# GRID CONNECTION INFRASTRUCTURE FOR THE 400MW RBGP2 GAS-TO-POWER PLANT, RICHARDS BAY, KWAZULU-NATAL PROVINCE

KwaZulu-Natal Province

Scoping Report

December 2020

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# PROJECT DETAILS

| | | |
|---|---|---|
| **Title** | : | Environmental Impact Assessment Process: Scoping Report for the Grid connection infrastructure for the 400MW RBGP2 gas-to-power plant, Richards Bay, Kwazulu-Natal Province |
| **Authors** | : | Savannah Environmental (Pty) Ltd<br>Jo-Anne Thomas<br>Gideon Raath |
| **Client** | : | Richards Bay Gas to Power 2 (Pty) Ltd |
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| **Report Status** | : | Final Report for Authority Decision Making |
| **Date** | : | December 2020 |

**When used as a reference this report should be cited as:** Savannah Environmental (2020) Final Scoping Report for the Grid connection infrastructure for the 400MW RBGP2 gas-to-power plant, Richards Bay, Kwazulu-Natal Province.

# PURPOSE OF THE SCOPING REPORT AND INVITATION TO COMMENT

The Applicant, **Richards Bay Gas Power 2 (Pty) Ltd (RBGP2)**, is proposing the development of grid connection infrastructure in order to connect the authorised 400MW gas to power facility to the national grid. The project is located south west of Richards Bay within the jurisdiction of the City of uMhlathuze Local Municipality and the King Cetshwayo District Municipality, KwaZulu-Natal Province. The gas to power facility and associated grid connection infrastructure will be bid by RBGP2 into the Risk Mitigation IPP Procurement Programme (RMIPPPP) initiated by the Independent Power Producer Office (IPP Office). This programme calls for the procurement of up to 2000MW of dispatchable generation capacity from a range of technologies. This allocation is in accordance with the new generation capacity required as specified in the Integrated Resource Plan (IRP) 2019 and accompanying ministerial determination from the Minister for the Department of Mineral Resources and Energy (DMRE) to which the National Energy Regulator of South Africa (NERSA) has concurred.

Richards Bay Gas Power 2 (Pty) Ltd received Environmental Authorisation in 2016 for a 400MW gas-to-power plant located within Zone 1F of the Richards Bay IDZ. This authorisation included the connection of this facility via a 132kV connection to the Indus Substation bordering the site. Through consultation with Eskom, it has been determined that this connection is no longer feasible.

The proposed grid connection infrastructure includes development of an overhead power line and switching station to connect the authorised RBGP2 400MW gas-to-power facility to the national grid at a feasible grid connection point to the south of the power station site. The power line will be constructed at 132kV or 275kV (and operated at 132kV) and will connect to the Eskom substation via a 132kV switching station to a feasible connection point to the south of the power plant site. The proposed power line is ~8.5km long and includes an assessment corridor of 200m. Two alternative power line corridors of up to 200m in width are being considered in the EIA process. The assessment of a wider corridor will allow for the optimisation of the power line within the corridor, avoiding environmental sensitivities and addressing any site-specific technical and landowner conditions. Only one feasible location for the switching station has been identified. Where existing roads along the power line servitude and to the switching station sites are not available, new access roads will be required to be constructed.

Richards Bay Gas Power 2 (Pty) Ltd appointed Savannah Environmental as the independent environmental consultant to undertake the Environmental Impact Assessment (EIA) for the proposed project. The EIA process is being undertaken in accordance with the requirements of the 2014 EIA Regulations, as amended, promulgated in terms of the National Environmental Management Act (NEMA; Act No. 107 of 1998).

This Scoping Report represents the findings of the Scoping Phase of the EIA process and contains the following chapters:

- **Chapter 1** provides background to the proposed project and the environmental impact assessment process.
- **Chapter 2** provides a description of the project, including feasible alternatives identified and considered for the project and the need and desirability of the project.
- **Chapter 3** outlines the strategic legal context for energy planning in South Africa.
- **Chapter 4** describes the existing biophysical and social environment within the study area.
- **Chapter 5** outlines the approach to undertaking the Scoping/EIA process.

- **Chapter 6** provides an identification and evaluation of the potential issues associated with the proposed grid connection infrastructure.
- **Chapter 7** presents the conclusions of the scoping evaluation.
- **Chapter 8** describes the Plan of Study (PoS) for the EIA phase.
- **Chapter 9** provides references used in the compilation of the Scoping Report.

The Scoping Report was made available for review from **13 November – 14 December 2020** at http://www.savannahsa.com/public-documents/. All comments received and recorded during the 30-day review and comment period have been included, considered and addressed within this final Scoping report for the consideration of the National Department of Environment, Forestry and Fisheries (DEFF).

# EXECUTIVE SUMMARY

Richards Bay Gas Power 2 (Pty) Ltd (RBGP2) is proposing the development of grid connection infrastructure in order to connect the authorised 400MW gas to power facility to the national grid. The project is located south west of Richards Bay within the jurisdiction of the City of uMhlathuze Local Municipality and the King Cetshwayo District Municipality, KwaZulu-Natal Province. The gas to power facility and associated grid connection infrastructure will be bid by RBGP2 into the Risk Mitigation IPP Procurement Programme (RMIPPPP) initiated by the Independent Power Producer Office (IPP Office). This programme calls for the procurement of up to 2000MW of dispatchable generation capacity from a range of technologies. This allocation is in accordance with the new generation capacity required as specified in the Integrated Resource Plan (IRP) 2019 and accompanying ministerial determination from the Minister for the Department of Mineral Resources and Energy (DMRE) to which the National Energy Regulator of South Africa (NERSA) has concurred.

Richards Bay Gas Power 2 (Pty) Ltd received Environmental Authorisation in 2016 for a 400MW gas-to-power plant located within Zone 1F of the Richards Bay IDZ. This authorisation included the connection of this facility via a 132kV connection to the Indus Substation bordering the site. Through consultation with Eskom, it has been determined that this connection is no longer feasible.

The proposed grid connection infrastructure (refer to **Figure 1**) includes development of an overhead power line and switching station to connect the authorised RBGP2 400MW gas-to-power facility to the national grid at a feasible grid connection point to the south of the power station site. The power line will be constructed at 132kV or 275kV (and operated at 132kV) and will connect to the Eskom substation via a 132kV switching station to a feasible connection point to the south of the power plant site. The proposed power line is ~8.5km long and includes an assessment corridor of 200m. Following discussion with the landowners and technical assessment of the corridors, it was identified that an additional 35m is required to allow for appropriate placement of the powerline within the RBIDZ Phase 1F. This additional 35m zone will also therefore be assessed in the EIA phase, in addition to the two alternative power line corridors of up to 200m in width. The assessment of a wider corridor will allow for the optimisation of the power line within the corridor, avoiding environmental sensitivities and addressing any site-specific technical and landowner conditions. Only one feasible location for the switching station has been identified. Where existing roads along the power line servitude and to the switching station sites are not available, new access roads will be required to be constructed.

### 1. Environmental Permitting Requirements

The proposed grid connection infrastructure triggers the need for following environmental permits:

**Environmental Authorisation (EA)** from the National Department of Environment, Forestry and Fisheries (DEFF), in consultation with the KwaZulu-Natal Department of Agriculture, Environmental Affairs and Rural Development, in accordance with the requirements of the National Environmental Management Act (No. 107 of 1998) (NEMA) and Environmental Impact Assessment (EIA) Regulations (GNR 326).

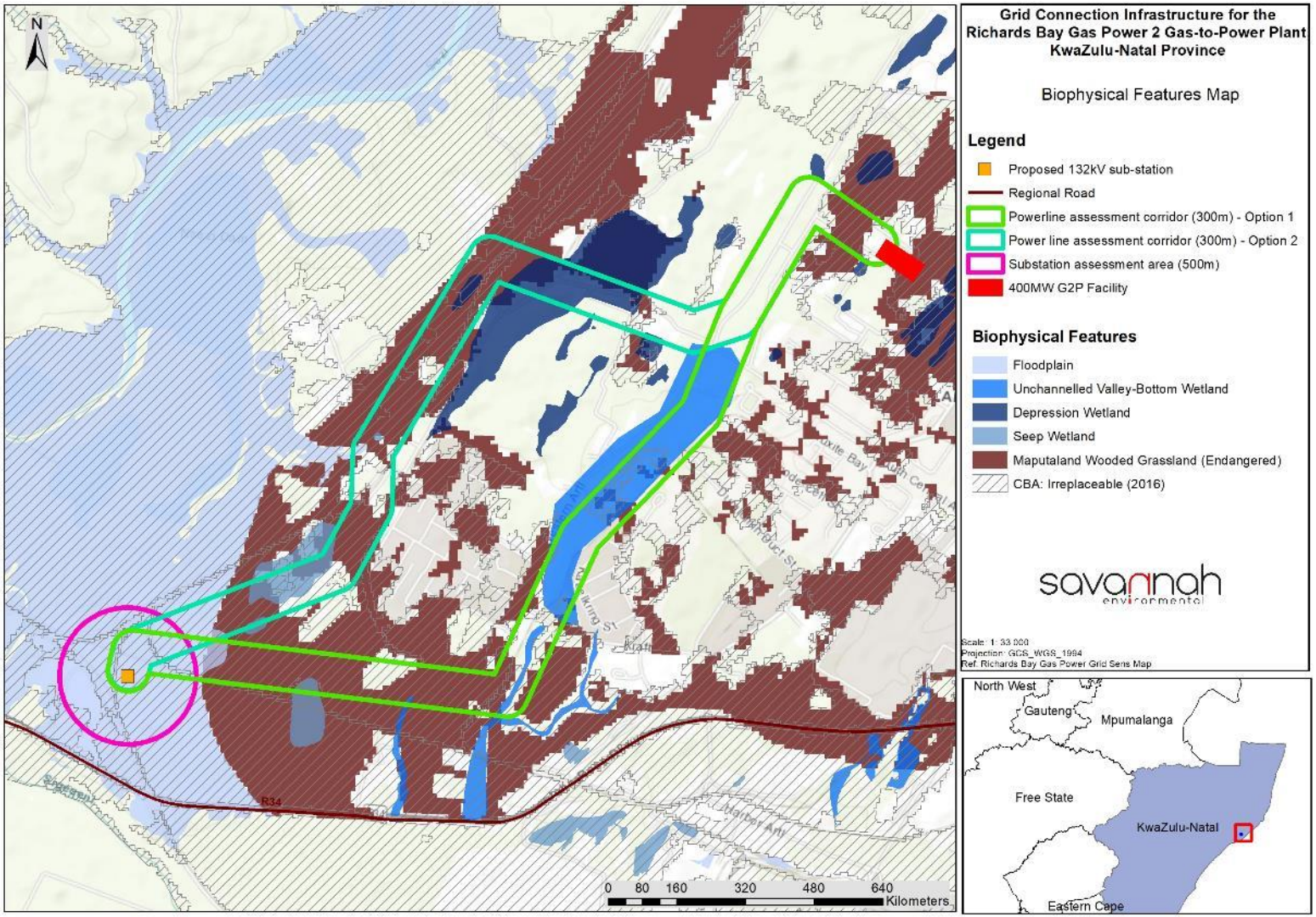


**Figure 1**: Biophysical features map from the results of the scoping evaluation for the grid connection infrastructure project.

Richards Bay Gas Power 2 (Pty) Ltd appointed Savannah Environmental as the independent environmental consulting company in accordance with NEMA and Regulations 21 to 24 of the 2014 EIA Regulations (GNR 326) in support of an application for Environmental Authorisation (EA).

The EIA process comprises of two (2) phases and involves the identification and assessment of potential environmental impacts through the undertaking of independent specialist studies, as well as public participation. The process followed in these two phases is as follows:

- The **Scoping Phase** includes the identification of potential issues associated with the project through a desktop study (considering existing information) and consultation with affected parties and key stakeholders. Following a public review period of the Scoping report, this phase culminates in the submission of a final Scoping Report and Plan of Study for the EIA to the Competent Authority (CA) for consideration and acceptance.
- The **EIA Phase** involves a detailed assessment of the potentially significant positive and negative impacts (direct, indirect, and cumulative) identified in the Scoping Phase through the undertaking of detailed specialist investigations and public consultation. Following a public review period of the EIA Report, this phase culminates in the submission of a final EIA Report and an Environmental Management Programme (EMPr), including recommendations of practical and achievable mitigation and management measures, to the CA for final review and decision-making.

In terms of GNR 779 of 01 July 2016, the National DEFF has been determined as the CA for all projects which relate to the Integrated Resource Plan for Electricity (IRP) 2010 – 2030, and any updates thereto. Through the decision-making process, the DEFF will be supported by the KwaZulu-Natal Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) as the commenting authority.

## 2. Potential Impacts Identified

Potential impacts associated with the development of the grid connection infrastructure are expected to occur during both the construction and operation phases. Potential environmental impacts and risks identified to be associated with the development of the proposed project include:

- Construction phase impacts, such as temporary air emissions (dust and vehicle emissions), noise, solid waste and wastewater generation, and Occupational Health and Safety (OHS) issues such as the risk of preventable accidents leading to injuries and/or fatalities.
- Impacts on land capability and soils, specifically relating to the loss of land for agricultural activities and soil erosion during both construction and operation.
- Impacts on ecology, including flora, fauna and wetland areas, specifically during the construction phase of the development.
- Impacts on avifauna associated with habitat loss, disturbance and mortalities during the construction and operation phases.
- Impacts on visual quality of the area associated with construction activities and operation of the infrastructure.
- Impacts on heritage sites, such as direct impacts on below-ground archaeological or palaeontological deposits as a result of ground disturbance during construction.

- Impacts on the social environment, including positive impacts associated with job creation and potential negative intrusion impacts during construction.
- Cumulative impacts associated with the proposed development and other similar infrastructure in the broader area.

A preliminary evaluation of the extent and significance of potential impacts associated with the development of the project have been detailed in Chapter 6. The conclusion of the findings of the Scoping Study is that the potential impacts identified to be associated with the construction and operation of the grid connection infrastructure are anticipated to be at a site or localised level, with few impacts extending from a local to national extent which includes both positive and negative impacts. The primary impact arising at a national level will be the positive impact associated with the connection of the 400MW gas-to-power plant enabling the transmission of the energy generated at this facility into the national grid.

## 3. Overall Conclusion and Fatal Flaw Analysis

The findings of the desktop Scoping Study indicate that no environmental fatal flaws were identified to be associated with the development area at this stage in the process. Features within the larger area have, however, been identified as 'no-go' areas or areas of potential sensitivity should be avoided by the development footprint. These features are related to natural wetlands found within the development corridor only, for which appropriate no-go buffer zones must be determined during the EIA phase, to be incorporated into the final designs. The consideration of a broader corridor for the power line and a larger study area for the switching station will, however, allow for the opportunity to avoid these sensitivities during the final design phase.

These conclusions will be confirmed through the EIA Phase assessment, which will include independent specialist assessments. No recommendation regarding a preferred power line corridor has been made at this stage. Both alternatives and the broader switching station site will be assessed in detail in the EIA Phase.

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# CHAPTER 1 INTRODUCTION

Richards Bay Gas Power 2 (Pty) Ltd (RBGP2) is proposing the development of grid connection infrastructure in order to connect the authorised 400MW gas to power facility to the national grid. The project is located south west of Richards Bay within the jurisdiction of the City of uMhlathuze Local Municipality and the King Cetshwayo District Municipality, KwaZulu-Natal Province. The gas to power facility and associated grid connection infrastructure will be bid by RBGP2 into the Risk Mitigation IPP Procurement Programme (RMIPPPP) initiated by the Independent Power Producer Office (IPP Office). This programme calls for the procurement of up to 2000MW of dispatchable generation capacity from a range of technologies. This allocation is in accordance with the new generation capacity required as specified in the Integrated Resource Plan (IRP) 2019 and accompanying ministerial determination from the Minister for the Department of Mineral Resources and Energy (DMRE) to which the National Energy Regulator of South Africa (NERSA) has concurred.

## 1.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Scoping Study

This Scoping Report has been prepared in accordance with the requirements of the EIA Regulations published on 08 December 2014 (as amended) promulgated in terms of Chapter 5 of the National Environmental Management Act (Act No 107 of 1998). This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of Scoping Report:

| Requirement | Relevant Section |
|---|---|
| (a)(i) the details of the EAP who prepared the report and (ii) the expertise of the EAP to carry out scoping procedures; including a curriculum vitae | The details of the EAP has been who prepared the report is included in **Section 1.4**. The Curriculum vitae of the Savannah Environmental team has been included as **Appendix A**. |
| (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 power line corridor and switching station alternatives has been included under **Section 1.1** and within **Table 1.1**. Full details on properties, portions, SG IDs and portions are included in Appendix E. |
| (c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken | A locality map illustrating the location of the power line corridor and switching station alternatives has been included as **Figure 1.1** in this chapter. |

The nature and extent of the grid connection infrastructure, as well as the potential environmental impacts associated with the construction, operation and decommissioning phases of infrastructure of this nature is explored in detail in this Scoping Report. This Scoping Report consists of the following chapters:

» **Chapter 1** provides background to the proposed project and the environmental impact assessment process.

- **Chapter 2** provides a description of the project, including feasible alternatives identified and considered for the project and the need and desirability of the project.
- **Chapter 3** outlines the strategic legal context for energy planning in South Africa.
- **Chapter 4** describes the existing biophysical and social environment within the study area.
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- **Chapter 7** presents the conclusions of the scoping evaluation.
- **Chapter 8** describes the Plan of Study (PoS) for the EIA phase.
- **Chapter 9** provides references used in the compilation of the Scoping Report.

## 1.2 Overview of the Proposed Project

Richards Bay Gas Power 2 (Pty) Ltd received Environmental Authorisation in 2016 for a 400MW gas-to-power plant located within Zone 1F of the Richards Bay IDZ. This authorisation included the connection of this facility via a 132kV connection to the Indus Substation bordering the site. Through consultation with Eskom, it has been determined that this connection is no longer feasible.

The proposed grid connection infrastructure includes development of an overhead power line and switching station to connect the authorised RBGP2 400MW gas-to-power facility to the national grid at a feasible grid connection point to the south of the power station site. The power line will be constructed at 132kV or 275kV (and operated at 132kV) and will connect to the Eskom substation via a 132kV switching station to a feasible connection point to the south of the power plant site. The proposed power line is ~8.5km long and includes an assessment corridor of 200m. Two alternative power line corridors of up to 200m in width are being considered in the EIA process. The assessment of a wider corridor will allow for the optimisation of the power line within the corridor, avoiding environmental sensitivities and addressing any site-specific technical and landowner conditions. Only one feasible location for the switching station has been identified. Where existing roads along the power line servitude and to the switching station sites are not available, new access roads will be required to be constructed.

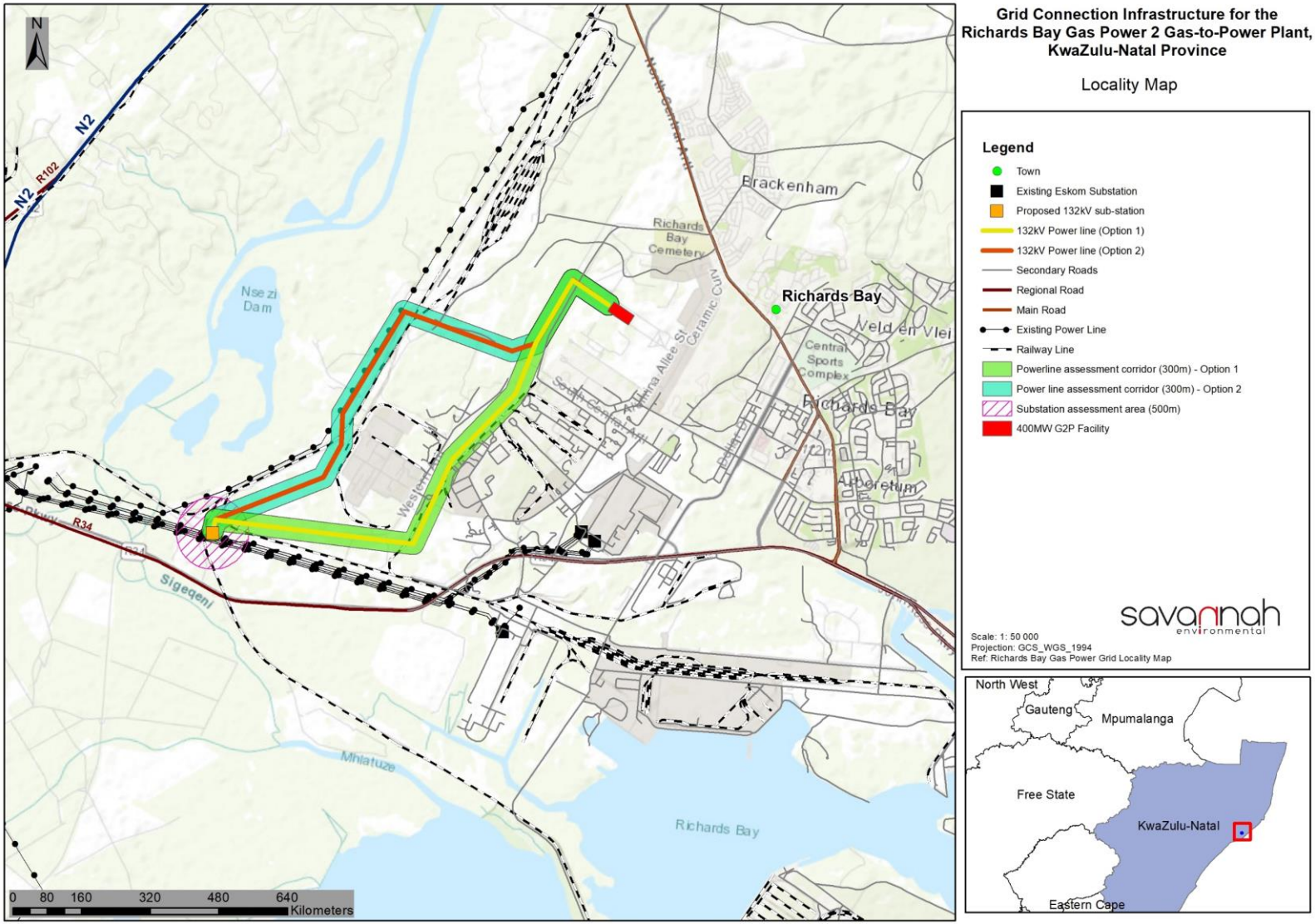


**Figure 1.1**: Locality Map of the proposed power line corridor alternatives and switching station location alternatives

**Table 1.1** provides an overview of the locality details for the grid connection infrastructure. The key project details described in detail in Chapter 2 of this Report.

**Table 1.1:** Locality details for the of the grid connection infrastructure

| | | | |
|---|---|---|---|
| **Province** | **KwaZulu- Natal Province** | | |
| **District Municipality** | King Cetshwayo District Municipality | | |
| **Local Municipality** | City of uMhlathuze Local Municipality | | |
| **Ward number(s)** | 2 and 26 | | |
| **Nearest town(s)** | Alton, Richards Bay, Arboretum, Empangeni, Ichubo | | |
| **Affected Properties: Farm Name(s), Number(s) and Portion Numbers** | Please refer to Appendix E | | |
| **SG 21 Digit Code (s)** | Please refer to Appendix E | | |
| **Grid Connection Routes Co-ordinates:**<br><br>**Corridor Alternative 1:** | **Starting Point (400MW gas to power facility Site)**<br><br>Latitude: 28°44'22.82"S;<br>Longitude: 32° 1'27.37"E | **Middle Point**<br><br>Latitude: 28°45'30.52"S<br>Longitude: 32° 0'22.64"E | **End Point (New 132kV switching station)**<br><br>Latitude: 28°46'21.57"S<br>Longitude: 31°58'17.19"E |
| **Corridor Alternative 2:** | Latitude: 28°44'22.82"S;<br>Longitude: 32° 1'27.37"E | Latitude: 28°45'12.79"S;<br>Longitude: 31°59'22.95"E | Latitude: 28°46'21.57"S<br>Longitude: 31°58'17.19"E |
| **Switching station footprint** | ~2.5ha | | |
| **Switching station Alterative 1 boundary coordinates** | | | |

| Switching Station | |
|---|---|
| Latitude | Longitude |
| 28° 46' 16,323" S | 31° 58' 16,275" E |
| 28° 46' 13,133" S | 31° 58' 16,968" E |
| 28° 46' 13,866" S | 31° 58' 21,312" E |
| 28° 46' 17,056" S | 31° 58' 20,619" E |

## 1.3 Requirement for an Environmental Impact Assessment Process

Section 24 of South Africa's National Environmental Management Act (No. 107 of 1998) (NEMA) pertains to Environmental Authorisations (EA), 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 (CA). The 2014 Environmental Impact Assessment (EIA) Regulations, as amended (GNR 326) published under NEMA prescribe the process to be followed when applying for Environmental Authorisation (EA), while the Listing Notices (Listing Notice 1 (GNR 327), Listing Notice 2 (GNR 325), and Listing Notice 3 (GNR 324)) contain those activities which may not commence without EA from the CA.

In terms of NEMA, the 2014 EIA Regulations (GNR 326), and Listing Notices (Listing Notice 1 (GNR 327), Listing Notice 2 (GNR 325), and Listing Notice 3 (GNR 324)), the proposed development of grid connection infrastructure requires Environmental Authorisation (EA) subject to the completion of a full Scoping and Environmental Impact Assessment (S&EIA), as prescribed in Regulations 21 to 24 of the 2014 EIA Regulations (GNR 326). The need for EA subject to the completion of a full S&EIA is triggered by the inclusion of, amongst others, Activity 9 of Listing Notice 2 (GNR 325)[1], namely:

*"The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex"*

The EIA process comprises of two (2) phases and involves the identification and assessment of potential environmental impacts through the undertaking of independent specialist studies, as well as public participation. The process followed in these two phases is as follows:

- The **Scoping Phase** includes the identification of potential issues associated with the project through a desktop study (considering existing information) and consultation with affected parties and key stakeholders. Following a public review period of the Scoping report, this phase culminates in the submission of a final Scoping Report and Plan of Study for the EIA to the Competent Authority (CA) for consideration and acceptance.
- The **EIA Phase** involves a detailed assessment of the potentially significant positive and negative impacts (direct, indirect, and cumulative) identified in the Scoping Phase through the undertaking of detailed specialist investigations and public consultation. Following a public review period of the EIA Report, this phase culminates in the submission of a final EIA Report and an Environmental Management Programme (EMPr), including recommendations of practical and achievable mitigation and management measures, to the CA for final review and decision-making.

In terms of GNR 779 of 01 July 2016, the National DEFF has been determined as the CA for all projects which relate to the Integrated Resource Plan for Electricity (IRP) 2010 – 2030, and any updates thereto. Through the decision-making process, the DEFF will be supported by the KwaZulu-Natal Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) as the commenting authority.

### 1.4 Details and Expertise of the Environmental Assessment Practitioner (EAP)

In accordance with Regulation 12 of the 2014 EIA Regulations (GNR 326), the applicant has appointed Savannah Environmental (Pty) Ltd as the independent environmental consultants responsible for managing the Application for EA and supporting Scoping and Environmental Impact Assessment (S&EIA) process; inclusive of comprehensive, independent specialist studies. The application for EA and S&EIA process will be managed in accordance with the requirements of NEMA, the 2014 EIA Regulations (GNR 326), and all other relevant applicable legislation.

Neither Savannah Environmental nor any of its specialists are subsidiaries of, or are affiliated to the applicant. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed facility.

[1] Refer to **Chapter 5** for a full list of applicable listed activities.

Savannah Environmental is a leading provider of integrated environmental and social consulting, advisory and management services with considerable experience in the fields of environmental assessment and management. The company is wholly woman-owned (51% black woman-owned) and is rated as a Level 2 Broad-based Black Economic Empowerment (B-BBEE) Contributor. Savannah Environmental's team have been actively involved in undertaking environmental studies since 2006, for a wide variety of projects throughout South Africa, including those associated with electricity generation and infrastructure development.

The Savannah Environmental team for this project includes:

» **Jo-Anne Thomas.** She holds a Master of Science Degree in Botany (M.S.c Botany) from the University of the Witwatersrand and is registered as a Professional Natural Scientist (400024/2000) with SACNASP and a registered Environmental Assessment Practitioner (EAP) with EAPASA (2019/726). She has over 20 years of experience in the field of environmental assessment and management, and the management of large environmental assessment and management projects. During this time, she has managed and coordinated a multitude of large-scale infrastructure EIAs and is also well versed in the management and leadership of teams of specialist consultants, and dynamic stakeholders. She has been responsible for providing technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, EIA studies, environmental permitting, public participation, EMPs and EMPrs, environmental policy, strategy and guideline formulation, and integrated environmental management (IEM). Her responsibilities for environmental studies include project management, review and integration of specialist studies, identification and assessment of potential negative environmental impacts and benefits, and the identification of mitigation measures, and compilation of reports in accordance with applicable environmental legislation.

» **Gideon Raath:** 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.** She is a Board Member of IAPSA (International Association for Public Participation South Africa). She holds a Higher Secretarial Diploma and 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.

Curricula Vitae (CVs) detailing Savannah Environmental team's expertise and relevant experience are provided in **Appendix A**.

# CHAPTER 2 PROJECT DESCRIPTION

This chapter provides an overview of the grid connection infrastructure and details the project scope (which includes the planning/design, construction, operation and decommissioning activities), the need and desirability of the proposed project, and a description of the various alternatives considered for the project.

## 2.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Scoping Study

This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

| Requirement | Relevant Section |
|---|---|
| (d)(ii) a description of the activities to be undertaken including associated structures and infrastructure | A description of the associated structures and infrastructure is included in **Section 2.2**. Activities to be undertaken during the various project development phases is included in **Section 2.2.1**. |
| (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 for the development of the grid connection infrastructure is included and discussed in **Section 2.4**. |
| 3(g) a motivation for the preferred site, activity and technology alternative | The motivation for the alternatives identified for the proposed project are included in **Section 2.3**. |
| 3(h)(i) details of the alternative considered | |
| 3(h)(ix) the outcome of the site selection matrix | |
| 3(h)(x) if no alternatives, including alternative locations for the activity were investigation, the motivation for not considering such | |

## 2.2 Nature and Extent of the Proposed Project

As detailed in Chapter 1, the proposed grid connection infrastructure includes establishment of an overhead power line (either 132kV or 275kV (to be operated at 132kV)) and a 132kV switching station. The following section provides details of the various project components.

### *2.2.1 Grid Connection Route Components and Project Development Phases*

A. Grid Connection Corridors

Two potential grid connection corridors of 200m in width have been identified for the development and operation of the overhead power line. Only one feasible alternative site has been identified for the establishment of the switching station. The affected properties are detailed in Table 1.1.

Where existing roads are not available, new access roads of up to 4m in width will be required to provide access to the power line and switching station during construction and operation. A summary of the details and dimensions of the infrastructure planned for the development is provided in **Table 2.1**.

**Table 2.1:** Details or dimensions of the proposed grid connection infrastructure

| Infrastructure | Footprint, dimensions and details |
|---|---|
| Power line capacity | 132kV (single- or double-circuit); or<br>Constructed at 275kV (single- or double-circuit) and operated at 132kV |
| Power line servitude width | Up to 40m |
| Tower height | Up to 32m |
| Corridors width for assessment | 200m |
| Length of the power line | ~8.5km |
| Access road | 4m wide access tracks |
| Switching station capacity | 132kV |
| Size of the Switching Station | Up to 100m x 100m |

### *2.2.2 Project Development Phases associated with the Grid Connection Infrastructure*

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

| **Construction Phase** | |
|---|---|
| » Duration of the construction phase is expected to be 9-12 months.<br>» Create direct construction employment opportunities. Up to 40 employment opportunities will be created during the construction phase.<br>» No on-site labour camps. Employees to be transported to and from site daily.<br>» Overnight on-site worker presence would be limited to security staff.<br>» Construction waste will be temporarily stored on site and waste removal and sanitation will be undertaken by an appropriate contractor on a regular basis.<br>» Electricity required for construction activities will be generated by a generator or will be sourced from available Eskom distribution networks in the area.<br>» Negligible water will be required for the construction phase and potable needs. If required, water will be sourced from the local municipality. | |
| **Construction Sequence** | Underground power lines are constructed in the following simplified sequence:<br>» Step 1: Surveying of the development servitude and negotiating with affected landowners.<br>» Step 2: Final design and micro-siting of the infrastructure based on geo-technical, topographical conditions and potential environmental sensitivities; obtain required environmental permits (such as biodiversity permits, heritage permits & WUL/GA).<br>» Step 3: Vegetation clearance and construction of access roads/tracks (where required).<br>» Step 4: Excavation of cabling routes.<br>» Step 5: Assembly and implementation of infrastructure within and along the servitude.<br>» Step 6: Rehabilitation of disturbed areas.<br>» Step 7: Continued maintenance.<br><br>The final definition of the centre line for the underground cables and co-ordinates of each bend in the line (if applicable) will be determined on receipt of an environmental authorisation of the assessed corridor by the Competent Authority and after negotiations with landowners and final environmental and technical surveys.<br><br>Similarly, the following simplified sequence is conducted for the construction of the switching station:<br>» Step 1: Surveying of the development area, engaging with affected landowners, environmental specialist walkthroughs to inform permitting requirements.<br>» Step 2: Final design and micro-siting of the infrastructure based on geo-technical, topographical conditions and potential environmental sensitivities.<br>» Step 3: Search-and-rescue activities, vegetation clearance and construction of access roads/tracks (where required), including installation of fencing.<br>» Step 4: Trenching and ground grid conduit installation. |

| | |
|---|---|
| | » Step 5: Installation of concrete foundations.<br>» Step 6: Assembly and installation of steel structures and isolators.<br>» Step 7: Control building assembly.<br>» Step 8: Gravel placement and commissioning.<br>» Step 9: Rehabilitation of disturbed areas.<br>» Step 10: Continued maintenance. |
| **Activities to be Undertaken** | |
| Conduct surveys prior to construction | » Including, but not limited to: a geotechnical survey, final environmental walkthroughs to inform search-and-rescue and permitting requirements, site survey (including the location of the towers along the proposed power line route) and confirmation of the power line servitude, and all other associated infrastructure.<br>» Undertake search and rescue of floral and faunal species of concern. |
| Undertake Site Preparation | » Including the clearance of vegetation at the pylon foundations and switching station, trimming of vegetation along the final power line route (if required to ensure sufficient clearance between vegetation and the power line), establishment of the laydown areas, the establishment of access roads/tracks and excavations for foundations as well as the fencing of the switching station.<br>» 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.<br>» Include search and rescue of floral and faunal species of concern (only where and if required) and the identification and excavation of any sites of cultural/heritage value (only where and if required) along the power line route and switching station footprint. |
| Establishment of laydown areas and batching plant on site | » Laydown area/s for the storage of power line and switching station components, including the civil engineering construction equipment.<br>» The laydown area will also accommodate building materials and equipment associated with the construction of buildings.<br>» 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.<br>» If necessary, a temporary concrete batching plant of 50m x 50m in extent to facilitate the concrete requirements for grid connection infrastructure and switching station foundations. Other options include the use of mobile batching plants that allow for in situ batching of concrete. |
| Undertake Site Rehabilitation | » Commence with rehabilitation efforts once construction is completed in an area, and all construction equipment is removed.<br>» On commissioning, access points to the site that will not be required for the operation phase will be closed and rehabilitated. |
| **<u>Operation Phase</u>** | |
| » Duration will be ~20 years.<br>» Requirements for security and maintenance of the grid connection infrastructure.<br>» Employment opportunities relating mainly to operation activities and maintenance. Very limited employment opportunities will be available. | |

| | |
|---|---|
| » Current land-use activities can continue in the areas adjacent to the infrastructure as the cabling will be underground. | |
| **Activities to be Undertaken** | |
| Operation and Maintenance | » Ad hoc infrastructure maintenance activities. Once built, the power line and switching station will likely be ceded to Eskom, and it will be Eskom's full-time employees undertaking maintenance.<br>» Disposal of waste products (e.g. oil) in accordance with relevant waste management legislation.<br>» On-going rehabilitation of those areas which were disturbed during the construction phase.<br>» During this operation phase natural 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. Alien plant management will be required throughout the operation phase in accordance with relevant legislation. |
| **<u>Decommissioning Phase</u>** | |
| **Requirements** | » Decommissioning of the grid connection infrastructure at the end of its economic life and that of the 400MW gas-to-power facility, unless the infrastructure is required by Eskom.<br>» Expected lifespan of at least 20 years (with maintenance) before decommissioning is required.<br>» Decommissioning activities to comply with the legislation relevant at the time. |
| **Activities to be undertaken** | |
| Site preparation | » Confirming the integrity of access to the grid connection infrastructure to accommodate the required equipment.<br>» Mobilisation of decommissioning equipment. |
| Disassemble components and rehabilitation | » The power line and switching station infrastructure components will be disassembled and reused and recycled (where possible).<br>» Where components cannot be reused or recycled it will be disposed of in accordance with the regulatory requirements at the time of decommissioning.<br>» 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 infrastructure will revert back to the original land-use (i.e. primarily agricultural use) once the 400MW gas-to-power plant (and by implication the proposed Great Karoo grid connection infrastructure) has reached the end of its economic life and all infrastructure has been decommissioned and the site rehabilitated.

## 2.3 Alternatives Considered during the EIA 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*

Two alternative grid connection corridors and two switching station sites have been identified by the applicant for the proposed project. The location of the alternative corridors was determined considering the following criteria:

- *Access to the National Grid*. The developer consulted with the Eskom network planners to understand the future demand centres and the strategic plans to upgrade and strengthen the local networks in the area. Through this consultation it was confirmed that Eskom require the project to connect to the authorised substation at the CCPP site via a 132kV switching station.
- *Space available for placement of the power line servitude*. Space for the placement of the power line servitude of up to 40m is required.
- *Technical considerations*. The routing of the identified alternatives is considered to be technically feasible.

Only one feasible site has been identified for the establishment of the switching station, as determined in consultation with Eskom. A broader area of 500m around this site is being assessed for the placement of the switching station infrastructure.

### *2.3.2 Design and Layout Alternatives*

The design of the power line and switching station are required to conform to Eskom's technical standards as they will form part of the national electricity supply network and must therefore be in-line with the existing network systems, technology and infrastructure. Depending on the final gid connection solution determined for the project, the power line will be constructed as either a 132kV or 275kV power line. There is no significant difference in the design of these two power line options. Therefore, no alternatives are assessed within the EIA process.

The grid connection corridors and switching station alternatives identified represent technically feasible areas for construction of the grid connection infrastructure. The specific location of the infrastructure within the identified preferred corridor and switching station site will be determined following the completion of the EIA process, landowner negotiation and final design.

### *2.3.3 Technology Alternatives*

No technology alternatives exist for the distribution of electricity. As such, no technology alternatives for the project are identified for assessment as part of the EIA process.

### *2.3.4 The 'Do Nothing' Alternative*

The 'do nothing' alternative is the option of not constructing the grid connection infrastructure. Should this alternative be selected, there would be no environmental impacts or benefits as a result of the construction and operation activities associated with the grid connection infrastructure. The 'do nothing' alternative for the project will be assessed within the EIA Phase of the process.

## 2.4 Need and Desirability of the Grid Connection Infrastructure

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 grid connection infrastructure is directly linked to the need for the 400MW gas-to-power plant proposed by RBGP2 which was authorised in 2016 (DEFF ref.: 14/12/16/3/3/2/867), as the main purpose of the grid connection infrastructure is to connect this facility to the national grid at a feasible connection point as determined by Eskom.

Considering the relationship, and the necessity of the proposed grid connection infrastructure and the 400MW gas to power project, the following need and desirability factors are applicable, and are aligned with national, regional, and local policies and plans (as detailed in Chapter 3):

- The need at a national level to provide 2000MW of affordable dispatchable generation capacity in the medium term, as defined in the Integrated Resource Plan (IRP), 2019 and the 2000MW RMIPPPP initiated by the DMRE.
- The need to align development with the requirements of the National Development Plan to address the identified socio-economic issues affecting development in South Africa, including job creation, skills development and training opportunities.
- 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 need for diversification of the energy mix within the country to include, amongst others, gas technology. Richards Bay area has been ear-marked as a hub for the development of gas to power projects as it is one of the preferred location for the for the import of Natural Gas in liquid form.

The site of the authorised 400MW gas-to-power facility within the Richards Bay IDZ Zone 1F, is considered to be desirable due to the proximity to the Port of Richards Bay, from where gas will be supplied, the availability of land for development and the availability of water for the operation of the power station. The location of the grid connection infrastructure is considered technically feasible as it has been determined based on Eskom's specific requirements.

# CHAPTER 3 POLICY AND LEGISLATIVE CONTEXT

This Chapter provides an overview of the policy and legislative context within which the development of the grid connection infrastructure is proposed. 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. As the project is essential supporting infrastructure for the 400MW gas-to-power plant proposed by RBGP2, the policy and legislative context for this project is closely aligned with that for the power station.

## 3.1 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 Basic Assessment Reports:

| Requirement | Relevant Section |
|---|---|
| (e) a description of the policy and legislative context within which the development is proposed including-<br><br>(i) 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.<br>(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments. | A description of the policy and legislative context within which development of the grid connection infrastructure is proposed is included in **sections 2.3, 2.4 and 2.5.** |

## 3.2 Regulatory Hierarchy

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 (**Figure 3.1**). 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 grid connection infrastructure.

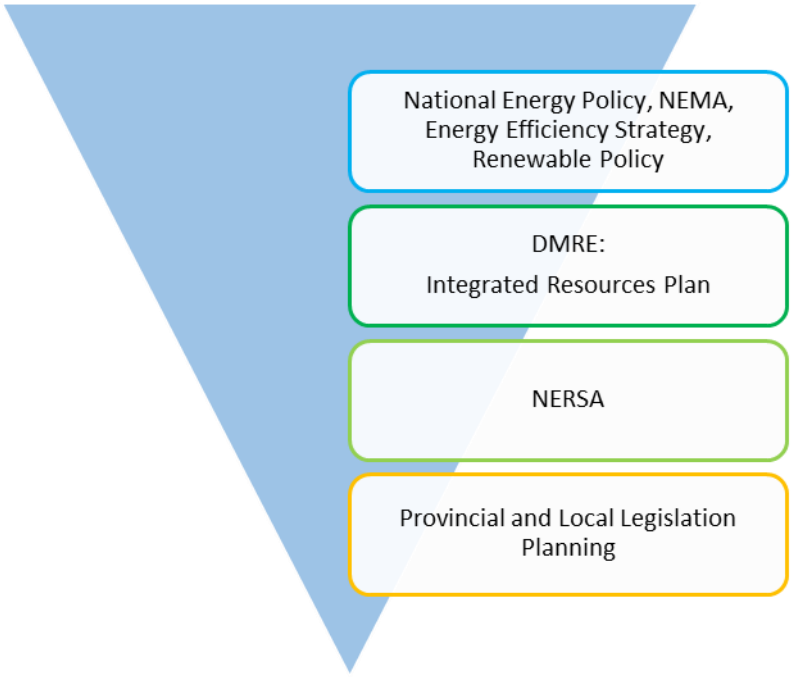


**Figure 3.1: Hierarchy of electricity and planning documents**

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

- ***Department of Environment, Forestry and Fisheries (DEFF):*** 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 and is charged with granting the EA for the project under consideration. 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).
- ***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 (DHSWS)***: 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 objectives 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 may occur within the broader study area and development area.
- ***The Department of Agriculture, Rural Development and Land Reform (DARDLD):*** This Department is the custodian of South Africa's agricultural resources and is responsible for the formulation and implementation of policies governing the agriculture sector and the initiation, facilitation, coordination and implementation of integrated rural development programmes.
- ***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:

- **KwaZulu Natal Department of Economic Development, Tourism and Environmental Affairs (EDEAT):** This Department is the commenting authority for the Scoping and EIA process for the project.
- **Ezemvelo KZN Wildlife (EKZN):** is responsible for the management of nature conservation and protected areas in KwaZulu-Natal and issuing of other biodiversity and conservation-related permits.
- **AMAFA (KZN Heritage Authority):** This Department identifies, conserves and manage heritage resources throughout the KwaZulu-Natal Province.

At the **Local Level,** the local and district municipal authorities are the principal regulatory authorities responsible for planning, land use and the environment. In the KwaZulu Natal Province, both the local and district municipalities play a role. The local municipality includes the **uMhlathuze Local Municipality** which forms part of the **King Cetshwayo District Municipality**. In terms of the Municipal Systems 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 control.

### 3.3 Policy and Planning on a National Level

National policies and plans adopted by South Africa which are considered to be relevant to the proposed development have been summarised in **Table 3.1**.

**Table 3.1:** National policies, plans and legislation relevant to proposed development

| Policy, Plan or Legislation | Is the development of the grid connection infrastructure aligned with this policy, plan or legislation? |
|---|---|
| Constitution of the Republic of South Africa, 1996 | 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.<br><br>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. |
| National Environmental Management Act (No. 107 of 1998) (NEMA) | 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.<br><br>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.<br><br>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. The Act provides the legal framework which supports the development of power generation facilities, such as the 400MW gas-to-power plant proposed by RBGP2 and the proposed grid connection infrastructure. |

| Policy, Plan or Legislation | Is the development of the grid connection infrastructure aligned with this policy, plan or legislation? |
|---|---|
| | The development of the grid connection infrastructure enables the evacuation of power generated by a gas-to-power facility 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 grid connection infrastructure will enable the contribution to the achievement of the five objectives of the Energy Policy of the country, albeit to a limited extent. |
| 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 proponent of this grid connection infrastructure will have to ensure compliance with this Act for the transmission of the generated power into the national grid. |
| National Development Plan (NDP) | Yes. The National Development Plan (NDP) 2030 offers a long-term plan for the country. It defines desired destinations where inequality and unemployment are reduced, and poverty is eliminated so that all South Africans can attain a decent standard of living. Electricity is one of the core elements of a decent standard of living.<br><br>While the achievement of the objectives of the NDP requires progress on a broad front, three priorities stand out, namely:<br><br>» Raising employment through faster economic growth<br>» Improving the quality of education, skills development and innovation<br>» Building the capability of the state to play a developmental, transformative role<br><br>In terms of the Energy Sector's role in empowering South Africa, the NDP envisages that, by 2030, South Africa will have an energy sector that promotes:<br><br>» Economic growth and development through adequate investment in energy infrastructure. The sector should provide reliable and efficient energy service at competitive rates, while supporting economic growth through job creation.<br>» Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households.<br>» Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change.<br><br>In formulating its vision for the energy sector, the NDP took the IRP 2010 as its point of departure. Therefore, although electricity generation from coal is still seen as part of the energy mix within the NDP, the plan sets out steps that aim to ensure that, by 2030, South Africa's energy system looks very different to the current situation: coal will contribute proportionately less to primary-energy needs, while gas and renewable energy resources – especially wind, solar, imported hydroelectricity and other technology– will play a much larger role. The development of the grid connection infrastructure will enable the connection of the gas-to-power facility proposed by RBGP2 to the national grid. |
| Integrated Energy Plan (IEP) | 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 |

| Policy, Plan or Legislation | Is the development of the grid connection infrastructure aligned with this policy, plan or legislation? |
|---|---|
| | 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. With the additional energy to be generated by the 400MW gas-to-power plant and to be evacuated to the national grid via the proposed grid connection infrastructure, a contribution to this objective will be made. In addition, the implementation of the 400MW gas-to-power plant and the proposed grid connection infrastructure will assist in achieving the eight key objectives in terms of energy planning, even if only to a limited extent. |
| Integrated Resource Plan (IRP) 2010 - 2030 | Yes. The Integrated Resource Plan (IRP) for Electricity is a subset of the IEP and constitutes South Africa's National electricity plan. The primary objective of the IRP is to determine the long-term electricity demand and detail how this demand should be met in terms of generating capacity, type, timing and cost. The IRP also serves as input to other planning functions, including amongst others, economic development and funding, and environmental and social policy formulation.<br><br>The promulgated IRP 2010–2030 identified the preferred generation technology required to meet expected demand growth up to 2030. It incorporated government objectives such as affordable electricity, reduced greenhouse gas (GHG) emissions, reduced water consumption, diversified electricity generation sources, localisation and regional development.<br><br>In terms of the IRP 2019, South Africa continues to pursue a diversified energy mix that reduces reliance on a single or a few primary energy sources (refer Figure 3.2). This mix includes the following: |

| | Coal | Coal (Decommis-sioning) | Nuclear | Hydro | Storage | PV | Wind | CSP | Gas & Diesel | Other (Distributed Generation, CoGen, Biomass, Landfill) |
|---|---|---|---|---|---|---|---|---|---|---|
| Current Base | 37,149 | | 1 860 | 2,100 | 2 912 | 1 474 | 1 980 | 300 | 3 830 | 499 |
| 2019 | 2,155 | -2,373 | | | | | 244 | 300 | | Allocation to the extent of the short term capacity and energy gap. |
| 2020 | 1,433 | -557 | | | | 114 | 300 | | | |
| 2021 | 1,433 | -1403 | | | | 300 | 818 | | | |
| 2022 | 711 | -844 | | | 513 | 400 1,000 | 1,600 | | | |
| 2023 | 750 | -555 | | | | 1000 | 1,600 | | | 500 |
| 2024 | | | 1,860 | | | | 1,600 | | 1000 | 500 |
| 2025 | | | | | | 1000 | 1,600 | | | 500 |
| 2026 | | -1,219 | | | | | 1,600 | | | 500 |
| 2027 | 750 | -847 | | | | | 1,600 | | 2000 | 500 |
| 2028 | | -475 | | | | 1000 | 1,600 | | | 500 |
| 2029 | | -1,694 | | | 1575 | 1000 | 1,600 | | | 500 |
| 2030 | | -1,050 | | 2,500 | | 1000 | 1,600 | | | 500 |
| TOTAL INSTALLED CAPACITY by 2030 (MW) | 33,364 | | 1,860 | 4,600 | 5,000 | 8,288 | 17,742 | 600 | 6,380 | |
| % Total Installed Capacity (% of MW) | 43 | | 2.36 | 5.84 | 6.35 | 10.52 | 22.53 | 0.76 | 8.1 | |
| % Annual Energy Contribution (% of MWh) | 58.8 | | 4.5 | 8.4 | 1.2* | 6.3 | 17.8 | 0.6 | 1.3 | |

Installed Capacity
Committed/Already Contracted Capacity
Capacity Decommissioned
New Additional Capacity
Extension of Koeberg Plant Design Life
Includes Distributed Generation Capacity for own use

- 2030 Coal Installed Capacity is less capacity decommissioned between years 2020 and 2030.
- Koeberg power station rated/installed capacity will revert to 1,926MW (original design capacity) following design life extension work.
- Other/ Distributed generation includes all generation facilities in circumstances in which the facility is operated solely to supply electricity to an end-use customer within the same property with the facility.
- Short term capacity gap is estimated at 2,000MW.

**Figure 3.2:** IRP 2019 as promulgated in October 2019

The development of the proposed grid connection infrastructure enables the evacuation of the generated power from the 400MW gas-to-power plant into the national grid and thereby contributes to the energy mix of the country as set out in the IRP.

| Policy, Plan or Legislation | Is the development of the grid connection infrastructure aligned with this policy, plan or legislation? |
|---|---|
| New Growth Path (NGP) Framework, 2010 | 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 development 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. |
| Climate Change Bill, 2018 | 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 proposed development relates to the evacuation of energy from a gas-to-power plant into the national grid, which would have lower emissions than conventional energy generation from coal. The grid connection infrastructure itself will not result in the generation or release of emissions during its operation. |
| National Climate Change Response Policy | Yes. This policy 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. This has been considered in the development of the IRP 2019. The proposed development relates to the evacuation of energy from a gas-to-power plant into the national grid, which would have lower emissions than conventional energy generation from coal, thereby assist in addressing climate change and global warming. |

### 3.4 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 proposed development. **Table 3.3** provides a summary of the relevant provincial plans and policies.

**Table 3.2:** Provincial policies and plans relevant to the proposed development

| Policy or Plan | Is the development of the grid connection infrastructure aligned with this policy or plan? |
|---|---|
| KwaZulu-Natal Provincial Growth and Development Plan (PGDP) (2019) | The KwaZulu-Natal Provincial Growth and Development Plan (PGDP) aims to curb poverty, inequality and achieve shared growth. The PGDP has identified spatial marginalisation as one of the key issues to be addressed through ensuring economic opportunities that will meet the majority of the population's needs. The plan states that alternative sources of energy are a priority and must become a reality. The grid connection infrastructure will contribute to the realisation of energy generation from the 400MW gas-to-power plant through gas turbines as it will enable connection to the grid at a feasible connection point. |
| KwaZulu-Natal Provincial Growth and Development Strategy (PGDS) (2016) | The Provincial Growth and Development Strategy (PGDS) for KZN addresses the triple challenge of poverty, inequality and unemployment. The KZN provincial government's vision is for the province to maximize its position as a gateway to South and Southern Africa, |

| Policy or Plan | Is the development of the grid connection infrastructure aligned with this policy or plan? |
|---|---|
| | as well as its human and natural resources to create a safe, healthy and sustainable environment by 2035; eliminating poverty, inequality, unemployment and the current disease burden in the province. Through the seven strategic goals the KZN PGDS aims to achieve its vision by 2035, including:<br><br>1) Inclusive economic growth (expanded and sustained economic output is the fundamental driver for job creation)<br>2) Human resource development (he human resource capacity of KZN is relevant and responsive to the growth and development needs of the province)<br>3) Human and community development (reduce poverty and inequality in KZN)<br>4) Strategic infrastructure (strategic infrastructure provides for social and economic growth and development needs of KZN)<br>5) Environmental sustainability (reduce global greenhouse gas emissions and create social-ecological capacity to adapt to climate change)<br>6) Governance and policy (effective and efficient government systems)<br>7) Spatial equity (increased spatial access to goods and services)<br><br>The proposed development of grid connection infrastructure will result in the creation of job opportunities, human resource development, and strategic infrastructure for social and economic growth which will contribute towards reducing poverty and inequality in KZN. This development, together with the 400MW gas-to-power plant, will therefore assist the province in achieving the aims of the PGDS to some extent. |
| KwaZulu-Natal Provincial Spatial Economic Development Strategy (2016) | The Provincial Spatial Economic Development Strategy (PSEDS) serves as a framework for the prioritisation of spatial economic development initiatives in the province. It is meant to capitalise on complementarities and facilitate consistent and focused decision making. In addition, the purpose of the strategy is to ensure that investment occurs in the sectors that provide the greatest socio-economic return to investment (Department of Economic Development, 2016).<br><br>The preferred project site within the Richards Bay area is located in an area demarcated as having economies of scale. Economies of scale are achieved when the number of units produced or the volume of services sold are at such a large scale that it allows for the reduced production costs, ultimately increasing the competitiveness of the product or service. High demand for the product or a service is a prerequisite for economies of scale; this implies that the area where the 400MW gas-to-power plant is to be built has a high demand for selected goods and services, including electricity. The area is already highly industrialised, including a number of IDZ zones (include Zone 1F within which the 400MW gas-to-power plant is located), which continuously seeks new investments in ICT, agro-businesses, and metals beneficiation. Therefore, the project is to be located in a potentially high economic growth region.<br><br>The development of the grid connection infrastructure will drive economic growth, infrastructural transformation and development through the connection of the gas facility to the national electricity grid. The area for development falls within the Richards Bay IDZ and is seen as a favourable area for investment and development. |
| KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs Revised Strategic Plan 2015 - 2020 | The strategic focus for the KZN EDTEA during the 2020 planning period will be building a resilient KZN provincial economy that can respond to global factors, stimulating provincial economic development, alignment of functions and purpose of all economic development entities as well as building a vibrant organisation. The vision of the strategic plan is 'leading the attainment of inclusive growth for job creation and economic sustenance.' The mission of the strategic plan is to 1) develop and implement strategies that drive economic growth; 2) be a catalyst for economic transformation and |

| Policy or Plan | Is the development of the grid connection infrastructure aligned with this policy or plan? |
|---|---|
| | development; 3) provide leadership and facilitate integrated economic planning and development; and 4) create a favourable environment for investment. The main objectives of the strategy that relate to the proposed project are as follows:<br><br>» To facilitate the creation of new markets;<br>» To drive growth of the KZN provincial economy;<br>» To enhance sector and industrial development through Trade, Investment and Exports Logistics, ICT, Manufacturing, Green economy, agri-business, Tourism, Creative Industries, Maritime, Aerotropolis, Aviation;<br>» To investigate and develop viable alternative energy generation options.<br><br>The development of the grid connection infrastructure will drive economic growth and provide a viable alternative energy generation option through the connection of the gas facility to the national electricity grid. |
| KwaZulu-Natal Provincial Spatial Development Framework (PSDF) | The KZN Provincial Spatial Development Strategy has been developed in order to achieve the goals and objectives of the PGDS in a targeted and spatial co-ordinated manner. Spatially, it is vital to consider general accessibility as a cross-cutting variable which impacts all three pillars of sustainable development and as a result the four main spatial variables informing the provincial spatial development framework include:<br><br>» Environmental Sensitivity<br>» Economic Potential<br>» Social Needs<br>» Urban Accessibility<br><br>The PSDF spatial variables were considered collectively and a ranking order to key elements used to formulate a composite Provincial Spatial Development Framework which identifies Broad Provincial Spatial Planning Categories such as:<br><br>» Conservation Corridors<br>» Biodiversity Priority Areas<br>» Areas of Economic Value adding<br>» Areas of Economic support<br>» Areas of Agricultural Development<br>» Areas of High Social Need<br>» Mandated Service Delivery Areas<br><br>Areas of Economic Support resemble a region of good economic potential in more than just one of the key provincial economic sectors. Typical interventions in these areas would include economic prioritisation of development, labour force interventions (e.g. skills development), key economic infrastructure investment and area promotion. The development of the grid connection infrastructure will contribute towards economic value, economic support and economic growth in the area through the connection of the gas facility to the national grid at a feasible connection point. |
| KwaZulu-Natal Climate Change Response and Sustainable Development Plan | In September 2012, the KwaZulu-Natal Provincial Government became the first provincial government to establish a Climate Change and Sustainable Development Council, which boosts multi-stakeholder membership (http://www.theclimategroup.org/who-we-are/our-members/the-province-of-kwazulu-natal). The Council has set up three Working Groups, namely Policy and Regulatory Alignment Working Group; Adaptation and Mitigation Working Group and Renewable Energy Working Group. |

| Policy or Plan | Is the development of the grid connection infrastructure aligned with this policy or plan? |
|---|---|
| | The province is in the early stages of developing the Climate Change Response and Sustainable Development Plan which is guided by, among others, the national strategy and the KwaZulu-Natal Growth and Development Strategy which has among its goals environmental sustainability as well as:<br><br>» Provision of 100% energy access in KZN Province by 2030, i.e. an additional 600 000 households or some 3 million people.<br>» Implementation of a number of significant renewable energy and energy efficiency projects.<br><br>The development of the grid connection infrastructure will promote access to energy through the use of a fuel resource other than coal and will facilitate the transition to alternative energy technologies. |

### 3.5 Policy and Planning at a District and Local Level

The strategic policies at the district and local level have similar objectives for the respective areas, namely to accelerate economic growth, create jobs, uplift communities and alleviate poverty. The proposed development is considered to align with the aims of these policies, even if contributions to achieving the goals therein are only minor.

**Table 3.3:** District and local policies and plans relevant to the proposed development

| Policy or Plan | Is the development of the grid connection infrastructure aligned with this policy or plan? |
|---|---|
| King Cetshwayo District Municipality Draft Integrated Development Plan (2020/21 – 2021/22) | The vision for the King Cetshwayo District Municipality Integrated Development Plan IDP 20/21 – 21/22 is to create a 'safe and healthy environment which promotes sustainable, radical, and inclusive economic and social development reinforced by service excellence' (KCDM, 2020: 34). As indicated in the vision, one of the goals is infrastructure development and service delivery. The Richards Bay Industrial Development Zone (RBIDZ) is identified as a catalytic project (KCDM, 2020: 69). The objective is to promote economic growth in the District and improve the socio-economic conditions of residents.<br><br>A catalytic project is defined as a project of significant scale and scope that will make a substantial impact and contribution to the achievement of the vision and goals of the Province. The Richards Bay Industrial Development Zone (IDZ) is defined as a game changer in the context of catalytic projects. The authorised 400MW gas-to-power project is located within Zone 1F of this IDZ. |
| King Cetshwayo District Growth and Development Plan (DGDP) | The King Cetshwayo District Growth and Development Plan (DGDP) has an integral role in the integration and alignment of the goals of the NDP at national level and PGDP at provincial level. Therefore, the purpose of the DGDP is to translate the Provincial Growth and Development Plan into a detailed implementation plan at a district level (Uthungulu DM, 2015). One strategic intervention identified by the plan is the implementation of the roll-out programme for alternative sources of energy supply in the district where the gas-fixed electricity generation is classified as alternative energy supply. The proposed project will therefore assist with this programme as it provides essential infrastructure to the 400MW gas-to-power plant. |
| uMhlathuze Municipality Integrated Development Plan (IDP), 2019/2020 | The objective of the IDP is to promote economic growth in the District and improve the socio-economic conditions of residents (uMhlathuze LM, 2019). The unsustainable use of resources, including energy, will ultimately compromise the Municipality's energy security. Challenges similar to these prompted the IDP to focus on sustainable solutions to the energy crisis. Therefore, the aim is to reduce the demand for energy and simultaneously investigate alternative energy sources. |

| Policy or Plan | Is the development of the grid connection infrastructure aligned with this policy or plan? |
|---|---|
| | An intervention proposed by the City of uMhlathuze to meet the sustainable development goal of ensuring access to affordable, reliable and modern energy for all, is the generation of 2000MW Gas to Power (uMhlathuze LM, 2019:34). The development of the grid connection infrastructure will assist with this goal of enhancing energy security within the area as it provides essential infrastructure to the 400MW gas-to-power plant. The development will also create employment opportunities which will strengthen the current socio-economic conditions of the area, as well as improve the standard of living. |

### 3.6 Conclusion

The findings of the review of the relevant policies, programmes and documents pertaining to the energy sector indicate that the grid connection infrastructure, when considering it's functioning as part of the 400MW gas-to-power plant, is supported at a national, provincial, and local level, and that the development will contribute towards the various targets and policy aims.

# CHAPTER 4 DESCRIPTION OF THE RECEIVING ENVIRONMENT

This section of the Scoping Report provides a description of the environment that may be affected by the grid connection infrastructure associated with the RBGP2 400MW gas-to-power plant. This information is provided in order to assist the reader in understanding the receiving environment within which the proposed development is situated. Features of the biophysical, social and economic environment that could directly or indirectly be affected by, or could affect, the proposed development have been described. This information has been sourced from existing information available for the area and aims to provide the context within which this EIA process is being conducted.

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

This chapter of the scoping report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

| Requirement | Relevant Section |
|---|---|
| (g)(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects | The environmental attributes associated with the development of the grid connection infrastructure is included as a whole within this chapter. |

## 4.2 Regional Setting: Location of the Project Site

The KwaZulu-Natal Province is situated in the north-eastern portion of South Africa. With a total area of 94 361 square kilometres, KZN is the country's third smallest province, taking up 7,7% of the country's land area. The province shares boundaries with the Mpumalanga, Free State and Eastern Cape Provinces. The proposed development falls under the jurisdiction of the City of uMhlathuze Local Municipality and within the greater King Cetshwayo District Municipality in the KwaZulu-Natal Province. The City of uMhlathuze Local Municipality is situated on the coast of the Indian Ocean in KwaZulu-Natal, South Africa. It is one of five local municipalities that form part of the King Cetshwayo District Municipality. In 2002 Richards Bay and Empangeni, as well as the surrounding rural and tribal areas merged to form the "City of uMhlathuze" covering an area of approximately 800 km² and supporting approximately 334 459 people.

The capital city is Pietermaritzburg, and its largest city is Durban. It is the second-most populous province in South Africa, with slightly fewer residents than Gauteng. It is bounded to the north by Swaziland and Mozambique, to the east by the Indian Ocean, to the south by Eastern Cape province, to the west by Lesotho and Free State province, and to the northwest by Mpumalanga province.

The Province of KwaZulu-Natal has 54 Municipalities, which include 10 Districts and 1 Metro (eThekwini). KwaZulu-Natal plays a significant role in South Africa's economy and is the second largest contributor to the country's economy. The province contributes 16% to the national GDP after Gauteng's share of 34%. The country's two largest and busiest ports in Africa, Durban and Richards Bay, are located on the KZN coastline and these cities are also the major focal points of industrial investment. Durban has 5 000 commercial vessels passing through its port every year where 26 million tons of cargo with a value of R50 billion are handled. Richards Bay, on the other hand, has 57% of South African port cargo by volume and 14% by value.

## 4.3 Climatic Conditions

Richards Bay is characterised by a humid subtropical climate that very closely borders a tropical savanna climate as only two months have an average temperature of below 18 °C There are warm wet summers and mild moist to dry winters, which are frost-free. The town has an average annual rainfall of 1228 mm. The average annual temperature is 21.5 °C, with daytime maxima peaking from January to March at 29 °C, and the minimum is 21 °C, dropping to daytime highs from June to August of 23 °C and a minimum of 12 °C.

## 4.4 Biophysical Characteristics of the Study Area

### *4.4.1 Topography*

The Richards Bay area is generally very flat and is situated on a coastal plain. The terrain rises slightly towards the west. The suburbs are all no more than a few metres (~130m) above sea level. The flat topography is dominated by wetlands and water bodies (e.g. the Nsezi and Mzingazi lakes, the harbour bay and its numerous channels) while the Mhlatuze River meanders to the south of the study area.

### *4.4.2 Geology*

The larger study area is underlain by unconsolidated, Quaternary-age sediments. These redistributed cover sands are underlain by recent clays and sands of the upper Port Durnford Formation of the Maputaland Group. The Port Durnford Formation rests unconformably on either Cretaceous sediments or partially calcified / lithified sediments of the Uloa or Umkwelane Formations. It comprises a succession of carbonaceous muds and sands, with basal sandstones, black muds and lignite in evidence. Nearer the surface however, white and orange mottled clayey sands are overlain by younger dune sands, which cover much of the coastal plain.

The area is prone to chemical weathering rather than mechanical weathering, which implies that it is expected that low lying areas will be due to the weathering of igneous rock (granite), while high lying areas will consist of sedimentary and metamorphic rock (EkoInfocc and Associates, 2019).

### *4.4.3 Soils and Agricultural Potential*

The soil parent material in the area is described as "Yellowish redistributed sand" code Qs (Council for GeoScience geological survey map no. 2732, St Lucia). Corridor alternative 1 consists of mostly a Moderate-High Land Capability (LC) with the central segment consisting of Moderate LC (refer Figure 4.1). Then towards the starting and end segments of Corridor alternative 1 there are portions of High LC. Corridor alternative 2 land capability is initially identical to Corridor alternative 1 from the 400MW gas to power facility given the identical routing initially. However, Corridor alternative consists mostly of Moderate-High LC with only the sections nearer the switching substation showing elevated land capability classes (specifically high LC). The entire switching footprint is Moderate-High LC and with minor portions of Moderate and Moderate-High LC towards the periphery of the 500m assessment regions.

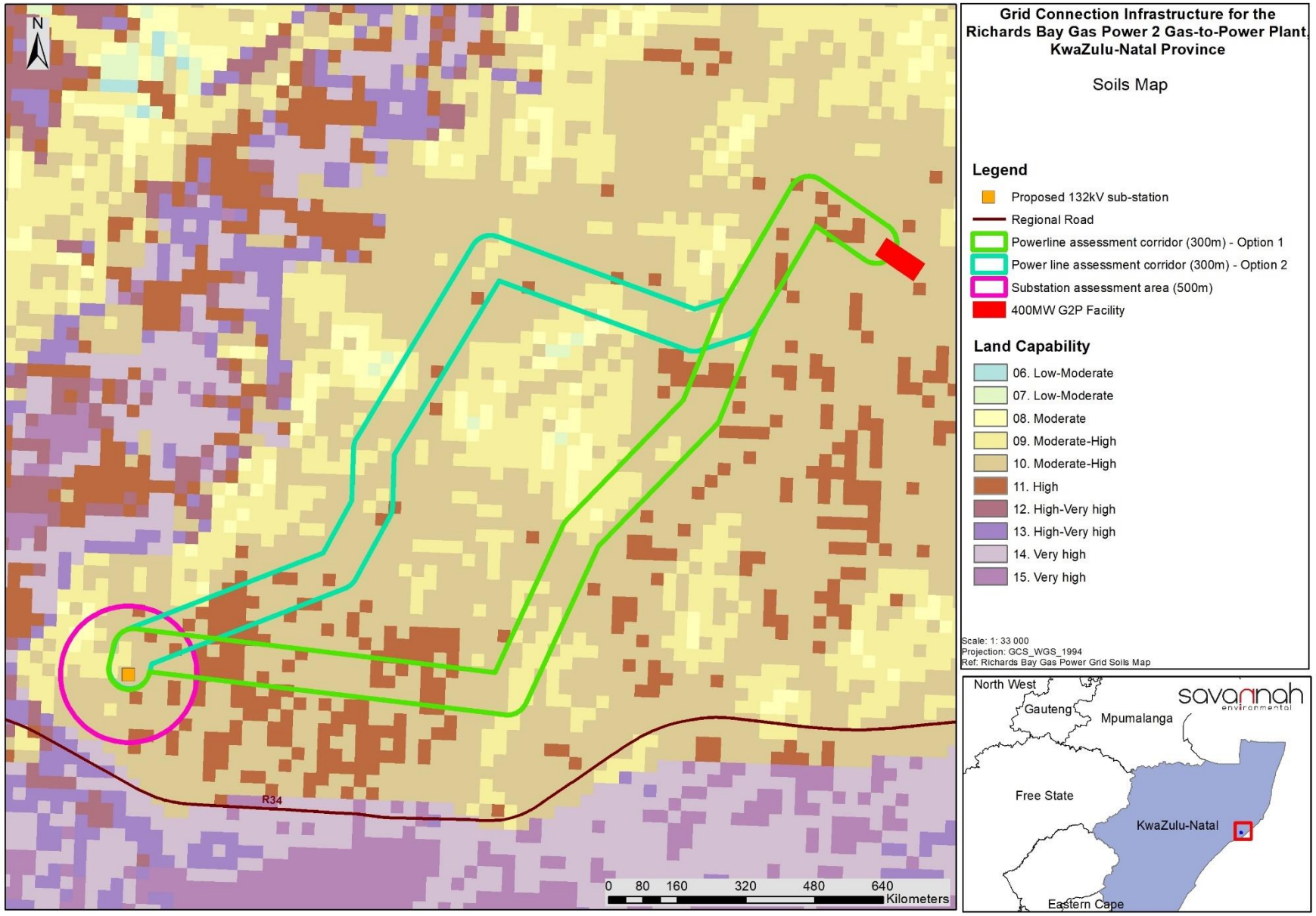


**Figure 4.1:** Soils and land capacity in the study area (as determined form existing information)

Based on aerial imagery of the area, current land use within the two grid connection corridors are not primarily agricultural, with a mixed land use of natural areas, waterbodies, plantations, degraded areas, urban developments and a wide variety of small and heavy industries evident along the two grid connection corridors and the switching station 500m assessment area (refer to **Figure 4.2**). As such, while the study area does consist of regions of moderate-high and high land capability, the current land use may not be significantly disturbed by the presence of overhead power lines on regions that are not predominantly used for agriculture currently. Further investigation into the exact land use and agricultural potential of the site will however be required during the

### *4.4.4 Ecological Profile*

**i) <u>Fauna</u>**

The faunal baseline for the development corridor is based on work done for similar projects within the broader region, in particular that of the (now authorised) Richards Bay Combined Cycle Power Plant (CCPP) and Associated Infrastructure on a site near Richards Bay, KwaZulu-Natal Province, which shares a large portion of the development corridor with that of this application, and is therefore expected to share a similar broad level baseline.

*<u>Mammals</u>*
The local occurrences of mammals are closely dependent on broadly defined habitat types, in particular terrestrial, arboreal (tree-living), rupiculous (rock-dwelling) and wetland/aquatic-associated vegetation cover rather than fine-scale vegetation mapping. The specific assemblages of the habitat types within the grid assessment and switching station corridor will therefore largely determine the mammal species likely to be present within the assessment region.

Since all mega-mammals and many of the large and medium sized ungulates (i.e. elephants, rhino, wildebeests, buffalo, lions, spotted hyenas, Sable antelope, Roan antelope) have long since been extirpated by hunting, poaching, and to favour urban and industrial developments, they can only be found in protected areas and have, therefore not been considered for the grid development and switching station assessment corridors.

Furthermore, all feral mammal species expected to occur on the proposed assessment corridor (e.g. house mice, house rats, dogs and cats) were omitted as these cannot be considered when estimating the conservation value of the project areas. As a result of urban sprawl, hunting and poaching pressure, few of the larger mammal species are expected to be present in the study area, however, the grasslands and trees offer habitat to a variety of small mammal species such as rodents, shrews and bats.

A total of 50 mammal species were determined by a previous study[2] to be likely potentially occur within the segments of the assessment area. It should be noted that potential occurrence was interpreted as to be possible over a period of time as a result of environmentally induced expansion and contractions of population densities and ranges which simulates migration.

[2] Rautenbach, A., 2017. Ecological Scoping Report: The Proposed Development of the Richards Bay Combined Cycle Power Plant (CCPP) and Associated Infrastructure on a site near Richards Bay, KwaZulu-Natal Province.

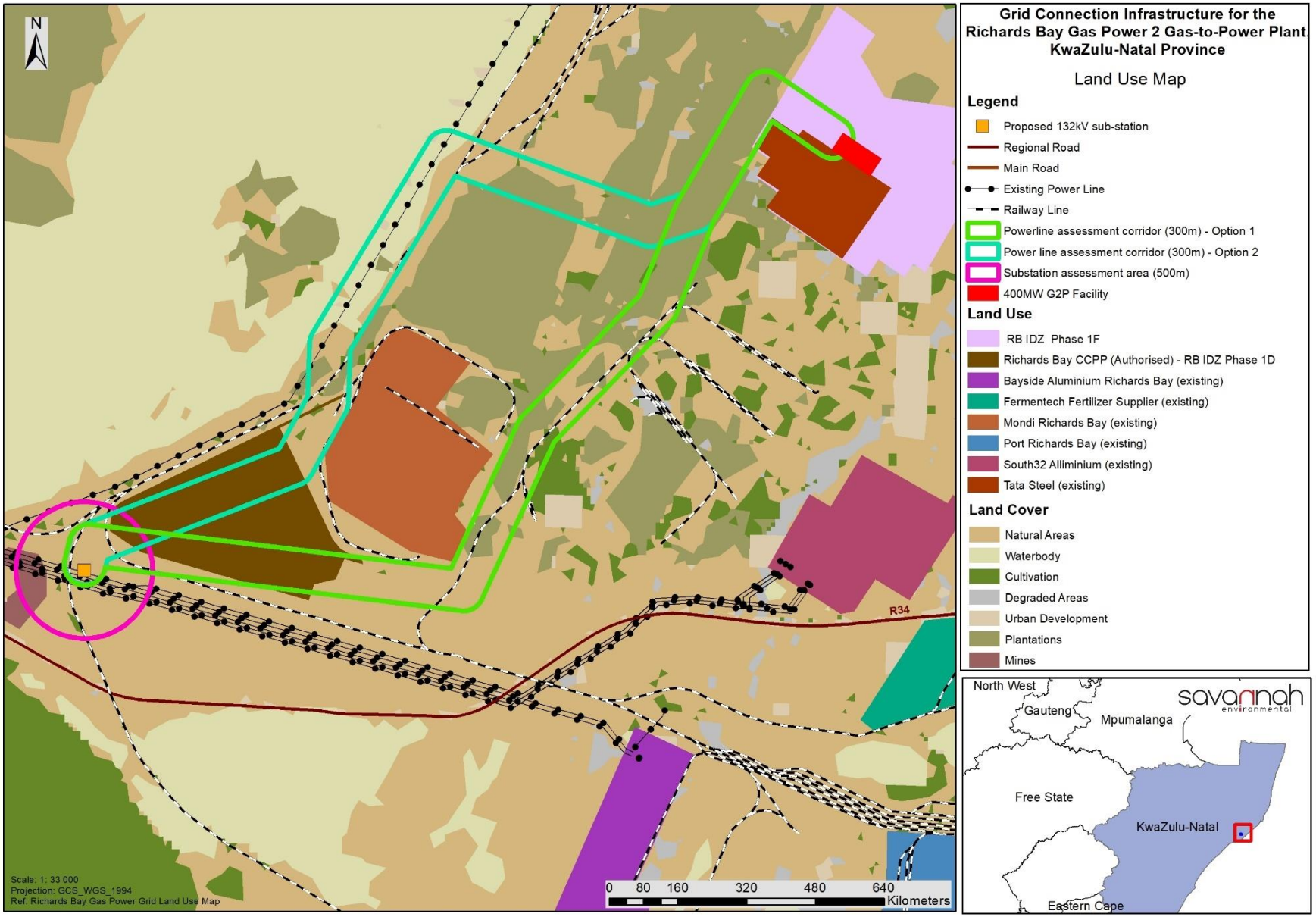


**Figure 4.2:** Land use in the Richards Bay area (as determined from existing information)

The majority of the species determined likely within the grid connection corridor were found to be common and widespread, all with wide habitat tolerances. The reason for their survival success lies predominantly in their remarkable reproductive success and wide habitat tolerance (viz. Natal multimammate mouse, Pygmy mouse, Woodland dormouse; Skinner & Chimimba, 2005).

Several of the bat species listed, for example the Little free-tailed bat, Angola free-tailed bat, Egyptian free-tailed bat, Egyptian slit-faced bat, Cape serotine, Banana bat and Dusky pipistrelle, shows remarkable adaptivity by expanding their distribution ranges and population numbers significantly by capitalising on the roosting and feeding opportunities offered by near-by manmade structures (Schoeman & Waddington, 2011; Schoeman, 2016; Appendix 3).

Mongooses and genets are reticent in habits and manage to persist as long as prey densities remain above the nutritional requirements (Skinner & Chimimba, 2005). Adaptive traits such as behavioral plasticity enable vervet monkeys to persist in apparently unsuitable environments, even at small spatial scales (Healy & Nijman, 2014).

Eight Red Listed /Protected mammal species were found to have a Medium - High Probability of occurring within the grid corridor assessment region, detailed briefly below.

**African Striped Weasels** are mainly found in savanna associations, although this species probably has a wide habitat tolerance, and are generally found in areas that support their main prey, small mammals. However, due to their secretive nature, this species are often overlooked and rarely encountered (Skinner & Chimimba, 2005). They are listed as 'Near Threatened' on the IUCN Red List (2016), and are protected under Schedule 3 of the KZNEBPA (2014).

Although the **Botswana Long-eared bat** and **Hairy Slit-faced bat, Lesser Woolly bat** and **Sundevall's Leaf-nosed bat** do not appear on the most recent National Red list (2016), they are protected under Schedule 3 of the KZN-EPBA (2014). Prohibited activities are for example, hunting, killing by fumigation; restriction on activities which may damage breeding or roosting sites, possession, breeding, selling, making available for sale or otherwise trade in, buying, receiving, giving, donating or accepting as a gift, or in any way acquire or dispose of, capture, collect, immobilise, kill, translocate, release, display, export, import or keeping in captivity.

**Swamp Musk shrews** are habitat specialists and occur in moist, swampy habitats (Skinner & Chimimba, 2005) such as the areas surrounding the wetlands within the grid assessment corridor, and can be a common and locally abundant species in suitable habitat. However, current population numbers are declining as a result of wetland habitat loss and degradation across its range (Taylor et al., 2016).

**Thomas's House bat** has been sparsely recorded from the eastern parts of the region and is known from only a few scattered localities in South Africa. It appears to be associated with low-lying, humid savannas of the coastal plains of Mozambique and KwaZulu-Natal, especially where rivers and wetlands occur (Monadjem et al., 2010).

Although **Vervet monkeys** are listed as of 'Least Concern', they appear under Appendix II of CITES. Appendix II lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled. Vervet monkeys are also protected under Schedule 3 of the KZNEBPA (2014).

*Herpetofauna*

The local occurrence of reptiles are closely dependent on broadly defined habitat types, in particular terrestrial, arboreal (tree-living), rupiculous (rock-dwelling) and fossorial (underground), rather than fine scale vegetation types. It is therefore possible to deduce the presence or absence of reptile species by evaluating the habitat types within the context of global distribution ranges.

The grid corridors offer, amongst others, terrestrial, arboreal and fossorial habitats. For frogs, suitable environmental conditions, especially breeding sites, are critically important and most species tend to be located in very specific microhabitats such as pools, ponds, streams, marshlands, rocky outcrops and open grassveld (du Preez & Carruthers, 2009). The study area offers two frog habitats, namely grassveld and aquatic.

A total of 48 reptile and 38 frog species were determined to potentially occur within the broader area, with the majority of the reptile and frog species being common and widespread. No Red Listed/Protected reptile species were expected to be present on the study area. Red Listed/Protected frog species with a Medium – High probability of occurrence are however discussed below:

**Pickersgill's Reed frog** is a habitat specialist occurring primarily in Indian Ocean Coastal Belt Vegetation Group 2, which is Critically Endangered and poorly protected. It requires perennial wetlands comprised of very dense reed beds at low altitudes (Raw, 1982; Armstrong, 2001; Bishop, 2004). It also requires an understory of thick vegetation, such as Snakeroot (Persicaria attenuata), from which males call and taller broad-leaved vegetation, including the Common Reed (*Phragmites australis*), Bulrushes (*Typha capensis*), and sedges (*including Cyperus dives, C. latifolius and C. papyrus*) on which to lay its eggs (Raw, 1982; Bowman, 2011; Tarrant & Armstrong, 2013). It is associated with deeper areas of water within wetland systems (20-80 cm) (Trenor, 2014). Of importance is that such sites often do not appear as being in pristine condition.

**Spotted Shovel Nosed frogs** were also determined to inhabit grassland and savannah where it breeds in seasonal pans, swampy areas, and in pools near rivers. It nests in burrows in wet soil by temporary water, and tadpoles move to water to development (Mintner et al., 2004). These frogs are mostly fossorial and are rarely observed since they only surface after heavy rain.

Although Pickersgill's Reed frog was only determined to have a Medium probability of occurrence within the previous assessment done, the grid connection corridors falls well within the distributional range of potential populations and subpopulations. The loss of any site where Pickersgill reed frogs may occur will have serious implications for the total population, therefore it is critical to conduct a thorough survey to establish whether Pickersgill' reed frog, or Spotted Shovel Nosed frogs occur in the wetland areas present within the grid connection corridors, as well as on wetland areas adjacent to the study area.

**ii) Avifauna**

The following bird microhabitats are present in the study area:

» Grassveld
» Inland water

Grassveld cover is low and sparse, and generally in a poor ecological state as a result of overgrazing and alien plant invasions. Inland water habitats are represented by the variety of wetland systems within the study area. Where access is not controlled, these area subject trampled by watering cattle.

The study area falls within the distributional range of ~341 bird species. A site visit conducted for a previous study[3] found the presence of 11 species, all of which were abundant widespread their distributional range.

Several species of conservation concern which were determined previously to have a Medium – High probability of occurring within the grid connection corridor, or to be occasional visitors to the broader study region are listed in Table 4.1 and discussed below.

Grey Crowned Cranes typically require mixed wetland-grassland habitats, where they nest within or on the edges of wetlands, while foraging in wetlands and nearby grasslands. Foraging takes place in short to medium height open grassland, lightly wooded savannah and agricultural fields. Although the wetlands and grasslands in the grid connection corridor were regarded as being in poor ecological condition by Rautenbach (2017), the area has been identified as a possible breeding site for Grey Crowned Cranes (Nel et al., 2011) and therefore the presence of this species should be considered. Grey Crowned Cranes have a Regional and Global IUCN listing of 'Endangered', as well as a National (NEMBA, 2015) and Regional (KZNEBPA, 2014) listing of Endangered.

With the exception of the Fiscal Flycatcher and Cape White Eye, the rest of the species listed in Table 4.1 are protected under Schedule 3 of the KZNEPBA (2014). Schedule 3 lists protected species and provides for certain prohibited and restricted activities in respect of such species. Prohibited activities include hunting, and restricted activities including the disturbance, destruction, damage or removal of nests, the possession, breeding, selling, making available for sale or otherwise trade in, buying, receiving, giving, donating or accepting as a gift, or in any way acquiring or disposal of, capturing, collection, immobilisation, killing, translocation, release, display, export, import or keeping and captivity of any species listed under Schedule 3.

Other noteworthy species include the near-endemic Fiscal Flycatcher and Cape White Eye (Table 4.1). Near-endemic species are those with their distributional range at least 70 % restricted to South Africa, Lesotho and Swaziland. It poses a special conservation responsibility to the region's conservation authorities, government, landowners and citizens. Even though these species have wide distributional ranges within the region and have a conservation ranking of 'Least Concern', and some rank among our most widespread and abundant birds (i.e. Cape White Eye, Fiscal Flycatcher), all endemic species require some vigilance (Taylor et al., 2015) to ensure that population numbers stay stable.

[3] Rautenbach, A., 2017. Ecological Scoping Report: The Proposed Development of the Richards Bay Combined Cycle Power Plant (CCPP) and Associated Infrastructure on a site near Richards Bay, KwaZulu-Natal Province.

**Table 4.1:** A list of Red Listed/Protected bird species expected to occur on the broader study area, or to be occasional visitors (Rautenbach, 2017).

| | | | Conservation Status | | | |
|---|---|---|---|---|---|---|
| **Common Name** | **Scientific Name** | **Habitat** | **Red List Category (Regional/ Global)** | **NEMBA (2015)** | **KZN-EBPA (2014)** | **Probability Of Occurrence** |
| Bishop Yellow-crowned | *Euplectes afer* | Marshes and wetlands | | | Sched 3 | HIGH |
| Bittern Little | *Ixobrychus minutus* | Bulrushes and reedbeds | | | Sched 3 | MEDIUM |
| Buttonquail Kurrichane | *Turnix sylvaticus* | Open savanna woodland, cultivated and fallow fields | | | Sched 3 | MEDIUM |
| Buzzard Steppe | *Buteo vulpinus* | Open woodland, grassland and agricultural areas | | | Sched 3 | MEDIUM |
| Canary Brimstone | *Crithagra sulphuratus* | Montane schrublands to coastal forest margins | | | Sched 3 | HIGH |
| Crane Grey Crowned | *Balearica regulorum* | Marshes, pans, dam margins with tall emergent vegetation | EN/EN | EN | Shed 3 | LOW |
| Eagle Long-crested | *Lophaetus occipitalis* | Moist woodland adjacent grassland, marshes, drainage lines | | | Sched 3 | MEDIUM |
| Eagle-owl Spotted | *Bubo africanus* | Tolerant to a wide variety of habitats and has adapted to suburban areas | | | Sched 3 | MEDIUM |
| Egret Cattle | *Bubulcus ibis* | Open grassland and agricultural lands | | | Sched 3 | HIGH |
| Egret Little | *Egretta garzetta* | Most shallow water bodies | | | Sched 3 | MEDIUM |
| Egret Yellow-billed | *Egretta intermedia* | Shallow water margins and flooded wetlands | | | Sched 3 | MEDIUM |
| Falcon Amur | *Falco amurensis* | Grassland, lightly wooded grassland and cropland margins | | | Sched 3 | MEDIUM |
| (*) Flycatcher Fiscal | *Sigelus silens* | Open woodland, from moist to semi-arid regions | | | | HIGH |
| Guineafowl Helmeted | *Numida meleagris* | Widespread from near-desert to forest margins | | | Sched 4 | HIGH |
| Lapwing Black-winged | *Vanellus melanopterus* | Short grassland, from the highlands to coastal flats | | | Sched 3 | HIGH |
| Owl Barn | *Tyto alba* | Open habitat (Not forest) | | | Sched 3 | HIGH |
| Quailfinch African | *Ortygospiza atricollis* | Short open grassland near water | | | Sched 3 | HIHG |
| Waxbill Orange-breasted | *Amandava subflava* | Moist grasslands and wetland margins | | | Sched 3 | MEDIUM |

| | | | Conservation Status | | | |
|---|---|---|---|---|---|---|
| **Common Name** | **Scientific Name** | **Habitat** | **Red List Category (Regional/ Global)** | **NEMBA (2015)** | **KZN-EBPA (2014)** | **Probability Of Occurrence** |
| (*) White-eye Cape | *Zosterops virens* | All wooded habitats, from sea level to about 2770 m. | | | | HIGH |

**iii) Flora**

The study area falls within the following KZN vegetation biomes and vegetation types (refer to **Figure 4.3**):

» Maputaland Coastal Belt (EN);
» Maputaland Wooded Grassland (EN); and
» Subtropical alluvial vegetation (LC).

The dominant vegetation type in the study area is **Maputaland Wooded Grassland**, which is classified as Endangered. This vegetation type typically supported coastal sandy grasslands rich in geoxylic suffritices, dwarf shrubs, small trees and very rich herbaceous flora.

Important taxa of Maputaland Wooded Grasslands include the following species:
» Geoxylic suffritices: *Parinari curatellifolia, Salacia kraussii, Ancylobotrys petersiana, Diosporys galpinii, Eugenia capensis, Syzigium cordatum*.
» Gramminoids: *Diheteropogon amplectens, Themeda triandra, Aristida stipitata* subsp. *graciliflora, Bewsia biflora, Cyperus obtusiflorus, C. tenax, Digitaria natalensis, Eustachya paspaloides, Setaria sphacealata, Sporobolus fimbriatus, S. subulatus, Urelytrum agropyroides*.
» Herbs: *Chamaecrista plumose*.
» Geophytic herb: *Cyrtanthus galpinii*.
» Low shrubs: *Helichrysum krausii, Agathisanthemum bojeri, Crotalaria monteiroi var. monteiroi*
» Small trees and tall shrubs: *Acridocarpus natalitius var. linearifolius, Dichrostachys cinerea* subsp. *nyassana, Diospyros lycioides* subsp. *sericea, Hyphaene coriacea, Terminalia sericea*.

Biogeographically important taxa:
» Geoxylic suffritices: *Eugenia albanensis, Gymnosporia markwaardii*.
» Graminoids: *Abildgaardia hygrophila, Cyperus natalensis*.
» Herbs: *Helichrysopsis septentrionale, Oxygonum robustum, Tricliceras mossambicense*.
» Tall shrubs: *Grewia microthyrsa*.
» Woody climers: *Albertisia delagoensis, Cissampelos hirta*.

Endemic taxa:
» Geoxylic suffritices: *Ochna* sp. nov., *Syzygium cordatum*.
» Succulent herb: *Aloe* sp. nov. (Strey 5100 PRE).
» Geophytic herb: *Brachystelma vahrmeijeri*.

The **Maputaland coastal belt** vegetation type is generally found along a 35km broad strip along the Indian Ocean between Mozambique and Mtunzini, with an altitude variation of between 20 and 120 metres (Mucina and Rutherford, 2012).

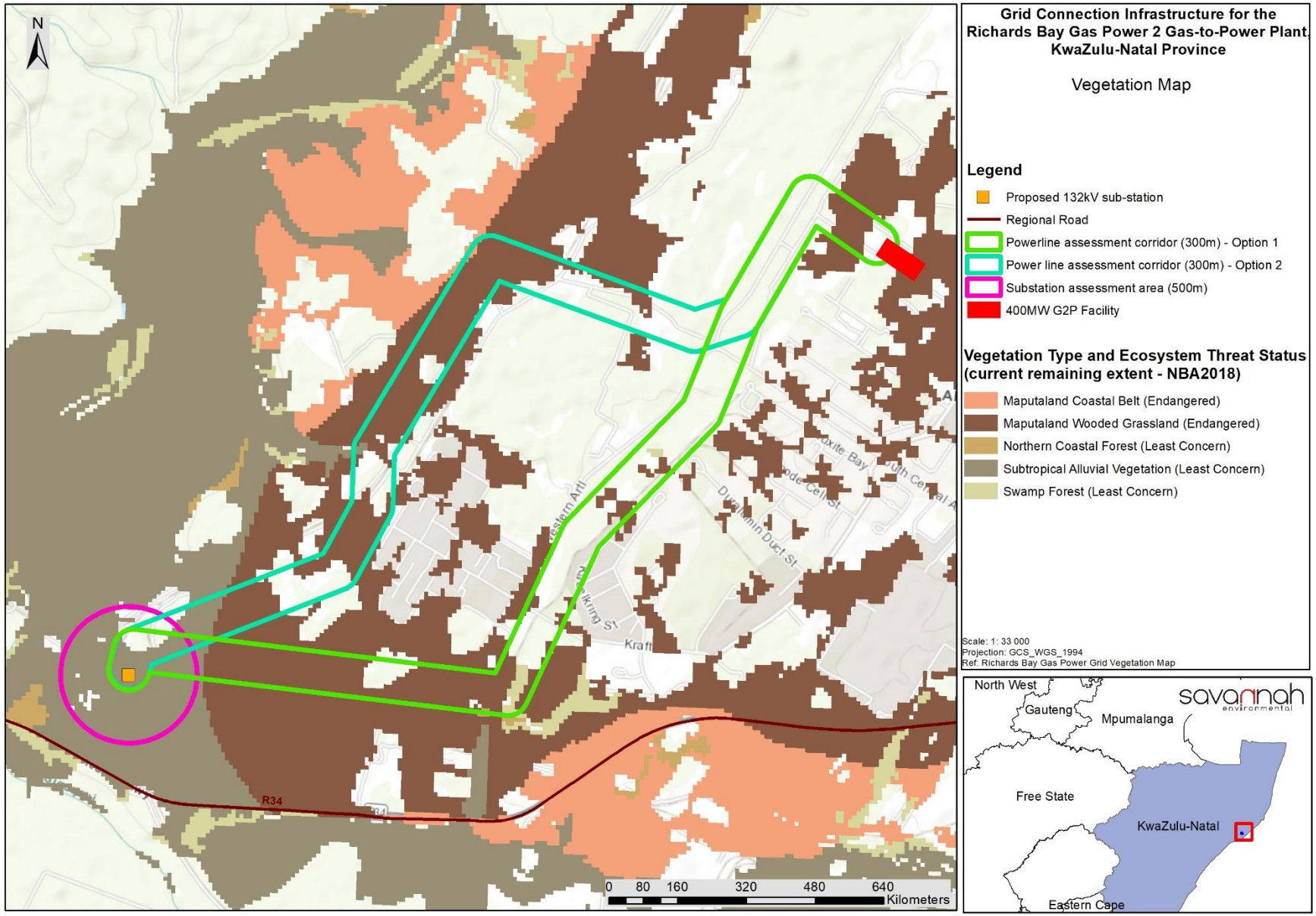


**Figure 4.3:** Vegetation within the study area

This vegetation type is commonly found on coastal plains to densely forested placed with a wide range of interspersed nonforest plant communities, including dry grasslands, hygrophilous grasslands and thicket groups. Today this vegetation type is comprised of pockets of various forest types, thickets, primary and secondary grasslands, timber plantations and cane fields (Mucina and Rutherford, 2012). This vegetation type is found on quaternary sediments of marine origin, mainly yellow and argillaceous redistributed sands, which are nutritionally poor and well leached soils except were interdune depressions consolidate organic rich soils. The vegetation type is further located in places of high rainfall (1200mm annually) and high humidity and temperatures, devoid of frost (Mucina and Rutherford, 2012).

Important taxa for this vegetation type includes:

- Low shrubs: *Agathisanthemum bojeri, Helichrysym kraussii, Tephrosia longipes,*
- Small trees & tall shrubs: *Syzygium cordatum, Acacia natalitia, Annona senegalensis, Apodytes dimidiate, Bridelia cathartica, Canthium inerme, Chrysanthemoides monilifera, Euclea natalensis, Ficus burtt-davyi, Kraussia floribunda, Phoenix reclinate, Rhus natalensis, Scleroctroton integerrimum, Strychnos pinosa.*
- Woody climbers: *Abrus precatorius, Smilax anceps*
- Herbs: *Achyranthes aspera, Centella asiatica, Chamaecrista plumosa, Hermbstaedtia odorata, Vernonie centaureoides, Vernonia oligocephala*
- Graminoids: *Diheteropogon amplectens, Eragrostic sclerantha, Ischaemum fasciculatum, Themedia triandra, Yrelytrum agropyroides, Aristida stipitate, Cymbopogon posposchilii, Elionurus mutics, Eragrostis inamoena, E. lappila, Sporobolus subulatus, Trachypogon spicatus, Trichoneura grandiglumis, Tristachya leucothrix.*

An assessment considering the presence of any flora species of conservation concern, as well as suitable habitat to support any such species was undertaken by Rautenbach (2017), which found that the region near the switching station and grid connection corridors towards the south of the alignments were in poor ecological condition; however some natural vegetation was still present and the presence of Red Listed/Protected flora species should be considered. Based on geographic distribution, altitude and climate, several flora species of conservation concern (SCC) were deemed to have a Medium to High Probability of occurring within the grid connection corridors and switching station site. The presence or absence of such species should thus be confirmed during the EIA phase assessment by virtue of a field assessment. Where species are to be damaged or destroyed, authorisation from DEFF will be required prior to commencing work. Permit authorisation may also be required from eKZN to remove or re-locate this species.

**iv) <u>Wetlands</u>**

Numerous natural wetlands (unchanneled valley bottom, depression, seep and riverine wetlands) are found within the grid connection corridors, of varying conditions and rankings (refer to **Figure 4.4**). No artificial wetlands were determined from desktop sources to be present within the grid connection and switching station assessment regions.

The corridor for alternative 1 contains three natural wetland systems of rank 2, and wetland condition AB and C respectively. Rank 2 wetlands are wetlands within 500m of IUCN frog point localities, threatened waterbird point localities, have sightings or breeding areas for wattled cranes, grey crowned cranes and blue cranes, or were identified by experts as being within a catchment of exceptional biodiversity importance.

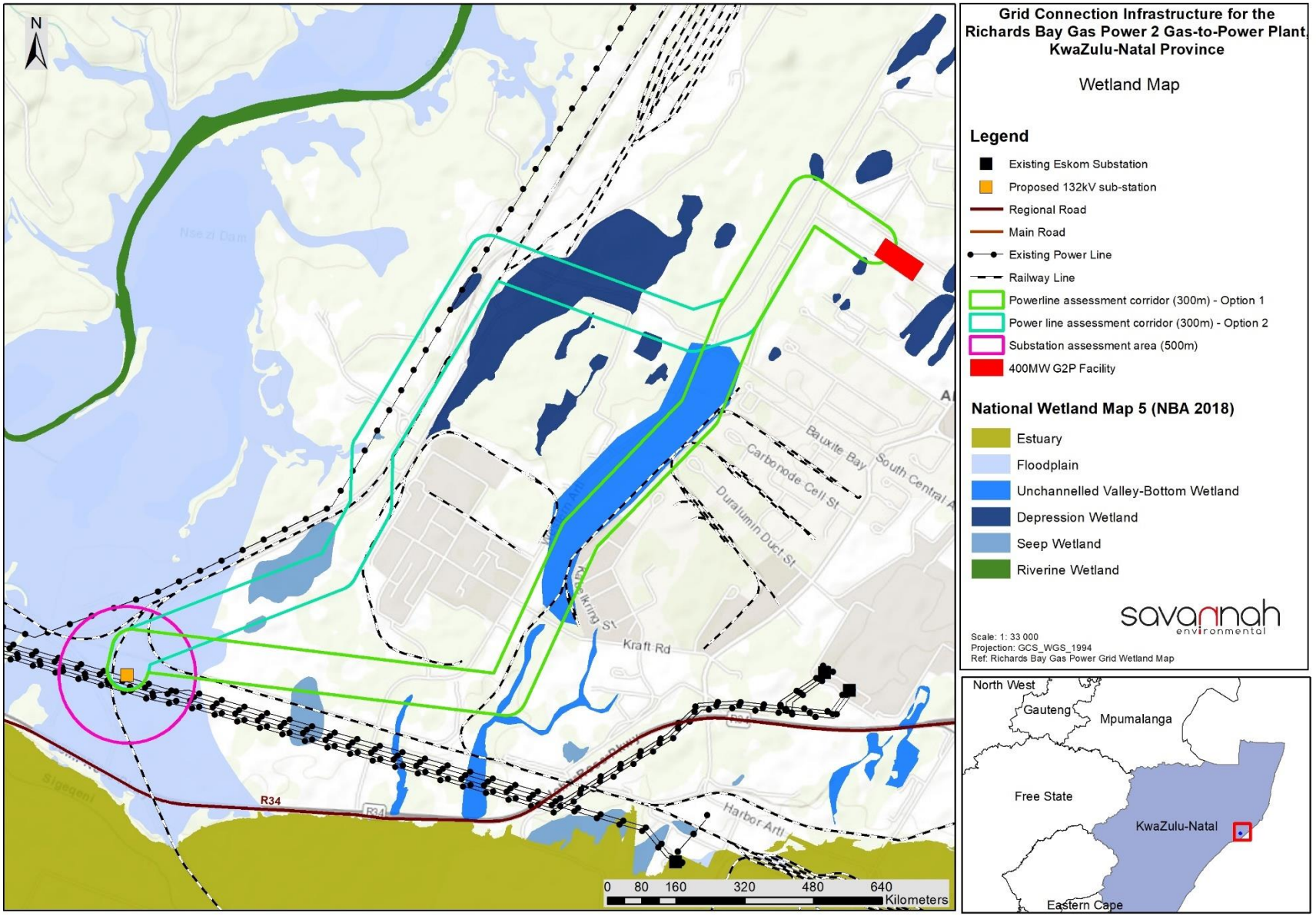


**Figure 4.4:** Wetlands identified in the study area from existing information available

As such, wetlands with this rank are reasonably expected to contribute at local and regional scales to important waterbird or frog habitats and represent in-tact and well-functioning wetland features within the landscape. Furthermore, wetlands with condition AB are regarded as wholly intact, whereas class C wetlands are riverine wetlands forming part of a class C river. In both instances, these classes highlight the ecological importance and likely high sensitivity of these features, which must therefore be avoided within the design and layout of the facility as far as possible.

The corridor for alternative 2 similarly has six natural wetland features, all of rank 2 and condition classification of AB or C (in the case of only two of the features). As such, these wetlands are similarly expected to contribute strongly to regional and local ecological habitat provision and function, and are to be conserved as far as possible in the design of the infrastructure.

The switching station footprint falls within a floodplain and contains one wetland feature of rank 2 and class AB.

Based on the baseline findings, it is recommended that layout alternatives attempt to avoid the wetland areas and accompany a buffer zone.

**v) <u>Critical Biodiversity Areas</u>**

The provincial scale KZN Systematic Conservation Plan (KZNSCP 2012) and the district scale UThungulu Biodiversity Sector Plan (KZNBSP 2014) identifies and map critical biodiversity areas and ecological support areas within the Province. Biodiversity mapping covers terrestrial, aquatic and marine environs at Provincial and District scales. The KZNSCP 2012 planning product highlights the key priority areas for biodiversity conservation as reflected against a uniform biome i.e. the marine, estuarine, freshwater and terrestrial biomes, while the KZNBSP 2014 is a higher order spatial planning tool which takes into consideration locally identified CBA and ESA localities, as well as incorporates priorities identified at a national level.

The following CBA categories are used in the used in the KwaZulu-Natal Systematic Conservation Plan (KZNSCP 2012):

- **CBA 1** (Mandatory): Areas representing the only localities for which the conservation targets for one or more of the biodiversity features contained within can be achieved i.e. there are no alternative sites available.
- **CBA 2** (Mandatory): Areas of significantly high biodiversity value. There are alternate sites within which the conservation targets can be met for the biodiversity features contained within, but not many.
- **CBA 3** (Optimal): These areas are not necessarily of lower biodiversity value, but only indicate that there are more alternate options available within which the features located within can be met.
- **Biodiversity Areas/Other Natural Areas**: Areas representing the natural and/or near natural environmental areas which still have biodiversity value, but it is preferred that development be focused within these areas.

It is important to note that categorical classes of CBAs and ESAs are reflected differently in the KZNSCP 2012 (detailed above) and KZNBSP 2014 plans (detailed below). The KZNSCP 2012 planning product highlights the key priority areas for biodiversity conservation as reflected against a uniform biome i.e. the marine, estuarine, freshwater and terrestrial biomes, while the KZNBSP 2014 is a higher order spatial planning tool which takes into consideration locally identified CBA and ESA localities, as well as incorporates priorities

identified at a national level. The KZNBSP 2014 is reflected as biodiversity sector maps consisting of two main layers, namely Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), a summary of which area detailed below.

- **Critical Biodiversity Areas - Irreplaceable:** Areas considered critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable populations of species and the functionality of the ecosystems.
- Critical Biodiversity Areas - Optimal: Areas that represent an optimised solution to meet the required biodiversity conservation targets while avoiding areas where the risk of biodiversity loss is high. Category driven primarily by process but is also informed by expert input.
- **Ecological Support Areas (ESAs):** Functional but not necessarily entirely natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the CBAs. These areas also contribute significantly to the maintenance of ecological infrastructure.
- **Ecological Support Areas - Species Specific:** Terrestrial modified areas that provide a support function to a threatened or protected species.

Most of the proposed development footprint on the study area falls into an area classified as 'Biodiversity areas' (refer **Figure 4.5**). These areas represent the natural and/or near natural environmental areas not identified as CBA areas, but still considered to be of biodiversity value.

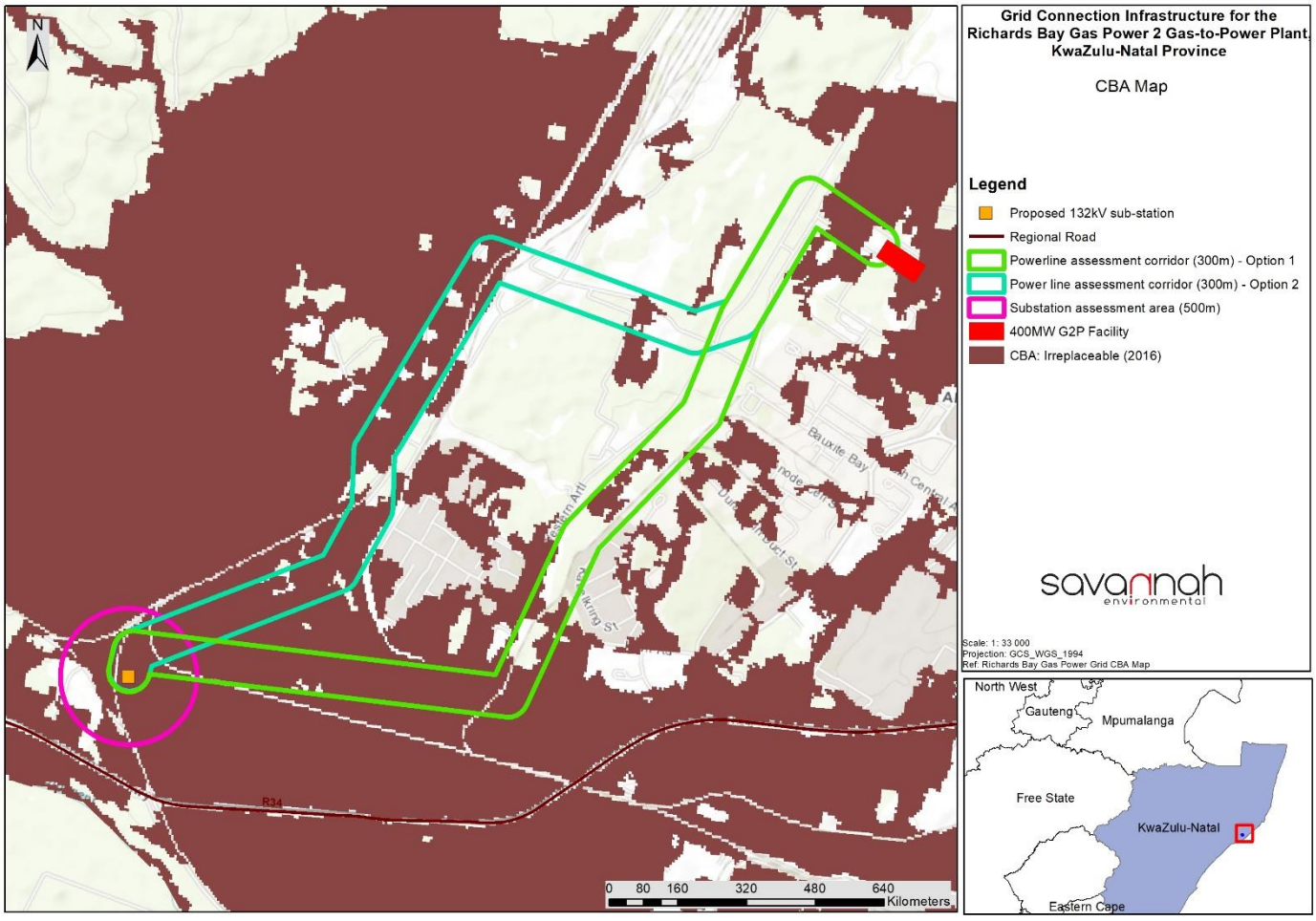


**Figure 4.5:** CBA classification of the study area from existing information available

**vi) Protected Areas**

There are only two proclaimed terrestrial protected areas within the region, namely; the Enseleni Nature Reserve to the north-west and the Richards Bay Nature Reserve south of the study area.

### 4.5 Visual Considerations

The industrial activities, the Richards Bay IDZ and the transportation infrastructure related to the port are the primary land use activities within the study area. This and the intensive forestry and sugar cane production to the north (and south) account for the largest economical drivers within the region. There is a well-established railway network and a large number of electricity distribution and transmission power lines traversing the study area (refer to **Figure 4.2**).

The N2 national road, the R34 arterial road (John Ross Parkway) and the R619 main road provide motorised access to the region. The John Ross Parkway traverses south of the proposed development site, and is expected to be the quickest access road (via Alugang and Kraft Link Roads) to the site.

The majority of residential areas within Richards Bay are located north of the city and east of the R619 main road. Residential neighbourhoods include Arboretum, Birdswood, Veld-en-Vlei and Wilde-en-Weide.

### 4.6 Heritage features of the region

Richard's Bay began as a makeshift harbour established during the Anglo-Zulu War of 1879. The town was laid out on the shores of the lagoon in 1954 and proclaimed a town in 1969. In 1976 Richards Bay harbour was converted into a deep-water harbour with a railway and an oil/gas pipeline linking the port to Johannesburg. In 1965 the South African Government decided to build a deep-sea harbour at Richard's Bay which was completed on 1 April 1976. According to Anderson (2009, SAHRIS NID 309928), "Port Durnford had been used since the 1870s as a regular port by the British Navy. The Richards Bay Harbour is north of this port that was originally envisaged i n 1902. The environment surrounding the harbour has been heavily impacted by the original harbour construction in the early 1970s. The harbour dredged the deep Thulazihleka Lake and cleared areas to create a harbour entrance at the Mhlatuze River mouth. The lake was divided into two parts with the southern part of the lake becoming a sanctuary with its own newly created river mouth south of the harbour entrance. Subsequent to the harbour being built, the wetlands to the south of the harbour increased and large drainage canals have also been built. Some of these canals are part of the original rivers. There has also been a lot of industrial activity in the general area. The rest of the study area is under sugarcane agriculture with electrical, rail, gas pipeline, and vehicle servitudes. The general study area has been severely impacted by other activities." As such, the proposed development will not have a negative impact on any significant sense of place or cultural landscape.

A number of heritage impact assessments have been conducted in the Richard's Bay area, many of them by Anderson and others. According to Anderson (2009), "*Several archaeological and palaeontological sites have been recorded in the surrounding area: both inland and along the coast, and within a 10km radius of the development area. The archaeological surveys for Richards Bay Minerals clearly show that the coastal dune system is very sensitive in terms of archaeological sites (over 350 sites have been recorded in the mining lease). The construction of the Berth 306 revealed an important Cretaceous Layer in the harbour area.*" While the large number of known sites within the vicinity of the proposed development (refer Figure 4.6) is indicative of some archaeological sensitivity, the specific area proposed for development is located immediately adjacent to an area that was surveyed for archaeological resources by Anderson (2008, SAHRIS

NID 303819) and (2009, SAHRIS NID 309928). Anderson (2008) identified no heritage resources within the area assessed. Anderson (2009) identified 9 archaeological sites during his survey, only one of which was determined to have high heritage significance (RPB08, located more than 10km from the proposed development).

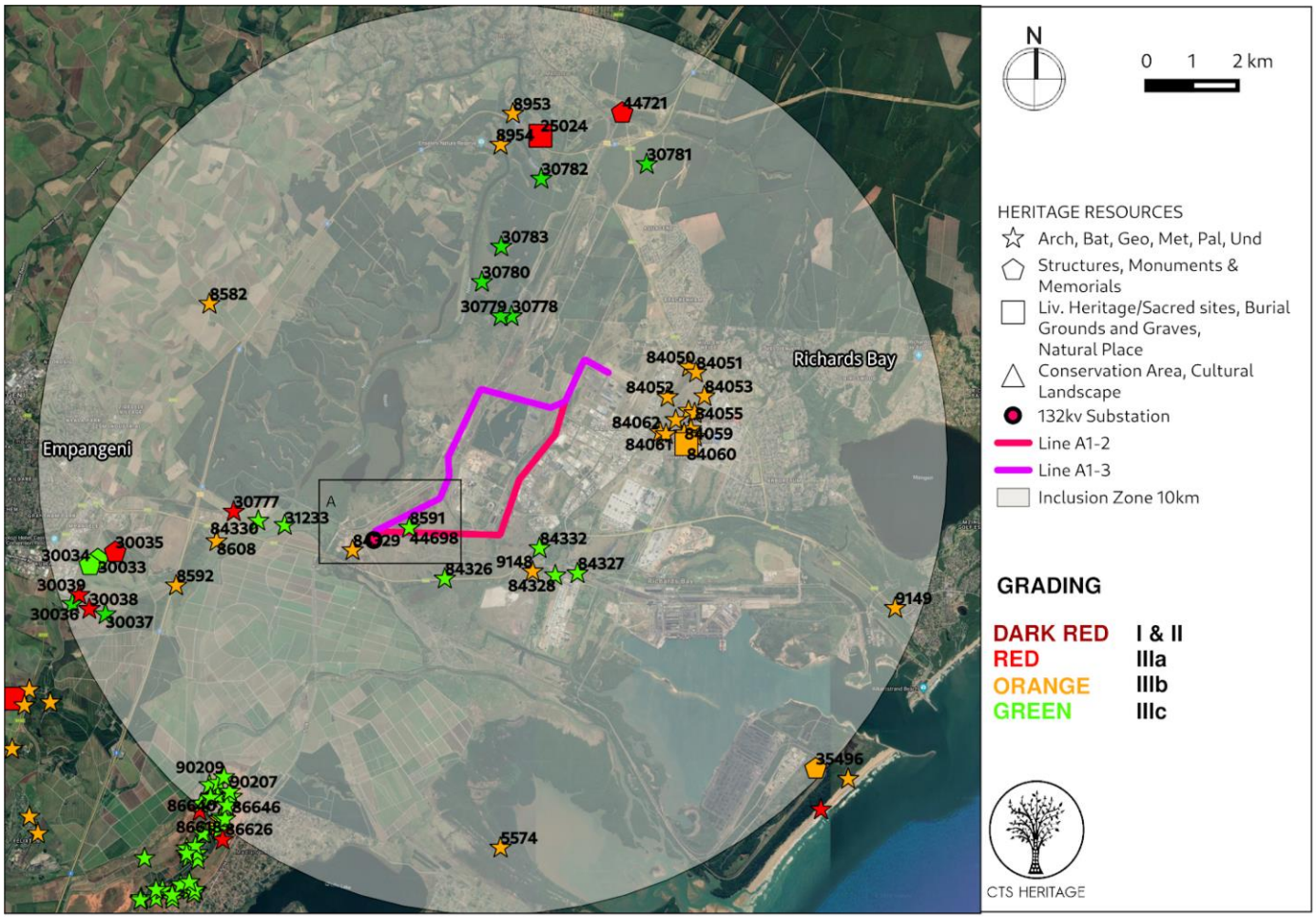


**Figure 4.6:** Heritage features within the broader study area of the grid connection and switching station corridors

The known heritage resources located in close proximity to the proposed development (refer Figure 4.7) are SAHRIS Site ID 84326, 84329, 44698 and 8591. Sites 84326 (RPB01) and 84329 (RBP04) were identified by Anderson (2009). He describes Site 84326 as "*located on a small hill besides the extended John Ross Parkway, overlooking the wetlands. The site consists of an ephemeral scatter of LIA pottery*." Site 84329 is described as "*located in the "base" of the hill and covers a wide area. The area is currently being used as a sand borrow pit and a quad-bike track. The artefacts are found at the interface of the white aeolian sand and the red sand. The artefacts consist of an ephemeral scatter of ESA and MSA stone tools over a very large area*." Anderson (2009) recommends that, as Early Stone Age artefacts are rare in this area, "*The area should be periodically monitored during construction activity and selected stone tools sampled*." In addition, Sites 8591 and 44698 are described as sites where material dating to the Stone Age has been identified, according to information supplied by Dr Gavin Whitelaw of the Natal Museum, Pietermaritzburg. Most of this material dates to the Middle Stone Age, although some also date to the Early Stone Age.

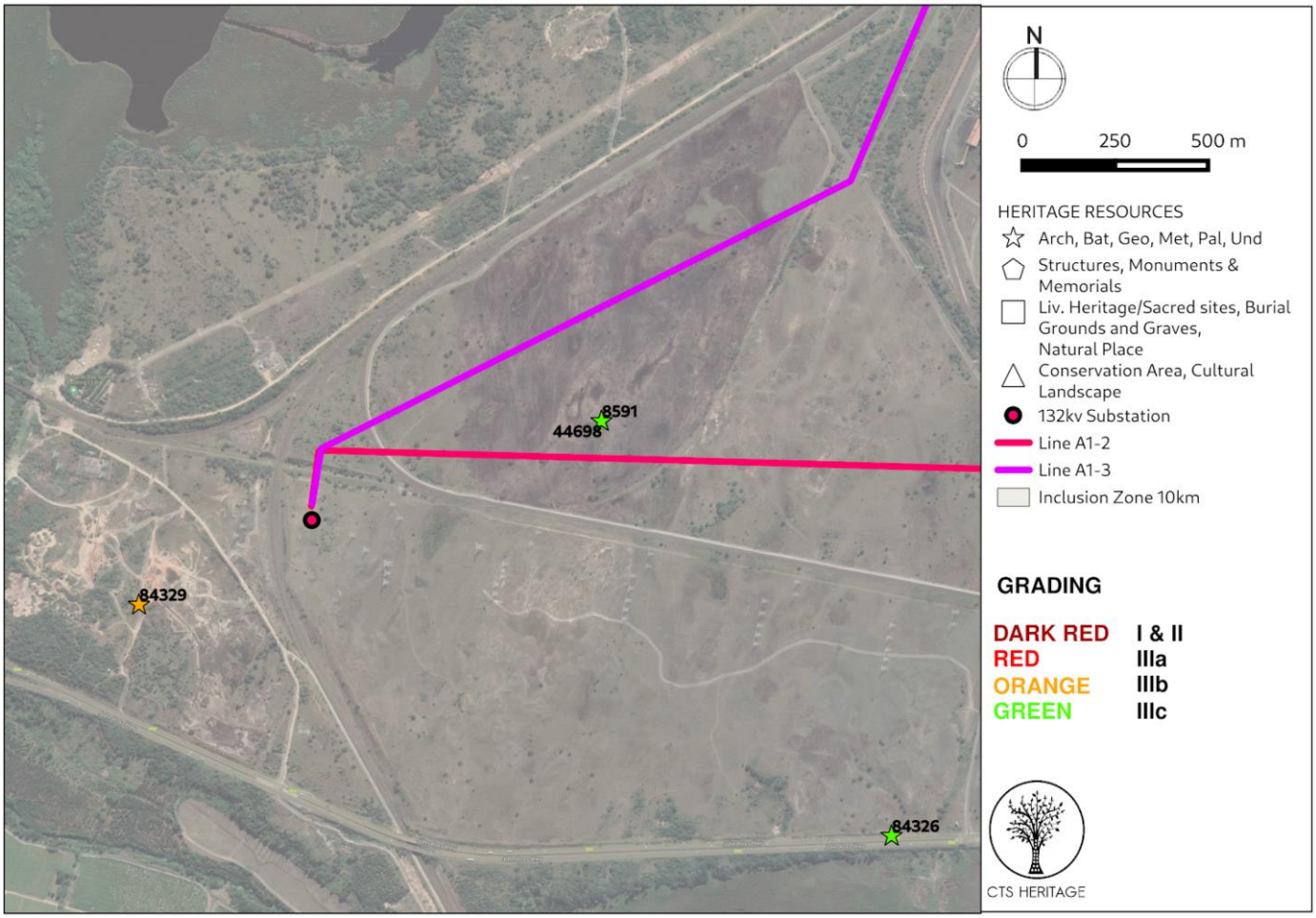


**Figure 4.7:** Inset map showing the heritage feature location near the switching station and grid connection corridor towards the southern alignment of the grid connection corridors.

Based on the distribution of these finds, there is a possibility that the archaeological resources identified by Anderson (2009) and others extend into the area proposed for the substation. As such, it is likely that archaeological resources will be impacted by the proposed development of the power line and switching station.

According to the SAHRIS Palaeosensitivity Map, the area proposed for development is underlain by sediments of low palaeontological sensitivity consisting of redistributed yellow quaternary sands. As such, it is very unlikely that the proposed development will negatively impact on significant palaeontological heritage and as such, it is recommended that no further palaeontological studies are required.

Based on the information available, there is no preferred alternative in terms of impacts to heritage at this stage.

The surveys undertaken in the area have previously identified heritage resources in proximity to the proposed development. These resources may be impacted and as such, it is recommended that an HIA that complies with the terms of section 38(3) is completed including a specialist archaeological assessment.

## 4.7 Current Social and Economic Characteristics of the Project Site and Surrounding Areas

Between 2001 and 2011 the City of uMhlathuze Local Municipality (LM) experienced an annual population increase of 1.5%, with the population in 2011 reported to be 362 778 people. According to the 2016,

Community Survey 2016 population within the uMhlathuze LM reported to be 410 465 persons, indicating a growth rate of 2.81% annually between 2011 and 2016, significantly higher than previously experienced.

For the period 1996 to 2016, the percentage of the total population within the City of uMhlathuze Local Municipality classified as 'potentially economically active' (ages of 15 and 64) has been consistently higher than the percentage of the population within this age group in the District Municipality and KZN province. Access to education within uMhlathuze Local Municipality improved between 2001 and 2011, with the percentage of the population over the age of 20 reported to have never received formal education dropping from 18% to 8%. While the same trend was experienced within the DM (a drop of 32% to 16% reporting no access) and province (a drop of 22% to 11% reporting no access), access was better within the LM.

Despite improvements between 2001 and 2016, unemployment within the uMhlathuze Local Municipality remains high at 30% however, this is below the level of unemployment reported for the King Cetshwayo DM 34% and KwaZulu-Natal 33.

The Gross Value Added (GVA) of City of uMhlathuze LM was valued to be R36 122 million in 2019 current prices as shown in the table below. This is equal to a GDP per capita of R102 152 which is significantly higher than the national and provincial economies with a GDP-R per capita of R75 205 and R61 174 respectively.

Access to electricity for lighting (the most basic level of access) within the uMhlathuze LM is better than access on a district and provincial level. Access to piped water improved significantly within the uMhlathuze LM between 2001 and 2016, with 94% of all households reported to have access to piped water either within their household or within their yard.

# CHAPTER 5 APPROACH TO UNDERTAKING THE SCOPING PHASE

An Environmental Impact Assessment (EIA) process refers to that process (in line with the 2014 EIA Regulations, as amended (GNR 326)) which involves the identification of and assessment of direct, indirect, and cumulative, environmental impacts associated with a proposed project or activity. The EIA process comprises two main phases: i.e. **Scoping** and the **EIA Phase**.

The EIA process is illustrated below in Figure 5.1.


**Figure 5.1:** The Phases of an Environmental Impact Assessment (EIA) Process

The Scoping process for the grid connection infrastructure associated with the RBGP2 400MW gas-to-power plant is being undertaken in accordance with Section 24 (5) of the National Environmental Management Act (No. 107 of 1998) (NEMA). In terms of the 2014 EIA Regulations (GNR 326) and Listing Notices 1 to 3 (GNR 327, 325 and 324), a full Scoping and EIA (S&EIA) process is required to be undertaken in support of an application for Environmental Authorisation for the project.

This Scoping process aims at identifying and describing potential issues associated with the proposed project and defining the extent of studies required within the EIA phase. This was achieved through an evaluation of the proposed project involving the review of existing desk-top information, as well as a consultation process with the Interested and Affected Parties (I&APs), including the decision making authority, directly impacted landowners/occupiers, adjacent landowners/occupiers, relevant organs of state departments, ward councillors and other key stakeholders. This chapter serves to outline the process which was followed during the Scoping Phase of the EIA process.

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

This chapter of the scoping report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

| Requirement | Relevant Section |
|---|---|
| (d) a description of the scope of the proposed activity, including (i) all listed and specified activities triggered and (ii) a description of the activities to be undertaken, including associated structures and infrastructure | All relevant listed activities triggered by the development of the grid connection infrastructure and a description of the activities which form part of the development have been included in **Section 5.2 and Table 5.1**. |

| Requirement | Relevant Section |
|---|---|
| e) 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 are considered in the assessment process; | The specific environmental legislation and policies applicable to the development are considered in **Table 5.3**. |
| (g)(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 as part of the Scoping process for the grid connection infrastructure has been described and is included in **section 5.3.2**. |
| (g)(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 | No comments have yet been received on the project. Comments received during the Scoping phase 30-day review period, will be included in the Comments and Responses Report within the Final Scoping Report. |

## 5.2 Relevant Listed Activities

Table 5.1 contains all the listed activities identified in terms of NEMA, the EIA Regulations of 8 December 2014 (GNR 326) and Listing Notices (GNR 327, GNR 325, and GNR 324) which are triggered by the development of the project, and for which Environmental Authorisation has been applied.

**Table 5.1:** Listed activities identified in terms of the Listing Notices (GNR 327, GNR 325 and GNR 324) published under NEMA on 08 December 2014 (as amended in April 2017)

| Notice Number | Activity Number | Description of listed activity |
|---|---|---|
| Listing Notice 1 (GNR 327) of April 2017 | 11 (i) | The development of facilities or infrastructure for the transmission and distribution of electricity -<br>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.<br><br>***The power line may be developed as a 132kV line, depending on the final grid connection solution for the gas to power facility.***<br><br>***The switching station connecting the RBGP2 gas-to-power plant to the Eskom Substation will be developed at 132kV capacity.*** |
| Listing Notice 1 (GNR 327) of April 2017 | 12(ii)(c) | The development of<br>(ii) infrastructure or structures with a physical footprint of 100 square meters or more where such development occurs<br>(i) if no development setback exists, within 32 meters of a watercourse, measured from the edge of a watercourse.<br><br>***Wetlands occur within the study area. The development will be located within 32 meters of these wetlands.*** |
| Listing Notice 1 (GNR 327) of April 2017 | 24 (ii) | The development of a road—<br>(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres |
| Listing Notice 2 (GNR 325) of April 2017 | 9 | The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex. |

| Notice Number | Activity Number | Description of listed activity |
|---|---|---|
| | | ***The power line may be constructed as a 275kV power line depending on the final grid connection solution for the gas to power facility.*** |
| Listing Notice 3 (GNR 324) of April 2017 | 4 (d)(viii) | The development of a road wider than 4 meters with a reserve less than 13.5 meters<br><br>d. KwaZulu-Natal<br>viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans<br><br>***The development of the grid connection infrastructure will require the development of a road wider than 4 meters. Portions of the development footprint fall within CBA areas.*** |
| Listing Notice 3 (GNR 324) of April 2017 | 12(d)(iv)&(v) | The clearance of an area of 300 square meters or more of indigenous vegetation<br><br>d. KwaZulu-Natal<br>iv. within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment, 2004<br>v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans<br><br>***The development of the grid connection infrastructure will require the clearance of an area of 300m² or more of indigenous vegetation. Portions of the development footprint fall within CBA areas and within a critically endangered ecosystem.*** |
| Listing Notice 3 (GNR 324) of April 2017 | 14(d)(vii) | The development of<br>(ii) infrastructure or structures with a physical footprint of 10 square meters or more where such development occurs<br>(a) within a watercourse or<br>(c) within 32 meters of a watercourse, measured from the edge of a watercourse<br><br>d. KwaZulu-Natal<br>vii. Critical biodiversity areas or ecological support areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans<br><br>***Wetlands occur within the study area. The development will be located within 32 meters of these wetlands. Portions of the development footprint fall within CBA areas.*** |

### 5.3 Objectives of the Scoping Phase

This Scoping Phase aims to:

» Identify, describe and evaluate potential environmental (biophysical and social) impacts and benefits of all phases of the proposed grid connection infrastructure (including design, construction, operation

and decommissioning) within the site through a desk-top review of existing baseline data and public consultation.
» Identify potentially sensitive environmental features and areas.
» Define the scope of studies to be undertaken within the EIA process.
» Provide the authorities with sufficient information in order to make a decision regarding the scope of issues to be addressed in the EIA process, as well as regarding the scope and extent of specialist studies that will be required to be undertaken as part of the EIA Phase of the process.

Within this context, the objectives of this Scoping Phase are to, through a consultative process:

» Identify the policies and legislation relevant to the project.
» Motivate the need and desirability of the proposed project, including the need and desirability of the activity in the context of the preferred location.
» Identify and confirm the preferred project alternatives.
» Identify and confirm the preferred site/s.
» Identify the key issues to be addressed in the EIA phase.
» Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the project will impose on the preferred site through the life of the project, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site.
» Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

## *5.4 Overview of the Scoping Phase*

Key tasks undertaken within the scoping phase included:

» Consultation with relevant decision-making and regulating authorities (at National, Provincial and Local levels).
» Submission of the completed Application for Environmental Authorisation (EA) to the competent authority (i.e. the National DEFF) in terms of Regulations 5 and 16 of the EIA Regulations 2016, as amended in April 2017 (GNR326).
» Undertaking a public participation process throughout the Scoping phase in accordance with Chapter 6 of GNR326 in order to identify issues and concerns associated with the proposed project.
» Preparation of a Scoping Report and Plan of Study for EIA in accordance with the requirements of Appendix 2 of GN R326.
» Preparation of a Comments and Responses Report detailing key issues raised by I&APs as part of the Scoping phase.

The tasks are discussed in detail below.

### *5.4.1 Authority Consultation and Application for Authorisation*

Consultation with the National Department of Environment, Forestry and Fisheries (DEFF), the Competent Authority for this project, and the KwaZulu-Natal Department of Economic Development, Tourism and

Environmental Affairs (EDTEA), the commenting authority, will be undertaken throughout this Scoping phase. To date, this consultation has included the following:

» Submission and approval of the public participation plan.
» Submission of the application for EA to DEFF.
» Submission of this Scoping Report for review by I&APs, the Organs of State and the competent and commenting authorities.

A record of all authority correspondence undertaken prior to and within the Scoping Phase is included in **Appendix C**.

### *5.4.2 Public Participation Process*

Public participation is an essential and regulatory requirement for an environmental authorisation process and is guided by Regulations under NEMA, specifically the EIA Regulations. The sharing of information forms the basis of the public participation process and offers the opportunity to Interested and Affected Parties (I&APs) to become actively involved in the EIA Process from the outset. The public participation process is designed to provide sufficient and accessible information to I&APs in an objective manner to assist them to achieve the following:

During the Scoping Phase
» identify issues of concern and suggestions for enhanced benefits;
» verify that their issues have been recorded;
» assist in identifying reasonable alternatives; and
» contribute relevant local information and knowledge to the environmental assessment.

During the EIA Phase
» contribute relevant local information and knowledge to the environmental assessment;
» verify that their issues have been considered in the environmental investigations; 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 that contains all the relevant facts in respect of the application is made available to I&APs for review.
» Public participation is facilitated in such a manner that I&APs are provided with a reasonable opportunity to comment on the project.
» Adequate review periods are provided for I&APs to comment on the findings of the Scoping and EIA Reports.

The restrictions enforced in terms of Government Gazette 43096 which placed the country in a national state of disaster limiting the movement of people to curb the spread of the COVID-19 virus has placed some limitations on the commencement and continuation of the public consultation as part of the EIA process. Considering these limitations, a public participation plan **(Appendix C9**) and consultation process has been

designed by Savannah Environmental and approved by DEFF to cater for the undertaking of the public participation process which includes I&APs, the competent authority, directly impacted landowners/ occupiers, adjacent landowners/occupiers, relevant Organs of State departments, Municipalities, ward councillors and other key stakeholders.

The traditional means and opportunities available for the undertaking of public participation will still be covered and implemented as part of the public participation plan considering the current limitations. 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 by I&APs, 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. The online stakeholder engagement platform considered 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.

Key tasks undertaken in the Scoping Phase to ensure effective participation includes the following:

- Distribution of project related information in the form of notification letters and a background information document at the outset of the EIA process.
- Identification of stakeholders and I&APs, including:
  - all organs of state which have jurisdiction in respect of the activity to which the application for EA relates;
  - owners, person in control of and occupiers of the site where the activity is to be undertaken;
  - owners, person in control of, and occupiers of land adjacent to the site where the activity is to be undertaken;
  - the municipal councillor of the ward in which the site is situated and any organisation of ratepayers that represent the community in the area;
  - the municipality which has jurisdiction in the area; and
  - any other I&AP as required by the competent authority.
  - Identification of I&APs are conducted in consultation with affected landowners, municipality representatives and Richards Bay IDZ representatives where information may not be readily available.
- Placement of site notices at the project site.
- Placement of advertisements in a local newspaper.
- Compilation of an I&AP database which is updated throughout the Scoping and EIA process.
- On-going consultation with all registered I&APs regarding the progress in the EIA process through stakeholder consultation via notification letters, telephone calls, smses, whatsapp, 'please call me' and consultation meetings or virtual focus group meetings.

» Release of the Scoping and EIA reports for 30-day review periods.

The following sections detail the tasks which were undertaken as part of the public participation process within the Scoping Phase to date.

i. Stakeholder identification

The first step in the public participation process is to initiate the identification of potential I&APs. 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 study area and a registration process involving the completion of a registration and comment sheet. Key stakeholders and affected and surrounding landowners have been identified and registered on the project database. Other stakeholders are required to formally register as stakeholders or interested and affected parties (I&APs) for the EIA process.

ii. Database of Interested and Affected Parties

As per Regulation 42 of the EIA Regulations, 2014 (as amended in April 2017), 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). The register of I&APs contains the details of[4]:

» all persons who requested to be registered on the database in writing;
» all organs of state which hold jurisdiction in respect of the activity to which the application relates; and
» all persons who submitted written comments or attended meetings during the public participation process.

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

iii. Adverts and Notifications

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

» Placement of site notices announcing the EIA process on 11 November 2020 at visible points along the boundary of the project site, in accordance with the requirements of the EIA Regulations. Photographs and the GPS coordinates of the site notices are contained in **Appendix C2**.
» Placement of advertisements announcing the EIA process for the project and inviting members of the public to register themselves as I&APs on the project database and announcing the availability of the Scoping Report in the Mercury Newspaper on 13 November 2020.

[4] Note that addresses and contact details are not contained within the register presented to the public in line with the requirements of the Protection of Personal Information (POPI) Act (Act 4 of 2013).

» Compilation of a background information document (BID) for the project in order to provide information regarding the project and the EIA process (refer to **Appendix C3**). The BID has been distributed to identified stakeholders and I&APs together with a notification letter on 13 November 2020. The BID is also available electronically on the Savannah Environmental website (https://www.savannahsa.com/public-documents/grid-infrastructure/richards-bay-400mw-grid/).
» Distribution of EIA process notification letters notifying registered I&APs of the project and of the availability of the Scoping Report for review to organs of state, potentially affected and neighbouring landowners as well as stakeholders/I&APs via email on 13 November 2020. The evidence of this process notification is contained in **Appendices C5**. I&APs have been encouraged to view the Scoping Report and submit written comment. The Scoping Report has been circulated to Organs of State via CD or electronic transfer (Dropbox, WeTransfer, etc), as per individual request.

iv. Public Involvement and Consultation

In order to accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their views, issues and concerns regarding the project, various opportunities will be provided in the scoping phase and will continue to be provided to I&APs to note their issues during the remainder of the EIA process. I&APs are being consulted through the following means:

» **One-on-one consultation meetings** for example with directly affected or surrounding landowners. As per the approved public participation plan, these meetings will be held via virtual platform.
» **Telephonic** consultation sessions with key stakeholders were held to capture comments, queries and concerns, to be considered in the final Scoping Report. Please refer to Appendix C8 of this report for a record of the comments received.
» Written, faxed or e-mail correspondence.

All comments received during the 30-day review period, including telephonic consultation sessions are included in **Appendix C8** of this Final Scoping report.

**Table 5.2:** Summary of Public Participation Process

| Activity | Date |
|---|---|
| The EIA process and availability of the scoping report was advertised in the Mercury Newspaper. | 13 November 2020 |
| Placement of site notices, on-site and in public places. | 12 November 2020 |
| Distribution of process notification letters and background information documents to organs of state departments, ward councillors, landowners within the study area, neighbouring landowners and stakeholder groups. | 13 November 2020 |
| Distribution of notification letters for the availability of the scoping report to organs of state departments, ward councillors, landowners within the study area, neighbouring landowners and stakeholder groups. | 13 November 2020 |
| Review period for the Scoping Report for public comment. | 13 November – 14 December 2020 |

v. Identification and Recording of Issues and Concerns

All comment received have been included within the Comments and Responses report and submitted with this final scoping report. These comments include telephonic consultations held with key stakeholders. The Comments and Responses Report is included as **Appendix C8**.

### 5.5 Review of the Scoping Report

The Scoping Report has been made available for review from **13 November – 14 December 2020** and was made available for download during that time from the Savannah Environmental website, www.savannahSA.com.

### 5.6 Evaluation of Issues Identified through the Scoping Process

In order to evaluate issues and assign an order of priority, the following methodology was used to identify the characteristics of each potential issue/impact for each of the proposed project components:

- Identify the **nature** of the potential impact, which includes a description of what causes the effect, what will be affected and how it will be affected
- Identify the **extent** of the potential impact, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development) or regional
- Identify **sensitive receptors** that may be impacted on by the proposed facility and the **types of impacts** that are most likely to occur.
- Evaluate the **significance** of potential impacts in terms of the requirements of the EIA Regulations.
- Identify the potential impacts that will be **considered further** in the EIA Phase.

The evaluation of the proposed project resulted in a description of the nature, significance, consequence, extent, duration and probability of the identified issues, as well as recommendations regarding further studies required within the EIA Phase.

### 5.7 Finalisation of the Scoping Report

The final stage in the Scoping Phase entailed the capturing of responses from stakeholders and I&APs on the Scoping report in order to finalise and submit the Scoping report for consideration. It is the final Scoping report upon which the decision-making environmental authorities provide comment, recommendations, and acceptance to undertake the EIA Phase of the process.

### 5.8 Assumptions and Limitations of the EIA Process

In conducting this Scoping report, the following general assumptions have been made:

- 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 power line corridor and switching station site alternatives identified represent technically suitable sites for the establishment of the grid connection infrastructure.
- This Scoping report has been prepared based on information available at the time of undertaking the study. More detailed information will be available for consideration in the EIA phase of the process.

## 5.9 Legislation and Guidelines that have informed the preparation of this Scoping Report

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

- National Environmental Management Act (Act No. 107 of 1998)
- EIA Regulations of December 2014, published under Chapter 5 of NEMA (as amended in GNR R326 in Government Gazette No 40772 of April 2017)
- International guidelines – the Equator Principles and the International Finance Corporation and World Bank Guidelines.

Several other Acts, standards or guidelines have also informed the project process and the scope of issues evaluated in the scoping report and are to be addressed in the EIA. A listing of relevant legislation is provided in **Table 5.3**. A more detailed review of legislative requirements applicable to the project will be included in the EIA phase.

**Table 5.3:** Initial review of the relevant environmental policies, legislation, guidelines and standards applicable to the grid connection infrastructure

| Legislation | Applicable Sections |
|---|---|
| | ***National Legislation*** |
| Constitution of the Republic of South Africa (Act No. 108 of 1996) | » Bill of Rights (S2)<br>» Environmental Rights (S24) – i.e. the right to an environment which is not harmful to health and well-being<br>» Rights to freedom of movement and residence (S22)<br>» Property rights (S25)<br>» Access to information (S32)<br>» Right to just administrative action (S33)<br>» Recognition of international agreements (S231) |
| National Environmental Management Act (Act No. 107 of 1998) | » National environmental principles (S2), providing strategic environmental management goals and objectives of the government applicable throughout the Republic to the actions of all organs of state that may significantly affect the environment<br>» NEMA EIA Regulations (GN 324 – 327 of December 2014, as amended in April 2017)<br>» The requirement for potential impact on the environment of listed activities must be considered, investigated, assessed and reported on to the competent authority (S24 – Environmental Authorisations)<br>» Duty of Care (S28) requiring that reasonable measures are taken to prevent pollution or degradation from occurring, continuing or recurring, or, where this is not possible, to minimise & rectify pollution or degradation of the environment<br>» Procedures to be followed in the event of an emergency incident which may impact on the environment (S30)<br>» Appeals against decisions made by authorities (S43) |
| National Environmental Management: Waste Act (Act No. 59 of 2008) | » 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.<br>» In terms of the regulations published in terms of this Act (GN 921 of November 2013), a Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities in support of an application for Waste Management Licenses. |

| Legislation | Applicable Sections |
|---|---|
| | » The storage of waste must be undertaken in terms of the relevant norms and standards. |
| Environment Conservation Act (Act No. 73 of 1989) | » National Noise Control Regulations (GN R154 dated 10 January 1992)<br>» In terms of Section 25 of the ECA, the national noise-control regulations (GN R154 in Government Gazette No. 13717 dated 10 January 1992) were promulgated. The NCRs were revised under Government Notice Number R. 55 of 14 January 1994 to make it obligatory for all authorities to apply the regulations.<br>» Subsequently, in terms of Schedule 5 of the Constitution of South Africa of 1996, legislative responsibility for administering the noise control regulations was devolved to provincial and local authorities. Provincial Noise Control Regulations exist in the Free State, Western Cape and Gauteng provinces. |
| National Heritage Resources Act (Act No. 25 of 1999) | » Stipulates assessment criteria and categories of heritage resources according to their significance (S7)<br>» Provides for the protection of all archaeological and palaeontological sites, and meteorites (S35)<br>» Provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority (S36)<br>» Lists activities which require developers any person who intends to undertake to notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development (S38)<br>» 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 (S44) |
| National Environmental Management: Biodiversity Act (Act No. 10 of 2004) | » Provides for the MEC/Minister to identify any process or activity in such a listed ecosystem as a threatening process (S53)<br>» A list of threatened and protected species has been published in terms of S 56(1) - Government Gazette 29657.<br>» Three government notices have been published, i.e. GN R 150 (Commencement of Threatened and Protected Species Regulations, 2007), GN R 151 (Lists of critically endangered, vulnerable and protected species) and GN R 152 (Threatened or Protected Species Regulations).<br>» Provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), 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 (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (G 34809, GN 1002), 9 December 2011).<br>» This Act also regulates alien and invader species (GN 37886 of August 2014). |
| National Environmental Management: Air Quality Act (Act No. 39 of 2004) | » Government Gazette 37054 of 22 November 2013 provides a list of activities which require an Air Emissions License and provides the emission thresholds that need to be complied with.<br>» S18, S19 and S20 of the Act allow certain areas to be declared and managed as "priority areas".<br>» Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards. |

| Legislation | Applicable Sections |
|---|---|
| | » The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has failed to comply with the Act.<br>» Dust control regulations promulgated in November 2013 may require the implementation of a dust management plan. |
| Conservation of Agricultural Resources Act (Act No. 43 of 1983) | » Prohibition of the spreading of weeds (S5).<br>» Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) & restrictions in terms of where these species may occur.<br>» Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048). |
| National Water Act (Act No. 36 of 1998) | » Under S21 of the Act, water uses 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.<br>» In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of the project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.<br>» National Government is the public trustee of the Nation's water resources (S3)<br>» Entitlement to use water (S4) – entitles a person to use water in or from a water resource for purposes such as reasonable domestic use, domestic gardening, animal watering, fire-fighting and recreational use, as set out in Schedule 1<br>» Duty of Care to prevent and remedy the effects of pollution to water resources (S19)<br>» Procedures to be followed in the event of an emergency incident which may impact on a water resource (S20)<br>» Definition of water use (S21)<br>» Requirements for registration of water use (S26 and S34)<br>» Definition of offences in terms of the Act (S151)<br>» GNR 509 of 2016 provides the requirements for General Authorisation relating to impeding or diverting the flow of water in a watercourse (section 21(c)) or altering the bed, banks, course or characteristics of a watercourse (section 21(i))<br>» GNR 267 of 2017 provides Regulations regarding the Procedural Requirements for Water Use Licence Applications and Appeals'. |
| The Hazardous Substances Act No. 15 of 1973 | » This Act was promulgated to provide for the control of substances which may cause injury or ill-health to, or death of, humans by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature.<br>» The Hazardous Substances Act also provides for matters concerning the division of such substances or products into groups in relation to the degree of danger, the prohibition and control of the importation, manufacture, sale, use, operation, application and disposal of such substances and products. |
| ***Provincial Legislation*** | |
| KwaZulu-Natal Systematic Conservation Plan (KZNSCP, 2012) | » The process of conservation planning involves extensive mapping of vegetation types, transformation, species data, ecological processes and threats. |

# CHAPTER 6 SCOPING OF POTENTIAL ISSUES

This Chapter provides an overview of the potential impacts and risks associated with the establishment of the transmission infrastructure associated with the RBGP2 400MW gas-to-power plant, identified at this stage of the process through a desktop review of available existing information.

Potential environmental impacts and risks associated with the development of the transmission infrastructure include:

- Construction phase impacts, such as temporary air emissions (dust and vehicle emissions), noise, solid waste and wastewater generation, and Occupational Health and Safety (OHS) issues such as the risk of preventable accidents leading to injuries and/or fatalities.
- Land matters, such as servitude negotiation land acquisition procedures.
- Landscape and visual impacts, such as the visibility of the project within the wider landscape and associated impacts on landscape designations, character types and surrounding communities.
- Impacts on ecology and natural resources, such as habitat loss / fragmentation, impacts on sensitive areas and disturbance or displacement of protected or vulnerable species.
- Impacts on heritage sites, such as direct impacts on below-ground archaeological or palaeontological deposits as a result of ground disturbance during construction.
- Impacts on the socio-economic environment, including positive impacts associated with job creation and potential negative intrusion impacts during construction.

The purpose of the Scoping Study is to identify, describe and evaluate the main issues and potential impacts of the proposed project based on a desktop assessment of existing information and to make recommendations for further studies required to be undertaken in the EIA phase. This is a preliminary assessment based on the information available during the Scoping Phase and considers all alternatives identified for the project. A detailed assessment of impacts will be undertaken during the Impact Assessment Phase of the process.

## 6.1 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of an Impact Assessment Report

This chapter serves to identify the potential environmental impacts associated with the development of the grid connection infrastructure from a desktop level. This chapter includes the following information required in terms of the EIA Regulations, 2014 - Appendix 2: Content of the Scoping Report:

| Requirement | Relevant Section |
|---|---|
| (g)(v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified 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 risks identified to be associated with the construction and operation phase of grid connection infrastructure have been included in **Section 6.3.** Impact tables have been included for each field of study which considers the nature, significance, consequence, extent, duration and probability of the impacts, as well the reversibility of the impacts, the loss of resources and avoidance, management or mitigation. |

| Requirement | Relevant Section |
|---|---|
| (g)(vii) positive and negative impacts that the proposed activity and alternatives 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 potential positive and negative impacts associated with the grid connection infrastructure have been included in **Section 6.3.** |
| (g)(viii) the possible mitigation measures that could be applied and level of residual risk | Possible mitigation (specifically relating to the avoidance of sensitive areas) has been included in **Section 6.3.** |

## 6.2 Evaluation of Potential Impacts associated with the Construction Phase, Operation and Decommissioning phases

### *6.2.1 Impacts on Soils, Geology, Agricultural Potential and Land-Use*

The construction of the grid infrastructure requires foundations to be constructed in order to increase the stability of the structures. The depth of the foundations will be determined by the underlying geology of an area. The greatest impact on the geology and soils associated with the construction of any structures is the potential for soil erosion. This impact depends on the soil erosion potential of the overlying soils. Erosion potential is anticipated to increase during the site clearance and construction activities of the proposed grid connection infrastructure and could persist during the operation phase if appropriate management is not implemented.

The following have been identified as potential impacts on agricultural resources and productivity, the significance of which will be determined during the EIA Phase. All these impacts are local in extent, confined to the development footprint.

- Loss of agricultural land use due to direct occupation by the infrastructural footprint of the development for the duration of the project.
- Soil erosion due to alteration of the land surface run-off characteristics. Alteration of run-off characteristics may be caused by construction related land surface disturbance, vegetation removal, and the establishment of hard standing surfaces and roads. Erosion will cause loss and deterioration of soil resources.
- Loss of topsoil due to poor topsoil management.
- Soil degradation due to contamination: Spillages of oil, diesel, petrol or other contaminants may contaminate the soil.

| Issue | Nature of Impact | Extent of Impact | No-Go Areas |
|---|---|---|---|
| Loss of agricultural land use | Direct occupation by infrastructure, including power line tower footprints, switching station and roads, for the duration of the project. | Local | None identified at this stage |
| Soil erosion | Alteration of run-off characteristics may be caused by construction related land surface disturbance, vegetation removal, the establishment of hard standing areas and roads, and the presence of panel surfaces. Erosion will cause loss and deterioration of soil resources and may occur during all phases of the project. | Local | None identified at this stage |
| Loss of topsoil | Due to poor topsoil management (burial, erosion, etc) during construction related soil profile disturbance (levelling, excavations, road surfacing etc.) and resultant decrease in that soil's agricultural suitability. | Local | None identified at this stage |

| | | | |
|---|---|---|---|
| Cumulative impacts due to the regional loss of agricultural resources and production | As a result of other developments on agricultural land in the region. | Regional | None identified at this stage |

**Description of expected significance of impact**

Impacts associated with geology and soils (in terms of the risk of soil erosion and impacts on land capability) are expected to be localised and restricted to the infrastructure footprints, and are likely to be similar for both identified alternative power line corridors. Appropriate mitigation measures are required to be identified and implemented in order to reduce the potential impact to one of low significance. Detailed mitigation measures should be developed for the proposed site as part of the EIA phase of this project for inclusion in the Environmental Management Programme (EMPr).

**Gaps in knowledge & recommendations for further study**

- The appropriate placement of the infrastructure to be assessed considering the slopes and erodibility of the soils present in the study area. The following will be assessed in the EIA phase:
  - Soil conditions
  - Erosion potential and mitigation
  - Activities and materials that may result in soil pollution
  - Current land use viability
- A detailed geotechnical survey of the proposed infrastructure footprint should be undertaken during the design phase of the project in order to fully understand the soils in terms of founding conditions and erosion potential. This information is required to be used as part of the planning and design phase of the switching station.

### *6.2.2 Impacts on ecology (including fauna, flora and wetlands)*

The development and operation of the grid connection infrastructure will have an impact on the ecological resources identified within the development area. These resources include vegetation, protected and listed plant species; fauna; habitat; conservation and broad-scale ecological processes.

Potential impacts on biodiversity identified at this stage of the study include:

- Clearing and Loss of Habitats
- Impacts on sensitive habitats
- Loss of species of conservation concern
- Disturbance of Terrestrial Fauna
- Destruction of rare and endangered species
- Alien Plant and Declared Weed Infestation
- Increased dust during construction
- Soil and water contamination
- Loss of wetlands
- Altered hydrology of the catchment area and receiving watercourses

» Impaired water quality of the water resource
» Sediment and erosion of the watercourses

| Issue | Nature of Impact | Extent of Impact | No-Go Areas |
|---|---|---|---|
| Clearing and Loss of Habitats and loss of species of conservation concern | Construction of infrastructure will lead to direct loss of vegetation, causing a localised or more extensive reduction in the overall extent of vegetation. Consequences of the clearing and loss of indigenous natural vegetation occurring may include:<br>» General loss of habitat for sensitive fauna and flora species<br>» Loss of species of conservation concern | Local | None identified at this stage |
| Impact on sensitive habitats | While it should be possible to avoid any sensitive habitats within the broader corridor and switching station area through the appropriate placement of infrastructure, the potential exists for indirect impacts on these habitats during construction and operation. | Local | All wetland areas are to be treated as no-go areas. A buffer zone should be determined for the project in relation to the delineated wetlands and their condition within the grid connection corridors. Where features may be spanned due to the pylons being able to be placed far apart, such design efforts must be considered in a wetland impact assessment to demarcate areas where no pylons may be placed |
| Disturbance of Terrestrial Fauna | Construction and maintenance activities could result in disturbance of terrestrial fauna within the study area. Animals are mobile and, in most cases, can move away from a potential threat, unless they are bound to a specific habitat that is also spatially limited and will be negatively impacted by a development. | Local | None identified at this stage. |
| Impacts on rare and endangered species | This may arise if the proposed infrastructure is located where it will impact on such individuals. Consequences of this may include:<br>» negative change in conservation status of affected species<br>» fragmentation of populations of affected species<br>» reduction in area of occupancy of affected species<br>» loss of genetic variation within affected species. | Local to regional | None identified at this stage |
| Alien Plant and Declared Weed Infestation | Infestation by alien plants and declared weeds may occur in disturbed areas and/or where propagules of these plants are readily available. Consequences of this may include: | Local to regional | None identified at this stage |

| | | | |
|---|---|---|---|
| | » loss of indigenous vegetation<br>» change in vegetation structure leading to change in various habitat characteristics<br>» change in plant species composition<br>» change in soil chemical properties<br>» loss of sensitive habitats<br>» loss or disturbance to individuals of rare, endangered, endemic and/or protected species<br>» fragmentation of sensitive habitats<br>» change in flammability of vegetation, depending on alien species<br>» hydrological impacts due to increased transpiration<br>» impairment of wetland function. | | |
| Increased dust during construction | Increased dust during construction activities may affect animals and vegetation in the vicinity. Consequences of this may include:<br>» stress in individuals of various animal species, which may result in them moving away or cause changes in behaviour<br>» some territorial animals to be displaced<br>» deposition of dust on vegetation leading to impaired photosynthesis and respiration, potentially causing damage to individual plants. | Local | None identified at this stage |
| Soil and water contamination | Different types of effluents, solid waste and hazardous material associated with construction activities may contaminate the water and soil resources in the study area.<br><br>» Untreated wastewater and other effluents from the construction activities may contaminate water resources in the study area;<br>» Disposal of hazardous and non-hazardous waste may potentially cause groundwater pollution and deteriorate habitat quality on adjacent areas. | Local | None identified at this stage |
| Development of the facility will result in the loss of wetlands | Loss of wetland and the accompanying ecological and social services | Local | All wetland areas are to be treated as no-go areas. A buffer zone should be determined for the project in relation to the delineated wetlands and their condition within the grid connection corridors. Where features may be spanned due to the pylons being able to be placed far apart, such design |
| Sediment and erosion of the watercourses | Loss of wetland and the accompanying ecological and social services | Local | |
| Altered hydrology of the catchment area | Altered attenuation properties resulting in likely scouring and erosion due to increased flows | Local | |

| | | | |
|---|---|---|---|
| and receiving watercourses | | | efforts must be considered in a wetland impact assessment to demarcate areas where no pylons may be placed |
| Impaired water quality of the water resources | Impact on the functioning of the wetlands, and the associated biota dependent on the system | Local | |
| Sediment and erosion of the watercourses | Impact on the potential of the system to provide services, and loss of habitat quality and quantity. | Local | |

**Description of expected significance of impact**

Impacts on ecology, habitats and species of conservation concern are likely to be of moderate to very high significance, depending on the exact location of the development footprint. The identified corridors provide sufficient area for the development of the project within areas which are not considered to be of significant ecological sensitivity, provided the infrastructure is placed within areas of low or moderate sensitivity. Where the development footprint is able to avoid areas of sensitivity, the impact of the development on CBAs and broad-scale processes is likely to be moderate or low overall significance.

**Gaps in knowledge & recommendations for further study**

» A detailed ecological impact assessment must be undertaken, including detailed field surveys. This should include the following:
  * Identification all protected species and species of special concern within the study area, and verify the presence/absence of any Red Listed/Protected flora species in the study area, and within the grid connection corridors.
  * Identification of sensitive habitats.
  * The location and extent of all vegetation types on the study area (even if in a poor/degraded condition) must be delineated
  * Transformed areas must be identified and broadly categorized, viz agriculture, infrastructure etc.
  * For the identified vegetation types, the conservation status and ecological condition must be indicated.
  * The report must evaluate whether the site contains the habitat requirements and is within range for the recolonization of species predicted to occur in the site
  * The location and extent of all red list, protected and endemic plant populations in the study area must be mapped, or the population extent may also be determined according to habitat preference (methodology for this must be included in the report).
  * The conservation status and condition of the populations must be indicated.
» Undertake an assessment of potential impacts and recommend a preferred alternative for implementation.
» Where impacts cannot be avoided, identify appropriate mitigation measures.

### *6.2.3 Impacts on avifauna*

From an avifauna perspective, vegetation structure, rather than the actual plant species, influences bird species distribution and abundance. Two common problems in southern Africa associated with electrical infrastructure are electrocution of birds (and other animals) and birds colliding with power lines. Other problems are electrical faults caused by bird excreta when roosting or breeding on electricity infrastructure, and disturbance and habitat destruction during

construction and maintenance activities. Red Data species which are sensitive to interactions with power line infrastructure could potentially occur within the broader study area.

| Issue | Nature of Impact | Extent of Impact | No-Go Areas |
|---|---|---|---|
| Habitat destruction/transformation through construction & maintenance of the proposed power line and switching station | Vegetation clearing will potentially lead to the loss of avifaunal species, habitats and ecosystems as birds are displaced from their habitat. | Local | None identified at this stage. |
| Disturbance during construction & maintenance of the proposed infrastructure | Construction and maintenance activities could result in disturbance of avifauna within the study area. Animals are mobile and, in most cases, can move away from a potential threat, unless they are bound to a specific habitat that is also spatially limited and will be negatively impacted by a development. | Local | None identified at this stage. |
| Collision of birds with earth wires of the power line | Mortality among the local avifauna may result due to direct collisions with the power line. | Local to regional | None identified at this stage. |
| Electrocution of birds on power lines | Mortality among the local avifauna may result due to electrocutions on the power line and switching station infrastructure. | Local to regional | None identified at this stage. |
| Impact of birds on quality of supply | Electrical faults caused by bird excreta when roosting or breeding on electricity infrastructure | Local | None identified at this stage. |

**Description of expected significance of impact**

Collision of large terrestrial Red Data bird species will be a significant impact of the proposed power line. Provided that the most appropriate corridor is selected, and then the relevant sections of the power line are comprehensively marked with a suitable anti-collision marking device, it is considered possible to reduce this impact to acceptable levels.

Electrocution of birds is possible depending on the line design and the clearances between live and grounded hardware. Impacts could also occur at the switching station. Switching station and tower design is therefore considered important to minimise this risk. Habitat destruction and disturbance is another potentially significant impact expected at a local level.

**Gaps in knowledge & recommendations for further study**

- A detailed avifauna impact assessment must be undertaken, including detailed field surveys. This should include the following:
  - Identification all protected species and species of special concern within the study area.
  - Identification of sensitive habitats.
- Undertake an assessment of potential impacts and recommend a preferred alternative for implementation.
- Where impacts cannot be avoided, identify appropriate mitigation measures.

### *6.2.4 Visual Impacts*

Transmission infrastructure such as that proposed has the potential to alter the sense of place or aesthetic appeal of an area. Therefore, there is the potential for a visual impact to occur on observers in close proximity to the proposed infrastructure and activities occur during construction and operation. The proposed grid connection infrastructure is proposed in an area already altered by existing power lines and substations in a transformed landscape consisting mainly of industry, farming and forestry.

Potential sensitive visual receptors may include:

» Observers travelling along the roads in the vicinity of the project development footprint.
» Residents of homesteads and farm dwellings (if present in close proximity to the infrastructure).

| Issue | Nature of Impact | Extent of Impact | No-Go Areas |
|---|---|---|---|
| Visual impact associated with construction activities | Potential visual impact of the construction period on visual receptors. | Local | None identified at this stage |
| Visibility of the grid connection infrastructure to observers using local roads and residing in rural homesteads within the study area. | Potential visual impact of the operational period on visual receptors. | Local | None identified at this stage |
| Visual impact of operational, safety and security lighting of the switching station at night on sensitive visual receptors residing in close proximity. | Visual receptors within the immediate area of the switching station may be impacted by the lighting by the facility at night. | The immediately surrounding area. | None identified at this stage |

**Description of expected significance of impact**

Due to the nature and location of the proposed infrastructure and the nature of the surrounding area, there is likely to be minimal additional industrial influence on surrounding landscape character as experienced by the majority of receptors. The impact significance is therefore anticipated to be low.

**Gaps in knowledge & recommendations for further study**

» Confirmation of sensitivity of the landscape and receptors from a site visit and consultation during the EIA process.
» Project details are needed to assess the impacts as well as the identification of possible mitigation measures in any detail.
» Additional spatial analyses to be undertaken in order to create a visual impact index that will further aid in determining potential visual impact.
» Specific spatial criteria need to be applied to the visual exposure of the proposed facility in order to successfully determine visual impact and ultimately the significance of the visual impact.

### *6.2.5 Impacts on Heritage (Archaeology and Palaeontology)*

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Potential impacts could occur during the construction phase during foundation excavation.

| Issue | Nature of Impact | Extent of Impact | No-Go Areas |
|---|---|---|---|
| Direct impact to archaeological sites, historical sites and burial sites | The construction phase could directly impact on surface and subsurface archaeological sites. | Local | None identified at this stage |
| Damage or destruction of unmarked graves | Damage or destruction of unmarked graves during the construction of project infrastructure. | Local | None identified at this stage |
| Damage or destruction of fossil materials | Damage or destruction of fossil materials during the construction of project infrastructure to a maximum depth of those excavations. | Local | None identified at this stage |

**Description of expected significance of impact**

No highly significant impacts to archaeological or palaeontological materials/resources are expected as a result of the development. It is however possible that artefacts will be revealed during construction activities given the high density of finds found in previous studies within the broader study area. It is therefore regarded likely that archaeological resources will be impacted by the proposed development of the powerline and substation. The surveys undertaken in the area have previously identified heritage resources in proximity to the proposed development. These resources may be impacted and as such, it is recommended that an HIA that complies with the terms of section 38(3) is completed including a specialist archaeological assessment.

**Gaps in knowledge & recommendations for further study**

- In line with the National Heritage Resources Act (Act 25 of 1999) a Phase 1 Archaeological Impact Assessment report will be prepared considering existing survey reports submitted to SAHRA.
- The subsurface archaeological and palaeontological record can never be fully understood without excavation, and the EIA Phase report will make recommendations on how to proceed should fossils or heritage finds be discovered during construction activities.
- As the palaeontological sensitivity of the area is considered to be low, no detailed assessment is considered to be required. A Chance Finds Procedure must however be included in the EMPr for the project.

### *6.2.6 Social Impacts*

Potential change processes and impacts on the social environment associated with the establishment of the proposed transmission lines include the following:

- Demographic processes (the number and composition of people)
- Economic processes (the way in which people make a living and the economic activities in society)
- Socio-cultural processes (the way in which humans behave, interact and relate to each other and their environment and the belief and value systems which guide these interactions)
- Geographical change processes

| Issue | Nature of Impact | Extent of Impact | No-Go Areas |
|---|---|---|---|
| Demographic Change Processes | Impacts could include influx of job seekers and workers which could impact on health, safety and community cohesion as well as the ability of the municipality to provide services such as housing, etc. | Local | None identified at this stage. |
| Economic processes | Impacts include direct and indirect employment opportunities. Indirect opportunities include, for example, provision of building materials and/or equipment, use of local enterprises (shops and shebeens). | Local to regional | None identified at this stage. |
| Socio-cultural processes | The presence of construction workers and job seekers my impact on local people's health and safety. Presence of construction workers in an area is sometimes associated with increase in risk of spreading STIs and HIV/AIDS with an impact on health, as well as increases in crime. | Local to regional | None identified at this stage. |

**Description of expected significance of impact**

Impacts on the social environment as a result of the proposed project are expected to be both positive and negative during both the construction and operation phases. Negative impacts are likely to be local in extent, short-term, and of medium to low significance. Positive impacts are expected to be local to regional in extent, and of medium to low significance.

**Gaps in knowledge & recommendations for further study**

» An assessment of the impact on the social environment will be required to be undertaken as part of the EIA phase. This will involve obtaining an understanding of how the project will directly affect the local communities by conducting interview and collecting information on the environmental and historical trends.
» Information on exact direct and indirect employment opportunities and skills development programmes likely to be created during operation are needed.
» Mitigation measures for the Environmental Management Programme are required at the EIA phase.

## 6.3 Evaluation of Potential Cumulative Impacts Associated with the project

**Impact**

Cumulative impacts, in relation to an activity, refer to the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area. For cumulative effects analysis to help the decision-maker and inform interested parties, it must be limited to effects that can be evaluated meaningfully (DEAT, 2004). 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 practical purposes a sub-regional scale of 10km is considered for the evaluation of cumulative impact of grid connection infrastructure (refer Figure 6.1).

The cumulative impacts associated with proposed grid connection infrastructure have been viewed from two perspectives within this Scoping Report:

- Cumulative impacts associated with the scale of the project (an overhead power line (132kV or 275kV) and 132kV switching station); and
- Cumulative impacts associated with other relevant planned, approved or existing grid connection infrastructure within a 10km radius of the project site.

The area within which the grid connection infrastructure is proposed contains numerous existing and proposed power lines and substations. These include:

- Impala/Nseleni 1 132kV Line Overhead Line
- Alusaf Bayside/Impala 1 132kV Line Overhead Line
- Alusaf Bayside/Impala 2 132kV Line Overhead Line
- Athene/Hillside 1 132kV Line Overhead Line
- Athene/Hillside 2 132kV Line Overhead Line
- Athene/Hillside 3 132kV Line Overhead Line
- Impala Substation
- Hillside Substation
- Athene Substation
- Bayside Substation
- Polaris Substation
- Newside Substation

Other infrastructure within the broader project region includes:

- Authorised grid lines associated with the Eskom CCPP;
- Planned Phinda grid connection corridor for the Phinda gas to power facilities;
- Phinda gas to power facilities;
- Bayside alluminium
- Fermentech fertilizer supplier
- Mondi Richards Bay;
- Richards Bay Coal;
- Richards bay Coal Terminal;
- South 32 alluminium
- Tata steel;

The cumulative impacts that have the potential to be compounded through the development of the proposed grid connection infrastructure in proximity to other similar developments include impacts such as those listed below. The role of the cumulative assessment is to test if such impacts are relevant to the project within the development area being considered for the development:

- Unacceptable loss of threatened or protected vegetation types, habitat or species through clearing, resulting in an impact on the conservation status of such flora, fauna or ecological functioning;
- Unacceptable risk to avifauna through habitat loss, displacement, electrocution and collision with grid connection infrastructure;
- Unacceptable loss of land capability and soils as a result of the placement of infrastructure or soil erosion;
- Unacceptable loss of heritage resources (including palaeontological and archaeological resources);
- Complete or whole-scale change in the sense of place and character of an area and unacceptable visual intrusion; and
- Unacceptable impact to socio-economic factors and components.

**Summary of the nature, significance, consequence, extent, duration and probability of the impacts**

- The above mentioned impacts are considered to be probable, although it is anticipated that the extent, duration, and magnitude of these impacts can be minimised to levels where this impact can be regarded as having low significance through the implementation of appropriate mitigation measures.
- The operational lifespan of the project and other similar infrastructure within the surrounding areas is expected to be long-term (i.e. a minimum of 20 years) and subsequently the impact is also expected to be long-term.
- The impact associated with the proposed development is expected to be local, affecting mainly the immediate environment and surrounding areas, as well as other grid connection infrastructure within the vicinity.

**Gaps in knowledge & recommendations for further study:**

- Each specialist study will consider and assess the cumulative impacts of proposed, approved and authorised grid connection infrastructure projects in the area.
- Cumulative impacts will be fully assessed and considered in the EIA phase.

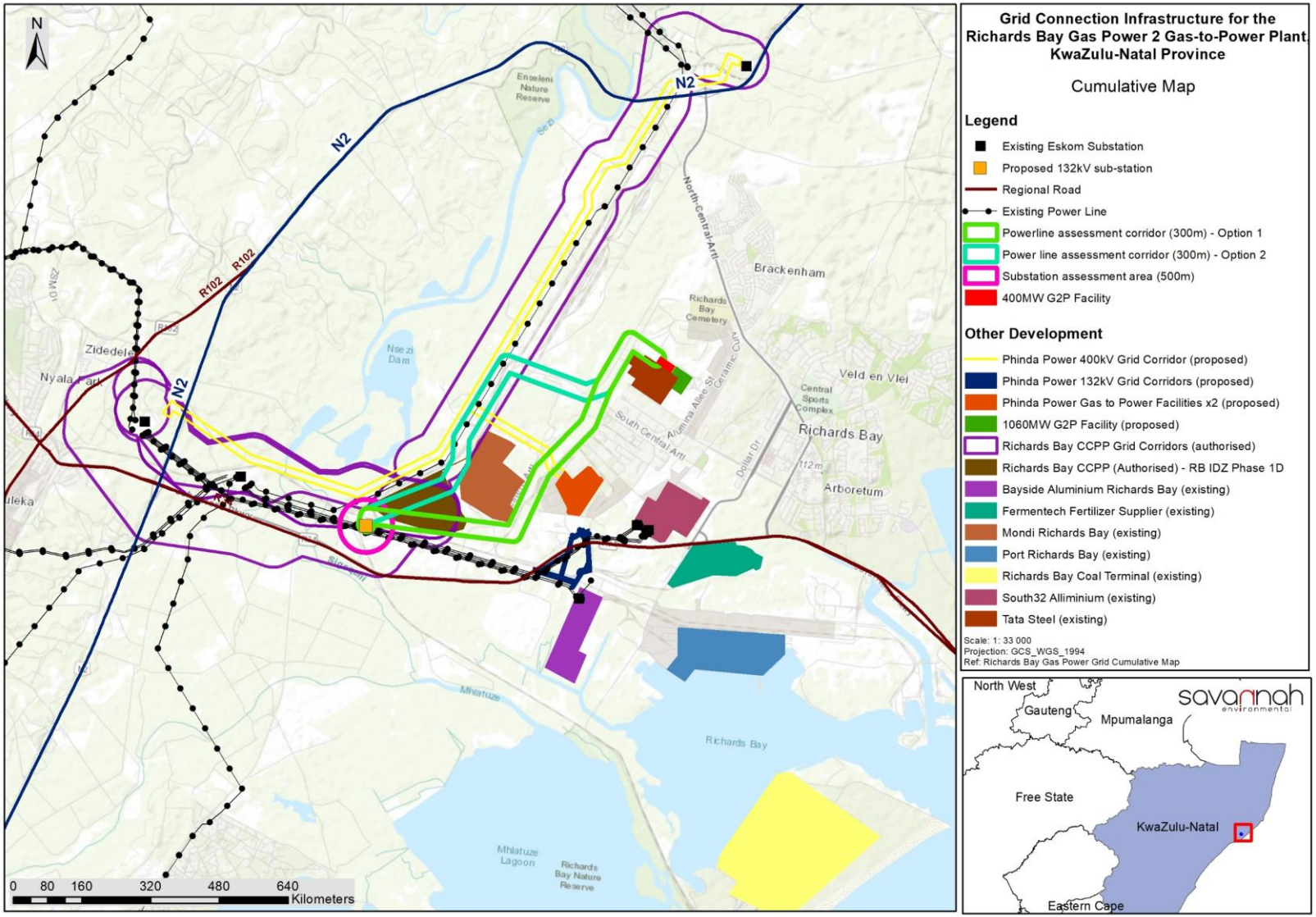


**Figure 6.1:** Cumulative map illustrating other approved and/or constructed grid connection infrastructure located within the vicinity of the grid corridor alternatives and switching station site

# CHAPTER 7 CONCLUSION

This Scoping Report is aimed at detailing the nature and extent of the proposed development, identifying and describing potential issues associated with developing the project on the identified project site, identifying potential environmental fatal flaws and/or areas of sensitivity, and defining the extent of studies required to be undertaken as part of the detailed EIA phase. This has been achieved through considering available information, input from the project team and a consultation process with key stakeholders (including relevant government authorities) and interested and affected parties (I&APs). The public consultation process is being undertaken in accordance with the approved public participation plan, and every effort is being made to include representatives of all stakeholder groupings in the communities surrounding the project site and the Province.

This chapter concludes the Scoping Report and provides an evaluation of the identified potential environmental risks and impacts associated with the construction and operation phases of the grid connection infrastructure associated with the RBGP2 400MW gas-to-power plant. Recommendations regarding investigations required to be undertaken within the EIA Phase of the process are provided within the Plan of Study for EIA, contained within Chapter 8 of this Scoping Report.

## 7.1 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of an Impact Assessment Report

This chapter of the scoping report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

| Requirement | Relevant Section |
|---|---|
| (g)(xi) a concluding statement indicating the preferred alternatives, including the preferred location of the activity. | An overall conclusion and fatal flaw analysis regarding the project is included within **Section 7.4**. |

## 7.2 Conclusions drawn from the Evaluation of the Development

Richards Bay Gas Power 2 (Pty) Ltd (RBGP2) is proposing the development of transmission infrastructure in order to connect the authorised 400MW gas to power facility to the national grid. The project is located south west of Richards Bay within the jurisdiction of the City of uMhlathuze Local Municipality and the King Cetshwayo District Municipality, KwaZulu-Natal Province.

The proposed grid connection infrastructure includes development of an overhead power line and switching station to connect the authorised RBGP2 400MW gas-to-power facility to the national grid at a feasible grid connection point to the south of the power station site. The power line will be constructed at 132kV or 275kV (and operated at 132kV) and will connect to the Eskom substation via a 132kV switching station to a feasible connection point to the south of the power plant site. The proposed power line is ~8.5km long and includes an assessment corridor of 200m. Following discussion with the landowners and technical assessment of the corridors, it was identified that an additional 35m is required to allow for appropriate placement of the powerline within the RBIDZ Phase 1F. This additional 35m zone will also therefore be assessed in the EIA phase, in addition to the two alternative power line corridors of up to 200m in width. The assessment of a wider corridor will allow for the optimisation of the power line within the corridor, avoiding environmental sensitivities and addressing any site-specific technical and landowner conditions. Only one

feasible location for the switching station has been identified. Where existing roads along the power line servitude and to the switching station sites are not available, new access roads will be required to be constructed.

The Scoping study included the identification of potential impacts associated with the project through a desktop study (considering existing information) and consultation with affected parties and key stakeholders.

### *7.2.1 Potential Impacts Identified*

Potential impacts associated with the development of the grid connection infrastructure are expected to occur during both the construction and operation phases. Potential environmental impacts and risks identified to be associated with the development of the proposed project include:

- Construction phase impacts, such as temporary air emissions (dust and vehicle emissions), noise, solid waste and wastewater generation, and Occupational Health and Safety (OHS) issues such as the risk of preventable accidents leading to injuries and/or fatalities.
- Impacts on land capability and soils, specifically relating to the loss of land for agricultural activities and soil erosion during both construction and operation.
- Impacts on ecology, including flora, fauna and wetland areas, specifically during the construction phase of the development.
- Impacts on avifauna associated with habitat loss, disturbance and mortalities during the construction and operation phases.
- Impacts on visual quality of the area associated with construction activities and operation of the infrastructure.
- Impacts on heritage sites, such as direct impacts on below-ground archaeological or palaeontological deposits as a result of ground disturbance during construction.
- Impacts on the social environment, including positive impacts associated with job creation and potential negative intrusion impacts during construction.
- Cumulative impacts associated with the proposed development and other similar infrastructure in the broader area.

A preliminary evaluation of the extent and significance of potential impacts associated with the development of the project have been detailed in Chapter 6. The conclusion of the findings of the Scoping Study is that the potential impacts identified to be associated with the construction and operation of the grid connection infrastructure are anticipated to be at a site or localised level, with few impacts extending from a local to national extent which includes both positive and negative impacts. The primary impact arising at a national level will be the positive impact associated with the connection of the 400MW gas-to-power plant enabling the transmission of the energy generated at this facility into the national grid.

No environmental fatal flaws were identified to be associated with the development area at this stage in the process. Features within the larger area have, however, been identified as 'no-go' areas or areas of potential sensitivity should be avoided by the development footprint. These features are related to natural wetlands found within the development corridor only, for which appropriate no-go buffer zones must be determined during the EIA phase, to be incorporated into the final designs. The consideration of a broader corridor for the power line and a larger study area for the switching station will, however, allow for the opportunity to avoid these sensitives during the final design phase.

These conclusions will be confirmed through the EIA Phase assessment, which will include independent specialist assessments. No recommendation regarding a preferred power line corridor has been made at this stage. Both alternatives and the broader switching station site will be assessed in detail in the EIA Phase.

### 7.3 Sensitivity Analysis for the Development Area

The potentially sensitive areas which have been identified through the environmental scoping study are listed below and illustrated in **Figure 7.1**.

The study area falls within a Critically Endangered ecosystem containing two Least Concern and Two Endangered vegetation types. The study area also falls predominantly within a CBA: Irreplaceable area. Further assessment is required to determine the current ecological status of the vegetation types within the identified corridors and their conformance to the CBA classification and ecological contribution. While no no-go areas are determined from an ecological perspective, a biodiversity specialist study with fieldwork must inform and update the baseline findings during the EIA phase to guide layout, sensitivity, suitability and mitigation measures applicable.

It is apparent from the scoping datasets that the development of the project area is likely to result in the loss of wetland areas. Where layout adjustments, for example the careful placement of power line pylons, are able to avoid these wetland features, impacts can be avoided. However, where this is not possible, permanent loss will be unavoidable during the construction phase of the project, with the loss considered to be permanent throughout the operation phase of the project. The loss of wetlands cannot be mitigated, and as a result these wetland features are to be considered no-go areas, with appropriate buffers determined within which no project related infrastructure should be placed.

The clearing of the area, stripping of topsoil, the storage of materials and structures and the use of machinery, vehicles and equipment all pose a risk to the wetland systems. The most significant risks are expected to be sedimentation and the input of contaminants into the wetland areas during the construction phase of the project. The development (operation phase) of the project will reduce the extent of the catchment area, increase the extent of hardened surfaces and provide storm water measures which will have an impact on the adjacent wetland systems. These impacts will alter the geomorphology and hydrology of the receiving systems, resulting in the likely erosion and scouring of the wetland areas. The wetlands within the project footprint are at the most risk, with the wetlands within the 500m buffer also at risk, but considerably less. A project risk assessment will be conducted for all wetland areas within 500m of the project area in order to determine the level of risk posed by the project. The delineation, extent and condition of the wetlands however are required to be further investigated through a comprehensive wetland impact assessment during the EIA phase.

The most significant impact resulting from the project is the potential loss of wetland areas due to the development of the power plant on these systems. A baseline study will be required to identify, delineate and assess the ecological characteristics of the wetland areas. Based on the baseline findings, it is recommended that layout alternatives attempt to avoid the wetland areas and accompany a buffer zone.

## 7.4 Overall Conclusion and Fatal Flaw Analysis

The findings of this Scoping Report were based primarily on desktop assessments and site visits. Based on this assessment, no environmental fatal flaws have been identified to be associated with the project at this stage. Therefore, there is no reason why the project cannot be evaluated further in a detailed EIA study.

During the EIA phase more detailed environmental studies will be conducted in line with the Plan of Study contained in Chapter 8 of this report. These studies will consider the identified power line corridor (200m as well as the additional 35m required within the IDZ Phase 1F) and switching station study area and make recommendations for the implementation of avoidance strategies (if required), mitigation and management measures to ensure that the final assessed layout retains an acceptable environmental impact.

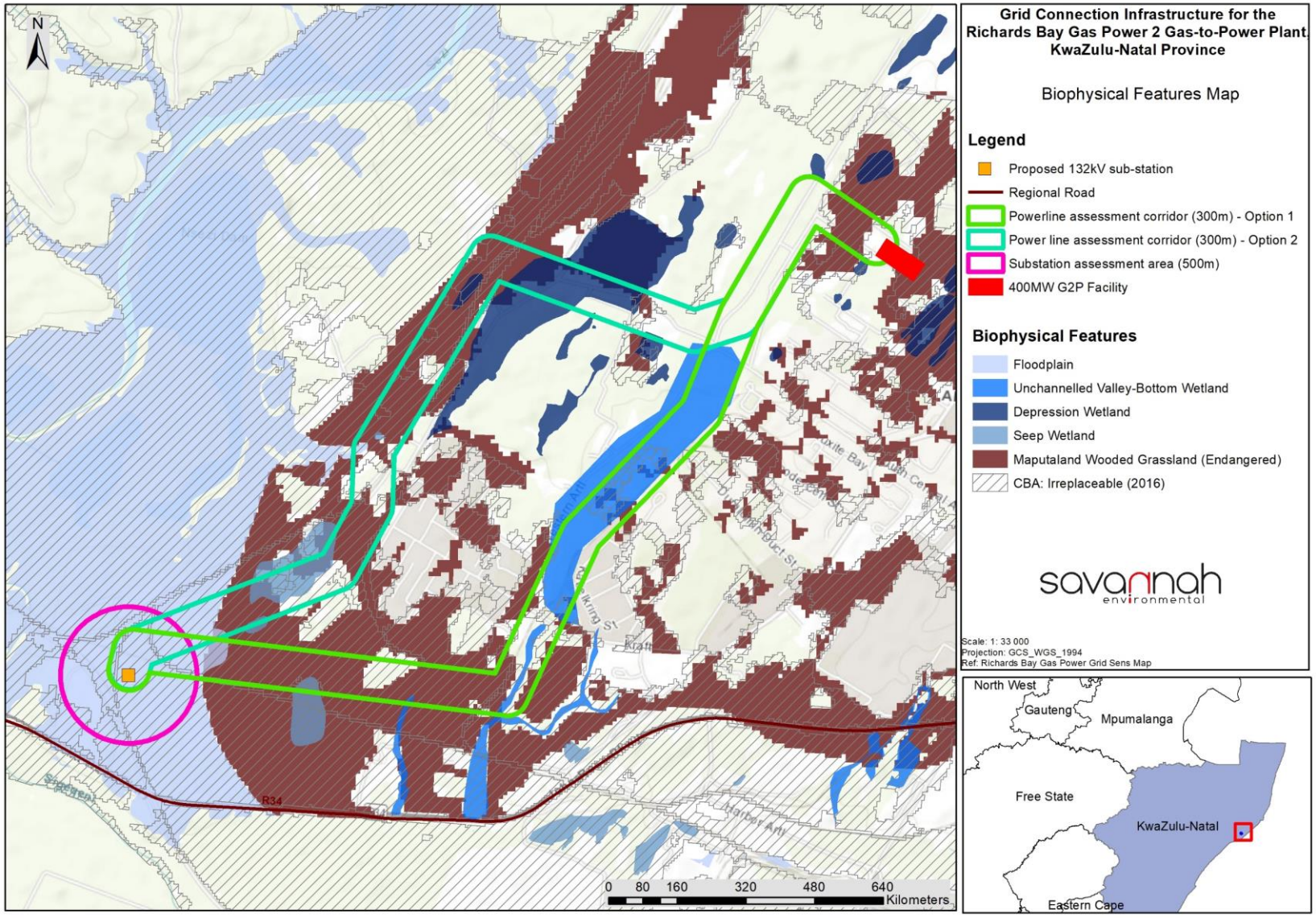


**Figure 7.1**: Biophysical features map from the results of the scoping evaluation

# CHAPTER 8 PLAN OF STUDY FOR THE EIA

One of the key objectives of the Scoping phase is to determine the level of assessment to be undertaken within the EIA Phase of the process. This will include the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken. This is to determine the impacts and risks a particular activity will impose on a preferred site through the life of the activity (including the nature, significance, consequence, extent, duration and probability of the impacts) to inform the location of the development footprint within the preferred site.

This Chapter contains the Plan of Study for the EIA for the grid connection infrastructure associated with the RBGP2 400MW gas-to-power plant located in Zone 1F of the Richards Bay IDZ. The findings of the Scoping Phase include inputs from the project proponent and the EIA specialist team. The findings are used to inform the Plan of Study for EIA together with the requirements of the 2014 EIA Regulations (GNR 326) and applicable guidelines. The Plan of Study for EIA describes how the EIA Phase will proceed, and includes details of the independent specialist studies required to be undertaken to assess the significance of those impacts identified within the Scoping Study to be of potential significance.

## 8.1 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of an Impact Assessment Report

This chapter of the scoping report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

| Requirement | Relevant Section |
|---|---|
| (h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including -<br>(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;<br>(ii) a description of the aspects to be assessed as part of the environmental impact assessment process;<br>(iii) aspects to be assessed by specialists;<br>(iv) a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;<br>(v) a description of the proposed method of assessing duration and significance:<br>(vi) an indication of the stages at which the competent authority will be consulted;<br>(vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and<br>(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process;<br>(ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored. | A plan of study for the undertaking of the EIA Phase for project is included within this chapter. |

## 8.2 Objectives of the EIA Phase

The EIA will assess the potential direct, indirect and cumulative environmental impacts and benefits associated with each phase of the development including design, construction, operation, and decommissioning. The EIA will aim to provide the CA with sufficient information to make an informed decision regarding the proposed development. The identified power line alternatives and broader switching station site being proposed will be assessed by a range of independent specialist studies. Furthermore, as required in terms of the 2014 EIA Regulations (GNR 326), the assessment will also include an assessment of the "do nothing" (i.e. no-go) alternative.

The EIA Phase will aim to achieve the following:

» Provide an overall assessment of the social and biophysical environment affected by the proposed grid connection infrastructure.
» Assess potentially significant impacts (direct, indirect and cumulative, where required) associated with the proposed grid connection infrastructure.
» Identify and recommend appropriate mitigation measures for potentially significant environmental impacts.
» Undertake a fully inclusive public involvement process to ensure that I&APs are afforded the opportunity to participate, and that their issues and concerns are recorded.

## 8.3 Authority Consultation

Consultation with the regulating authorities (i.e. DEFF and KZN DEDEAT) has been and will continue to be undertaken and will continue throughout the EIA process. On-going consultation will include the following:

» Submission of a Final Scoping Report following the 30-day public review period (and consideration of comments received).
» Submission of an EIA Report for review and comment.
» Submission of a Final EIA Report following a 30-day public review period (and consideration of comments received).
» Consultation and a site visit with DEFF and KZN DEDEAT (if required) in order to discuss the findings and conclusions of the EIA Report.

## 8.4 Consideration of Alternatives

The following project alternatives will be investigated in the EIA Phase:

» **Site Alternatives – Power Line:** Two power line corridors of 200m in width and approximately 8.5 km in length has been identified for investigation. An additional 35m will be assessed for both corridors, located in the RBIDZ Phase 1F, to allow for appropriate placement of the powerlines within this segment of the corridors.
» **Site Alternatives – Switching Station:** A 500m area around the proposed switching station site has been identified for investigation.
» **The 'Do-Nothing' Alternative:** The option of not constructing the proposed grid connection infrastructure.

## 8.5 Assessment of Potential Impacts and Recommendations regarding Mitigation Measures

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 Regulations 19 and 21 of the EIA Regulations.

The requirement for the submission of a Screening Report (included as **Appendix H** of the Scoping Report) for the proposed grid connection infrastructure is applicable as it triggers Regulation 21 of the EIA Regulations, 2014 (as amended). **Table 8.1** provides a summary of the specialist assessments identified in terms of the screening tool and responses to each assessment from the project team considering the development area under consideration.

**Table 8.1:** Sensitivity ratings from the DEFF's web-based online Screening Tool associated with the development of the grid connection infrastructure

| Specialist Assessment | Sensitivity Rating as per the Screening Tool (relating the to need for the study) | Project Team Response |
|---|---|---|
| Agricultural Potential | Very High | A Soils and Agricultural Potential Assessment will be undertaken as part of the EIA Phase. |
| Terrestrial Biodiversity Impact Assessment | Very High | An Ecological Impact Assessment (including flora and fauna) will be undertaken as part of the EIA Phase. |
| Plant Species Assessment | Medium | Plant Species assessment, as required by the Plant and Animal Species Protocols (GNR 1150 of 30 October 2020), will be included in the Ecological Impact Assessment (including flora and fauna) which will be undertaken as part of the EIA Phase and will consider flora present within the site. |
| Animal Species Assessment | High | Animal Species assessment, as required by the Plant and Animal Species Protocols (GNR 1150 of 30 October 2020), will be included in the Ecological Impact Assessment (including flora and fauna) which will be undertaken as part of the EIA Phase and will consider fauna present within the site. |
| Aquatic Biodiversity Impact Assessment | Very High | A Freshwater Resource Study & Assessment will be undertaken as part of the EIA Phase. |
| Archaeological and Cultural Heritage Impact Assessment | Medium | A Heritage Assessment Report will be undertaken as part of the EIA Phase to comply with the requirements of the Heritage Resources Act. This report will also consider archaeology and cultural heritage. |
| Palaeontology Impact Assessment | The Screening Report did not include a rating for this theme. The SAHRA Paleo-sensitivity map indicates the area to be of low sensitivity | There is no requirement for a detailed Palaeontological Assessment based on the site sensitivity. |
| Landscape/Visual Impact Assessment | The Screening Report did not include a rating for this theme; however, the specialist assessment was identified based on the technology proposed. | A Visual Impact Assessment will be undertaken as part of the EIA Phase. |

| Specialist Assessment | Sensitivity Rating as per the Screening Tool (relating the to need for the study) | Project Team Response |
|---|---|---|
| Socio-Economic Assessment | The Screening Report did not include a rating for this theme; however, the specialist assessment was identified. | A Social Impact Assessment will be undertaken as part of the EIA Phase. |
| Civil Aviation | High | The project alternatives are located within 8-15km of "other civil aviation aerodromes'. The CAA will be consulted through the EIA process to determine any potential impacts and specific requirements |
| Defence | Low | No specialist study will be required given the low sensitivity of this theme. |

A summary of those issues identified during Scoping and from the above screening which require further investigation during the EIA Phase, as well as the proposed activities to be undertaken in order to assess the significance of these potential impacts, is provided in **Table 8.2** As part of the EIA Phase, these specialist studies will consider the impacts associated with the development of the proposed project infrastructure within the identified alternatives. The independent specialist studies will consider and comply (where relevant and applicable) with the requirements of the minimum criteria for reporting on identified environmental themes, as gazetted on 20 March 2020 (GNR 320) and 30 October 2020 (GNR 1150).

**Table 8.1:** Impacts requiring further investigation during the EIA Phase, and activities to be undertaken in order to assess the significance of potential impacts relevant to the grid connection infrastructure associated with the RBGP2 400MW gas-to-power plant

| Issue | Activities to be undertaken in order to assess significance of impacts |
|---|---|
| **Ecology (Flora and Fauna)** | ***Sensitivity Analysis and EIA assessment***<br>Results from the scoping assessment found that the proposed project site falls within the distributional range of four vegetation types of conservation concern. However, the current ecological condition of the vegetation units present on site is requires further investigation to determine the overall sensitivity of these vegetation types. As a means to determine if species of conservation concern are still present on the project site and to evaluate the current condition of the vegetation units, the following activities will be undertaken:<br><br>» The location, extent and condition of all plant communities on site, and within the grid connection corridor will be identified and mapped as per the Sensitivity Mapping Rules for Biodiversity Assessments (EKZNW Guidelines for Biodiversity Impact Assessments, 2013);<br>» All Red and Orange, as well as endemic plant species plant species, will be identified and accurately mapped out with a GPS (WGS84 datum; geographic coordinate system). Protective buffer zone widths, consistent with the Red List Plant Species Guidelines will be designated as sensitive on a sensitivity map;<br>» A plant species list, including the number of forbs/herbs, grasses, shrubs and tree species will be provided for each plant community. Medicinal and exotic/invasive species will be indicated.<br>» Plant species assessment will be conducted as required by the Plant and Animal Species Protocols (GNR 1150of 30 October 2020), once the taxon present on site has been confirmed by the specialist.<br><br>*Mammal assessments*<br>» During the site visit mammals will be identified by visual sightings through random transect walks, as well as indirect evidence from tracks, scats and runways. An assessment of the status and condition of potential and available habitat for mammalian species will be conducted.<br>» A list of all mammal species observed in the project site will be provided.<br>» The location of red list, protected and endemic mammal species/populations observed in the project site will be mapped as well as all suitable and predicted habitats for these animals in the project site and within a 500 m radius of the project site.<br>» Species specific mitigation measures for identified species of conservation concern will be provided.<br>» Details on the status/condition of habitats identified during the survey will be included in the report.<br>» An evaluation of whether the project site contains viable habitat for the recolonization or re-introduction of the species predicted to occur in the project stie (historically), but which were not recorded as being present during the surveys, as well as the rehabilitation potential if habitat is degraded.<br><br>*Herpetofauna assessments* |

| Issue | Activities to be undertaken in order to assess significance of impacts |
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| | » During the site visit reptiles will be identified by visual sightings through random transect walks. An assessment of the status and condition of potential and available habitat for reptile species will be conducted. Typical reptile habitats such as rocky outcrops, trees, under logs or stones will be systematically searched for the presence of reptile species. Potential dispersal connections between habitats will be investigated during random transect walks.<br>» For frog assessments, focal habitats such as wetlands, drainage lines and grasslands will be searched systematically for approximately 2 hours. Searches will be conducted by slow wading or walking on adjacent banks while visually searching for adults. In addition to visual confirmation, frog calls will be recorded and compared with pre-recorded calls from du Preez & Carruthers (2009) as an additional means to identify frog species. Diurnal and nocturnal surveys will be conducted for the amphibian and reptile assessments.<br>» Animal species assessment will be conducted as required by the Plant and Animal Species Protocols (GNR 1150of 30 October 2020), once the taxon present on site has been confirmed by the specialist.<br><br>*Focal surveys for Pickersgill Reed frog and the Spotted shovel-nosed frog*<br>» Focal surveys will include nocturnal surveys and call monitoring at wetland areas. In addition to call monitoring and visual surveys, a standard Y-shape trap design close to the wetlands will be used to increase the likelihood of encountering the spotted shovel-nosed frogs. The trap arrays have the additional benefit of increasing the likelihood of capturing shrew species of conservation concern. Traps will be left open for 2-3 nights, depending on the capture rate.<br>» Where suitable foraging and aestivation habitat occurs in the project site the nearest suitable breeding habitat will be identified. Potential dispersal connections between wetlands in the project site, and on areas within a 500 m radius of the project site will also be indicated.<br><br>The study will further assess the significant direct, indirect, and cumulative impacts associated with the activity. The significance of environmental impacts is to be assessed by means of the criteria of extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).<br><br>***Assessment of Impacts for the EIA***<br>The methodology described above assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts associated with an activity. The significance of environmental impacts is to be assessed by means of the criteria of extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).<br><br>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.<br><br>***Environmental Management Programme*** |

| Issue | Activities to be undertaken in order to assess significance of impacts |
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| | For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr. |
| **Avifauna** | ***Sensitivity Analysis and EIA assessment***<br>The following activities are proposed during the EIA Phase:<br><br>» Consider the findings of an avifaunal survey against the planned infrastructure within the development footprint.<br>» Provide an assessment of cumulative impacts associated with the development of the project site. Including an assessment of the extent of habitat lost to proposed development in the area to date, and the likely future potential loss from the current as well as other proposed developments in the area.<br>» Evaluate, based on the site attributes and final layout of the proposed development, what the most applicable mitigation measures to reduce the impact of the proposed development on the project site would be, and if there are any areas where specific pre-cautions or mitigation measures should be implemented. Particular attention will be paid to potential impacts on important landscape features in the vicinity of the site or where sensitive avifaunal species may nest or roost.<br>» Identifying the species or habitat features that are 'key ecosystem providers' and complete sensitivity mapping<br>» Sensitivity ratings assigned and reasoning will be clearly defined.<br><br>***Assessment of Impacts for the EIA***<br>This methodology described above assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).<br><br>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.<br><br>***Environmental Management Programme***<br>For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr. |
| **Freshwater resources** | ***Sensitivity Analysis and EIA assessment***<br>The impact assessment for the consideration of wetlands and aquatic features will include the following:<br>» A site visit will be undertaken in order to confirm the presence and locations of wetlands within the project site;<br>» Wetland and watercourse delineation will be undertaken;<br>» Wetland health will be determined; |

| Issue | Activities to be undertaken in order to assess significance of impacts |
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| | » Wetland functionality and integrity will be confirmed;<br>» The ecological importance and sensitivity of the wetlands will be confirmed; and<br>» Recommendations for rehabilitation of any disturbed wetland areas identified will be undertaken<br><br>The following methodologies will be followed for the above:<br>» The wetland areas are to be delineated in accordance with the DWAF (2005) guidelines.<br>» The wetland areas are to be classified in accordance with Ollis et al., 2013.<br>» Conduct Level 2 on-site evaluation to determine the integrity of the systems. This involves structured sampling and data collection in a single wetland and its surrounding catchment.<br>» The assessment of the ecosystem services supplied by the identified wetlands must be conducted per the guidelines as described in WET-EcoServices (Kotze et al., 2009).<br>» The method takes into consideration PES scores as well as function and service provision to enable the assessor to determine the most representative Ecological Importance and Sensitivity (EIS) category for the wetland feature or group being assessed.<br>» The "Preliminary Guideline for the Determination of Buffer Zones for Rivers, Wetlands and Estuaries" (Macfarlane, et al., 2015) must be used to determine the appropriate buffer zone for the proposed activity.<br><br>***Assessment of Impacts for the EIA***<br>This methodology described above assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of the criteria of extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).<br><br>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.<br><br>***Environmental Management Programme***<br>For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr. |
| **Soils, Land Use, Land Capability and Agricultural Potential** | ***Sensitivity Analysis and EIA assessment***<br><br>The following will form part of the impact assessment on the soil and agricultural potential of the project site:<br>» Undertake a site investigation;<br>» Assess and discuss historic climate statistics; |

| Issue | Activities to be undertaken in order to assess significance of impacts |
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| | » Assess and discuss geological information;<br>» Assess and discuss the terrain features using 5 m contours;<br>» Source best recent satellite or aerial imagery and georeferenced;<br>» Assess and discuss current agricultural land use on site and comment on crop performance and estimated yields;<br>» Conduct soil assessment;<br>» Assess and discuss agricultural land potential (eight class scale);<br>» Discuss the impact of the proposed land use change on loss of agricultural land production (If any);<br>» Recommend best location for proposed development to reduce any impacts;<br>» Compile informative reports and maps on current land use and agricultural land potential; and<br>» Discuss the impact of the proposed land use change on loss of agricultural land production.<br><br>The site visit will be undertaken as follows:<br>» The site will be traversed by vehicle and on foot;<br>» A soil auger will be used to determine the soil form and depth;<br>» The soil will be hand augured to the first restricting layer or ~1.2 m;<br>» Soil survey positions will be recorded as waypoints using a handheld GPS/Samsung tablet;<br>» Soil forms (types of soil) found in the landscape will be identified using the South African soil classification system (Soil Classification Working Group, 1991);<br>» Landscape features such as existing open trenches were also helpful in determining soil types and depth; and<br>» Current land use will be recorded as well as potential yields of existing crops<br><br>An Impact assessment of the proposed development will be conducted and the recommendations will be used in the Environmental Management Programme (EMPr).<br><br>***Assessment of Impacts for the EIA***<br>The methodology described above assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of the criteria of extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).<br><br>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. |

| Issue | Activities to be undertaken in order to assess significance of impacts |
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| | ***Environmental Management Programme***<br>For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr. |
| **Visual impact** | ***Sensitivity Analysis and EIA assessment***<br>The Visual Impact Assessment study to be undertaken in the EIA phase will include a level 3 assessment which includes:<br><br>» Determine Visual Distance/Observer Proximity to the facility - The proximity radii (calculated from the boundary lines of the facility).<br>» Determine Viewer Incidence/Viewer Perceptionn - Identify areas of high viewer incidence and to classify certain areas according to the observer's visual sensitivity towards the proposed facility and its related infrastructure.<br>» Determine the Visual Absorption Capacity (VAC) of the landscape - The VAC is primarily a function of the vegetation, and will be low if the vegetation is, low growing sparse and patchy vegetation.<br>» Determine the Visual Impact Index - The site-specific issues and potential sensitive visual receptors will be measured against this visual impact index and be addressed individually in terms of nature, extent, duration, probability, severity and significance of visual impact.<br>» Identification and assessment of all potential impacts (direct, indirect and cumulative) identified in this scoping phase report and;<br>» Recommendations will be made for the management of identified impacts.<br><br>***Assessment of Impacts for the EIA***<br>This methodology described above assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of the criteria of extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).<br><br>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.<br><br>***Environmental Management Programme***<br>For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr. |
| **Heritage (Archaeology and Palaeontology)** | ***Sensitivity Analysis and EIA assessment***<br>The impact assessment for the archaeological resources of the site will be assessed through the undertaking of the following: |

| Issue | Activities to be undertaken in order to assess significance of impacts |
|---|---|
| | » A site visit will be undertaken with the aim of locating and identifying sites of significance through a non-intrusive pedestrian survey in the project site. The site visit will also aim to ground truth findings of the scoping study. The identified sites will be recorded, photographed and described. GPS points of significant sites will be documented using the WGS 84 datum point;<br>» Should any significant sites be identified a study method for the particular site will be included;<br>» Ensure that all requirements of the local South African Heritage Resources Agency (SAHRA) are met; and<br>» Report on the results of the archaeological and cultural heritage survey adhering to minimum standards as prescribed by the SAHRA and approved by the Association for Southern African Professional Archaeologist (ASAPA).<br><br>***Assessment of Impacts for the EIA***<br>The methodology described above assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of the criteria of extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).<br><br>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.<br><br>***Environmental Management Programme***<br>For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr, as well as a chance finds procedure. |
| **Social** | ***Sensitivity Analysis and EIA assessment***<br>The purpose of the impact assessment will be collect project data and undertake a modelling exercise with the purpose of determining not only direct effects of the project, but also its multiplier effects on the local and regional economies, as well the strategic importance of the project. The project data to be collected includes:<br>» Construction Costs (CAPEX), Operational Costs (OPEX), and decommissioning costs (or suitable estimates of these)<br>» Intermediate inputs required and percent of imports of the total project spending<br>» Distribution of procurement of intermediate inputs amongst local areas, provinces, and South Africa<br>» Skills requirements<br>» Number of people to be employed during construction, operation, and decommissioning<br>» Socio-Economic Development and enterprise development spending and initiatives to be implemented<br><br>Project data will be used to model direct, indirect, and induced impacts. Modelling of impacts will be done using economic models developed on the basis of the provincial and national Social Accounting Matrices (SAMs). Impacts determined through the modelling exercise will include |

| Issue | Activities to be undertaken in order to assess significance of impacts |
|---|---|
| | production, value added, employment, skills, household income, and government revenue. Differentiation will be made between impacts that are expected to take place within the local municipality, province and rest of the country.<br><br>An analysis of socio- and macro-economic implications of the project on the affected economies will also be undertaken. The results will be interpreted and unpacked to create a comprehensive description of socio-economic effects that are to be ensued by the project during various stages. For each phase of the project's lifecycle, the following groups of impacts will be examined:<br>» Impacts directly associated with the construction, operation, and closure activities, where applicable<br>» Secondary impacts that involve the changes in the economic activities in the environment directly or indirectly affected by the development<br>» Cumulative impacts that take into account other projects or developments that are in the pipeline for the area<br><br>A mitigation plan will be formulated whereby recommendations to reduce or eliminate the potential negative effects on the affected parties and enhance positive impacts will also be provided.<br><br>***Assessment of Impacts for the EIA***<br>This methodology described above assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of the criteria of extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).<br><br>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.<br><br>***Environmental Management Programme***<br>For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr. |

### 8.6 Assessment of Potential Impacts Associated with the Project

Direct, indirect and cumulative impacts of the above issues, as well as all other issues identified will be assessed in terms of the following criteria:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional:
  - Local extending only as far as the development site area – assigned a score of 1.
  - Limited to the site and its immediate surroundings (up to 10 km) – assigned a score of 2.
  - Will have an impact on the region – assigned a score of 3.
  - Will have an impact on a national scale – assigned a score of 4.
  - Will have an impact across international borders – assigned a score of 5.
- The **duration**, wherein it will be 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 shall describe the likelihood of the impact actually occurring. Probability will be 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 shall be determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high.
- The **status**, which will be 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).

The project applicant has the responsibility to avoid and / or minimise impacts as well as plan for their management (in terms of the 2014 EIA Regulations (GNR 326)), the mitigation of significant impacts will be discussed. Assessment of mitigated impacts will demonstrate the effectiveness of the proposed mitigation measures.

The results of the impact assessment studies and other available information will be integrated by the Savannah Environmental project team. The EIA Report will be compiled in terms of the requirements of the 2014 EIA Regulations (GNR 326) and will include:

- The details and expertise of the **EAP** who prepared the report.
- The **location** of the activity and a locality map illustrating the location of the proposed activity.
- A **description** of the scope of the proposed activity including all listed activities triggered and a description of associated structures and infrastructure.
- The **policy and legislative** context within which the development is located and an explanation of how the development complies and responds to the legislation and policy context.
- The **need and desirability** of the proposed development of the activity in the context of the preferred location.
- A motivation for the **preferred development footprint** within the approved site.
- A description of the **process** followed to reach the proposed development footprint within the approved site, including:
  - Details of the development footprint considered.
  - Details of the public participation process undertaken in terms of Regulation 41 of the 2014 EIA Regulations, including copies of supporting documents.
  - A summary of issues raised by interested and affected parties and the manner in which the issues were incorporated.
  - The environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.
  - The impacts and risks identified including the nature, significance, consequence extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated.
  - The methodology used for determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks.
  - Positive and negative impacts that the activity and alternatives will have on the environment and the community.

- Possible mitigation measures to be applied and the level of residual risk.
- A motivation for not considering alternative development locations.
- A concluding statement indicating the preferred alternative development location.
- A full description of the process followed to identify, assess and rank impacts of the activity and associated infrastructure on the preferred location including all environmental issues and risks that have been identified and an assessment of the significance of each issue and risk and the extent to which the issue/risk can be avoided or mitigated.

» An **assessment** of the identified potentially significant impacts and risks.
» A summary of the **findings and recommendations** of any specialist report and an indication as to how these findings and recommendations have been included.
» An **environmental impact assessment** containing a summary of key findings, an environmental sensitivity map, and a summary of the positive and negative impacts and risks of the proposed activity.
» **Recommendations** from specialist, the recording of proposed impact management **objectives** and the impact management **outcomes** for inclusion in the **EMPr** as well as inclusion as conditions of authorisation.
» The final **alternatives** which respond to the impact management measures, avoidance and mitigation measures identified.
» Any aspects which were **conditional** to the findings of the assessment.
» A description of the assumptions, uncertainties and gaps in knowledge relating to the assessment and mitigation measures proposed.
» An **opinion** as to whether the proposed activity should or should not be authorised and the conditions thereof.
» An undertaking or **affirmation** by the EAP in relation to the correctness of the information, the inclusion of comments and inputs from stakeholders and Interested and affected parties, the inclusion of inputs and recommendations from the specialists, and any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.

The EIA Report will be released to the public and relevant stakeholders, Organs of State and Authorities for a 30-day review period. Comments received from I&APs will be captured within a Comments and Response Report, which will be included within the Final EIA Report, for submission to DEA for decision-making.

### 8.7 Public Participation Process

A public participation process will be undertaken by Savannah Environmental during the EIA phase. The Public Participation will be undertaken in line with the approved Public Participation Plan as per the correspondence from DEFF (**Appendix B** and **Appendix C9**). Consultation with key stakeholders and I&APs will be on-going throughout the EIA Phase. Through this consultation process, stakeholders and I&APs will be encouraged to verify that their issues were recorded in the Scoping Phase, and to identify additional issues of concern or highlight positive aspects of the proposed project, and to comment on the findings of the EIA Phase. In order to accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their inputs, various opportunities will be provided for stakeholders and I&APs to be involved in the EIA Phase of the process, as follows:

» Focus group meetings (pre-arranged and I&APs invited to attend) via the use of virtual platforms (Zoom or MS Teams.

- One-on-one consultation meetings (for example with directly affected and surrounding landowners) via telephone or virtual platforms.
- Telephonic consultation sessions (consultation with various parties from the EIA project team, including the public participation consultant, lead EIA consultant, as well as specialist consultants).
- Written, faxed or e-mail correspondence.

The EIA Report will be made available for a 30-day review period prior to finalisation and submission to the DEA for decision-making. In order to provide an overview of the findings of the EIA process and facilitate comments, a public meeting will be held during this public review period, depending on the specific needs of the stakeholders in the area. All comments received during the public review period will be included within the final report to be submitted to the DEA for review and decision-making.

### 8.8 Key Milestones of the Programme for the EIA

The envisaged key milestones of the programme for the EIA Phase are outlined in the following table (and include indicative dates):

| Key Milestone Activities | Proposed timeframe[5] |
|---|---|
| Make Scoping Report available to the public, stakeholders and authorities (30 days) | 13 November – 13 December 2020 |
| Finalisation of Scoping Report, and submission of the Final Scoping Report to DEA | 14 December 2020 |
| Authority acceptance of the Final Scoping Report and Plan of Study to undertake the EIA (44 days) | Within 44 days of receipt of the Final Scoping Report (i.e. 18 February 2021) |
| Make EIA Report and EMPr available to the public, stakeholders and authorities (30 days) | March 2021 |
| Finalisation of EIA Report, and submission of the Final EIA Report to DEA | April 2021 |
| Authority review period and decision-making (107 days) | Within 107 days of submission of the Final EIA Report to the DEA |

[5] Indicative dates.

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