A customised reply form is available on this webpage. • The Savannah Environmental online stakeholder engagement platform includes: <ul style="list-style-type: none"> o A means to register on the project database and provide details of their interest in the project o A means of submitting written comment or queries. • The online platform allows for instant feedback and comments to be submitted, in so doing saving time for the stakeholder and also giving the assurance that their comments have been submitted for inclusion in the project reporting. • Written comments can also be submitted via email, post or fax. • Any comments provided telephonically or via instant message will be transcribed and recorded as formal comments. • I&APs without the applicable electronic facilities to access the Savannah Environmental website will be provided with the opportunity to submit their comments and communicate with the public participation team via SMS, WhatsApp or by sending a Please-call-me notification. These comments will be transcribed and recorded as formal comments. • All comments received throughout the EIA process will be acknowledged and captured in the comments and responses report (C&RR) with a relevant response. • The C&RR will be included in the final report submitted to the CA.
Regulation 4(2) – Notification of decision on application	<p><u>Notification of Environmental Authorisation (EA) using the following means:</u></p> <ul style="list-style-type: none"> • Notification letter with details as outlined in EA issued will be sent via email, fax or post. • Notification will be available on the Savannah Environmental website • Notifications that the EA has been issued and where to download and/or obtain a copy to communities via any of the following where available: Ward Councillor and his/her ward committee members and identified and confirmed community representatives. • SMS or WhatsApp notification.

i. Stakeholder identification and Register of Interested and Affected Parties

42. A proponent or applicant must ensure the opening and maintenance of a register of I&APs and submit such a register to the competent authority, which register must contain the names, contact details and addresses of –
- All persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;
 - All persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and
 - All organs of state which have jurisdiction in respect of the activity to which the application relates.

I&APs have been identified through a process of networking and referral, obtaining information from Savannah Environmental's existing stakeholder database, liaison with potentially affected parties in the greater study area and a registration process involving the completion of a reply form. Key stakeholders and affected landowners have been identified and registered on the project database. Other stakeholders and/or I&APs are required to formally register their interest in the project. An initial list of key stakeholders identified and registered is listed in **Table 4.2**.

Table 4.2: List of Stakeholders identified for the inclusion in the project database during the public participation process for the Gunstfontein OHL Extension

Organs of State
National Government Departments
Department of Environment, Forestry and Fisheries (DEFF)
Cooperative Governance and Traditional Affairs
Department of Mineral Resources and Energy
Department of Water and Sanitation
Government Bodies and State-Owned Companies
Eskom Holdings SOC Limited
South African National Roads Agency LTD (SANRAL)
National Energy Regulator of South Africa (NERSA)
South African Civil Aviation Authority (CAA)
South Africa Heritage Resources Agency
Telkom SA SOC Limited (OpenServe)
Provincial Government Departments: Northern Cape Province
Department of Agriculture
Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAEARD&LR)
Department of Roads and Public Works
Department of Water and Sanitation
Ngwao-Boswa Ya Kapa Bokone
Local Government Departments
Namakwa District Municipality
Karoo Hoogland Local Municipality
Key Stakeholders
Air Traffic and Navigation Services
Endangered Wildlife Trust
South African Radio Astronomy Observatory (SARAO)
SENTEC
AgriSA
BirdLife SA
Landowners
Affected landowners, adjacent landowners, tenants and occupiers of land

As per Regulation 42 of the EIA Regulations, 2014 (as amended), all relevant stakeholder and I&AP information has been recorded within a register of I&APs (refer to **Appendix C1** for a listing of the recorded

parties). In addition to the above-mentioned EIA Regulations, point 4.1 of the Public Participation Guidelines has also been followed. The register of I&APs contains the names, contact details and addresses of:

- » all persons who requested to be registered on the database in writing and disclosed their interest in the project;
- » all Organs of State which hold jurisdiction in respect of the activity to which the application relates;
- » all persons identified and approached through networking or a chain referral system to identify any other stakeholder (i.e. ratepayers associations); and
- » all persons who submitted written comments or attended meetings during the public participation process.

I&APs have been encouraged to register their interest in the BA process from the onset of the project, and the identification and registration of I&APs will be on-going for the duration of the BA process. The database of I&APs will be updated throughout the BA process and will act as a record of the I&APs involved in the public participation process.

ii. **Advertisements and Notifications**

- 40.(2)(a) Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of –
- (i) The site where the activity to which the application or proposed application relates is or is to be undertaken; and
 - (ii) Any alternative site.
- 40.(2)(b) Giving written notice, in any of the manners provided for in section 47D of the Act, to –
- (i) The occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;
 - (ii) Owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;
 - (iii) The municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (iv) The municipality which has jurisdiction in the area;
 - (v) Any organ of state having jurisdiction in respect of any aspect of the activity; and
 - (vi) Any other party as required by the competent authority.
- 40.(2)(c) Placing an advertisement in –
- (i) One local newspaper; or
 - (ii) Any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- 40.(2)(d) Placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii); and
- 40.(2)(e) Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to –
- (i) Illiteracy;
 - (ii) Disability; or
 - (iii) Any other disadvantage.

The BA process was announced with an invitation to the Organs of State, potentially affected landowners and general public to register as I&APs and to actively participate in the process. This was achieved via the following:

- » Placement of site notices regarding the BA process at visible points along the affected properties of the grid extension corridor, in accordance with the requirements of the EIA Regulations, on 7 August 2020. Photographs and the GPS co-ordinates of the site notices are contained in **Appendix C2**.
- » Placement of advertisement announcing the BA process and the availability of and inviting comment on the BA Report in a local newspaper on Friday the 4th of September 2020 at the commencement of the 30-day review period. This advert also included the details on the review period for the BA report and the location of where the report can be accessed. The details of the newspaper advert placement will be contained in **Appendix C2** of the final BA Report. A further advert for the review of the Revised Basic Assessment report was placed in die Noordwester Uitgewers on 11 December 2020.
- » The BA Report has been made available for review by I&APs for a 30-day review period from **Friday, 4th of September until Monday, 5th of October 2020**. Electronic versions of the BA Report were circulated to certain Organs of State via online platforms at the commencement of the review period. The BA Report was also available on the Savannah Environmental website. The evidence of distribution of the BA Report is included in **Appendix C2**.
- » The Revised BA report has been made available for public review and comment from 11 December 2020 – 01 February 2021. Electronic versions of the BA Report were circulated to certain Organs of State via online platforms at the commencement of the review period. The Revised BA Report is also available on the Savannah Environmental website. The evidence of distribution of the BA Report will included in **Appendix C2** of the final BA Report to be submitted to DEFF.

iii. **Public Involvement and Consultation**

In order to accommodate the varying needs of stakeholders and I&APs within the greater study area, as well as capture their views, comments, issues and concerns regarding the project, various opportunities have been and will continue to be provided to I&APs to note their comments and issues. I&APs are being consulted through the following means:

Table 4.3: Consultation undertaken for the Gunstfontein OHL Extension

Activity	Date (BA Report)	Date – (Revised BA Report)
Virtual distribution of the process notification and stakeholder reply form announcing the BA process and inviting I&APs to register on the project database.	02 September 2020	<u>11 December 2020</u>
Placement of site notices on-site and in public places	07 August 2020	
Virtual distribution of notification letters announcing the availability of the BA Report for review for a 30-day review and comment period. These letters were distributed to Organs of State, Government Departments, Ward Councillors, landowners within the greater study area and key stakeholder groups.	02 September 2020	<u>11 December 2020</u>
Advertising of the availability of the BA Report for a 30-day review period in local newspaper.	04 September 2020	<u>11 December</u>
30-day review period of the BA Report	04 September 2020 to 05 October 2020	<u>11 December 2020 – 01 February 2021</u>

Activity	Date (BA Report)	Date – (Revised BA Report)
On-going consultation (i.e. telephone liaison; e-mail communication) with all I&APs	Throughout BA process	

The purpose of the abovementioned engagements with key stakeholders was to ensure that key requirements/comments are noted and addressed as part of the BA process and included as part of the BA Report prior to release for the 30-day review period. The undertaking of the virtual pre-app meeting and additional meetings prior to the release of the BA Report for a 30-day review period provided the EAP with an opportunity to understand and consider issues from I&APs as part of the report from the outset of the process. Records of all consultation undertaken are included in **Appendix C4**.

iv. **Registered I&APs entitled to Comment on the BA Report and Plans**

- 43.(1) A registered I&AP is entitled to comment, in writing, on all reports or plans submitted to such party during the public participation process contemplated in these Regulations and to bring to the attention of the proponent or applicant any issues which that party believes may be of significance to the consideration of the application, provided that the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.
- (2) In order to give effect to section 24O of the Act, any State department that administers a law relating to a matter affecting the environment must be requested, subject to regulation 7(2), to comment within 30 days.
- 44.(1) The applicant must ensure that the comments of interested and affected parties are recorded in reports and plans and that such written comments, including responses to such comments and records of meetings, are attached to the reports and plans that are submitted to the competent authority in terms of these Regulations.
- (2) Where a person desires but is unable to access written comments as contemplated in subregulation (1) due to –
 - (a) A lack of skills to read or write;
 - (b) Disability; or
 - (c) Any other disadvantage;
 Reasonable alternative methods of recording comments must be provided for.

I&APs registered on the database have been notified by means of a notification letter (e-mail) of the release of the BA Report for a 30-day review period, invited to provide comment on the BA Report, and informed of the manner in which, and timeframe within which such comment must be made. The notification was distributed prior to commencement of the 30-day review period, on Wednesday, 02 September 2020. A subsequent notification was issued on 11 December 2020 for the review of the Revised BA Report.

v. **Identification and Recording of Comments**

Comments raised by I&APs over the duration of the BA process have been synthesised into a C&R Report which is included in **Appendix C6** of the BA Report. The C&R Report includes detailed responses from members of the EIA project team and/or the project proponent to the issues and comments raised prior to the release of the 30-day review period. The C&R Report was updated with all comments received during the 30-day review period and is included as **Appendix C6** in the final BA Report that will be submitted to the DEFF for decision-making.

4.4. DEFF Screening Tool Results

In terms of GN R960 (promulgated on 5 July 2019) and Regulation 16(1)(b)(v) of the 2014 EIA Regulations (as amended), the submission of a Screening Report generated from the national web based environmental screening tool is compulsory for the submission of applications in terms of Regulation 19 and 21 of the 2014 EIA Regulations.

The requirement for the submission of a Screening Report for the proposed development is applicable as it triggers Regulation 19 of the 2014 EIA Regulations (as amended). The below tables provides a summary of the specialist assessment requirements identified for the project site in terms of the screening tool (based on the identified corridor) (refer to **Appendix K** for the report) and responses to each assessment requirement based on the nature and extent of the project.

Table 4.4: A summary of specialist studies and sensitivity ratings as per the online tool.

No.	Specialist Assessment	Sensitivity rating as per the online tool	Comment
1	Landscape/Visual Impact Assessment	None specified	<p>The proposed grid extension infrastructure will be entirely contained within the footprints of the authorised Karusa WEF and Soetwater WEF, by virtue of crossing the footprint area for both these currently authorised developments (both wind farms are currently under construction). In addition, the proposed grid extension infrastructure will be located as close as possible (approximately 15m away) from the already authorised Soetwater overhead power line (under construction), running in parallel thereto. This development thus represents an identical development to the authorised Soetwater overhead power line, within two wind farms. The erection of a power line within the bounds of two wind farms will not result in any additional visual impact not already experienced by virtue of the two wind farms.</p> <p>No visual impact assessment was therefore conducted for this Basic Assessment.</p>
2	Archaeological and Cultural Heritage Impact Assessment	Medium sensitivity	A heritage screener report, from Cedar Tower Services has been included into this Basic Assessment, to address the archaeological and cultural impact, as well as the palaeontology impact anticipated from the proposed development.
3	Palaeontology Impact Assessment	High sensitivity	
4	Terrestrial Biodiversity Impact Assessment	Medium to very high sensitivity	An Ecological assessment (flora, fauna and surface water) & avifauna assessment has been included for this Basic Assessment, to address any terrestrial biodiversity impact anticipated.
5	Aquatic Biodiversity Impact Assessment	Low sensitivity	The nature of overhead power lines, where large spans may be possible (up to 500m between supporting pylons), and the dry nature of this area (i.e. the relative scarcity of water features within the landscape) allow for the carefully selected placement of supporting pylon structures to not impact on the water sources potentially occurring
6	Hydrology Assessment	Low sensitivity	

No.	Specialist Assessment	Sensitivity rating as per the online tool	Comment
			<p>within the grid extension corridor. In addition, use will be made of existing access roads (Soetwater OHL access roads) as far as possible in order to avoid any impacts on watercourses on site.</p> <p>No aquatic or hydrological biodiversity impact assessment was therefore conducted for this Basic Assessment, however measures to avoid or mitigate impacts to aquatic resources are included in the EMPr.</p> <p>Considering the infrastructure associated with this development will span any freshwater features within the assessment corridor, no direct impact on any features are anticipated. In addition, habitat quality and sensitivity of freshwater features, including delineations, were confirmed during the recent site assessment conducted by Simon Todd. Given the same development type (132kV overhead powerline) on the same footprint and assessment region of the Soetwater overhead powerline development (DEFF ref: 12/12/20/2370/2) the freshwater resource impact assessed in this report are derived from the Savannah Environmental 2015 ecological specialist report (including freshwater features) for the Soetwater OHL and the recent site visit conducted by Simon Todd.</p>
7	Socio-Economic Assessment	None specified	<p>The proposed grid extension infrastructure will be entirely contained within the authorised Karusa WEF and Soetwater WEF, by virtue of crossing the footprint area for both these currently authorised developments. The erection of a power line within the bounds of two wind farms will not incur any additional socio-economic impacts not already associated with the two wind farm developments.</p> <p>No socio-economic impact assessment was therefore conducted for this Basic Assessment</p>

It is important to note the studies commissioned for this Basic Assessment process predates the implementation date for the specialist protocol GNR 320. Recent communication received from IQ (IQ/20/0140, dated 21 May 2020) indicated the following:

“the Department’s view that, irrespective of whether an application has been submitted or not, before 9 May 2020 - if the specialist assessment affected by any of the protocols was commissioned before 9 May 2020, then the applicant is allowed to continue and submit documents for decision-making, which do not need to comply with the requirements of the protocols. Proof that the specialist work was outsourced before 9 May 2020, is deemed to be

sufficient to allow this, on a case by case basis and you are strongly advised to liaise with the relevant competent authority in this regard."

The specialist studies conducted for this Basic Assessment process is therefore conducted in accordance with Appendix 6 of the EIA regulations, 2014 (as amended), with proof of appointment prior to 9 May 2020 attached as Appendix I. IQ correspondence received has also been attached in Appendix I as background.

4.5. Assessment of Impacts Identified through the BA Process

Based on the outcomes of the above considerations from the Screening Report, the following specialist studies have been undertaken as part of this BA process. The specialist studies have been drafted in the Appendix 6 format and not in the protocol format because of these studies taking place before the Covid-19 lockdown. This was discussed and format confirmed during the pre-app meeting with DEFF held on the 8th of July 2020 and was confirmed through an IQ query, which has been included in **Appendix L**.

Table 4.5: Specialist studies undertaken as part of the BA process

Specialist Name	Specialist Company	Specialist Area of Expertise	Appendices
Simon Todd	3Foxes Biodiversity Consulting (Pty) Ltd	Ecology	Appendix D
Eric Hermann	3Foxes Biodiversity Consulting (Pty) Ltd	Avifauna	Appendix E
Jenna Lavin	CTS Heritage (Pty) Ltd	Heritage (including archaeology and palaeontology)	Appendix F

Specialist studies considered direct and indirect environmental impacts associated with the development of all components of the grid extension infrastructure. Impacts were assessed in terms of the following criteria:

- » The **nature**, a description of what causes the effect, what will be affected, and how it will be affected;
- » The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development), regional, national or international. A score of between 1 and 5 is assigned as appropriate (with a score of 1 being low and a score of 5 being high);
- » The **duration**, wherein it is indicated whether:
 - * The lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
 - * The lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
 - * Medium-term (5–15 years) – assigned a score of 3;
 - * Long term (> 15 years) - assigned a score of 4;
 - * Permanent - assigned a score of 5.
- » The **magnitude**, quantified on a scale from 0-10, where a score is assigned:
 - * 0 is small and will have no effect on the environment;
 - * 2 is minor and will not result in an impact on processes;
 - * 4 is low and will cause a slight impact on processes;
 - * 6 is moderate and will result in processes continuing but in a modified way;
 - * 8 is high (processes are altered to the extent that they temporarily cease);
 - * 10 is very high and results in complete destruction of patterns and permanent cessation of processes.

- » The **probability of occurrence**, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned:
 - * Assigned a score of 1–5, where 1 is very improbable (probably will not happen);
 - * Assigned a score of 2 is improbable (some possibility, but low likelihood);
 - * Assigned a score of 3 is probable (distinct possibility);
 - * Assigned a score of 4 is highly probable (most likely);
 - * Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).
- » The **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high;
- » The **status**, which is described as either positive, negative or neutral;
- » The degree to which the impact can be reversed;
- » The degree to which the impact may cause irreplaceable loss of resources;
- » The degree to which the impact can be mitigated.

The **significance** is determined by combining the criteria in the following formula:

$S = (E+D+M) P$; where

S = Significance weighting.

E = Extent.

D = Duration.

M = Magnitude.

P = Probability.

The **significance weightings** for each potential impact are as follows:

- » **< 30 points:** Low (i.e. where this impact would not have a direct influence on the decision to develop in the area);
- » **30-60 points:** Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated);
- » **> 60 points:** High (i.e. where the impact must have an influence on the decision process to develop in the area).

As the proponent has the responsibility to avoid or minimise impacts and plan for their management (in terms of the EIA Regulations, 2014 (as amended)), the mitigation of significant impacts is discussed. Assessment of impacts with mitigation is made in order to demonstrate the effectiveness of the proposed mitigation measures. Generic Environmental Management Programmes, contemplated in Regulation 19(4) of the EIA Regulations, 2014 (as amended) and as per GNR 435 of 22 March 2019 is used for the BA for the Gunstfontein OHL Extension. This is due to the triggering of activity 11 of Listing Notice 1 of the EIA Regulations, 2014 (as amended). The generic EMP for overhead electricity transmission and distribution infrastructure is included in **Appendix G** of this BA Report.

4.6. Assumptions and Limitations of the BA Process

The following assumptions and limitations are applicable to the studies undertaken within this BA process:

- » All information provided by the developer and I&APs to the environmental team was correct and valid at the time it was provided.
- » It is assumed that the grid extension corridor identified by the developer represents a technically suitable corridor for the establishment of the grid extension infrastructure associated with the Gunstfontein OHL Extension.
- » This report and its investigations are project-specific, and consequently the environmental team did not evaluate any other grid extension technology alternatives.

Refer to the specialist studies in **Appendices D – F** for specialist study specific limitations.

4.7. Legislation and Guidelines that have informed the preparation of this Basic Assessment Report

The following legislation and guidelines have informed the scope and content of this BA Report:

- » National Environmental Management Act (Act No. 107 of 1998);
- » EIA Regulations of December 2014, published under Chapter 5 of NEMA (as amended);
- » Department of Environmental Affairs (2017), Public Participation guidelines in terms of NEMA EIA Regulations; and
- » International guidelines – the Equator Principles, the IFC Performance Standards, the Sustainable Development Goals, World Bank Environmental and Social Framework, and the and World Bank Group Environmental, Health, and Safety Guidelines (EHS Guidelines).

Relevant legislation and permitting requirements applicable to the grid infrastructure are summarised in Table 4.6.

Table 4.6: Applicable Legislation, Policies and/or Guidelines associated with the development of the Grid Extension Infrastructure

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Legislation			
Constitution of the Republic of South Africa (No. 108 of 1996)	<p>In terms of Section 24, the State has an obligation to give effect to the environmental right. The environmental right states that:</p> <p><i>“Everyone has the right –</i></p> <ul style="list-style-type: none"> » <i>To an environment that is not harmful to their health or well-being, and</i> » <i>To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:</i> <ul style="list-style-type: none"> * <i>Prevent pollution and ecological degradation,</i> * <i>Promote conservation, and</i> * <i>Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”</i> 	Applicable to all authorities	There are no permitting requirements associated with this Act. The application of the Environmental Right however implies that environmental impacts associated with proposed development are considered separately and cumulatively. It is also important to note that the “right to an environment” clause includes the notion that justifiable economic and social development should be promoted, through the use of natural resources and ecologically sustainable development.
National Environmental Management Act (No 107 of 1998) (NEMA)	<p>The 2014 EIA Regulations have been promulgated in terms of Chapter 5 of NEMA. Listed activities which may not commence without EA are identified within the Listing Notices (GNR 327, GNR 325 and GNR 324) which form part of these Regulations (GNR 326).</p> <p>In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation.</p> <p>A Basic Assessment Process is required to be undertaken for the proposed project.</p>	<p>DEFF – Competent Authority</p> <p>Department of Agriculture, Environmental Affairs, Rural Development and Land Reform – Commenting Authority</p>	The listed activities triggered by the proposed project have been identified and are assessed throughout the BA process for the grid extension infrastructure. The BA process will culminate in the submission of a final BA Report to the competent authority in support of the Application for Environmental Authorisation.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Environmental Management Act (No 107 of 1998) (NEMA)	<p>In terms of the "Duty of Care and Remediation of Environmental Damage" provision in Section 28(1) of NEMA every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.</p> <p>In terms of NEMA, it is the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.</p>	DEFF Department of Agriculture, Environmental Affairs, Rural Development and Land Reform	While no permitting or licensing requirements arise directly by virtue of the proposed grid extension infrastructure, this section finds application through the consideration of potential cumulative, direct, and indirect impacts.
Environment Conservation Act (No. 73 of 1989) (ECA)	<p>The Noise Control Regulations in terms of Section 25 of the ECA contain regulations applicable for the control of noise in the Provinces of Limpopo, North West, Mpumalanga, Northern Cape, Eastern Cape, and KwaZulu-Natal Provinces.</p> <p>The Noise Control Regulations cover the powers of a local authority, general prohibitions, prohibitions of disturbing noise, prohibitions of noise nuisance, use of measuring instruments, exemptions, attachments, and penalties.</p> <p>In terms of the Noise Control Regulations, no person shall make, produce or cause a disturbing noise, or allow it to be made, produced or caused by any person, machine, device or apparatus or any combination thereof (Regulation 04).</p>	DEFF Department of Agriculture, Environmental Affairs, Rural Development and Land Reform Karoo Hoogland Local Municipality	Minor construction noise is associated with the construction phase of the project. Considering the location of the grid extension corridor in relation to residential areas and provided that appropriate mitigation measures are implemented, construction noise is unlikely to present a significant intrusion to the local community. There is therefore no requirement for a noise permit in terms of the legislation.
Minerals and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA)	In accordance with the provisions of the MPRDA a mining permit is required in accordance with Section 27(6) of the	DMRE	Any person who wishes to apply for a mining permit in accordance with Section 27(6) must simultaneously apply for an

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>Act where a mineral in question is to be mined, including the mining of materials from a borrow pit.</p> <p>Section 53 of the MPRDA states that any person who intends to use the surface of any land in any way which may be contrary to any object of the Act, or which is likely to impede any such object must apply to the Minister for approval in the prescribed manner.</p>		<p>Environmental Authorisation in terms of NEMA. No borrow pits are expected to be required for the construction of the grid extension infrastructure, and as a result a mining permit or EA is not required to be obtained.</p> <p>In terms of Section 53 of the MPRDA, approval is required from the Minister of Mineral Resources to ensure that the proposed grid extension infrastructure does not sterilise a mineral resource that might be present within the grid extension corridor. An approved S53 application was conducted for the Soetwater Wind Farm, covering all affected properties, inclusive of the grid extension property for this project.</p>
National Environmental Management: Air Quality Act (No. 39 of 2004) (NEM:AQA)	<p>The National Dust Control Regulations (GNR 827) published under Section 32 of NEM:AQA prescribe the general measures for the control of dust in all areas, and provide a standard for acceptable dustfall rates for residential and non-residential areas.</p> <p>In accordance with the Regulations (GNR 827) any person who conducts any activity in such a way as to give rise to dust in quantities and concentrations that may exceed the dustfall standard set out in Regulation 03 must, upon receipt of a notice from the air quality officer, implement a dustfall monitoring programme.</p> <p>Any person who has exceeded the dustfall standard set out in Regulation 03 must, within three months after submission of the dustfall monitoring report, develop and</p>	Department of Agriculture, Environmental Affairs, Rural Development and Land Reform / Namakwa District Municipality (DC6)	In the event that the construction of the grid extension infrastructure results in the generation of excessive levels of dust, the possibility could exist that a dustfall monitoring programme would be required for the project, in which case dustfall monitoring results from the dustfall monitoring programme would need to be included in a dust monitoring report, and a dust management plan would need to be developed. However, with mitigation measures implemented, construction of the grid extension infrastructure is not anticipated to result in significant dust generation or the requirement of a dust monitoring programme.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	submit a dust management plan to the air quality officer for approval.		
National Heritage Resources Act (No. 25 of 1999) (NHRA)	<p>Section 07 of the NHRA stipulates assessment criteria and categories of heritage resources according to their significance.</p> <p>Section 35 of the NHRA provides for the protection of all archaeological and palaeontological sites, and meteorites.</p> <p>Section 36 of the NHRA provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority.</p> <p>Section 38 of the NHRA lists activities which require developers or any person who intends to undertake a listed activity to notify the responsible heritage resources authority and furnish it with details regarding the location, nature, and extent of the proposed development.</p> <p>Section 44 of the NHRA requires the compilation of a Conservation Management Plan as well as a permit from SAHRA for the presentation of archaeological sites as part of tourism attraction.</p>	<p>South African Heritage Resources Agency</p> <p>Ngwao Boswa Kapa Bokone (NBKB)</p>	<p>A Desktop Heritage Impact Assessment (HIA) has been undertaken as part of the BA process (refer to Appendix F of this BA Report). The HIA considers impacts on both archaeology, heritage and palaeontology.</p> <p>Based on the existing heritage information available for the proposed OHL route in addition to the fieldwork conducted by Booth (2012, 2015) and Almond (2015, 2016), it is unlikely that the proposed extension to the Gunstfontein 132kV OHL will negatively impact on significant heritage resources. There is no heritage objection to the proposed development.</p> <p>Should a heritage resource be impacted upon, a permit may be required from SAHRA or Ngwao Boswa Kapa Bokone (NBKB) in accordance with Section 48 of the NHRA, and the SAHRA Permit Regulations (GNR 668).</p>
National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEM:BA)	<p>Section 53 of NEM:BA provides for the MEC / Minister to identify any process or activity in such a listed ecosystem as a threatening process.</p> <p>Three government notices have been published in terms of Section 56(1) of NEM:BA as follows:</p> <p>» Commencement of TOPS Regulations, 2007 (GNR 150).</p>	<p>DEFF</p> <p>Department of Agriculture, Environmental Affairs, Rural Development and Land Reform</p>	<p>Under NEM:BA, a permit would be required for any activity that is of a nature that may negatively impact on the survival of a listed protected species.</p> <p>Please refer to the Ecological Impact Assessment (Appendix D) for further details.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>» Lists of critically endangered, vulnerable and protected species (GNR 151).</p> <p>» TOPS Regulations (GNR 152).</p> <p>It provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), and vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (NEM:BA: National list of ecosystems that are threatened and in need of protection, (Government Gazette 37596, GNR 324), 29 April 2014).</p>		
National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEM:BA)	<p>Chapter 5 of NEM:BA pertains to alien and invasive species, and states that a person may not carry out a restricted activity involving a specimen of an alien species without a permit issued in terms of Chapter 7 of NEM:BA, and that a permit may only be issued after a prescribed assessment of risks and potential impacts on biodiversity is carried out.</p> <p>Applicable, and exempted alien and invasive species are contained within the Alien and Invasive Species List (GNR 864).</p>	<p>DEFF</p> <p>Department of Agriculture, Environmental Affairs, Rural Development and Land Reform</p>	<p>Restricted Activities and the respective requirements applicable to persons in control of different categories of listed invasive species are contained within the Alien and Invasive Species Regulations (GNR 598) published under NEM:BA, together with the requirements of the Risk Assessment to be undertaken.</p> <p>Please refer to the Ecological Impact Assessment (Appendix D) for further details.</p> <p>The EMPr (Appendix G) does make provision for mitigation measures for alien vegetation present within the grid extension corridor.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA)	<p>Section 05 of CARA provides for the prohibition of the spreading of weeds.</p> <p>Regulation 15 of GNR 1048 published under CARA provides for the classification of categories of weeds and invader plants, and restrictions in terms of where these species may occur.</p> <p>Regulation 15E of GNR 1048 published under CARA provides requirement and methods to implement control measures for different categories of alien and invasive plant species.</p>	Department of Environment, Forestry and Fisheries	<p>CARA will find application throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies need to be developed and implemented. In addition, a weed control and management measures must be included into the EMPr where they are not already included by virtue of the standardised OHL EMP template required.</p> <p>In terms of Regulation 15E (GNR 1048) where Category 1, 2 or 3 plants occur a land user is required to control such plants by means of one or more of the following methods:</p> <ul style="list-style-type: none"> » Uprooting, felling, cutting or burning. » Treatment with a weed killer that is registered for use in extension with such plants in accordance with the directions for the use of such a weed killer. » Biological control carried out in accordance with the stipulations of the Agricultural Pests Act (No. 36 of 1983), the ECA and any other applicable legislation. » Any other method of treatment recognised by the executive officer that has as its object the control of plants concerned, subject to the provisions of sub-regulation (4). » A combination of one or more of the methods prescribed, save that biological control reserves and areas

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
			where biological control agents are effective shall not be disturbed by other control methods to the extent that the agents are destroyed or become ineffective.
National Forests Act (No. 84 of 1998) (NFA)	<p>According to this Act, the Minister may declare a tree, group of trees, woodland or a species of trees as protected. Notice of the List of Protected Tree Species under the National Forests Act (No. 84 of 1998) was published in GNR 734.</p> <p>The prohibitions provide that “no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister”.</p>	DEFF	<p>A licence is required for the removal of protected trees. It is therefore necessary to conduct a survey that will determine the number and relevant details pertaining to protected tree species present in the grid extension corridor that cannot be reasonably avoided for the submission of relevant permits to authorities prior to the disturbance of these individuals.</p> <p>The Ecological Impact Assessment undertaken as part of the BA Report allowed for the identification of any protected tree species that may require a license in terms of the NFA within the project development corridors (refer to Appendix D of this BA Report).</p> <p>Please refer to the Ecological Impact Assessment (Appendix D) for further details.</p>
National Veld and Forest Fire Act (No. 101 of 1998) (NVFFA)	Chapter 4 of the NVFFA places a duty on owners to prepare and maintain firebreaks, the procedure in this regard, and the role of adjoining owners and the fire protection association. Provision is also made for the making of firebreaks on the international boundary of the Republic of South Africa. The applicant must ensure that firebreaks are wide and long enough to have a reasonable chance of preventing a veldfire from	DEFF	While no permitting or licensing requirements arise from this legislation, this Act will be applicable during the construction and operation of the grid extension infrastructure, in terms of the preparation and maintenance of firebreaks (if/as applicable), and the need to provide

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>spreading to or from neighbouring land, it does not cause soil erosion, and it is reasonably free of inflammable material capable of carrying a veldfire across it.</p> <p>Chapter 5 of the Act places a duty on all owners to acquire equipment and have available personnel to fight fires. Every owner on whose land a veldfire may start or burn or from whose land it may spread must have such equipment, protective clothing and trained personnel for extinguishing fires, and ensure that in his or her absence responsible persons are present on or near his or her land who, in the event of fire, will extinguish the fire or assist in doing so, and take all reasonable steps to alert the owners of adjoining land and the relevant fire protection association, if any.</p>		appropriate equipment and personnel for firefighting purposes.
Hazardous Substances Act (No. 15 of 1973) (HAS)	<p>This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger, to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products.</p> <ul style="list-style-type: none"> » Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared as Group I or Group II substance » Group IV: any electronic product, and » Group V: any radioactive material. 	Department of Health	It is necessary to identify and list all Group I, II, III, and IV hazardous substances that may present with the development of the grid extension infrastructure and in what operational context they are used, stored or handled. If applicable, a license would be required to be obtained from the Department of Health.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.		
National Environmental Management: Waste Act (No. 59 of 2008) (NEM:WA)	<p>The Minister may by notice in the Gazette publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.</p> <p>The Minister may amend the list by –</p> <ul style="list-style-type: none"> » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars on the list. <p>In terms of the Regulations published in terms of NEM:WA (GNR 912), a BA or EIA is required to be undertaken for identified listed activities.</p> <p>Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that:</p> <ul style="list-style-type: none"> » The containers in which any waste is stored, are intact and not corroded or in » Any other way rendered unfit for the safe storage of waste. » Adequate measures are taken to prevent accidental spillage or leaking. » The waste cannot be blown away. » Nuisances such as odour, visual impacts and breeding of vectors do not arise, and » Pollution of the environment and harm to health are prevented. 	<p>DEFF– Hazardous Waste</p> <p>Department of Agriculture, Environmental Affairs, Rural Development and Land Reform</p>	No listed activities are triggered by the grid extension infrastructure and therefore no Waste Management License is required to be obtained. General and hazardous waste handling, storage and disposal will be required during construction and operation of the grid extension infrastructure. The National Norms and Standards for the Storage of Waste (GNR 926) published under Section 7(1)(c) of NEM:WA will need to be considered in this regard, if applicable.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Road Traffic Act (No. 93 of 1996) (NRTA)	<p>The technical recommendations for highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed.</p> <p>Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges, and culverts.</p> <p>The general conditions, limitations, and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution, and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.</p>	SANRAL – national roads Northern Cape DoT	An abnormal load / vehicle permit may be required to transport the various components to site for construction. These include route clearances and permits will be required for vehicles carrying abnormally heavy or abnormally dimensioned loads (transport vehicles exceeding the dimensional limitations (length) of 22m). Depending on the trailer configuration and height when loaded, some of the powerline components may not meet specified dimensional limitations (height and width) and will therefore require a permit.
Provincial Policies / Legislation			
Northern Cape Nature Conservation Act (Act No. 9 of 2009)	This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst	Department of Agriculture, Environmental Affairs, Rural Development and Land Reform	A collection/destruction permit must be obtained from Northern Cape Nature Conservation for the removal of any protected plant or animal species found on site.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>other regulations, the following may apply to the current project:</p> <ul style="list-style-type: none"> » Boundary fences may not be altered in such a way as to prevent wild animals from freely moving onto or off of a property; » Aquatic habitats may not be destroyed or damaged; » The owner of land upon which an invasive species is found (plant or animal) must take the necessary steps to eradicate or destroy such species; <p>The Act provides lists of protected species for the Province.</p>		

CHAPTER 5: DESCRIPTION OF THE RECEIVING ENVIRONMENT

This chapter provides a description of the environment that may be affected by the development of the Gunstfontein OHL Extension. This information is provided in order to assist the reader in understanding the possible effects of the project on the environment within which it is proposed to be developed. Aspects of the biophysical and social environment that could be directly or indirectly affected by, or could affect, the grid extension infrastructure have been described. This information has been sourced from both existing information available for the area as well as specialist consultants for similar projects within and around the area, and aims to provide the context within which this BA process is being conducted.

5.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Basic Assessment Report

This chapter of the BA Report includes the following information required in terms of Appendix 1: Content of BA Reports:

Requirement	Relevant Section
3(h)(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, heritage and cultural aspects	<p>The environmental attributes associated with the grid extension corridor and the broader environment are described and considered within this chapter and include the following:</p> <ul style="list-style-type: none"> » The regional and social setting within which the grid extension corridor is located is described in section 5.2. » The climatic conditions of the Sutherland area are described in section 5.3. » The biophysical characteristics of the broader study area and the surrounding areas, as well as for the grid extension corridor, are described in section 5.5. This includes the topography, soils and agricultural potential, the ecological profile (including fauna, flora and avifauna) of the broader study and the grid extension corridor. » The heritage of the affected environment (including archaeology, palaeontology and cultural landscape) is discussed in section 5.6.

A more detailed description of each aspect of the affected environment is included in the specialist reports contained within the **Appendices D – F**.

5.2. Regional Setting

The Northern Cape Province is located in the north-western extent of South Africa and constitutes South Africa's largest province, occupying an area of 372 889km² in extent, equivalent to nearly a third (30.5%) of the country's total land mass. It is also South Africa's most sparsely populated province with a population of 1, 145, 861, and a population density of 3.1/km². The capital city is Kimberley, and other important towns include Upington, Springbok, Kuruman, De Aar and Sutherland. It is bordered by the Western Cape, and Eastern Cape Provinces to the south, and south-east, Free State, and North West Provinces to the east, Botswana and Namibia, to the north, and the Atlantic Ocean to the west. The Northern Cape is the only South African province which borders Namibia and plays an important role in terms of providing linkages between Namibia and the rest of South Africa. The Orange River, which is South Africa's largest river, is a

significant feature and is also the main source of water in the Province, while also constituting the international border between the Northern Cape (i.e. South Africa) and Namibia.

The Northern Cape is rich in minerals including alluvial diamonds, iron ore, asbestos, manganese, fluorspar, semi-precious stones and marble. The mining sector in the province is the largest contributor of the provincial Gross Domestic Product (GDP) and of a great importance to South Africa as it produces ~37% of the country's diamonds, 44% of its zinc, 70% of its silver, 84% of its iron ore, 93% of its lead and 99% of its manganese.

The province has fertile agricultural land in the Orange River Valley, especially at Upington, Kakamas and Keimoes, where grapes and fruit are cultivated intensively. The interior Karoo relies on sheep farming, while the karakul-pelt industry is one of the most important in the Gordonia District of Upington. Wheat, fruit, peanuts, maize and cotton are produced at the Vaalharts Irrigation Scheme near Warrenton. The agricultural sector employs approximately 19.5% of the total formally employed individuals. The sector is also experiencing significant growth in value-added activities, including game-farming, while food production and processing for the local and export markets is also growing significantly (PGDS, July 2011). Furthermore, approximately 96% of the land in the province is used for livestock and game farming, whilst, approximately 2% is used for crop farming mainly under irrigation in the Orange River Valley and the Vaalharts Irrigation Scheme.

The Northern Cape offers unique tourism opportunities including wildlife conservation destinations, natural features, historic sites, festivals, cultural sites, star gazing, adventure tourism, agricultural tourism, ecotourism, game farms, and hunting areas, etc. The Province is home to the Richtersveld Botanical and Landscape World Heritage Site, which comprises a United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Site under the World Heritage Convention. The province is also home to two (2) Transfrontier National Parks, namely the Kgalagadi Transfrontier Park, and the Richtersveld or Ai-Ais Transfrontier Park, as well as five (5) national parks and six (6) provincial reserves. In addition, the province plays a significant role in South Africa's science and technology sector, as it is home to the Square Kilometre Array (SKA), the Southern African Large Telescope (SALT), and the Karoo Array Telescope (MeerKAT).

The Northern Cape is made up of 5 district municipalities, namely Francis Baard, John Taolo Gaetsewe, Namakwa, Pixley ka Seme and ZF Mgcawu (refer to **Figure 5.1**).

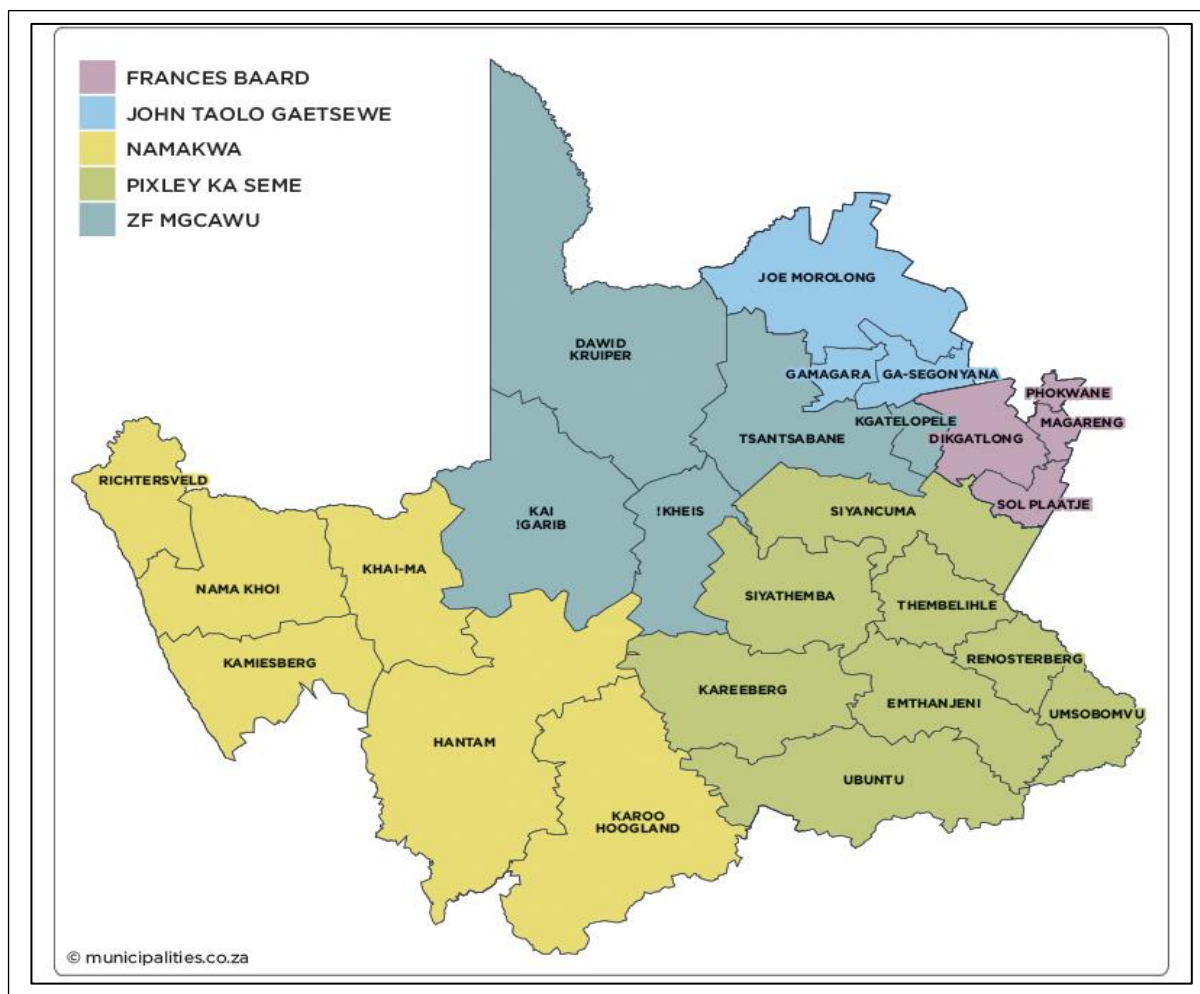


Figure 5.1: District municipalities of the Northern Cape Province (Source: Municipalities of South Africa).

The Namakwa District Municipality is a Category C municipality located in the Northern Cape Province. It is bordered by the republic of Namibia in the north, ZF Mgcawu Local Municipality in the north-east, Cape Winelands District Municipality in the south, West Coast District Municipality in the south-west, Pixley Ka Seme District Municipality in the east, Central Karoo District Municipality in the south-east, and the Atlantic Ocean in the west.

It is the largest district in the province, approximately 126 836km² in extent, making up over a third of its geographical area. It is comprised of six local municipalities: Nama Khoi, Hantam, Khai-Ma, Kamiesberg, Karoo Hoogland and Richtersveld (refer to Figure 5.2).

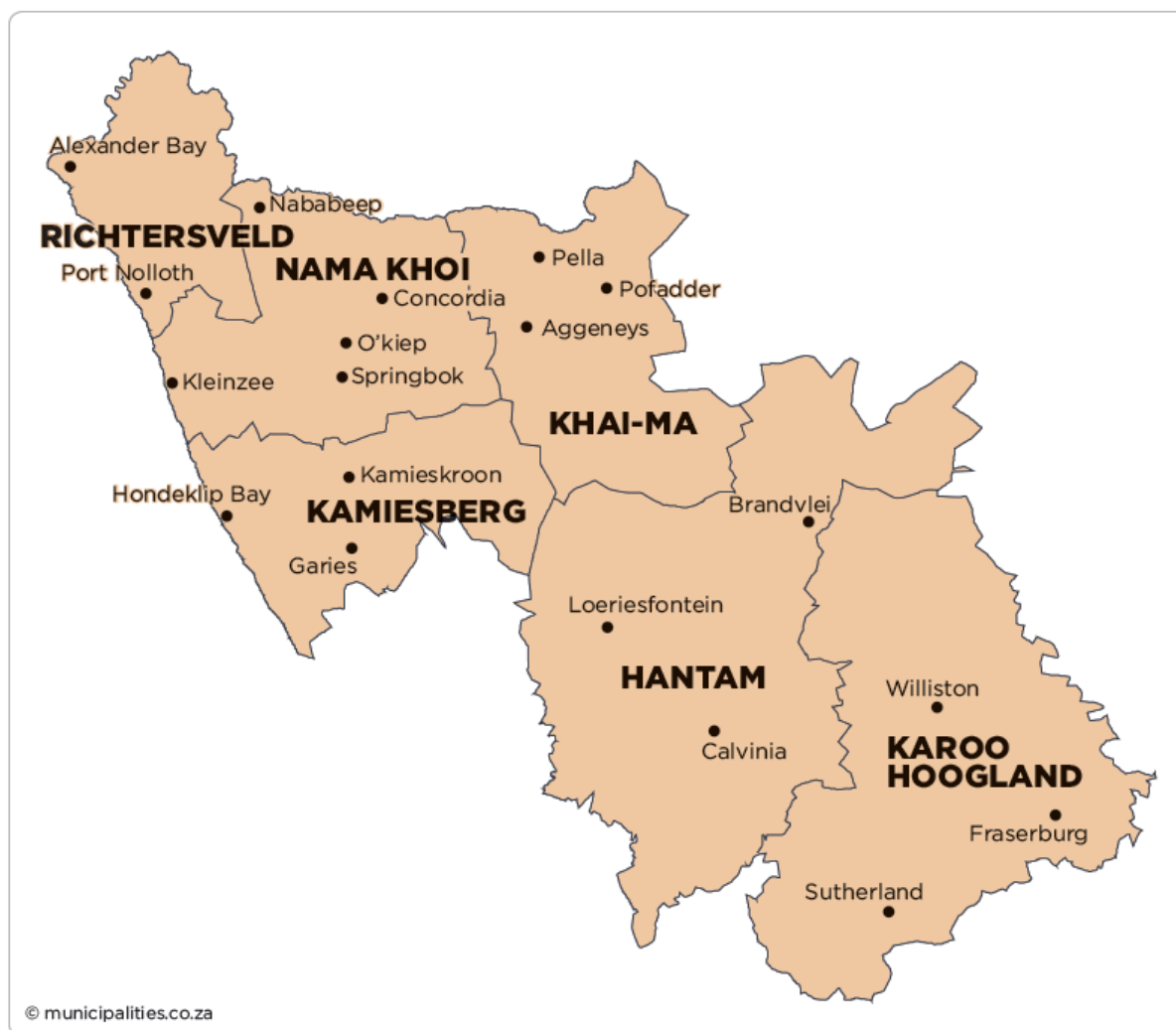


Figure 5.2: Local Municipalities of the Namakwa DM (Source: Municipalities of South Africa).

The seat of the Namakwa District Municipality is Springbok. Other Cities of this District include Aggeneys, Alexander Bay, Brandvlei, Bulletrap, Calvinia, Carolusberg, Concordia, Eksteensfontein, Frasersburg, Garies, Hondeklip Bay, Kamieskroon, Kleinzee, Koingnaas, Komaggas, Kuboes, Leliefontein/Kamiesberg, Loeriesfontein, Middelpoos, Nababeep, Nieuwoudtville, O'Kiep, Onderste Doorns, Pella, Pofadder, Port Nolloth, Richtersveld, Sanddrift, Steinkopf, Sutherland and Williston.

The broader study area for the Gunstfontein OHL Extension Corridor is located within the Karoo Hoogland LM. The Karoo Hoogland LM is a Category B municipality and is situated in the Namakwa District of the Northern Cape Province. It is the second largest of the six municipalities in the district, making up a quarter of its geographical area, with an extent of 30 230km², accounting for a quarter of the DMs geographical area. The key towns within the LM include, Frasersburg, Sutherland and Williston.

The community, social and personal services sector with 42.5%, is the biggest contributor of the LM's GDP and of great importance to the economy of the Namakwa DM. The transport, storage and communication sector contribute 15%, the wholesale and retail trade, catering and accommodation sector contribute 13.7%, the agriculture, forestry and fishing sector contribute 13%, the finance, insurance, real estate and business services sector contribute 8.8% and the manufacturing sector 5.9%.

Karoo Hoogland Municipality has a total population of approximately 11 601 according to STATS SA Survey done in 2011. The three main towns in Karoo Hoogland, as stated above, Williston, Fraserburg and Sutherland which are respectively 499 km, 592 km and 539 km from Springbok. Karoo Hoogland Municipality is divided into 4 Wards and there is an estimate of 2204 households in the area serviced by the Municipality.

The population distribution in Karoo Hoogland Municipality is: Fraserburg: 23% of total population, Non-Urban areas (Rural): 31% of total population, Sutherland: 19% of total population and Williston: 27% of total population. It is evident that the most significant portion of Karoo Hoogland's urban population resides in Williston (27%). The Karoo Hoogland LM also has a large rural population, with 31% of its population residing in the non-urban (NU) regions within the Municipality which covers approximately 99% of the LMs geographical area.

The age distribution of a population is important because the largest age group inevitably indicates its own demands on the market. Many residents are still dependent on government grants and is the unemployment rate currently 23.1%. This has a negative influence on the payment of services and a total of 1035 households are subsidised by the service subsidized scheme. The Karoo Hoogland population can be regarded as having a high dependency ratio. With 10.6% of the population over the age of 65 and 24.5% are under 15 years. The latter youth group will be demanding education, housing and jobs in the near future. The Karoo Hoogland gender distribution is 47, 8% males and 52, 2% females.

According to the 2011 Census data, 3 655 people are employed, 623 are unemployed, and 395 are classified as discouraged work-seekers. The unemployment rate is ~14,6%. Amongst the youth (aged 15 – 34 years), 1 317 people are employed, 329 are unemployed, 218 are classified as discouraged work-seekers, and 1 433 are not economically active. The unemployment rate is thus relatively high.

The closest town to the Gunstfontein OHL Extension broader study area and grid extension corridor is Sutherland, which is located approximately 39km to the north. Matjiesfontein is approximately 46km to the south.

5.3. Climatic Conditions

The climate is arid to semi-arid. Rainfall may fall at any time of the year, although there is a peak in autumn / winter on the lowlands and slightly earlier (March) on the uplands. Mean temperatures of the mountainous regions are generally lower than the plains to the south of the escarpment. Frost is a common phenomenon in the mountainous areas with up to 50 days of frost per year. Mean annual rainfall is 180 to 200 mm per year.

Altitude has a strong influence on most climatic variables. Generally, an increase in altitude corresponds with a decrease in temperature and an increase in rainfall. Mountains also have an orographic influence on rainfall, escarpment zones usually experiencing increased rainfall and mist, depending on aspect, cause either an increase or decrease in mean daily insolation levels. The study site is located just south of the Great Escarpment and the climate is therefore strongly influenced by the presence of these mountains.

All areas with less than 400 mm annual rainfall are arid. The study site can therefore be regarded as arid to very arid area.

5.4 Land use And Landcover of The Study Area

Stock farming (mostly sheep) is the traditional mainstay of the economies of Karoo Hoogland Local Municipality areas. Economically viable farming units are spatially extensive (around Sutherland, around ~7 000 ha). In the case of Sutherland, the Sutherland Observatory, located approximately 15km east of Sutherland, is internationally renowned, and attracts both local and international visitors and scientists. The town itself has seen some modest growth as a lifestyle resettlement destination over the past decade. Tourist flows into the study area municipality is currently limited, and mainly associated with the town of Sutherland (observatory) and the small Victorian rail siding of Matjiesfontein, which is located approximately 30 km west of Laingsburg.

Landcover data for the area (Fairbanks et al. 2000) indicates that most of the surroundings are in a natural condition. There are some small areas indicated as cultivation in the valley bottoms. The natural parts of the landscape consist primarily of "shrubland and low fynbos" (Fairbanks et al. 2000).

5.5. Biophysical Characteristics of the broader study area and grid extension corridor

5.5.1. Ecological Profile of the Grid Extension Corridor

According to the national vegetation map (Mucina & Rutherford 2006/2018), there are two vegetation types within the affected area Central Mountain Shale Renosterveld and Tanqua Escarpment Shrubland (Figure 5.3). The power line is however restricted entirely to the Central Mountains Shale Renosterveld vegetation type. Central Mountain Shale Renosterveld occurs in the Western and Northern Cape on the southern and southeastern slopes of the Klein Roggeveldberge and Komsberg, below the Komsberg section of the Great Escarpment, as well as farther east below Besemgoedberg and Suurkop and in the west in the Karookop area. It is associated with clayey soils overlying Adelaide Subgroup mudstones and subordinate sandstones with land types mostly Ib and Fc. Although this vegetation type is classified as Least Threatened, it has a very limited extent of 1236km² and is not formally conserved anywhere. Levels of transformation are however low and it is considered to be 99% intact. Although no endemic species are known to occur within this vegetation type, little is known about this Renosterveld type and it has been poorly sampled. Experience from this and other projects in the area indicate that this should be considered to be a relatively sensitive vegetation type with a relatively high abundance of species of conservation concern.

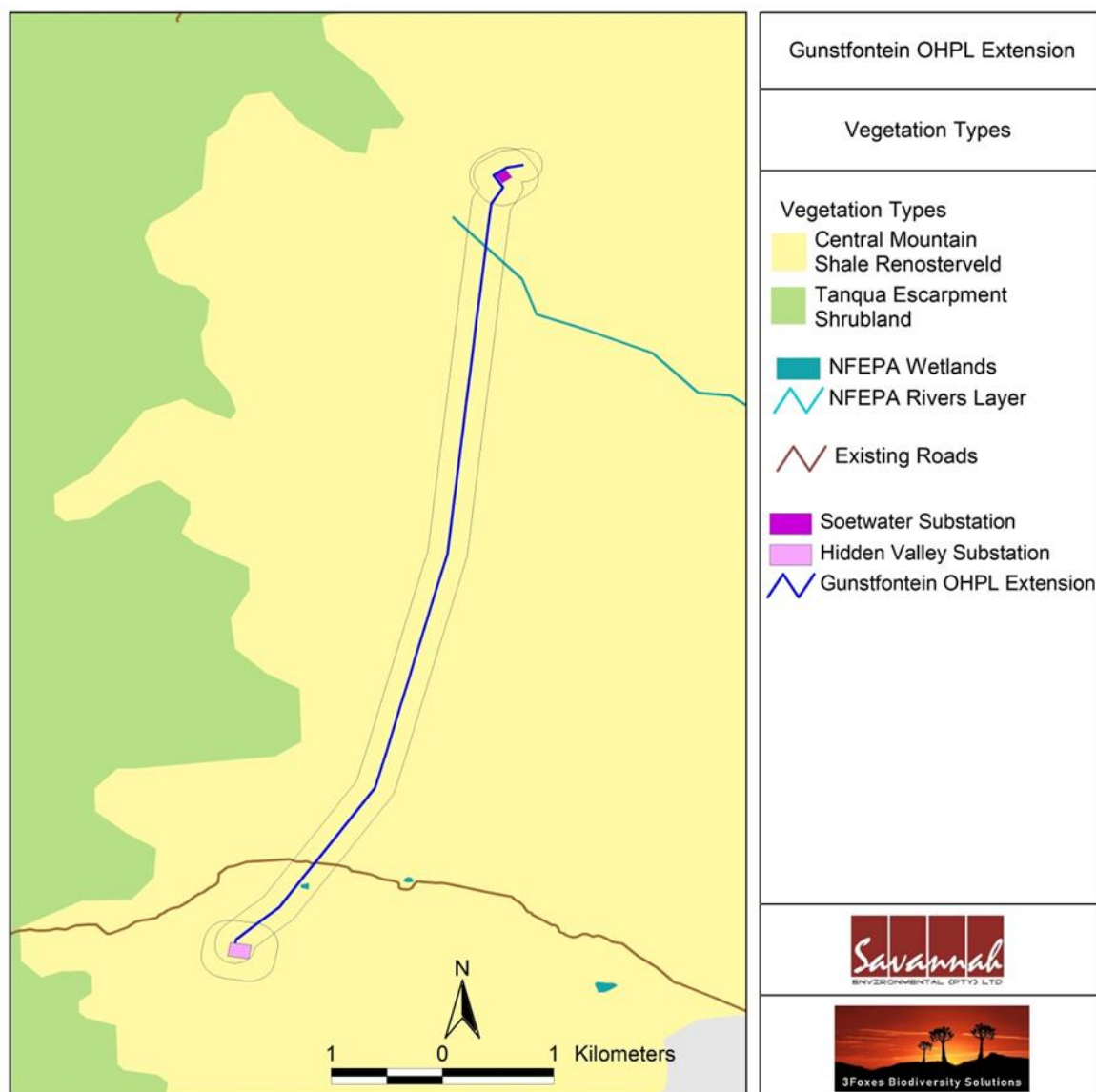


Figure 5.3: Broad-scale overview of the vegetation in and around the Gunstfontein WEF Grid Connection. The vegetation map is an extract of the national vegetation map (Mucina & Rutherford 2006 & 2016 update) and also includes drainage lines delineated by the NFEPA assessment (Nel et al. 2011).

Within the broader vegetation type a number of avifaunal microhabitats can be distinguished, based on their vegetation structure, topography, and food resources amongst others. There are five main microhabitats at the project site and surrounds, which include the predominant Renosterveld shrubland vegetation, mountain ridges and cliffs, small drainage line, farm dams and agricultural lands.

- **Predominant Renosterveld vegetation.** The predominant vegetation associated with the Central Mountains Shale Renosterveld covers the vast majority of the project site and surrounds, and is the main microhabitat for small passerines species. While the vegetation type lies within the Fynbos Biome, the avifauna is more characteristic of the nearby Succulent Karoo Biome, as key fynbos species are absent. The species typical of the predominate vegetation on site include, amongst others, Grey-backed Cisticola *Cisticola subruficapilla*, Karoo Prinia *Prinia maculosa*, Karoo Scrub robin *Cercotrichas coryphoeus*, Layard's Tit-babbler *Sylvia layardi*, Karoo Chat *Cercomela schlegelii*, Grey Tit *Melaniparus afer*, canaries, and sunbirds.

- Mountain ridges and cliffs. Exposed rocks and scree are characteristic of this microhabitat, with cliffs providing nesting sites for certain raptors (e.g. Jackal buzzard *Buteo rufofuscus*) and ravens. Rock-loving species are also usually more common in this habitat, and include African Rock Pipit *Anthus Anthus crenatus*, Long-billed Pipit *Anthus similis*, Ground Woodpecker *Geocolaptes olivaceus*, Cinnamon-breasted Warbler *Euryptila subcinnamomea* and Mountain Wheatear *Oenanthe monticola*, amongst others.
- Small drainage lines and seepages. Drainage lines can range drastically in vegetation structure within the region, from indistinct minor channels with slightly taller vegetation than the predominate vegetation, to sandy riverbeds with tall trees (e.g. Acacia karoo). At the project site only the former are present and are occasional within the grid corridor. These drainage lines are small and thus rarely contain standing water for any length of time. Occasionally associated with these drainage lines are seasonal seepages characterised by more open and short grassy areas. The drainage lines and seepages do not support a unique avifaunal assemblage though will attract birds from neighbouring habitats on occasion. It is possible that these could during favourable conditions be occasionally used as flight corridors by larger species, such as waterfowl
- Ephemeral farm dams. A number of scattered small farms dams occur within and beyond the proposed grid corridor. These dams are ephemeral in nature and will thus primarily attract birds when inundated after heavy rains. Birds groups that may be attracted to these focal sites include various duck species, occasional waders, ibises and storks.
- Agricultural lands. Agricultural lands are generally cultivated seasonally and therefore will vary in their attractiveness to various bird species throughout the year. At least one large agricultural land borders the proposed grid corridor, near the southern end of the corridor at the Hidden Valley substation. Such lands may attract large numbers of species such as Egyptian Goose *Alopochen aegyptiacus*, Spur-winged Goose *Plectropterus gambensis*, South African Shelduck *Tadorna cana*, and to a far lesser extent ibises, storks and possibly even Ludwig's Bustard *Neotis ludwigii* on occasion

5.5.2 Critical Biodiversity Areas & Broad-Scale Processes

An extract of the Northern Cape Critical Biodiversity Areas map for the broader study area is depicted below in 5.4. The southern half of the power line extension falls within an area classified as CBA 1, while the northern half is classified as CBA 2. Development within CBAs is undesirable and can potentially lead to loss of biodiversity and negatively affect ecological processes. The impact of the current proposed power line would be mediated by the location of the line adjacent to an authorised power line currently under construction, which would minimise the extent of additional disturbance, while the low overall footprint of the power line would be very unlikely to compromise the ecological functioning of the CBAs in any way. The corridor does not lie within an area identified as a priority area for future conservation expansion under the Northern Cape PAES.

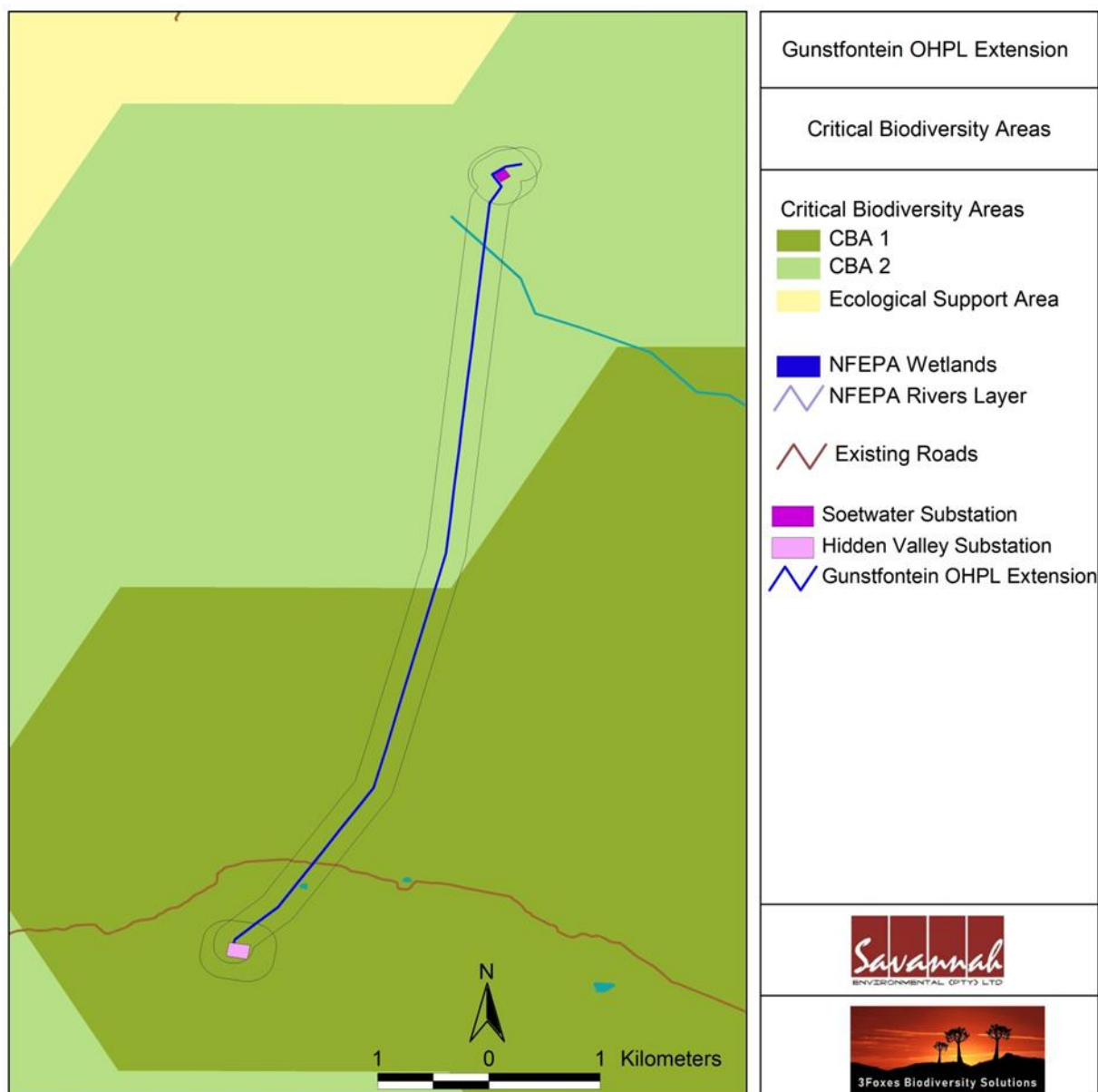


Figure 5.4. Extract of the Northern Cape Critical Biodiversity Areas map for the broader study area, showing that the power line occurs within areas classified as CBA 1 and CBA 2.

The extent of habitat loss within the CBA resulting directly from the current project would be low and is not expected to generate significant impacts on the affected CBAs. However, the site falls within the project area of the Karusa and Soetwater wind farms (part of the Hidden Valley wind farm cluster) which are both under construction, with the result that cumulative impacts on CBAs are a concern. However, grid connection extension itself would make a minimal/ negligible contribution to cumulative CBA impacts.

5.5.3. Listed and Protected Plant Species

It is important to note that the site falls within the Komsberg Centre of Diversity and Endemism and as such is an area with a known high abundance of species of concern and endemism. A list of species of conservation concern recorded from the wider area is provided in Annex 1. Species of concern observed at the site includes *Drimia altissima* (Declining), *Eriocephalus grandiflorus* (Rare), *Cleretum lyratifolium* (Rare) and *Ehrharta eburnea* (NT), which all tend to be quite widespread. Although it is likely that the development

would generate some impact on these species, this would be minor as there are no parts of the route where there are particularly important or large populations of these species and it is highly unlikely that the local populations would be compromised in any way by the development. With micro-siting of the pylons and search and rescue of individuals of high conservation concern that cannot be avoided, the impact of the development on Species of Conservation Concern would be low.

In terms of the provincial legislation the following species and genera are protected. The example species provided are to illustrate the typical species present and is not intended as an exhaustive list.

Schedule 1 (Specially Protected Species):

- » All species of the genus *Pelargonium* (Family: Geraniaceae) (e.g. *Pelargonium carnosum*)

Schedule 2 (Protected Species):

- » All species of the family Mesembryanthemaceae: (e.g. *Antimima pumila*, *Hammeria salteri*, *Cheiridopsis namaquensis*, *Lampranthus* spp., *Cleretum papulosum* subsp. *papulosum*, *Drosanthemum* spp., *Ruschia centrocapsula*)
- » All species of the family Amaryllidaceae: (e.g. *Brunsvigia* spp (*B. bosmaniae*), *Haemanthus coccineus*)
- » All species of the genus *Colchicum* (Family Colchicaceae): e.g. (*Colchicum coloratum*, *C. Cuspidatum*).
- » All species of the family Crassulaceae; e.g. (*Tylecodon wallichii*, *T. ventricosus*, *Crassula deltoidea*, *C. columnaris*, *C. muscosa*, *C. umbella*, *C. glomerata*, *Adromischus filicaulis*)
- » All species of the family Iridaceae: (e.g. *Romulea atrandra*, *R. tortuosa*, *komsbergensis*, *Hesperantha acuta*, *Moraea fugax*)
- » All species of the genus *Oxalis* (Family: Oxalidaceae): (e.g. *Oxalis obtusa*, *O. melanostica*, *O. palmifrons*)
- » All species of the genus *Lachenalia* (Family: Hyacinthaceae): (e.g. *Lachenalia aurioliae*)

It is recommended that a Pre-construction Walk-Through Survey is conducted along the power line route, to inform search-and-rescue efforts and biodiversity permitting. The location of the pylons and the service road is investigated for the presence of these protected species as well as sensitive micro-habitats. These species should be recorded and may only be removed, transplanted, destroyed (or any other form of disturbance) after the necessary approval (permits) has been obtained from the relevant authority, i.e. the Northern Cape Department of Environment and Nature Conservation. It is also important to note that species of ecological importance, local endemics and red-listed species should be translocated out of the development footprint, where these have a high probability of survival.

5.5.4. Faunal Communities

Mammals

The Gunstfontein power line extension route is likely to have moderate mammalian species richness. The site falls within or near the edge of the distribution range of at least 44 terrestrial mammals. The ridges, hills and uplands of the area, with rocky outcrops, rocky bluffs and cliffs provide suitable habitat for species which require or prefer rock cover such as Cape Rock Elephant Shrew, *Elephantulus edwardii*, Hewitt's Red Rock Hare *Pronolagus saundersiae*, Namaqua Rock Mouse *Micaelamys namaquensis* and Rock Hyrax, *Procavia capensis*. Larger species commonly observed on high-lying ground of the area include Grey Rhebok, *Pelea capreolus* (Near Threatened) and Klipspringer, *Oreotragus oreotragus*. The introduced Fallow Deer, *Dama dama* is also common in the area and is likely to occur at the site. The lowlands of the area are home to species associated with more densely-vegetated lowland habitats on deeper soils and along drainage lines

and floodplains, which includes Brants's Whistling Rat *Parotomys brantsii*, the Bush Vlei Rat *Otomys unisulcatus*, Hairy-footed Gerbil *Gerbillus paebe* and Common Duiker *Sylvicapra grimmia*.

Listed species which do or may occur at the site include the, Grey Rhebok (Near Threatened) Black-footed Cat *Felis nigripes* (Vulnerable), Leopard *Panthera pardus* (Near Threatened) and Riverine Rabbit *Bunolagus monticularis* (Critically Endangered). Except for the Riverine Rabbit, all of these species have relatively large ranges across South Africa and the development of the power line would not result in a significant habitat loss for these species. Although the Riverine Rabbit *Bunolagus monticularis* is known to occur in the wider area, it is not currently known from the affected area and if present would likely be restricted to the larger drainage systems in the lowlands and it is highly unlikely that it is present in the area affected by the proposed power line extension. Due to the low footprint of the proposed power line within this area, it is not likely that there would be any significant degree of habitat loss for mammals as a result of the construction and operation of the power line.

Overall there do not appear to be any significant issues regarding mammals and the development of Gunstfontein WEF Grid Connection extension. In general, the major impact associated with the development of Gunstfontein WEF Grid Connection extension for mammals would be some minor habitat loss and disturbance during construction and operation.

Reptiles

According to the distribution maps available in the literature, as many as 52 reptiles could occur within the assessed powerline corridor or in the general vicinity of the site. However, according to the records within the SARCA database, only 34 have been recorded in the area. This is most likely the result of poor sampling in the area, which can be attributed to limited access possibilities in the area and the remote nature of this area. In terms of species of conservation concern, the only listed species recorded in the area is the Karoo Padloper *Homopus boulengeri* which is listed as Near Threatened.

Species commonly observed in the area on previous field assessments include the Karoo Tent Tortoise *Psammobates tentorius tentorius*, Angulate Tortoise *Chersina angulata*, Puff Adder *Bitis arietans*, Karoo Girdled Lizard *Cordylus polyzonus*, Southern Rock Agama *Agama atra*, Namaqua Plated Lizard *Gerrhosaurus typicus*, Cape Skink *Mabuya capensis*, Variegated Skink *Trachylepis variegata*, Common Sand Lizard *Pedioplanis lineocellata pulchella* and Cape Cobra *Naja nivea*. Although there are a variety of different habitats present, the generally intact nature of the area means that most habitats have associated reptiles. Habitats of specific sensitivity include drainage lines and vleis and the rocky bluffs and cliffs of the site.

In terms of impacts of the development on reptiles, the major impact is likely to come from disturbance during the construction phase which would be transient and localised and consequently of low long-term consequence.



Figure 5.5: Common reptiles observed at the site include Variegated Skink (left) and Common Sand Lizard (right).

Amphibians

Only seven amphibians are likely to occur in the area, indicating that the frog diversity of the site is likely to be low. No listed species are likely to occur in the area. All of the species recorded in the area are widespread species of low conservation concern.

Species such as the Cape River Frog *Amietia fuscigula* occur along the larger drainage lines in pools and in the farm dams of the area. Species such as Karoo Caco *Cacosternum karooicum*, Karoo Toad *Vandijkophrynus garipeensis* and Cape Sand Frog *Tomopterna delalandii* are less dependent on water and are likely to be more widespread across the site. Given the aridity or unsuitable steep nature of large parts of the corridor, the most important parts of the corridor for amphibians is the vicinity of the larger drainage lines and wetlands.

Given the low likely abundance of amphibians within the area, impacts on amphibians are likely to be localised and of a low significance.

5.5.5. Avifauna

An approximate total of 140 bird species are known to occur within the grid connection extension corridor and broader project site (Annexure 1). Seven (7) of these species are listed as threatened, and another four (4) are considered Near Threatened (Taylor et al., 2015). With regards to endemism, two (2) species are considered endemic and twenty-four (24) near-endemic to South Africa (BirdLife South Africa, 2019). Fifteen (15) species are considered biome-restricted (Marnewick et al., 2015).

The bird assemblage within the project site and surrounds is fairly typical of the Succulent Karoo Biome. A number of small passerines that are considered common within the predominant vegetation are

endemic/near-endemic and biome-restricted (Table 1). Some of these species are nomadic, such as Black-headed Canary *Serinus alario* and Lark-like Bunting *Emberiza impetruani*, which may be absent in some years. Seemingly cryptic species such as Cinnamon-breasted Warbler may also occur on the project site. This species is not uncommon along the Great Escarpment some 15km to the north of the project site, and is usually restricted to rocky ridges and scree with vegetation cover. Other species of some importance include the Karoo Lark *Calendulauda albescens*, Cape Clapper Lark *Mirafrapa apiata*, and Karoo Long-billed Lark *Certhilauda subcoronata*. While many of these and other species are endemic/near-endemic and biome-restricted, all of these species are widely distributed in the Karoo and Fynbos Biomes.

Table 5.1. Small passerines considered to be present at the project site, with endemism (Birdlife South Africa, 2019) and biome-restriction (Marnewick et al., 2015) statuses. SABAP1 provides the most relevant reporting rate for these species. Species marked with an asterix (*) are typically nomadic within the region.

Species	Endemic/Near- endemic	Biome-restricted	SABAP1 reporting rate (%)
Bokmakierie			59
Bulbul, Cape	E	X	71
Bunting, Cape			
Bunting, Lark-like*			
Canary, Black-headed*	NE	X	24
Canary, White-throated			53
Canary, Yellow			59
Chat, Familiar			35
Cisticola, Grey-backed			47
Eremomela, Karoo	NE	X	
Flycatcher, Fairy	NE		
Lark, Cape Clapper	NE		12
Lark, Karoo	NE	X	6
Lark, Karoo Long-billed		X	18
Pipit, Long-billed			6
Prinia, Karoo	NE		53
Robin, Karoo Scrub			59
Starling, Pale-winged		X	18
Sunbird, Malachite			18
Sunbird, Southern Double-collared	NE		18
Tit-babbler (Warbler), Layard's	NE	X	6
Tit, Grey	NE		35
Warbler, Cinnamon-breasted	NE	X	
Wheatear, Mountain			41

Red-listed and Priority Species

Red-listed and priority species are considered fundamental to this study, because of their susceptibility to power lines and associated infrastructures (Table 2). Species of particular concern include three Endangered species with high priority scores, namely Ludwig's Bustard, Martial Eagle *Polemaetus bellicosus* and Black Harrier *Circus maurus*. All three species occur at the project site (EWT, 2014), although bustards tend to be nomadic and may therefore be absent during unfavourable periods. Species of secondary concern which have also been recorded on site include Verreaux's Eagle *Aquila verreauxii*, Lanner Falcon *Falco biarmicus* and Black Stork (*Ciconia nigra*). Verreaux's Eagle is the most abundant of the large raptor species in the area, while the latter two species are significantly scarcer. Black Stork often frequent farm dams, not only singly but also in small congregations. The Vulnerable Southern Black Korhaan *Afrotis afra* and the Near-Threatened Karoo Korhaan *Eupodotis vigorsii* are found throughout the region and have also been recorded at the project site (EWT, 2014).

Table 5.2. Priority species identified in the project site and surrounds based on their conservation status (Taylor et al., 2015), regional endemism (Birdlife South Africa, 2019), and priority score (Retief et al., 2011).

Species	Cons. Status	Endemic/Near-endemic	Priority Score	SABAP1 reporting rate (%)	Susceptible to
Bustard, Ludwig's	EN		320	6	Collisions
Buzzard, Common (Steppe)			210	18	Collisions/disturbance
Buzzard, Jackal		NE	250	6	Collisions/disturbance
Crane, Blue	NT		320		Collisions
Eagle, Black-chested Snake			230		Collisions/disturbance
Eagle, Booted			230	6	Collisions/disturbance
Eagle, Martial	EN		350	6	Collisions/electrocution
Eagle, Verreaux's	VU		360	6	Collisions/electrocution
Falcon, Lanner	VU		300		Collisions/disturbance
Flamingo, Greater	NT		290		Collisions
Francolin, Grey-winged		SLS	190	6	Disturbance/habitat loss
Goshawk, Pale Chanting			200	41	Disturbance/habitat loss
Harrier, Black	EN	NE	345	12	Collisions/disturbance/habitat loss
Harrier-hawk, African			190		Disturbance/habitat loss
Kestrel, Rock				59	Disturbance/habitat loss
Kite, Black-winged			174	29	Disturbance/habitat loss
Korhaan, Karoo	NT		240		Collisions/disturbance/habitat loss
Korhaan, Southern Black	VU	E	270	18	Collisions/disturbance/habitat loss
Owl, Cape Eagle-			250		Disturbance/habitat loss
Owl, Spotted Eagle-			170	6	Disturbance/habitat loss
Pipit, African Rock	NT	SLS	200		Disturbance/habitat loss
Sparrowhawk, Rufous-breasted			170		Disturbance/habitat loss

Species	Cons. Status	Endemic/Near-endemic	Priority Score	SABAP1 reporting rate (%)	Susceptible to
Stork, Black	VU		330	6	Collisions/electrocutions

The Near-Threatened Blue Crane *Grus paradisea* and Greater Flamingo *Phoenicopterus ruber* are both rare in the region, although the former has been recorded during the pre-construction monitoring (EWT, 2014). According to SABAP2 records, Blue Crane has only been recorded in a few pentads within a 50km radius of the project site, while Greater Flamingo have been recorded in a number of pentads, particularly on the plateau of the Great Escarpment where they frequent large farm dams. Both species may however pass through the area en route between focal sites, with flamingos possibly commuting in small flocks. African Rock Pipit is not uncommon along the escarpment to the north of the site, and have also been recorded at the project site (EWT, 2014).

Species that are not red-listed, but that were frequently observed in the area during the pre-construction bird monitoring for the Soetwater WEF (EWT, 2014), include Jackal Buzzard, Rock Kestrel *Falco rupicolus*, and to a lesser extent Grey-winged Francolin *Scleroptila africana*, Pale Chanting Goshawk *Melierax canorus*, and Booted Eagle *Aquila pennatus*.

In conclusion, the avifauna of the project site and broader area appears fairly typical of the Succulent Karoo Biome. However, due to the presence of a fair number of priority species, the sensitivity of the avifauna can be considered to be of medium significance.

5.6. Freshwater Characteristics of the broader study area and grid extension corridor

The site falls within the catchments of the Meintjiesplaas / Rooival rivers, which flow into the Buffelsrivier, before passing through Laingsburg. This catchment is characterized by several perennial and non-perennial rivers associated with the above mainstem systems and of which several could contain the following wetland types (as classified by Colloty, 2014):

- » Seeps with no wetland habitat only rock outcrops colonized by grasses
- » Seep wetlands, rock and clay soils colonized by primarily *Juncus rigidus*,
- » Channeled valley bottom wetlands with *Juncus rigidus*; and
- » Unchannelled valley bottom wetland areas, similar to the above but without a visible channel.

In terms of the National Freshwater Ecosystem Priority Areas (NFEPA) assessment, all of the drainage lines within the property boundary have been assigned a condition score of AB (Nel et al. 2001), indicating that they are largely intact watercourses of biological significance. This is largely due to this catchment falling within the headwaters of large systems such as the Buffels River. Furthermore according to the NFEPA wetland data several natural wetlands occur within the broader study area as well as a few artificial or man-made systems (NFEPA).

Colloty (2014) found during his study for the Soetwater OHL, that most of the onsite wetlands already contain impacts, which included roads (moderate / 50% alteration) and conversion to pasture areas (100% transformation). The Present Ecological Score (PES), determined by Colloty (2014), for the drainage lines and the rivers within the assessment corridor, were rated as C (Moderately Modified) due to farming, road and grazing activities present. Furthermore these systems are regarded as having Moderate Ecological

Importance and Sensitivity (EIS) due to their contribution to biodiversity and flow attenuation, and would aid in the recharge of shallow groundwater systems when water is present (Colloty, 2014).

Freshwater delineation were revised and impacts confirmed based on the site visit conducted on the 7th of August 2020 by Simon Todd, the Ecological Specialist from 3Foxes Biodiversity Consulting (Pty) Ltd. Fieldwork conducted confirmed the presence or absence of freshwater features within the corridor and also considered freshwater impacts in his ecological report. Measures for management and mitigation of freshwater resources within the corridor have therefore been supplied based on the ecological field work and site assessment conducted by Simon Todd.

It is important to note that the nature of overhead power lines, where large spans may be possible (up to 250m-500m between supporting pylons), and the dry nature of this area (i.e. the relative scarcity of water features within the landscape) allow for the carefully selected placement of supporting pylon structures to not impact on the water sources occurring within the grid extension corridor. In addition, use will be made of existing access roads as far as possible in order to avoid any impacts on watercourses on site.

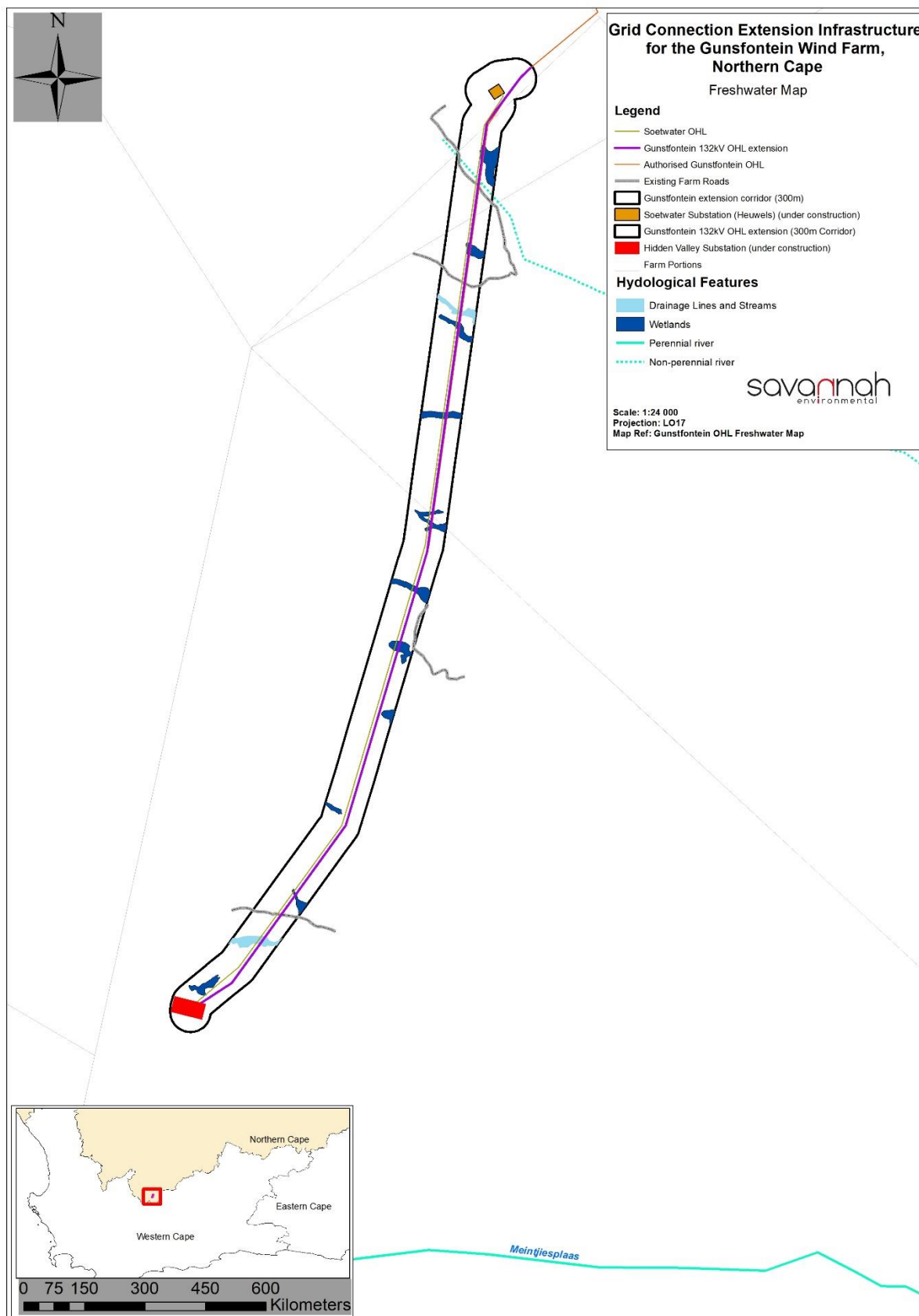


Figure 5.6: A freshwater features map for the proposed corridor based on the ecological field assessment conducted by Simon Todd (2020).

5.7. Integrated Heritage including Archaeology, Palaeontology and the Cultural Landscape

5.7.1. Archaeology and Built Environment Heritage

The area proposed for development, including the existing Soetwater OHL, has been previously assessed for impacts to heritage resources (Case 218) including an Archaeological Field Assessment (Booth, 2012, SAHRIS ID 44935) and SAHRA's requested walk down of the Soetwater WEF (Booth, 2015, SAHRIS ID 353706). In Booth's (2012) assessment, she identified no archaeological heritage remains within the areas proposed for the Soetwater turbines. Booth (2012) did identify a historical farm complex and associated infrastructure and a family graveyard. In addition, Booth (2012) identified a dry packed stone wall structure located along the farm road on Portion 1 of Farm Orange Fontein 203. Also, on this farm were noted the ruins of clay packed stone wall cottage and a dry packed stone wall kraal. These resources have been mapped in Figures 3a and b.

The known archaeological site that is in closest proximity to the proposed OHL (SAHRIS Site ID 35230) is described as a "dry stone packed walling dwelling documented next to the farm gravel road leading to the current wind mast. Most of the structure is still intact although some areas of the wall have already collapsed and is currently overgrown by bushes. The roof or cover that may have been attached is not evident. A few fragments of broken glass and ceramic sherds were scattered south of the feature. The dwelling may have been occupied by a shepherd as it is situated near a reservoir water point." This site is located approximately 300m from the proposed powerline route and falls outside of the 300m wide assessment corridor (Figure 3c). No additional heritage resources were identified in the walk down assessment conducted by Booth in 2015.

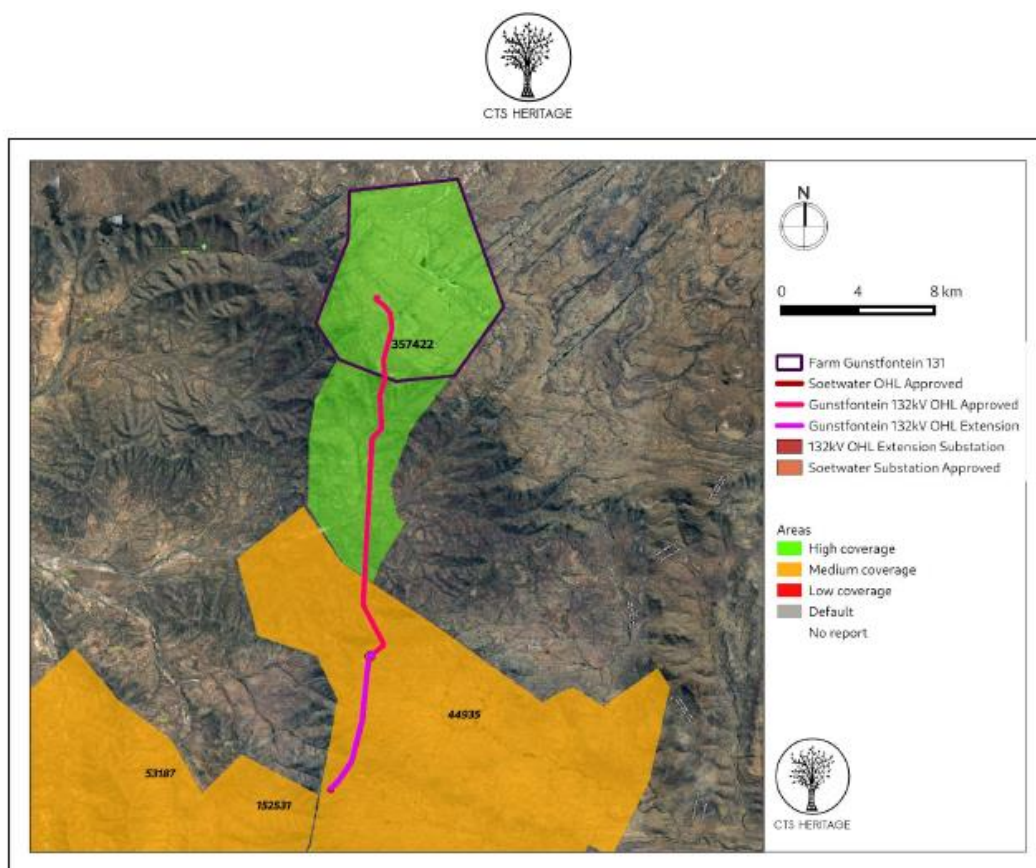


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for full reference list.

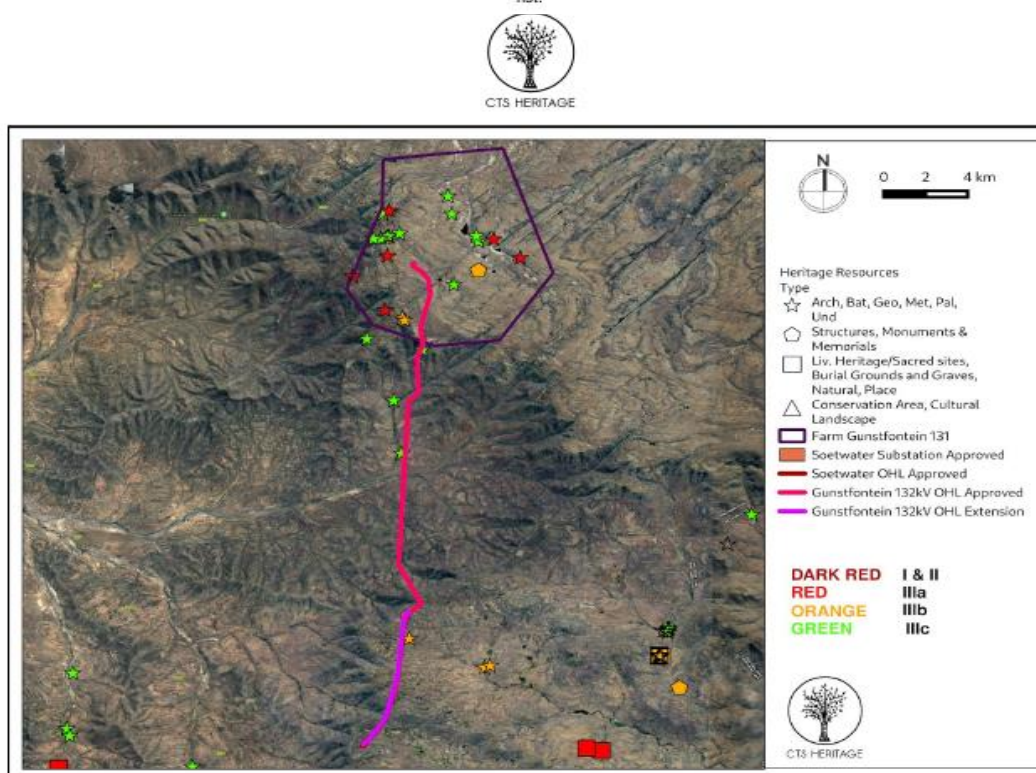


Figure 3. Heritage Resources Map. Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for full description of heritage resource types.

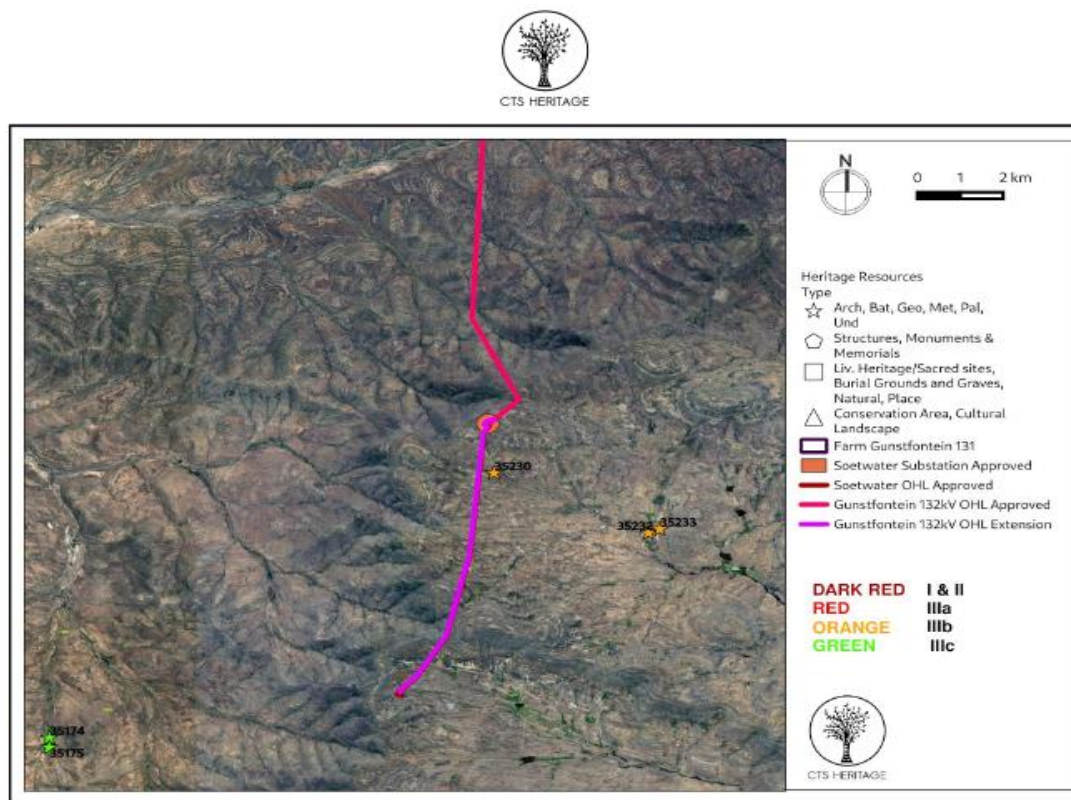


Figure 3a. Heritage Resources Map. Inset

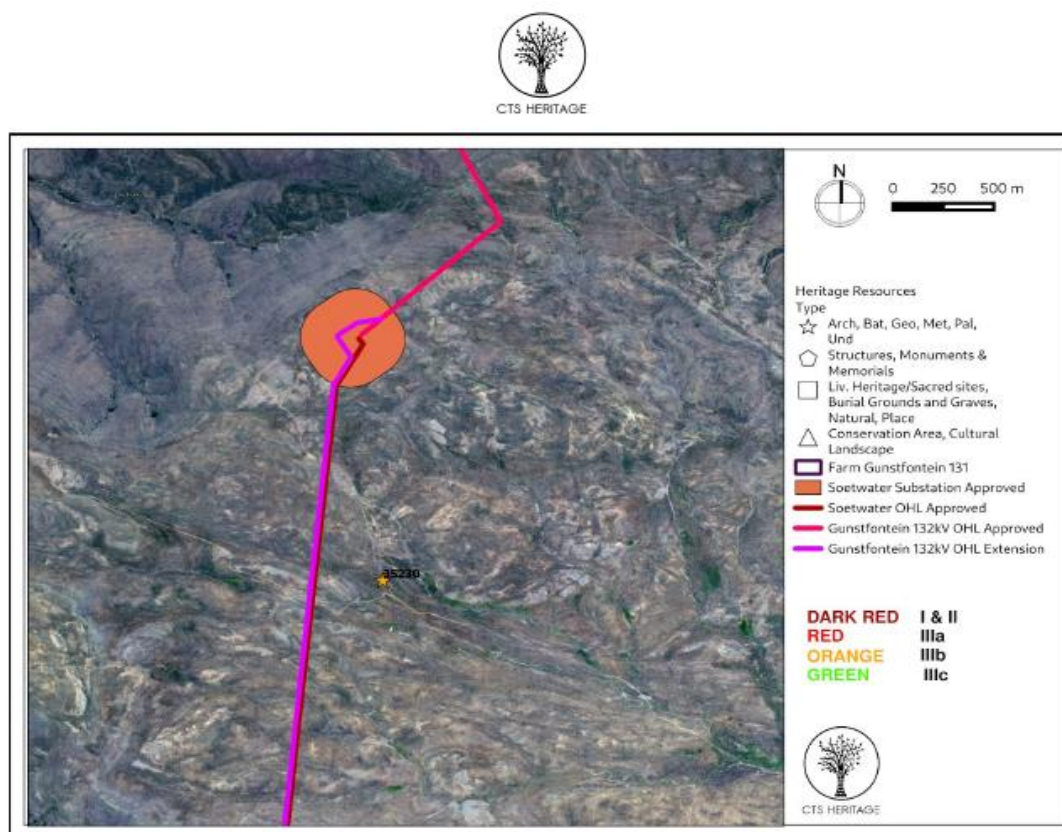


Figure 3b. Heritage Resources Map. Inset



Figure 3c. Heritage Resources Map. Inset

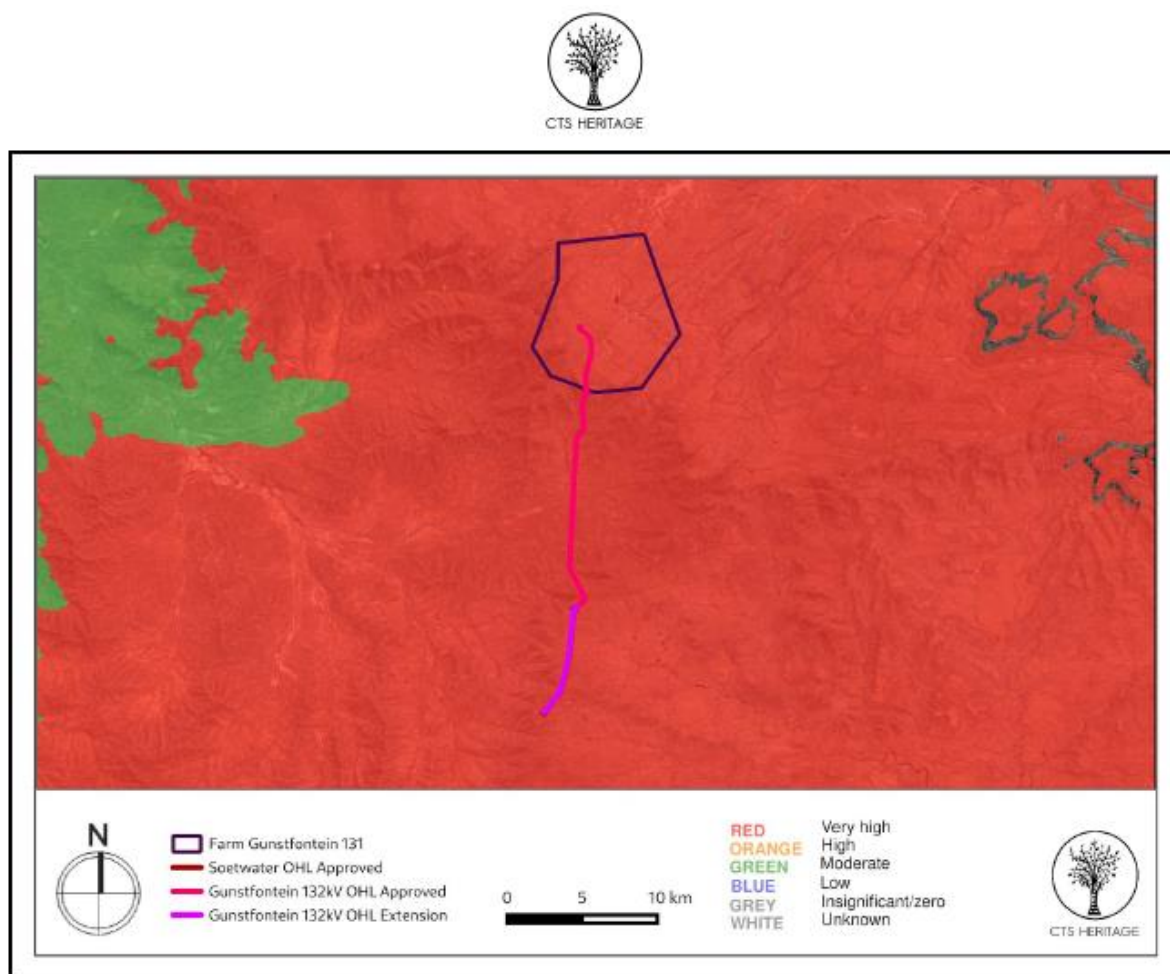
Furthermore, the development of the approved and existing Soetwater OHL and substation was subject to a specialist archaeological assessment (Booth, 2015 SAHRIS Case 8657 and 8658 Report ID 341109). In her assessment, Booth (2015) concluded that no archaeological or heritage resources were identified within the proposed powerline route for the Soetwater OHL and substation. Based on the information available for the area proposed for development, it is very unlikely that the proposed extension of the Gunstfontein 132kV OHL will negatively impact on significant archaeological or built environment heritage resources.

5.7.2. Palaeontology

The area proposed for development of the 132kV OHL is underlain by sediments that have very high palaeontological sensitivity according to the SAHRIS Fossil Sensitivity Map (Figure 4). The geology map of the area (Council of GeoScience Map 3220 Sutherland, Figure 5) indicates that the area is underlain by sediments of the Karoo Supergroup assigned to the Beaufort group, within the Abrahamskraal Formation of the Adelaide Subgroup. This was confirmed by Rossouw (2012, SAHRIS ID 44936) in the Desktop Palaeontological Impact Assessment conducted for the proposed Hidden Valley WEF which includes the area proposed for development.

Subsequently, Almond (2015, SAHRIS ID 353707) conducted a palaeontological field assessment for the Soetwater WEF which covers the area proposed for the Gunstfontein 132kV OHL. Almond (2015) determined that scientifically important fossil remains (e.g. vertebrate bones and teeth, petrified wood) are very scarce within the development site. This is the same area within which the proposed extension to the Gunstfontein 132kV OHL electrical extension infrastructure is proposed. According to Almonds 2016 assessment of the

Soetwater OHL (SAHRIS ID 354172), the impact significance of the construction phase of the proposed electrical extension infrastructure - including switching station complex, 132 kV overhead power line, Soetwater Substation complex and ancillary developments - is assessed as LOW as far as palaeontological heritage is concerned. This conclusion is also applicable to the likely impacts of the proposed extension to the Gunstfontein 132kV OHL which will run parallel to and approximately 15m west of the authorised Soetwater WEF power line routing assessed by Almond (2016). Therefore, based on the information available for the area proposed for development, it is very unlikely that the proposed extension of the Gunstfontein 132kV OHL will negatively impact on significant palaeontological heritage resources.



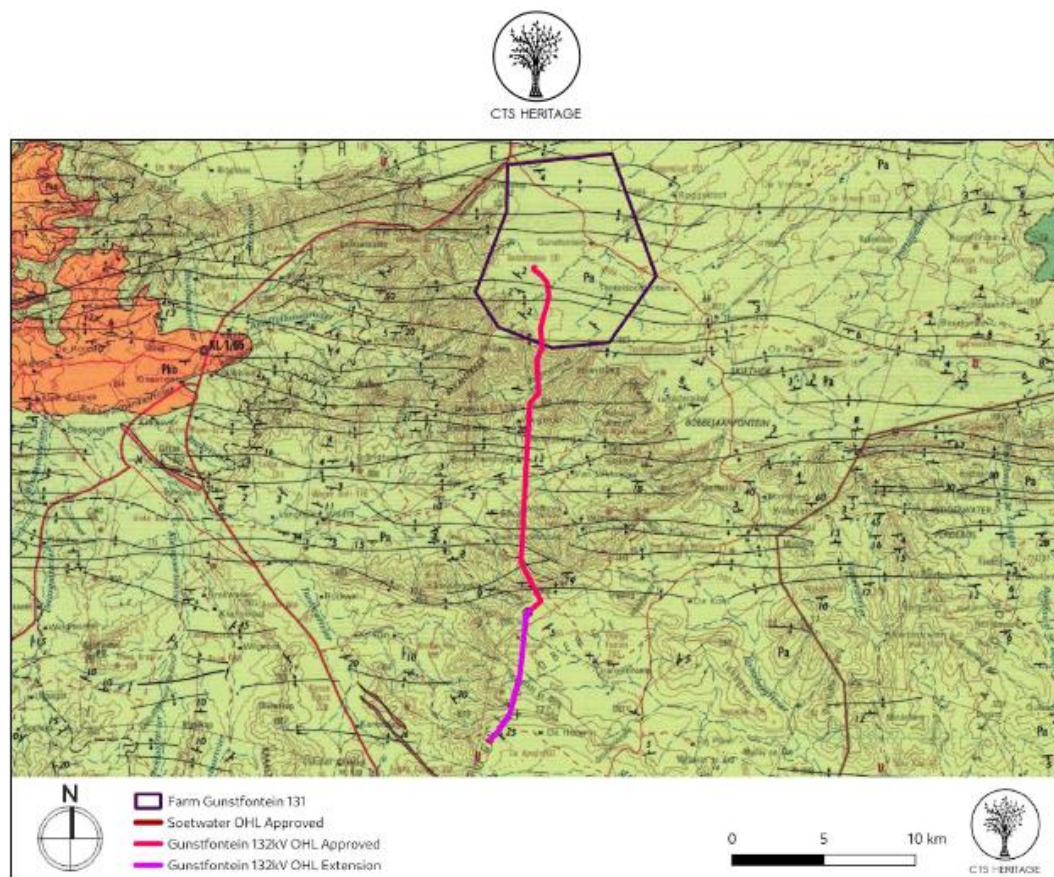


Figure 4b. Geology Map. Extract from the CGS 3220 Sutherland Map indicating that the development area is underlain by sediments of the Karoo Supergroup assigned to the Beaufort group, within the Abrahamskraal Formation of the Adelaide Subgroup.

CHAPTER 6: ASSESSMENT OF IMPACTS

This chapter serves to assess the significance of the positive and negative environmental impacts (direct and indirect) expected for the proposed grid extension infrastructure.

The full extent of the grid extension corridor (considering all proposed infrastructure) was considered through the specialist assessments undertaken as part of this BA process, as well as within this impact assessment report. The grid connection infrastructure route has been informed by specialist input and technical considerations, and is considered the optimal layout.

The development of the grid extension infrastructure for the Gunstfontein OHL Extension will comprise the following phases:

- » **Pre-Construction and Construction** – will include pre-construction surveys; site preparation; establishment of access roads (where required), laydown area; construction of foundations involving excavations; the transportation of components/construction equipment to site, manoeuvring and operating vehicles for unloading and installation of equipment; stringing and cabling; and commissioning of new equipment and site rehabilitation. The construction phase for the grid extension infrastructure is estimated to be up to 9-12 months.
- » **Operation** – will include the operation of the 132kV power line extension, which will enable the evacuation of electricity from the Gunstfontein Wind into the national grid. The operation phase of the grid extension infrastructure is expected to be at least 20 years (with maintenance).
- » **Decommissioning** – depending on the economic viability of the Gunstfontein Wind Farm and Eskom's plans for the grid extension infrastructure, the length of the operation phase may be extended beyond a 20 year period. At the end of the project's life, decommissioning will include site preparation, disassembling of the components of the grid extension infrastructure, clearance of the relevant infrastructure along the power line servitude, and rehabilitation. **Note:** that impacts associated with decommissioning are expected to be similar to those associated with construction activities. However in some instances some specialists have identified and assessed specific decommissioning impacts associated with the project, these impacts are assessed as separate impact tables where relevant below.

Environmental issues associated with pre-construction, construction and decommissioning activities may include, among others, threats to biodiversity and ecological processes, including habitat alteration and impacts to fauna and avifauna, impacts to sites of heritage value, soil erosion, and nuisance from the movement of vehicles transporting equipment and materials.

Environmental impacts associated with the operation phase include visual impacts, night-time lighting impacts, habitat alteration and impacts to fauna and avifauna, and potential invasion by alien and invasive plant species.

6.1. Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Basic Assessment Report

This chapter of the BA Report includes the following information required in terms of Appendix 1: Content of BA Reports:

Requirement	Relevant Section
3(h)(v) the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts (aa) can be reversed, (bb) may cause irreplaceable loss of resources, and (cc) can be avoided, managed or mitigated.	The impacts and risk associated with the development of the grid extension infrastructure, including the nature, significance, consequence, extent, duration and probability of the impacts and the degree to which the impact can be reversed and cause an irreplaceable loss of resources are included in sections 6.3, 6.4, 6.5, 6.6, 6.7
3(h)(vii) positive and negative impacts that the proposed activity will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects	The positive and negative impacts associated with the development of the grid extension infrastructure are included in sections 6.3, 6.4, 6.5, 6.6, 6.7
3(h)(viii) the possible mitigation measures that could be applied and the level of residual risk.	The mitigation measures that can be applied to the impacts associated with the development of the grid extension infrastructure are included in sections 6.3, 6.4, 6.5, 6.6, 6.7
3(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures,.	A description of all environmental impacts identified for the development of the grid extension infrastructure during the BA process, and the extent to which the impact significance can be reduced through the implementation of the recommended mitigation measures provided by the specialists are included in sections 6.3, 6.4, 6.5, 6.6, 6.7
3(j) an assessment of each identified potentially significant impact and risk, including (i) cumulative impacts, (ii) the nature, significance and consequences of the impact and risk, (iii) the extent and duration of the impact and risk, (iv) the probability of the impact and risk occurring, (v) the degree to which the impact and risk can be reversed, (vi) the degree to which the impact and risk may cause irreplaceable loss of resources and, (vii) the degree to which the impact and risk can be avoided, managed or mitigated.	An assessment of each impact associated with the development of the grid extension infrastructure, including the nature and significance, the extent and duration, the probability, the reversibility, and the potential loss of irreplaceable resources, as well as the degree to which the significance of the impacts can be mitigated are included in sections 6.3, 6.4, 6.5, 6.6, 6.7
3(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr.	Mitigation measures recommended by the various specialists for the reduction of the impact significance are included in sections 6.3, 6.4, 6.5, 6.6, 6.7.

6.2. Quantification of Areas of Disturbance within the Grid Extension Corridor

Site-specific impacts associated with the construction and operation of the grid extension infrastructure for the Gunstfontein OHL Extension relate to the direct loss of vegetation and species of special concern, disturbance of animals (including avifauna) and loss of habitat and impacts on soils. In order to assess the impacts associated with the development of the grid extension infrastructure, it is necessary to understand the extent of the affected grid extension corridor and the development footprint of the infrastructure proposed to be developed within the corridor. In this regard, the following is relevant:

- » The 132kV power line extension will be constructed within a servitude of up to 40m in width over a distance of up to 7.5km. The power line towers are an average distance of 200m apart but the span distance can be greater or less depending on the topography, terrain, type of pylon used and sensitive environmental features to be spanned. Tower footprints will be approximately 100m² (10m X 10m) in extent.

Please note: A combined sensitivity description is provided at the bottom of this chapter incorporating all the specialist sensitivities discussed. The following sections discuss each specialist results in further detail.

6.3. Assessment of impacts of Ecology

ECOLOGICAL SITE SENSITIVITY ASSESSMENT

The sensitivity map for the corridor and substation buffer areas is illustrated below in 6.1. The majority of the corridor is typical Central Mountain Shale Renosterveld considered to be medium ecological sensitivity. There are numerous small wetlands and drainage lines along the route that are considered to be high ecological sensitivity. In the southern part of the grid corridor, the route traverses some steep terrain which is also considered high sensitivity on account of the vulnerability of this area to disturbance. Although there are several wetland features along the route, these would be easily avoided by the power line as they are narrow enough to be spanned. The ground over most of the route is rocky ground with shallow soils. These areas are quite resilient to disturbance with the result that the pylon disturbance footprints should recover well and the long-term extent of habitat loss would be low. There are no no-go areas along the grid corridor, although no pylons should be located within the areas classified as Very High sensitivity.

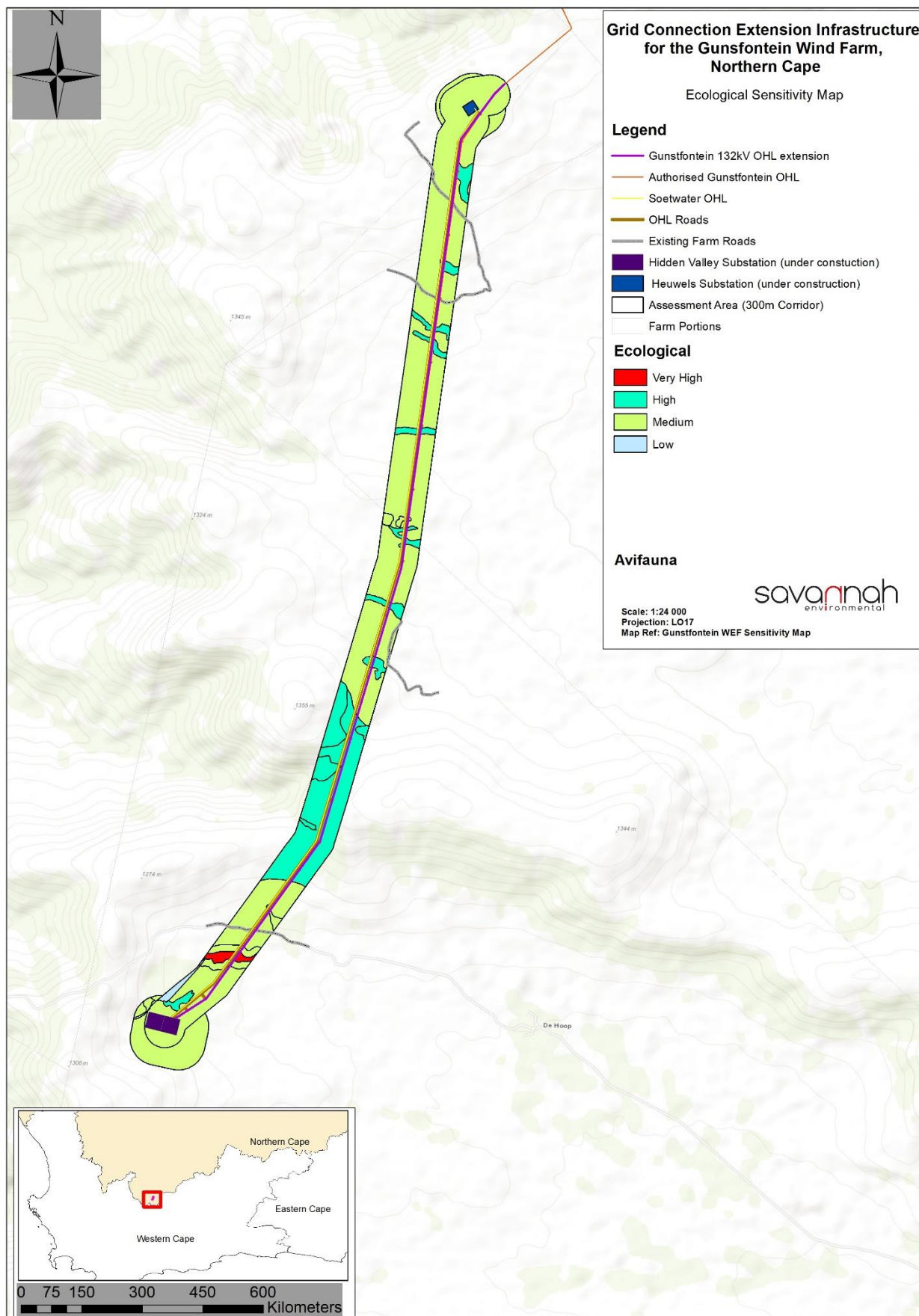


Figure 6.1: Sensitivity map for the Gunstfontein WEF Grid Extension corridor.

ASSESSMENT OF POTENTIAL IMPACTS

» *Impacts on vegetation and protected plant species*

Several protected species occur in the area and which are likely to be impacted by the development of the Gunstfontein WEF Grid Connection Extension. Vegetation clearing during the construction phase will lead to the loss of currently intact habitat within the corridor and is an inevitable consequence of the establishment of the Gunstfontein WEF Grid Connection Extension. As this impact is certain to occur during the construction phase, it is assessed for the construction phase only, as this is when the impact will occur, although the consequences will persist for some time after construction has been completed.

» *Direct faunal impacts*

Increased levels of noise, pollution, disturbance and human presence during the construction phase will be detrimental to fauna. Sensitive and shy fauna would move away from the development area during the construction phase as a result of the noise and human activities present, while some slow-moving species would not be able to avoid the construction activities and might be killed. Some impact on fauna is highly likely to occur during the construction phase and this impact is therefore assessed for the construction phase only.

» *Habitat Degradation due to Erosion and Alien Plant Invasion*

Disturbance within the grid connection corridor generated during the construction phase will leave the area vulnerable to erosion and alien plant invasion, which would lead to degradation of the local environment. Although, the disturbance would be created during the construction phase, the major impacts would manifest during the operation phase.

» *Impact on CBAs and NPAES Focus Areas*

The development would have an impact on an area classified as CBA 1 and CBA 2. However, the grid connection corridor is not within an NPAES Focus Area, indicating that it has not been identified as being of high significance for future conservation expansion. The impact on the CBAs is assessed as part of the cumulative impacts associated with the development.

Planning & Construction Phase

Impact Nature: Impacts on vegetation and listed or protected plant species resulting from power line construction activities		
Impacts on vegetation will occur due to disturbance and vegetation clearing associated with the construction of the power line and association infrastructure.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Long-term (3)	Medium-term (2)
Magnitude	Low (3)	Low (2)
Probability	Highly Likely (4)	Highly Likely (4)
Significance	Low (28)	Low (20)
Status	Negative	Negative
Reversibility	Moderate	Moderate
Irreplaceable loss of resources	Low	Low

Can impacts be mitigated?	This impact cannot be well mitigated because some loss of vegetation is unavoidable and is a certain outcome of the development.
Mitigation <ul style="list-style-type: none"> » Pre-construction walk-through to locate species of conservation concern that can be translocated as well as comply with the Northern Cape Nature Conservation Act and Department of Agriculture, Environmental Affairs, Rural Development and Land Reform /DEFF permit conditions. » Search and rescue for identified species of concern before construction. » Vegetation clearing to commence only after walk-through has been conducted and necessary permits obtained. » Pre-construction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. This includes awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas etc. » Environmental Officer (EO) to provide supervision and oversight of vegetation clearing activities within sensitive areas such as near the drainage lines and wetlands. » Vegetation clearing along the power line route should be kept to a minimum. » All construction vehicles should adhere to clearly defined and demarcated roads. No off-road driving to be allowed outside of the construction area. » Temporary laydown areas should be located within previously transformed areas or areas that have been identified as being of low sensitivity. These areas should be rehabilitated after use. 	
Residual Risks <p>The loss of currently intact vegetation is an unavoidable consequence of the development and cannot be entirely mitigated. The residual impact would however be low.</p>	

Impact Nature: Direct Faunal Impacts Due to Construction Activities Disturbance, transformation and loss of habitat will have a negative effect on resident fauna during construction. This will however be transient and restricted to the construction phase.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low to Medium (4)	Low (2)
Probability	Probable (3)	Probable (3)
Significance	Low (21)	Low (15)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Partly, although noise and disturbance cannot be well mitigated, impacts on fauna due to human presence such as poaching can be mitigated.	

Mitigation

- » All personnel should undergo environmental induction with regards to fauna and, in particular, awareness about not harming or collecting species such as snakes, tortoises and owls, which are often persecuted out of superstition.
- » Any fauna threatened by the construction activities should be removed to safety by an appropriately qualified environmental officer.
- » All construction vehicles should adhere to a low speed limit on site (40km/h max) to avoid collisions with susceptible species such as snakes and tortoises.
- » All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.
- » If holes or trenches need to be dug for pylons or electrical cabling, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Holes should only be dug when they are required and should be used and filled shortly thereafter.

Residual Risks

It is probable that some individuals of susceptible species will be lost to construction-related activities despite mitigation. However, this is not likely to impact the viability of the local population of any fauna species.

Operational Phase Impacts

Impact Nature: Faunal Impacts due to Operation		
The operation and maintenance of the Gunstfontein WEF Grid Extension may lead to disturbance or persecution of fauna in the vicinity of the development.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Long-term (4)	Long-term (4)
Magnitude	Minor (2)	Minor (2)
Probability	Probable (3)	Improbable (2)
Significance	Low (21)	Low (14)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	To a large extent, but some low-level residual impact due to noise and human disturbance may occur during maintenance activities.	
Mitigation		
<ul style="list-style-type: none">» Any potentially dangerous fauna such as snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location.» All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.» All vehicles accessing the site should adhere to a low speed limit on site (40km/h max) to avoid collisions with susceptible species such as snakes and tortoises.		
Residual Risks		
Disturbance from maintenance activities will occur at a low and infrequent level with the result that no long-term impacts are expected to occur.		

Impact Nature: Habitat Degradation due to Erosion and Alien Plant Invasion		
Disturbance created during the construction phase will leave the development area vulnerable to erosion and alien plant invasion for several years into the operation phase.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Medium-term (2)	Long-term (3)
Magnitude	Medium Low (3)	Minor (2)
Probability	Probable (3)	Improbable (2)
Significance	Low (18)	Low (12)
Status	Negative	Negative
Reversibility	Medium	High
Irreplaceable loss of resources	Low	Low
Can impacts be mitigated?	Yes, with proper management and avoidance, this impact can be mitigated to a low level.	
Mitigation		
» Erosion management within the development area should take place according to the Erosion Management Plan and Rehabilitation Plan.		
» Access roads should have run-off control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk.		
» Regular monitoring for erosion during operation to ensure that no erosion problems have developed as a result of the disturbance, as per the Erosion Management and Rehabilitation Plans for the project.		

- » All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.
- » There should be follow-up rehabilitation and re-vegetation of any remaining bare areas with indigenous perennial shrubs and succulents from the local area.
- » Alien management at the site should take place in accordance with the Alien Invasive Management Plan.
- » Regular monitoring for alien plant proliferation during the operation phase to ensure that no alien invasion problems have developed as result of the disturbance, as per the Alien Invasive Management Plan for the project.
- » Woody alien plant species should be controlled on at least an annual basis using the appropriate alien control techniques as determined by the species present.

Residual Risks

Some erosion and alien plant invasion is likely to occur even with the implementation of control measures, but would have a low impact.

Decommissioning Phase

Impact Nature: Habitat Degradation due to Erosion and Alien Plant Invasion

Disturbance created during decommissioning will leave the development area vulnerable to erosion and alien plant invasion for several years.

	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Long-term (4)	Long-term (3)
Magnitude	Medium (3)	Minor (2)
Probability	Probable (3)	Improbable (2)
Significance	Low (24)	Low (12)
Status	Negative	Negative
Reversibility	Low	High
Irreplaceable loss of resources	Moderate	Low
Can impacts be mitigated?	Yes, with proper management and avoidance, this impact can be mitigated to a low level.	

Mitigation

- » Erosion management within the development area should take place in accordance with the Erosion Management and Rehabilitation Plan. This should make provision for monitoring of the development area for at least 3 years after the decommissioning phase.
- » All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.
- » There should be follow-up rehabilitation and revegetation of any remaining bare areas with indigenous perennial shrubs, grasses and trees from the local area, for at least 3 years after decommissioning.
- » Alien management at the site should take place according to the Alien Invasive Management Plan. This should make provision for alien monitoring and management annually for at least 3 years after decommissioning. Woody aliens should be controlled using the appropriate alien control techniques as determined by the species present. This might include use of herbicides where no practical manual means are feasible.

Residual Risks

Some erosion and alien plant invasion is likely to occur even with the implementation of control measures, but would have a low impact if effectively managed.

Impact Nature: Direct Faunal Impacts Due to Decommissioning Activities		
Due to disturbance, noise and the operation of heavy machinery, faunal disturbance due to decommissioning will extend beyond the footprint and impact adjacent areas to some degree. This will however be transient and restricted to the period while machinery is operational. In the long term, decommissioning should restore the ecological functioning and at least some habitat value to the affected areas.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (1)	Short-term (1)
Magnitude	Low (4)	Minor (3)
Probability	Probable (3)	Probable (3)
Significance	Low (18)	Low (15)
Status	Negative	Negative
Reversibility	Moderate	Moderate
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Although the noise and disturbance generated at the site during decommissioning is probably largely unavoidable, this will be transient and ultimately the habitat should be restored to something useable by the local fauna.	
Mitigation		
<ul style="list-style-type: none">» All personnel should undergo environmental induction with regards to fauna and, in particular, awareness about not harming or collecting species such as snakes, tortoises and owls, which are often persecuted out of superstition.» Any fauna threatened by the decommissioning activities should be removed to safety by an appropriately qualified environmental officer.» All vehicles should adhere to a low speed limit on site (30km/h for heavy vehicles and 40km/h for light vehicles) to avoid collisions with susceptible species such as snakes and tortoises.» All hazardous materials should be stored in the appropriate manner to prevent contamination of the site and ultimately removed from the site as part of decommissioning. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.» The site should be rehabilitated with locally occurring species to restore ecosystem structure and function.		
Residual Risks		
Although some components of disturbance cannot be avoided, the site itself would have low faunal abundance at decommissioning and no significant residual impacts are likely.		

6.4. Assessment of impacts of Avifauna

AVIFAUNAL SITE SENSITIVITY ASSESSMENT

Important avian microhabitats play an integral role within the landscape, providing nesting, foraging and reproductive benefits to the local avifauna. In order to ensure that the proposed development does not have a long term negative impact on the local avifauna, it is important to delineate these avian microhabitats within the broader project site. To this end an avian sensitivity map (6.2) was generated by integrating avian microhabitats present on the site.

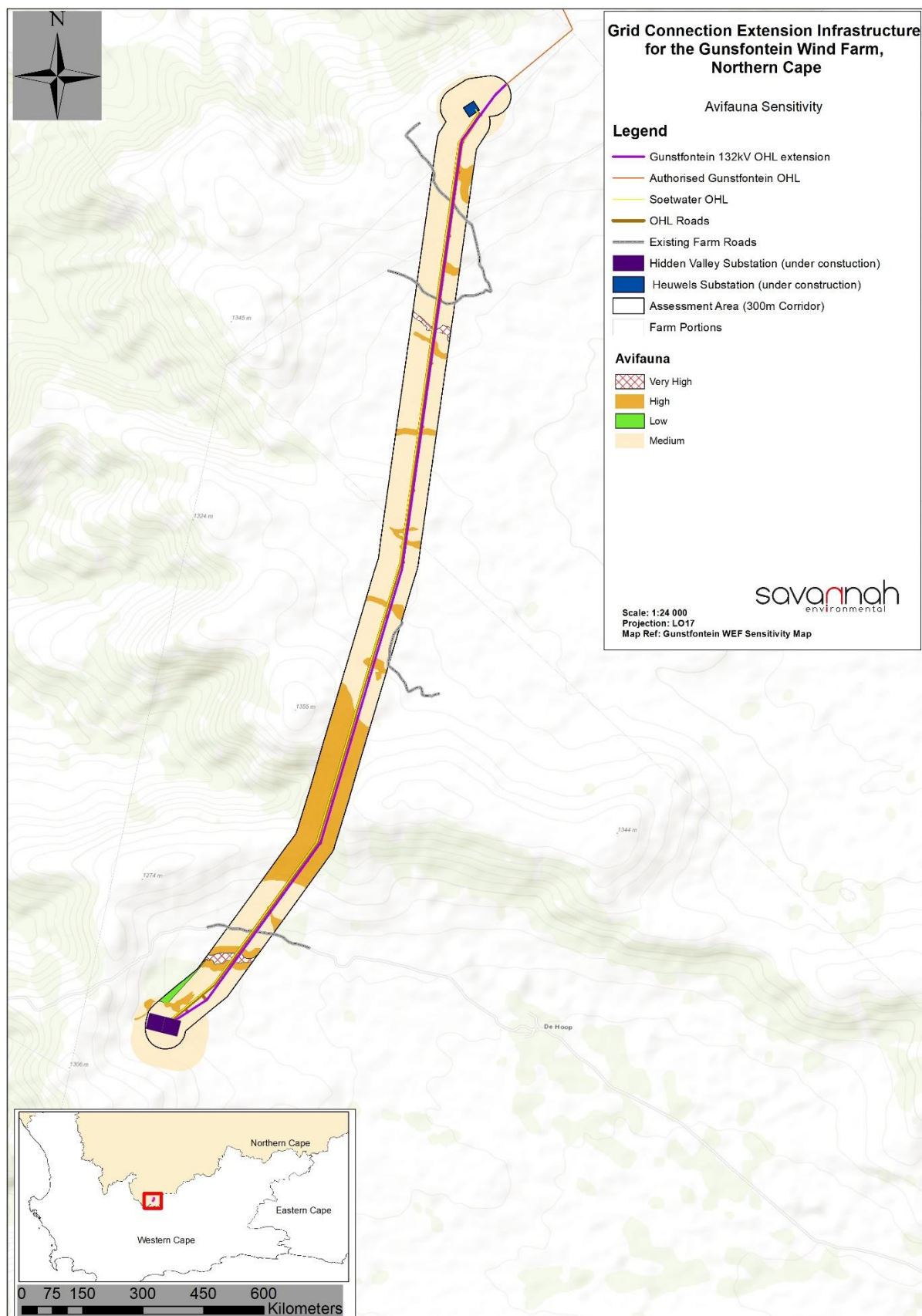


Figure 6.2: Avifaunal sensitivity map for the Gunstfontein Grid Extension, showing the Heuwels substation in the north and the Hidden Valley substation in the south.

The broader study area supports five main avifaunal microhabitats, which are referred to as the predominant vegetation, mountain ridges and cliffs, drainage lines and seepages, agricultural lands and ephemeral farm dams. The predominant vegetation is the most expansive habitat and supports a wide array of small passerines and ground-dwelling non-passerines, such as korhaan and francolin, and is therefore considered to be of Medium Sensitivity. During favourable conditions, focal habitats such as the drainage lines and seepages may support species which are more prone to power line collisions, such as waterfowl and in particular African Black Duck *Anas sparsa* though uncommon in the region, and are therefore considered to be of Medium-High sensitivity. Similarly, the man-made ephemeral farm dams may also support collision prone species such as waterfowl, ibises, and possibly Black Stork and Greater Flamingo, and are thus considered to be of Medium-High sensitivity. The agricultural lands are also considered to be of Medium-High sensitivity, as focal points for numerous large-bodied species during favourable conditions. Large aggregations of species such as South African Shelduck, Egyptian and Spur-winged Goose, and ibises, may be attracted, but also possibly Ludwig's Bustard and Blue Crane on rare occasions.

In addition to these areas of sensitivity, the proposed grid extension corridor also intersects a turbine exclusion zone identified during the pre-construction bird monitoring study (EWT, 2014). The point of intersection lies just to the north of the Hidden Valley substation, where the grid connection passes over mountain ridges. Raptors use the rising air currents over these ridges to foraging more efficiently, making them more susceptible to collisions with power lines and other infrastructure. The turbine exclusion zone was predicted by flight models, and the report stated that associated turbine infrastructure, including roads, power lines and buildings, should avoid the exclusions zones as far as possible (EWT, 2014). This turbine exclusion zone is therefore considered to be of high sensitivity.

The development of the grid connection infrastructure is estimated to generate low impacts on the avifauna, provided suitable mitigation measures are employed during construction and operation of the proposed project.

According to a position statement by Birdlife South Africa, the main concerns with grid connections related to energy facilities are the following:

- » Collision and electrocution caused when perching on or flying into power line infrastructure.
- » Habitat destruction and disturbance/exclusion of avifauna through construction (short-term) and maintenance (long-term) of new power line infrastructure.
- » Habitat destruction and disturbance of birds caused by the construction and maintenance of new roads and other infrastructure.

The predominant habitat on the site represents typical vegetation of the broader area, with no features of concern which are expected to be severely impacted by the proposed grid connection extension. Of the eleven (11) red-listed species that are known to occur in the broader area, seven (7) of these are likely to be affected in some way by the power line extension, namely Ludwig's Bustard, Martial Eagle, Verreaux's Eagle, Black Harrier, Karoo Korhaan, Southern Black Korhaan and Black Stork. While the development may have an insignificant impact on most of the species, it may nevertheless possibly result in occasional direct collisions with the power line cables and electrocutions. Species are expected to be impacted to varying degrees based on their life-history strategies, abundance and general susceptibility to the threats posed by power lines, as well as the type of pylons/towers constructed and appropriate marking of power cables with bird diverters.

ASSESSMENT OF POTENTIAL IMPACTS

Potential avifaunal impacts resulting from the proposed development of the Gunstfontein Grid Connection Extension Infrastructure would stem from a variety of different activities and risk factors associated with the pre-construction, construction and operational phases of the project including the following:

Pre-construction Phase

- » Human presence and uncontrolled access to the site may result in negative impacts on the avifauna through poaching and uncontrolled collection of fauna and flora for traditional medicine or other purpose.
- » Site clearing, and exploration activities for the grid connection may have a negative impact on avifaunal biodiversity if this is not conducted in a sensitive manner.

Construction Phase

- » Vegetation clearing for the grid connection and associated infrastructure will impact the local avifauna directly through habitat loss. Vegetation clearing will therefore lead potentially to the loss of avifaunal species, habitats and ecosystems as birds are displaced from their habitat.
- » Presence and operation of construction machinery on site. This will create a physical impact as well as generate noise, pollution and other forms of disturbance.
- » Increased human presence can lead to poaching, illegal fauna collecting and other forms of disturbance such as fire.

Operational Phase

- » The operation of the grid connection extension infrastructure will generate minor disturbance, particularly during maintenance of infrastructure, which may deter some avifauna from the area, especially red-listed avifaunal species which are less tolerant of disturbances.
- » Mortality among the local avifauna may result due to direct collisions with power lines and electrocution with power line infrastructure (Lehman et al., 2007, Jenkins et al., 2010).

Project specific impacts on particular groups of avifauna are as follows:

Habitat loss and disturbance of small passerines

For the smaller passerine species the most important impacts will involve temporary displacement from the area encompassed by the grid connection extension footprint as a result of minor habitat destruction and disturbance during construction. While numerous species will be impacted, all of these species have large distribution ranges and due to the temporary nature of the impact, will therefore experience insignificant population declines in the area, and not regionally or nationally. Some of the most abundant species which may be impacted, and which are also common in neighbouring habitats, include primarily Grey-backed Cisticola, Karoo Scrub Robin, Karoo Prinia, Cape Clapper Lark, Grey Tit, amongst others. The loss of habitat and disturbance will not be permanent during the operational phase of the grid connection extension infrastructure. The impacts in general can be expected to be minimal as these smaller species are far less susceptible to the associated impacts of power lines than larger-bodied species.

Habitat loss, disturbance and collision risk of medium terrestrial birds and raptors

Small to medium-sized non-passerines that may be impacted to some extent due to habitat loss and displacement include resident raptors such as Jackal Buzzard, Booted Eagle, Pale Chanting Goshawk,

Rock Kestrel and the terrestrial Southern Black Korhaan and Karoo Korhaan. While some of these species may be susceptible to collisions with power lines, this is not expected to have a major impact on most of these species. Their smaller size and hence better manoeuvrability, as well as sedentary lifestyle and knowledge of their environs, ensures that they have a much lower probability of colliding with power lines (Shaw 2013). Other groups of birds in this risk category include waterfowl, which are susceptible to collisions with power lines due to their fast flight (Bevanger 1994).

Habitat loss, disturbance and collision risk of large terrestrial birds and raptors

The group of primary concern is the medium to large non-passerines, which include the large terrestrial birds and diurnal raptors. Many of these are also red-listed, such as Ludwig's Bustard, Martial eagle, and Black Stork. Most of these species are susceptible to collisions with power lines owing to reduced ability to see the power lines and reduced manoeuvrability in flight to avoid collisions (Martin & Shaw, 2010; Jenkins *et al.*, 2010; Jenkin *et al.*, 2011; Shaw, 2013). However, the only species which are highly susceptible include Ludwig's Bustard and Black Stork (Jenkins *et al.*, 2010). An additional threat faced by the large raptors is electrocution when perched or attempting to perch on power line structures (Lehman *et al.*, 2007), but this depends largely on the type of pylons or towers used. Electrocutions can further be avoided to a large extent by employing suitable mitigation methods. Disturbances during construction of the grid connection is also expected to have a negative impact by temporarily displacing birds from foraging habitat. Hence it is essential that all impact mitigations are employed to ensure minimal potential disturbance and mortalities.

Planning & Construction Phase

Impact Nature: Direct Avifaunal Impacts During Construction – habitat loss and disturbance		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (5)	Low to Moderate (4)
Probability	Highly likely (4)	Probable (3)
Significance	Medium (32)	Low (21)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources	Low	Low
Can impacts be mitigated?	Although there will be some habitat loss that cannot be well mitigated, impacts on avifauna will be transient and of low magnitude during construction.	

Mitigation

- » Pre-construction walk-through of the power line route to identify areas of avifaunal sensitivity and where bird diverters should be attached.
- » The design of the proposed power line must be of a type or similar structure as endorsed by the Eskom-EWT Strategic Partnership on Birds and Energy, taking into account the mitigation guidelines recommended by Birdlife South Africa (Jenkins *et al.*, 2017).
- » Where necessary, deterrent devices such as bird guards should be mounted on relevant parts of the pylons to further reduce the possibility of electrocutions.
- » The power line should be marked with bird diverters along all high risk sections in order to make the lines as visible as possible to collision-susceptible species. Recommended bird diverters such as brightly coloured 'aviation' balls, thickened wire spirals, or flapping devices that increase the visibility of the lines should be fitted where considered necessary (collision hot-spots). These should be identified during the preconstruction walk-through.

- » Impact near to important habitats such as drainage lines and farm dams, which may serve as focal sites for various bird species, must be minimised.
- » The potential to 'stagger' the position of the power line pylons in relation to neighbouring power line poles/pylons should be investigated (taking other environmental and technical considerations into account), as this may assist in increasing the visibility of power lines to large flying birds such as bustards, which may occasionally fly through the area.
- » All personnel should undergo environmental induction with regards to avifauna and in particular awareness about not harming, collecting or hunting terrestrial species (e.g. bustards, korhaans, francolin), and owls, which are often persecuted out of superstition.
- » All construction vehicles should adhere to clearly defined and demarcated roads. No off-road driving to be allowed outside of the construction area.
- » The use of laydown areas within the footprint of the development should be used where feasible, to avoid habitat loss and disturbance to adjoining areas.
- » Any avifauna threatened by the construction activities should be removed to safety by the Environmental Control Officer (ECO) or appropriately qualified site Environmental Officer (EO).
- » If lights are to be used at night for ensuring that infrastructure on site is lit, this should be done with downward-directed low-UV type lights (such as most HPS bulbs), which do not attract insects and their avian predators, so as to minimise disturbance to birds flying over the site at night.
- » All vehicles (construction or other) accessing the site should adhere to a low speed limit on site (40km/h max) to avoid collisions with susceptible avifauna, such as nocturnal and crepuscular species (e.g. nightjars and owls) which sometimes forage or rest on roads, especially at night.
- » If any active raptor nests of priority species are discovered during the pre-construction walkthrough or during the construction phase, construction activities must be planned and managed in such a way to ensure that there is no direct disturbance to the nest or its immediate surroundings. If there are active nests near construction areas, these should be reported to the ECO and should be monitored until the birds have finished nesting and the fledglings have left the nest.
- » If holes or trenches need to be dug for pylons, these should not be left open and unattended for extended periods (> 1 week) of time as terrestrial avifauna or their flightless young may become entrapped therein. Holes should only be dug when they are required and should be used and filled shortly thereafter, alternately, excavated areas should be checked frequently for trapped fauna/ avifauna that require assistance to exit the excavated area.
- » Areas determined avifaunal no-go zones must be monitored by the EO to ensure no activities are undertaken within these areas.

Residual Risks

The loss of habitat associated with the grid connection corridor is an unavoidable consequence of the power line construction, and remains a residual impact even after mitigation and avoidance of more sensitive areas. The total residual impact of habitat loss would however be low. Although the use of power line structures that are considered safe for large birds will contribute to reducing the potential impacts of the power line, future collisions with power lines will remain a risk. This can be reduced further by 'staggering' the pylons in relation to neighbouring pylons during construction (subject to other environmental and technical considerations), rather than aligning the pylons of adjacent power lines, so that the profile of the combined power lines will be more visible to flying birds.

Operational Phase

Impact Nature: Direct Avifaunal Impacts During Operation – collisions, electrocution and disturbance		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Long-term (4)	Long-term (4)
Magnitude	Moderate (6)	Low (4)
Probability	Highly Likely (4)	Probable (3)
Significance	Medium (44)	Low (27)

Status	Negative	Negative
Reversibility	Low	Medium
Irreplaceable loss of resources	Low	Low
Can impacts be mitigated?	To a large extent, although bird flappers and other bird diverters are not 100% effective in reducing bird collisions and electrocutions, hence there would still be residual impact.	
Mitigation <ul style="list-style-type: none">» Regular monitoring of power lines should be undertaken to detect bird carcasses, to enable the identification of any potential areas of high impact to be marked with bird diverters (i.e. that have not already been marked at construction). Monitoring should be undertaken at least once a month for the first year of operation of the infrastructure.» Any movements by vehicle and personnel should be limited to within the footprint of the grid connection corridor and associated infrastructure, especially during routine maintenance.» Any raptor nests that are discovered on the power line structures should be reported to the Environmental Officer, while utmost care should be taken to not disturb these nests during routine maintenance procedures.		
Residual Risks <p>Deterrent devices such as bird guards to reduce electrocutions, and flight diverters to reduce the risk of collisions with power lines are not 100% effective and some residual impact is likely to occur.</p>		

Decommissioning Phase Impacts

Impact Nature: Avifaunal impacts due to decommissioning activities – some habitat disturbance/loss and disturbance due to traffic and presence of personnel.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (4)	Low to Moderate (3)
Probability	Highly Likely (4)	High Likely (4)
Significance	Low (28)	Low (24)
Status	Negative	Negative
Reversibility	Moderate	Moderate
Irreplaceable loss of resources	Low	Low
Can impacts be mitigated?	The disturbance impact can be mitigated to an extent as it will be transient and have no long term impact.	
Mitigation		
<ul style="list-style-type: none">» All infrastructure should be removed from the development site and disposed of in the appropriate manner.» All waste produced during decommissioning must be disposed of at a designated waste management facility, unless it can be appropriately re-used or recycled.» Environmental induction for all personnel on site to ensure that basic environmental principles are adhered to, and awareness about not harming or hunting terrestrial species (e.g. bustards, korhaans, and francolin), and owls, which are often persecuted out of fear or superstition.» This induction should also include awareness as to no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimizing wildlife interactions, and remaining within demarcated decommissioning areas.» All construction vehicles should adhere to clearly defined and demarcated roads. No off-road driving to be allowed in undisturbed natural areas outside of the decommissioning area.» All vehicles should adhere to a low speed limit (40km/h on site) to avoid collisions with susceptible species such as nocturnal and crepuscular species (e.g. nightjars, thick-knees and owls) which sometimes forage or rest along roads.» Any avifauna threatened by the activities should be removed to safety by the ECO or appropriately qualified environmental officer.		

- » If holes or trenches need to be dug, these should not be left open and unattended for extended periods of time as terrestrial avifauna or their flightless young may become entrapped in them. Holes should only be dug when they are required and should be used and filled shortly thereafter, or alternately monitored frequently to release any fauna that become entrapped.
- » No activity should occur near to active raptor nests of priority species should these be discovered prior to or during the decommissioning phase. If there are active nests of priority species near the decommissioning areas, these should be reported to the ECO and should be monitored until the birds have finished nesting and the fledglings left the nest.
- » All disturbed and cleared areas should be re-vegetated with indigenous perennial shrubs and grasses from the local area.

Residual Risks

Disturbance during the decommissioning phase is an unavoidable consequence, but will have low residual impact with implementation of the mitigations. Although the sensitivity of the affected habitat ranges from Medium to Very High, the overall residual impact on avifaunal habitat loss remains low as the habitat can be readily rehabilitated due to small footprint of the pylon infrastructure.

6.5. Assessment of impacts on Freshwater sources

Considering the infrastructure associated with this development will span any freshwater features within the assessment corridor, no direct impact on any features are anticipated. In addition, habitat quality and sensitivity of freshwater features, including delineations, were confirmed during the recent site assessment conducted by Simon Todd. Given the same development type (132kV overhead powerline) on the same footprint and assessment region of the Soetwater overhead powerline development (DEFF ref: 12/12/20/2370/2) the freshwater resource impact assessed in this report are derived from the Savannah Environmental 2015 ecological specialist report (including freshwater features) for the Soetwater OHL and the recent site visit conducted by Simon Todd.

Construction may lead to some indirect loss of or damage to drainage lines and wetland bodies present on site, or impacts that effect the catchment of these areas. This could lead to localised loss of wetland habitats and may lead to downstream impacts that affect a greater extent of wetlands or impact on wetland function. Where these habitats are already stressed due to degradation and transformation, the loss may lead to increased vulnerability (susceptibility to future damage) of the habitat.

Construction Phase

Impact Nature: Construction may lead to some indirect loss of or damage to perennial streams and drainage lines or impacts that could affect the catchment of these areas. Consequences may include: Increased loss of soil, loss of or disturbance to indigenous wetland vegetation, loss of sensitive wetland habitats, impairment of wetland function, change in channel morphology in downstream wetlands, potentially leading to further loss of wetland vegetation, and reduction in water quality in wetlands downstream.

	Without Mitigation	With Mitigation
Extent	Local (3)	Local (1)
Duration	Long-term (4)	Short-term (0)
Magnitude	Moderate (7)	Low (1)
Probability	Probable (3)	Improbable (2)
Significance	Medium (42)	Low (4)
Status	Negative	Neutral – Slightly Negative
Reversibility	Low	High
Irreplaceable loss of resources	Potential loss of important resources	No
Can impacts be mitigated?	Yes, to a large extent	
Mitigation		
» No pylons may be placed within the 32 m buffer areas surrounding drainage lines.		

- » No pylons may be placed within the 50 m buffer areas surrounding confirmed and delineated valley bottom and seepage wetlands.
- » No stockpiling or storage of any material may be allowed within these 32 m buffer areas for the drainage lines and 50 m buffer areas for confirmed and delineated wetlands.
- » Permanent roads crossing drainage lines should be specifically designed not to impede or disrupt the direction and flow of the water where practically possible. Requirements would also be determined by the Water Use Permitting processes.
- » Permanent roads crossing drainage lines should be placed in areas without extensive wetlands and preferably in rocky areas where the risk of disruption and erosion is low, where practically possible. All drainage line crossings should be inspected as part of the preconstruction activities to ensure that the optimal and acceptable locations have been chosen for river crossings, which would also form part of the Water Permitting processes.
- » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur.
- » All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential.
- » Roads and other disturbed areas should be regularly monitored for erosion problems and problem areas should receive follow-up monitoring to assess the success of the remediation.
- » Silt traps should be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas.
- » Topsoil should be removed and stored separately and should be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas.
- » Where practical, phased development and vegetation clearing should be applied so that cleared areas are not left unvegetated and vulnerable to erosion for extended periods of time.
- » Construction of gabions and other stabilization features on steep slopes to prevent erosion, if deemed necessary.
- » Reduced activity at the site after large rainfall events when the soils are wet. No driving off of hardened roads should occur immediately following large rainfall events until soils have dried out and the risk of bogging down has decreased

Residual Impacts

- » With appropriate avoidance and mitigation residual impacts will be very low.

6.6. Assessment of Impacts on Heritage Resources

Impact Nature: Archaeological and built environment heritage resources may be impacted by the construction phase of the proposed development

	With Mitigation
Extent	(Low 1) Localised within the site boundary
Duration	(High 5) Where manifest, the impact will be permanent.
Magnitude	(Low 1) One archaeological site was identified in proximity to the proposed OHL extension, however this site is located outside of the 300m assessment corridor and as such, the likelihood of impact is low.
Probability	(Low 1) Probability is low
Significance	(Low 1) $(1+5+1) \times 1 = 7$
Status	Neutral
Reversibility	(Low 1) Any impacts to heritage resources that do occur are irreversible
Irreplaceable loss of resources	(Low 1) Possible
Can impacts be mitigated?	Yes
Mitigation	
<ul style="list-style-type: none"> » A person must be trained as a site monitor to report any archaeological sites found during the development. Construction managers/foremen and/or the Environmental Officer (EO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. 	

- » Any substantial fossil remains (e.g. vertebrate bones and teeth, shells) encountered during excavation should be reported to SAHRA for possible mitigation by a professional palaeontologist (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za).
- » 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Nataasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
- » 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
- » Offences and penalties (as defined in the NHRA) in terms of heritage resources conditions contained in this EMPR will be in accordance with the requirements of the National Heritage Resources Act, in particular Section 51(1).
- » 38(4)e – The following conditions apply with regards to the appointment of specialists: i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;

Residual Impacts

- » If concentrations of historical and pre-colonial archaeological heritage material and/or human remains (including graves and burials) are uncovered during construction, all work must cease immediately in the vicinity of the find, the find must be protected *in situ* and be reported to the South African Heritage Resources Agency (SAHRA) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation (which may include test-pitting/sampling or systematic excavations and collections) may be required to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities continue
- » Should substantial fossil remains such as vertebrate bones and teeth, plant-rich fossil lenses, fossil wood or dense fossil burrow assemblages be exposed during construction, the responsible ECO/EO/Environmental Representative should safeguard these, preferably *in situ*, and alert SAHRA, i.e. The South African Heritage Resources Authority, as soon as possible (Contact details: Mr P. Hine P.O. Box 4637, Cape Town 8000. Tel: 021 462 4502. Email: cscheermeyer@sahra.org.za) so that appropriate action can be taken by a professional palaeontologist, at the Proponent's expense. Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g. stratigraphy, sedimentology, taphonomy) by a suitably qualified palaeontologist..

Impact Nature: Palaeontological heritage resources may be impacted by the construction phase of the proposed development

	With Mitigation
Extent	(Low 1) Localised within the site boundary.
Duration	(High 5) Where manifest, the impact will be permanent.
Magnitude	(Low 1) Almond (2016) conducted a desktop palaeontological assessment for the proposed OHL alignment and concluded that "the impact significance of the construction phase of the proposed electrical extension infrastructure - including switching station complex, 132 kV overhead power line, Soetwater Substation complex and ancillary developments - is assessed as LOW as far as palaeontological heritage is concerned"
Probability	(Low 1) It is possible that fossils Abrahamskraal formation would be impacted

Significance	Low (1+5+1)x1=7
Status	Neutral
Reversibility	(Low) Any impacts to heritage resources that do occur are irreversible
Irreplaceable loss of resources	(Low) Possible
Can impacts be mitigated?	Yes
Mitigation <ul style="list-style-type: none"> » A person must be trained as a site monitor to report any palaeontological sites found during the development. Construction managers/foremen and/or the Environmental Officer (EO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. » Any substantial fossil remains (e.g. vertebrate bones and teeth, shells) encountered during excavation should be reported to SAHRA for possible mitigation by a professional palaeontologist (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). 	
Residual Impacts <ul style="list-style-type: none"> » If concentrations of historical and pre-colonial palaeontological heritage material and/or human remains (including graves and burials) are uncovered during construction, all work must cease immediately in the vicinity of the find, the find must be protected <i>in situ</i> and be reported to the South African Heritage Resources Agency (SAHRA) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation (which may include test-pitting/sampling or systematic excavations and collections) may be required to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities continue » Should substantial fossil remains such as vertebrate bones and teeth, plant-rich fossil lenses, fossil wood or dense fossil burrow assemblages be exposed during construction, the responsible ECO/EO/Environmental Representative should safeguard these, preferably <i>in situ</i>, and alert SAHRA, i.e. The South African Heritage Resources Authority, as soon as possible (Contact details: Mr P. Hine P.O. Box 4637, Cape Town 8000. Tel: 021 462 4502. Email: cscheermeyer@sahra.org.za) so that appropriate action can be taken by a professional palaeontologist, at the Proponent's expense. Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g. stratigraphy, sedimentology, taphonomy) by a suitably qualified palaeontologist.. 	

6.7. Assessment of the 'Do Nothing' Alternative

The 'do-nothing' alternative (i.e. no-go alternative) is the option of not constructing the grid extension infrastructure for the Gunstfontein Wind Farm, as discussed previously in this report. Should this alternative be selected, there would be no environmental impacts within the grid extension corridor due to the construction and operation activities of grid extension infrastructure. The implementation of the 'do-nothing' alternative will result in the Gunstfontein Wind Farm not being able to evacuate the generated electricity to the national grid and will, therefore, render the development of the associated facilities and the operation thereof not feasible.

The 'do-nothing' alternative will do little to influence the renewable energy targets set by government due to competition in the sector, and the number of renewable energy projects being bid to the Department of Energy. In addition, the Northern Cape Province will not benefit from additional generated power being evacuated through the proposed grid extension infrastructure directly into the Province's grid. Therefore, from a regional perspective, the 'do-nothing' alternative is not preferred as there is a perceived loss of benefits for the regional area.

This would result in negative impacts at a local, regional and national scale from a socio-economic and economic perspective and is not considered desirable. The negative impacts of the "Do Nothing" alternative are considered to outweigh the positive impacts of this alternative. The 'Do nothing' alternative is, therefore, not a preferred alternative.

The proposed grid connection extension infrastructure is essential infrastructure for the evacuation of the generated power from the authorised Gunstfontein Wind Farm into the national grid. Should the 'do-nothing' alternative be implemented for Gunstfontein OHL Extension Connection, it will result in the inability of Gunstfontein Wind Farm to connect to the national grid and, therefore, result in the Gunstfontein Wind Farm being functionally inoperable. This would result in the lost opportunity for additional electricity from the Gunstfontein Wind Farm being fed into the national grid. Given that renewable energy such as that which would be generated by the wind farm is required in terms of the IRP, the option of not developing the Gunstfontein OHL Extension required for the Gunstfontein Wind Farm is not preferred.

CHAPTER 7: ASSESSMENT OF POTENTIAL CUMULATIVE IMPACTS

As identified and assessed in Chapter 6, the development of the grid extension infrastructure may have effects (positive and negative) on natural resources, the social environment and on the people living in a project area. The preceding impact assessment chapter has reported on the assessment of the impacts associated with the grid extension infrastructure for Gunstfontein Wind Farm largely in isolation (from other similar developments).

This chapter assesses the potential for the impacts associated with the grid extension infrastructure to become more significant when considered in combination with the other known or proposed projects within the area.

The grid extension corridor is proposed within the Central Strategic Transmission Corridor and the Komsberg Renewable Energy Development Zone. The location of the grid extension corridor is in close proximity to a number of other proposed, approved, and operational grid extension infrastructure, which in some cases is associated infrastructure for other renewable energy developments within the area.

Existing grid connection infrastructure located within the surrounding area of the corridor includes the existing Soetwater 132kV power line located 15m to the west of this proposed project.

7.1. Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Basic Assessment Report

This chapter of the BA Report includes the following information required in terms of Appendix 1: Content of BA Reports:

Requirement	Relevant Section
3(j)(i) an assessment of each identified potentially significant impact and risk, including cumulative impacts.	The cumulative impacts associated with the development of the Gunstfontein OHL Extension are included and assessed within this chapter.

7.2. Approach taken to Assess Cumulative Impacts

The cumulative impacts of the proposed grid connection infrastructure have been assessed through the consideration of other existing grid connection infrastructure located within the vicinity of the grid connection corridor, as well as other industrial type infrastructure which have resulted in vertical and/or horizontal disturbance within the landscape surrounding the proposed project.

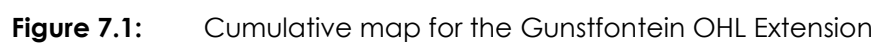
Process flow

The specialists appointed for the project were well versed with the other similar projects in the area, having worked on a variety of the other projects in the broader Sutherland area (Soetwater WEF, Karusa WEF, Roggeveld WEF). In addition, the Renewable Energy database of the DEFF (Quarter 2, 2020) was used to inform the specialists and the EAP of the other similar development types present in the area. Cumulative assessments in both this Basic Assessment report and that of the specialists therefore considered the latest Renewable Energy developments in the area, including their associated grid connection infrastructure, and made use of their expert knowledge, recent experience and understanding of similar developments, which informed the cumulative impacts, nature and significances. Where relevant to cumulative impacts,

specialist impacts, conclusions and mitigation measures were developed during the course of this Basic Assessment process (June 2020 – December 2020).

It is important to explore the potential for cumulative impacts as this will lead to a better understanding of these impacts and the potential for mitigation that may be required. The scale at which the cumulative impacts are assessed is important. For the development of the proposed grid connection infrastructure, the existing infrastructure and transformation in the directly surrounding areas will be considered which includes the following (refer to Figure 7.1):

- » The Soetwater 132kV power line currently under construction, parallel to which the proposed line is planned;
- » The authorised Gunstfontein Wind Farm power line from the Gunstfontein substation to the Heuwels substation;
- » The Heuwels and Hidden Valley substations (under construction);
- » The Soetwater Wind Farm and associated infrastructure (under construction);
- » The Karusa Wind Farm and associated infrastructure (including power lines) (under construction);
- » The authorised Gunstfontein Wind Farm.



From the above list it is clear that the area associated with the grid connection corridor, and the surrounding area has been transformed through the development of industrial infrastructure, including wind energy facilities and grid connection infrastructure. The landscape within which the development is proposed has, therefore, been transformed to reflect an industrial landscape. Therefore, the development of the proposed power line extension will not introduce a new type of infrastructure to the area, but will merely be adding to the already industrialised landscape. Considering the limited extent of the proposed grid connection infrastructure, the addition will be limited.

In addition, the grid extension corridor assessed for the grid extension infrastructure is located within a Renewable Energy Development Zone (REDZ) (i.e. the Komsberg REDZ), and a Strategic Transmission Corridor (i.e. the Central Transmission Corridor). These areas form part of the areas identified by the DEFF as geographical areas of strategic importance for the development of commercial renewable energy developments (REDZ) and large-scale grid infrastructure development projects (transmission corridors). Therefore, these areas are considered as nodes for the development of renewable energy and grid infrastructure projects.

The cumulative impacts of the other known existing grid infrastructure and the proposed Gunstfontein OHL Extension are qualitatively assessed in this Chapter, and has been considered within the specialist studies (refer to **Appendices D - F**) The following potential impacts are considered:

- » Cumulative impacts on ecological processes;
- » Cumulative impacts on avifauna;
- » Cumulative impacts on freshwater resources; and
- » Cumulative impacts on heritage resources.

7.3. Cumulative Impacts on Ecological Processes

- » There is a large amount of wind energy development in the area between Sutherland and Matjiesfontein. This is certainly likely to disproportionately affect the high-lying habitats of the area, which usually experience the majority of the footprint associated with wind energy development in the area. The site falls directly within the project areas of the Karusa and Soetwater wind farms which are currently under construction and is also immediately adjacent to the approved Great Karoo wind farm. As these are existing developments, they are considered to represent part of the cumulative impact baseline for the area. The primary concern associated with the current development would be the additional contribution of the power line extension to cumulative impacts in the area. The footprint of the power line extension is estimated at approximately 7,5ha during construction, which would be significantly reduced once the pylon footprint areas have recovered. In context of the generally intact nature of the area, this is seen as a very low contribution. As a result, the contribution of the current proposed grid connection infrastructure to overall cumulative impact from wind farm and grid infrastructure development in the area is low and is considered acceptable.

Nature: Impact on CBAs and broad-scale ecological processes The development of Gunstfontein WEF Grid Extension will potentially contribute to cumulative habitat loss and other cumulative impacts in the wider Roggeveld area.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local (2)

Duration	Long-term (4)	Long-term (4)
Magnitude	Low (2)	Moderate (6)
Probability	Improbable (2)	Probable (3)
Significance	Low (14)	Medium (36)
Status	Negative	Negative
Reversibility	High	Moderate
Irreplaceable loss of resources	Low	Low
Can impacts be mitigated	To some degree, but the majority of the impact results from the presence of the various facilities which cannot be well mitigated.	
Mitigation:		
» Ensure that sensitive habitats such as drainage features, pans and quartz patches are not within the development footprint.		
» Ensure that an alien invasive management plan and erosion management plan compiled for each project are effectively implemented at the site.		

7.4. Cumulative Impacts on Avifauna

- » The development of the grid connection infrastructure will contribute to cumulative impacts in the area and may potentially affect the ability to meet future conservation targets. However, the total footprint of the development would be less than 8ha, which is not considered to be a highly significant impact. It is however assessed as there are numerous other facilities and associated grid connections in the area and the cumulative impact of numerous power lines may generate a more significant impact overall.
- » Transformation of intact habitat would contribute to the fragmentation of the landscape and would potentially disrupt the connectivity of the landscape for fauna and flora and impair their ability to respond to environmental fluctuations. This is particularly a concern with regards to species and ecosystems with limited geographical distributions (Rudman et al., 2017). However, the expected habitat transformation for the proposed grid connection is minimal.
- » The erection of new power line corridors can also have a cumulative impact, which may only become discernible over many years. However, where new power lines follow the same route as existing lines (as would be the case with this proposed grid connection extension), the potential impacts can be reduced

According to the map of DEFF-registered projects as at December 2019, there are numerous renewable energy project applications in the broader area. The potential for cumulative impact of wind energy development with the associated grid connection infrastructure in the area is therefore a potential concern. The major footprint would be from the facilities themselves and the contribution of the current power line extension would be very low in comparison. As a result, the impact of the proposed power line extension on cumulative impacts in the area would be insignificant as the required extent of transformation would be low. The major concern would be with respect to the impacts on landscape connectivity more locally. The location of the current proposed grid connection extension adjacent to the approved Soetwater (Heuwels) to Karusa (Hidden Valley) grid connection (Arcus, 2015), is certainly a mitigating circumstance which would serve to further reduce the cumulative impact associated with the current development. This will contribute towards reducing the potential for collisions with large raptors and terrestrial birds (e.g. bustards) since the grid connection extension corridor will mostly be routing adjacent to an established power line which is currently under construction and which would also be fitted with bird flight diverters.

Impact Nature: Impact on avifaunal habitats, migration routes and nesting areas due to cumulative loss and fragmentation of habitat, as well collisions and electrocutions along the grid extension (dealt with specifically under Operational Impacts).		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local (2)
Duration	Long-term (4)	Long-term (4)
Magnitude	Low (4)	Low to Moderate (5)
Probability	Improbable (2)	Probable (3)
Significance	Low (18)	Medium (33)
Status	Negative	Negative
Reversibility	Moderate	Moderate
Irreplaceable loss of resources	Low	Low
Can impacts be mitigated	Impacts can be mitigated to some degree, but the majority of the long-term impact results from the presence of the grid connection and other developments in the area which cannot be well mitigated.	
Mitigation: » Ensure that monitoring is sufficiently frequent to detect collisions reliably and that any areas where regular collisions occur are fitted with flight diverters.		

7.6. Cumulative Impacts on Heritage (including archaeology, palaeontology and cultural landscape)

Based on the existing heritage information available for the proposed OHL route in addition to the fieldwork conducted by Booth (2012, 2015) and Almond (2015, 2016), it is unlikely that the proposed extension to the Gunstfontein 132kV OHL will negatively impact on significant heritage resources. There is no heritage objection to the proposed development and it is not expected that the project would contribute significantly to cumulative impacts.

7.7. Conclusion regarding Cumulative Impacts

Cumulative impacts are expected to occur with the development of the Gunstfontein OHL Extension throughout all phases of the project life cycle and within all areas of study considered as part of this BA report. The main aim for the assessment of cumulative impacts considering the development of the grid connection extension infrastructure is to identify associated cumulative impacts and determine whether the development will be acceptable within the landscape proposed for the development, and whether the loss, from an environmental and social perspective, will be acceptable without whole-scale change.

All cumulative impacts associated with the Gunstfontein OHL Extension will be of a low or moderate significance. A summary of the cumulative impacts is included in **Table 7.2** below.

Table 7.2: Summary of the cumulative impact significance of the grid connection extension infrastructure within the assessed grid connection extension corridor

Specialist assessment	Overall significance of impact of the proposed project considered in isolation	Cumulative significance of impact of the project and other projects in the area
Ecology	Low	Low
Avifauna	Low	Moderate
Heritage (archaeology, palaeontology and cultural landscape)	Low	Low

Based on the specialist cumulative assessment and findings, the development of the grid infrastructure for the Gunstfontein Wind Farm and its contribution to the overall impact of other grid infrastructure to be developed within the area, it can be concluded that the contribution of the project to cumulative impacts will be of a low to moderate significance depending on the impact being considered. There are no impacts or risks identified to be of a high significance or considered as unacceptable with the development of the proposed grid connection extension infrastructure within the assessed grid connection extension corridor. In addition, no impacts that will result in whole-scale change are expected to occur. Given the low to moderate significance of the cumulative impact of the project determined within this assessment, it was concluded that the development is acceptable from a cumulative impact perspective and may proceed.

CHAPTER 8: CONCLUSIONS, RECOMMENDATIONS

Gunstfontein Wind Farm (Pty) Ltd proposes the construction and operation of a grid connection extension for the Gunstfontein Wind Farm, near Sutherland in the Northern Cape Province in order to connect the authorised Gunstfontein Wind Farm to connect to the Eskom National Grid at the Hidden Valley Substation. The project will include the development of a double circuit power line extension and associated infrastructure.

The grid connection extension infrastructure is considered as essential infrastructure to the authorised Gunstfontein Wind Farm in order to enable the operation of the facility within the project site which has been authorised for the development.

A corridor 300m wide and 7.5km long, as well as 200m around the Heuwels (Soetwater) and Hidden Valley Substations (known as the grid connection corridor), was assessed within this BA process to allow for the optimisation of the grid connection extension infrastructure layout and to accommodate environmental sensitivities. The proposed grid connection extension infrastructure will be developed within this assessed grid connection corridor. The layout of the facility has been finalised and is submitted for approval along with this basic assessment report (refer Figure 8.1, Layout Map, Revision 1 December 2020). Please refer to Appendices D - F for specialist letters confirming the refined layout does not change any of their assessment, conclusions or findings. Similarly, the EMPr submitted along with this Basic Assessment report is submitted for approval along with the EA, should the project be granted positive authorisation.

The full length of the assessed 300m wide corridor traverses four affected properties, namely:

- » RE Portion 1 of the Farm Orange Fontein No. 203;
- » RE of the Farm Annex Orange Fontein No. 185;
- » RE of the Farm Leeuwe Hoek 183; and
- » The Farm De Hoop No. 202.

A summary of the recommendations and conclusions for the proposed project as determined through the BA process is provided in this Chapter 7.

8.1. Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Basic Assessment Report

This chapter of the BA Report includes the following information required in terms of Appendix 1: Content of BA reports:

Requirement	Relevant Section
3(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report	A summary of the findings of the specialist studies undertaken for the grid connection extension corridor has been included in section 8.2.
3(l) an environmental impact statement which contains (i) a summary of the key findings of the environmental impact assessment, (ii) a map at an appropriate scale which superimposes the proposed activity and its	An environmental impact statement containing the key findings of the environmental impacts of the Gunstfontein OHL Extension has been included as section 8.5. An environmental sensitivity and layout map of the grid

Requirement	Relevant Section
associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.	connection extension infrastructure has been included as Figure 8.1 which overlays the assessed grid connection extension <u>infrastructure</u> with the sensitive environmental features present within the corridor. A summary of the positive and negative impacts associated with the development of the grid connection extension infrastructure has been included in section 8.2.
3(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.	All conditions required to be included in the Environmental Authorisation for the grid connection extension infrastructure have been included in section 8.4
3(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.	A reasoned opinion as to whether the grid connection extension infrastructure associated with the Gunstfontein OHL Extension should be authorised has been included in section 8.6.

8.2. Evaluation of the grid connection extension infrastructure of the Gunstfontein OHL Extension

The preceding chapters of this report together with the specialist studies contained within **Appendices D - F** provide a detailed assessment of the potential impacts that may result from the development of the Gunstfontein OHL Extension. This chapter concludes the environmental assessment of the proposed development by providing a summary of the results and conclusions of the assessment. In doing so, it draws on the information gathered as part of the BA process, the knowledge gained by the environmental specialists and the EAP, and presents a combined and informed opinion of the environmental impacts associated with the project.

No environmental fatal flaws or impacts of high significance were identified in the detailed specialist studies conducted, and no impacts of unacceptable significance are expected to occur with the implementation of the recommended mitigation measures. These measures include, amongst others, the avoidance of sensitive features as specified by the specialists.

The potential environmental impacts associated with the grid extension infrastructure for the Gunstfontein Wind Farm identified and assessed through the BA process include:

Ecological Impacts (including freshwater impacts) - From the findings of the Ecological Impact Assessment it can be concluded that the grid extension corridor assessed for the development of the grid extension infrastructure is of medium to low ecological sensitivity. There are no impacts associated with the establishment of Gunstfontein WEF Grid Connection Extension that cannot be mitigated to a low significance. As a result, there are no specific long-term impacts associated with the grid extension infrastructure that cannot be reduced to an acceptable level through mitigation. There are no high residual impacts or fatal flaws associated with the development and it can be supported from a terrestrial ecology perspective. The specialist has indicated that the grid extension infrastructure for the Gunstfontein Wind Farm should be authorised, from an ecological perspective, subject to the implementation of the recommended mitigation measures. The following summarises the key findings and impacts of the ecological impact assessment:

- » Impacts on vegetation and listed or protected plant species resulting from power line construction activities (Low negative pre-mitigation, Low negative post mitigation)

- » Direct Faunal Impacts Due to Construction Activities (Low negative pre-mitigation, Low negative post mitigation)
- » Faunal Impacts due to Operation (Low negative pre-mitigation, Low negative post mitigation)
- » Habitat Degradation due to Erosion and Alien Plant Invasion (Low negative pre-mitigation, Low negative post mitigation)
- » Habitat Degradation due to Erosion and Alien Plant Invasion (Low negative pre-mitigation, Low negative post mitigation)
- » Direct Faunal Impacts Due to Decommissioning Activities (Low negative pre-mitigation, Low negative post mitigation)
- » Construction may lead to some indirect loss of or damage to perennial streams and drainage lines or impacts that could affect the catchment of these areas. Consequences may include: Increased loss of soil, loss of or disturbance to indigenous wetland vegetation, loss of sensitive wetland habitats, impairment of wetland function, change in channel morphology in downstream wetlands, potentially leading to further loss of wetland vegetation, and reduction in water quality in wetlands downstream. Rated medium negative without mitigation and low negative with mitigation.

Avifauna Impacts From the findings of the Avifaunal Impact Assessment it was concluded that the impacts on the avifauna would potentially be expected to be of high importance, but due to the relatively low frequency of occurrence of priority species throughout the site, the impacts are likely to be medium low and no high post-mitigation impacts are expected. The proposed grid connection extension route is considered viable from an avifaunal perspective for the following reasons: 1) the power line extension is relatively short (ca. 7.5km) and follows a relatively direct pathway between the Heuwels and Hidden Valley Substations, 2) the route intersects only one flight zone along a mountain ridge, and 3) the proposed grid connection corridor will follow a 132kV power line (currently under construction which will also be fitted with bird anti-collision devices, where required and applicable) for the entire length which may further reduce potential collision rates. There are no impacts associated with the grid connection extension that are considered to be of high significance and which cannot be mitigated to a medium to low level. Therefore, there are no fatal flaws from an avifaunal perspective that should prevent the development from proceeding. The following summarises the key findings and impacts of the avifaunal impact assessment:

- » Direct Avifaunal Impacts During Construction – habitat loss and disturbance (Medium negative without mitigation, low negative with mitigation)
- » Direct Avifaunal Impacts During Operation – collisions, electrocution and disturbance (Medium negative without mitigation, low negative with mitigation)
- » Avifaunal impacts due to decommissioning activities – some habitat disturbance/loss and disturbance due to traffic and presence of personnel (low negative without mitigation, low negative with mitigation)

Impacts on Heritage Resources – Impacts on archaeology, palaeontology and cultural landscape have been identified. No fatal flaws have been identified from a heritage perspective. The significance of the impacts will be low, with the implementation of the recommended mitigation measures. No heritage impacts of high significance are expected, and the development of the grid extension infrastructure is considered to be acceptable, subject to the implementation of the recommendations made by the specialist. The following summarises the key findings and impacts of the heritage impact assessment:

- » Archaeological and built environment heritage resources may be impacted by the construction phase of the proposed development (low with mitigation)

- » Palaeontological heritage resources may be impacted by the construction phase of the proposed development (low with mitigation)

Cumulative Impacts - The contribution of the project to cumulative impacts will range from low significance to moderate significance, depending on the impact being considered. There are, however, no identified impacts considered as presenting an unacceptable risk. In addition, no impacts that will result in whole-scale change are expected. The following cumulative impacts were determined in this assessment:

- » Cumulative impact on CBAs and broad-scale ecological processes (Low negative in isolation, medium negative considering other projects in the area).
- » Cumulative impact on avifaunal habitats, migration routes and nesting areas due to cumulative loss and fragmentation of habitat, as well collisions and electrocutions along the grid extension (dealt with specifically under Operational Impacts) (low negative in isolation, medium negative considering other projects in the area)
- » Based on the existing heritage information available for the proposed OHL route in addition to the fieldwork conducted by Booth (2012, 2015) and Almond (2015, 2016), it is unlikely that the proposed extension to the Gunstfontein 132kV OHL will negatively impact on significant heritage resources. There is no heritage objection to the proposed development and it is not expected that the project would contribute significantly to cumulative impacts.

8.3. Environmental Sensitivity of the Assessed Grid Connection Extension Corridor

From the specialist investigations undertaken for the grid connection extension infrastructure, sensitive areas/environmental features have been identified and demarcated within the grid connection extension corridor, which were discussed in further detail in Chapter 7.

The following combined sensitivity map was determined from the specialist studies:

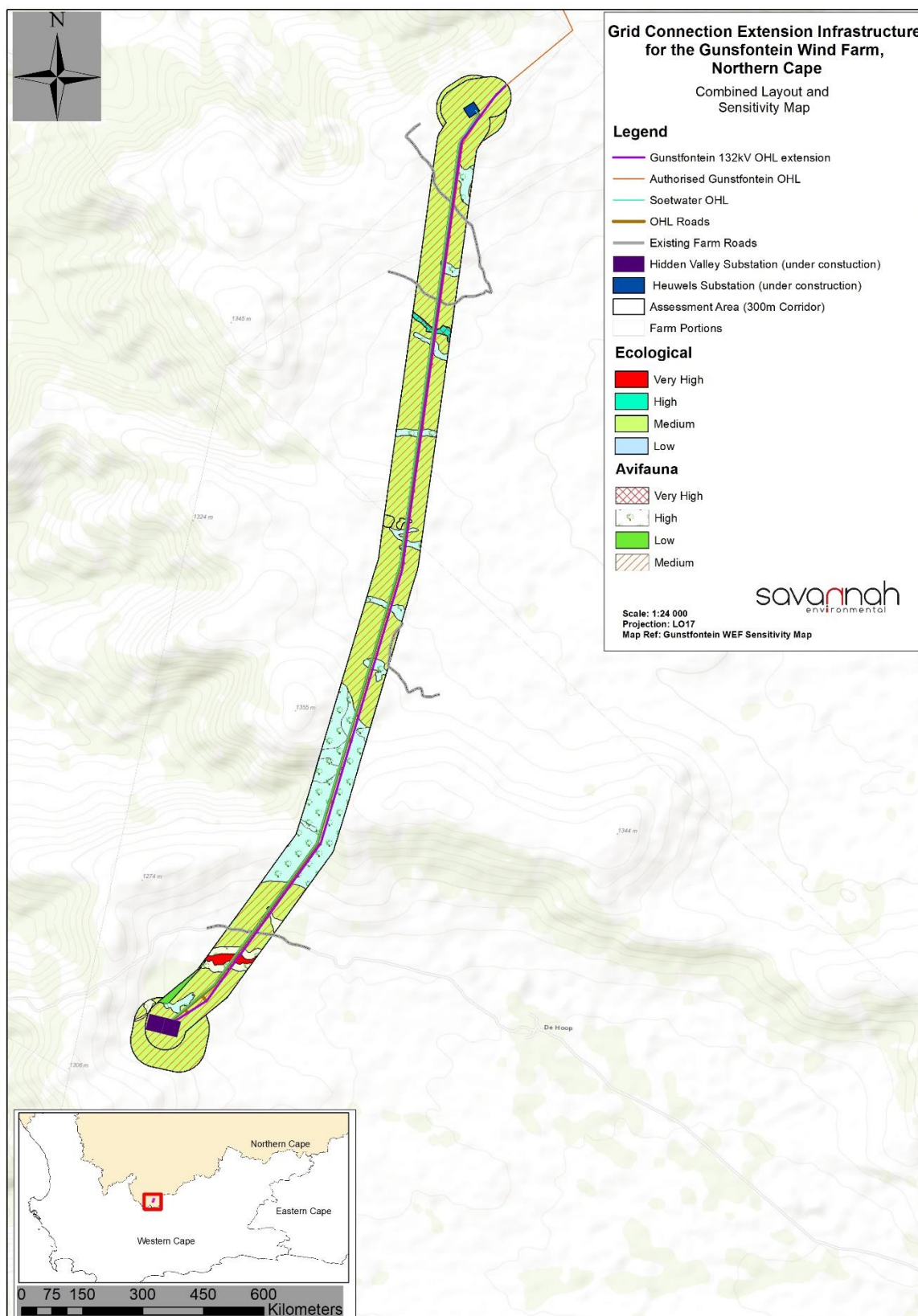


Figure 8.1: Final layout and environmental sensitivity map for the proposed grid connection infrastructure within the assessment corridor showing the final layout proposed for approval in this Basic Assessment Report.

The ecological specialist determined that the majority of the corridor is typical Central Mountain Shale Renosterveld considered to be medium ecological sensitivity. There are numerous small wetlands and drainage lines along the route that are considered to be high ecological sensitivity. In the southern part of the grid corridor, the route traverses some steep terrain which is also considered high sensitivity on account of the vulnerability of this area to disturbance. From a freshwater perspective, although there are several wetland features along the route, these would be easily avoided by the power line as they are narrow enough to be spanned. The ground over most of the route is rocky ground with shallow soils. These areas are quite resilient to disturbance with the result that the pylon disturbance footprints should recover well and the long-term extent of habitat loss would be low. There are no no-go areas along the grid corridor, although no pylons should be located within the areas classified as Very High sensitivity (refer to Figure 8.1 above).

The avifaunal specialist further determined that the broader study area supports five main avifaunal microhabitats, which are referred to as the predominant vegetation, mountain ridges and cliffs, drainage lines and seepages, agricultural lands and ephemeral farm dams, with the following sensitivity assigned to each:

- » Predominant vegetation: Medium sensitivity;
- » Drainage lines and seepages: Medium-High sensitivity;
- » Agricultural lands and ephemeral farm dams: Medium-High sensitivity; and
- » Mountain ridges and cliffs: High sensitivity.

In addition to these areas of sensitivity, the proposed grid extension corridor also intersects a turbine exclusion zone identified during the pre-construction bird monitoring study (EWT, 2014). The point of intersection lies just to the north of the Hidden Valley substation, where the grid connection passes over mountain ridges. Raptors use the rising air currents over these ridges to foraging more efficiently, making them more susceptible to collisions with power lines and other infrastructure. The turbine exclusion zone was predicted by flight models, and the report stated that associated turbine infrastructure, including roads, power lines and buildings, should avoid the exclusions zones as far as possible (EWT, 2014). This turbine exclusion zone is therefore considered to be of high sensitivity.

The development of the grid connection infrastructure is estimated to result in low impacts on the avifauna, provided suitable mitigation measures are employed during construction and operation of the proposed project. In terms of the sensitivity categories and the development, no pylons should be located in the Very High sensitivity areas, although it may be necessary for the service track to traverse these features. Pylons are considered acceptable in the High sensitivity areas, but specific mitigation such as the fitting of the bird flight diverters should take place in these areas where appropriate. Those parts of the route which are located close to existing roads should make use of the existing roads and new roads beneath the line should not be maintained after construction but rather rehabilitated.

No archaeological features were determined within the grid connection corridor. The entirety of the corridor is however located within a high palaeontological sensitivity region.

The specialist study sensitivity analysis determined that there were no no-go zones within the development corridor, although no placement of pylons within the very high sensitivity ecological sensitivity areas was determined necessary to protect hydrological and ecological habitats within the assessment corridor. No buffer zones or further zones of exclusion were determined by the specialists.

8.4. Environmental Costs of the grid connection extension infrastructure versus Benefits of the grid connection extension infrastructure

Limited environmental costs can be anticipated at a local and site-specific level and are considered acceptable provided the mitigation measures as outlined in the BA Report and the EMPr are implemented and adhered to. These environmental costs could include:

- » *A loss of biodiversity, flora and fauna due to the clearing of land for the construction and utilisation of land for grid connection extension infrastructure – The ecological assessment predicted the impacts to be low.*
- » *Avifauna impacts the project site and broader area appears fairly typical of the Succulent Karoo Biome. However, due to the presence of a fair number of priority species, the sensitivity of the avifauna can be considered to be of medium significance.*

Benefits of the grid connection infrastructure include the following:

- » The project will facilitate the connection of the Gunstfontein Wind Farm to the national grid. South Africa's per capita greenhouse gas emissions are amongst the highest in the world due to the reliance on fossil fuels. The Gunstfontein Wind Farm (with its associated grid connection extension solution) will contribute to achieving goals for implementation of renewable energy and sustaining a 'green' economy within South Africa. Without the grid connection extension infrastructure, this will not be possible.
- » Limited worker benefit through skills development and procurement of local labour.
- » The project indirectly contributes towards the Provincial and Local goals for the development of renewable energy as outlined in the respective IDPs.

The benefits of the grid connection extension infrastructure for the Gunstfontein Wind Farm are expected to occur at a national, regional and local level. As the costs to the environment at a site-specific level have been largely limited through the appropriate placement of the grid connection extension corridor within areas considered to be acceptable for the development of the grid connection extension infrastructure, as well as the consolidation of similar infrastructure in the area, the benefits of the project are expected to outweigh the environmental costs of the grid connection extension infrastructure.

8.5. Overall Conclusion (Impact Statement)

The following summary of positive and negative impacts and risks was determined for the proposed activity:

- » Impacts on vegetation and listed or protected plant species resulting from power line construction activities (Low negative pre-mitigation, Low negative post mitigation)
- » Direct Faunal Impacts Due to Construction Activities (Low negative pre-mitigation, Low negative post mitigation)
- » Faunal Impacts due to Operation (Low negative pre-mitigation, Low negative post mitigation)
- » Habitat Degradation due to Erosion and Alien Plant Invasion (Low negative pre-mitigation, Low negative post mitigation)
- » Habitat Degradation due to Erosion and Alien Plant Invasion (Low negative pre-mitigation, Low negative post mitigation)
- » Direct Faunal Impacts Due to Decommissioning Activities (Low negative pre-mitigation, Low negative post mitigation)

- » Construction may lead to some indirect loss of or damage to perennial streams and drainage lines or impacts that could affect the catchment of these areas. Consequences may include: Increased loss of soil, loss of or disturbance to indigenous wetland vegetation, loss of sensitive wetland habitats, impairment of wetland function, change in channel morphology in downstream wetlands, potentially leading to further loss of wetland vegetation, and reduction in water quality in wetlands downstream. Rated medium negative without mitigation and low negative with mitigation.
- » Direct Avifaunal Impacts During Construction – habitat loss and disturbance (Medium negative without mitigation, low negative with mitigation)
- » Direct Avifaunal Impacts During Operation – collisions, electrocution and disturbance (Medium negative without mitigation, low negative with mitigation)
- » Avifaunal impacts due to decommissioning activities – some habitat disturbance/loss and disturbance due to traffic and presence of personnel (low negative without mitigation, low negative with mitigation)
- » Archaeological and built environment heritage resources may be impacted by the construction phase of the proposed development (low with mitigation)
- » Palaeontological heritage resources may be impacted by the construction phase of the proposed development (low with mitigation)
- » Cumulative impact on CBAs and broad-scale ecological processes (Low negative in isolation, medium negative considering other projects in the area).
- » Cumulative impact on avifaunal habitats, migration routes and nesting areas due to cumulative loss and fragmentation of habitat, as well collisions and electrocutions along the grid extension (dealt with specifically under Operational Impacts) (low negative in isolation, medium negative considering other projects in the area)
- » Based on the existing heritage information available for the proposed OHL route in addition to the fieldwork conducted by Booth (2012, 2015) and Almond (2015, 2016), it is unlikely that the proposed extension to the Gunstfontein 132kV OHL will negatively impact on significant heritage resources. There is no heritage objection to the proposed development and it is not expected that the project would contribute significantly to cumulative impacts.

The construction and operation of the grid connection extension solution for the Gunstfontein Wind Farm in the Northern Cape has been proposed by Gunstfontein Wind Farm (Pty) Ltd. A technically viable grid connection extension corridor within which the infrastructure will be developed was proposed by the developer and assessed as part of the BA process. Please refer to Figure 8.1 of this report for the final layout map (Layout Map, Revision 1 December 2020) that is proposed for approval along with the environmental authorisation, should the project be granted approval. The assessment of the environmental suitability of the grid connection extension corridor for the development of the proposed grid connection extension infrastructure was undertaken by independent specialists and their findings have informed the results of this BA Report.

The exact alignment of the extension power line has been informed by specialist inputs and technical considerations, and allows for specific avoidance of sensitive features within the corridor. The layout as depicted in **Figure 8.1** (Layout Map, Revision 1 December 2020) was refined based on specialist input and technical considerations and is therefore considered the most suitable from a technical viewpoint (i.e. offering a viable solution which avoids the existing and planned infrastructure in the immediate vicinity, whilst remaining close to the Soetwater power line to allow for sharing of access roads where possible), and environmental viewpoint (i.e. avoiding the sensitive features as determined by specialist inputs). Please refer to Appendices D - F for specialist letters confirming the refined layout does not change any of their assessment, conclusions or findings. It is requested that the layout depicted in **Figure 8.1** (Layout Map,

Revision 1 December 2020) be approved along with the Environmental Authorisation (i.e. be approved as the final layout).

The specialist findings have indicated that there are no identified environmental fatal flaws or impacts of a high significance (following the implementation of mitigation) associated with the implementation of the grid connection extension infrastructure. The preferred grid connection extension option is therefore the technically preferred option, which is a direct connection of the Gunstfontein Wind Farm to the Hidden Valley Substation within the assessed corridor. All impacts associated with the project establishment within the grid connection extension corridor can be mitigated to acceptable levels or enhanced through the implementation of the recommended mitigation or enhancement measures.

Through the assessment of the development of the grid connection extension infrastructure within the grid connection extension corridor and the implementation of the preferred grid connection extension option, it can be concluded that the proposed project is environmentally acceptable (subject to the implementation of the recommended mitigation measures) with no unacceptable impact significance of whole-scale change.

8.6. Overall Recommendation

Considering the findings of the independent specialist studies, the impacts identified, the grid connection extension corridor proposed by the developer, the avoidance of sensitive environmental features within the grid connection extension corridor where possible, as well as the potential to further minimise the impacts to acceptable levels through mitigation, it is the reasoned opinion of the EAP that the development of the grid connection extension infrastructure for Gunstfontein Wind Farm is acceptable within the landscape and can reasonably be authorised to be developed within the assessed grid connection extension corridor.

The following infrastructure would be included within an authorisation issued for the project:

- » a single- or double-circuit 132kV overhead power line; and
- » associated infrastructure;
- » A single 132kV incoming line bay at the Hidden Valley substation of up to 1ha, located within the HV yard of the substation (separately authorised).

The following key conditions would be required to be included within an authorisation issued for the grid connection extension infrastructure:

- » A 10-year validity period is requested for the Environmental Authorisation if approved by the competent authority.
- » The grid connection extension infrastructure layout map (Refer Figure 8.1, Layout Map, Revision 1 December 2020) should be approved along with the environmental authorisation, should one be issued for the project.
- » The EMPr (refer Appendix G of this BAR) should be approved along with the environmental authorisation, should one be issued for the project.
- » With appropriate avoidance and mitigation measures, detailed in Chapter 6 and 7, the freshwater residual impacts will be very low.
- » All mitigation measures detailed within this BA Report, as well as the specialist reports contained within **Appendices D to F**, are to be implemented.

- » The EMPr as contained within **Appendix G** of this BA Report should form part of the contract with the Contractors appointed to construct and maintain the grid connection extension infrastructure in order to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of the infrastructure is considered key in achieving the appropriate environmental management standards as detailed for this project.
- » An ecological pre-construction walk-through by an ecologist to survey for species of conservation concern that would be affected and that can be translocated must be undertaken prior to the commencement of the construction phase. Relevant permits must be obtained where required.
- » Before construction commences individuals of listed species within the development footprint that would be affected by the infrastructure and associated servitudes must be counted and marked and translocated, where deemed necessary, by the ecologist conducting the pre-construction walk-through survey. Permits from the relevant provincial authorities, i.e. the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform must be obtained before the individuals are disturbed.
- » A pre-construction walk-through of the power line route to identify heritage sites that will be impacted by the grid connection extension infrastructure must be undertaken prior to the commencement of the construction phase.
- » Monitoring of the 132kV power line must be undertaken as per the requirements included in the Avifauna Impact Assessment Report (**Appendix E**).
- » A chance find procedure must be developed and implemented in the event that archaeological or palaeontological resources are found during the construction of the grid connection infrastructure. In the case where the proposed development activities bring these materials to the surface, work must cease and SAHRA must be contacted immediately.

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