# APPENDIX I

## ENVIRONMENTAL MANAGEMENT PROGRAMME

# PROPOSED 750MW COMBINED CYCLE GAS TURBINE POWER PLANT IN RICHARDS BAY, CITY OF UMHLATHUZE LOCAL MUNICIPALITY, KING CETSHWAYO DISTRICT MUNICIPALITY, KWAZULU-NATAL

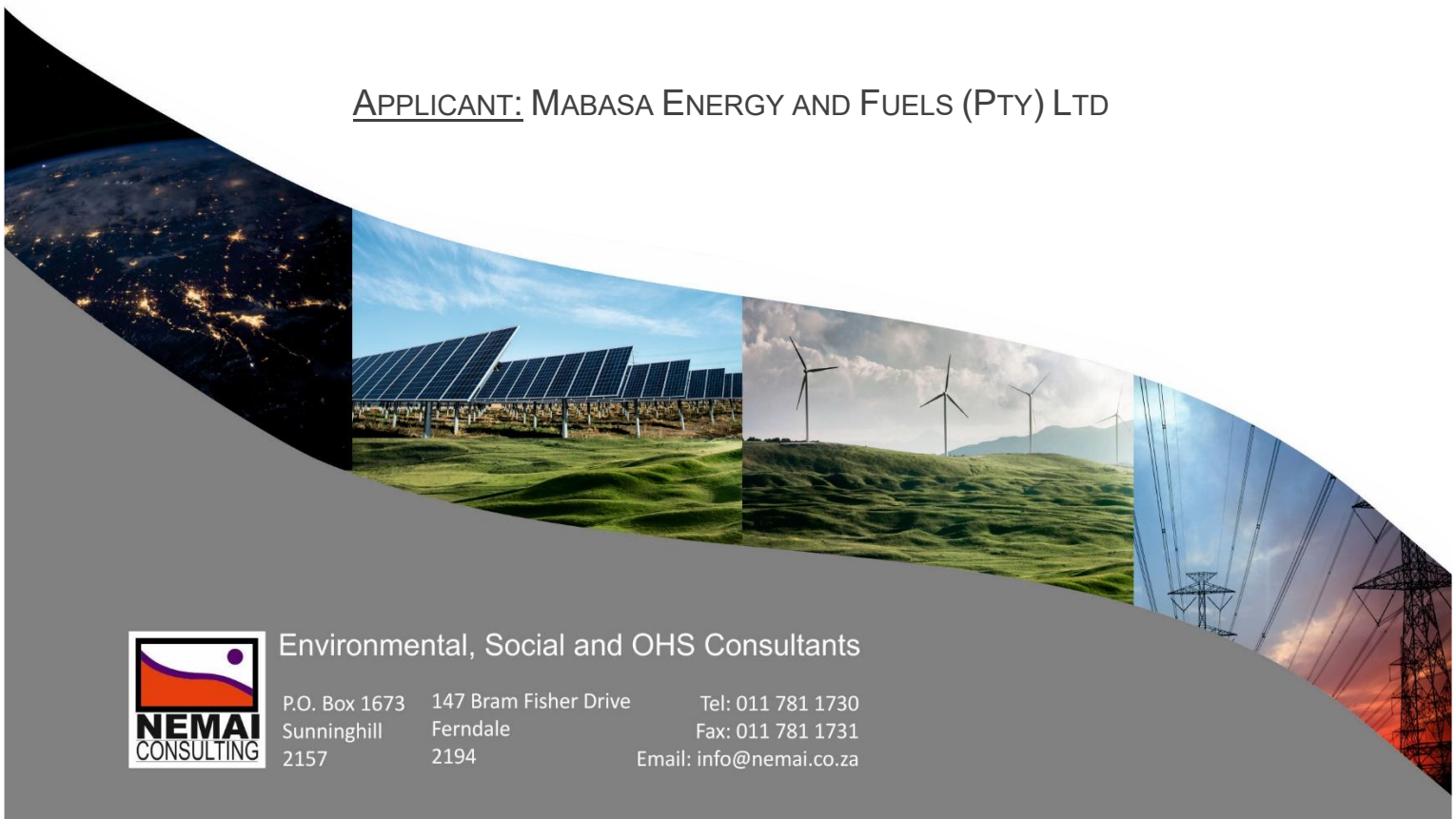
## ENVIRONMENTAL MANAGEMENT PROGRAMME

DFFE REFERENCE NO.: 14/12/16/3/3/2/2799

**FINAL**

SEPTEMBER 2026

APPLICANT: MABASA ENERGY AND FUELS (PTY) LTD




NEMAI CONSULTING

Environmental, Social and OHS Consultants

P.O. Box 1673
Sunninghill
2157

147 Bram Fisher Drive
Ferndale
2194

Tel: 011 781 1730
Fax: 011 781 1731
Email: info@nemai.co.za

# TITLE AND APPROVAL PAGE

| | |
|---|---|
| **Project Name:** | Proposed 750MW Combined Cycle Gas Turbine Power Plant in Richards Bay, City of uMhlathuze Local Municipality, King Cetshwayo District Municipality, Kwazulu-Natal |
| **Report Title:** | Environmental Management Programme |
| **Authority Reference:** | 14/12/16/3/3/2/2799 |
| **Report Status:** | Final |

| | |
|---|---|
| **Applicant:** | Mabasa Energy and Fuels (Pty) Ltd |

| | | | | |
|---|---|---|---|---|
| **Prepared By:** | Nemai Consulting | | | |
| NEMAI CONSULTING | ☎ | +27 11 781 1730 | | 147 Bram Fischer Drive, FERNDALE, 2194 |
| | 🖷 | +27 11 781 1731 | | |
| | ✉ | donavanh@nemai.co.za | | PO Box 1673, SUNNINGHILL, 2157 |
| | | www.nemai.co.za | | |
| Report Reference: | 10784-20260914-Final EMPr | | | R-PRO-REP\| 20170216 |

| | |
|---|---|
| Prepared By: | D. Henning |
| Reviewed By: | N. Naidoo |

*This Document is Confidential Intellectual Property of Nemai Consulting (Pty) Ltd*
*© copyright and all other rights reserved by Nemai Consulting (Pty) Ltd*
*This document may only be used for its intended purpose*

# AMENDMENTS PAGE

| Date | Nature of Amendment | Amendment No. |
|---|---|---|
| August 2026 | Draft for Review by Authorities and the Public | 0 |
| September 2026 | Final for submission to DFFE for decision-making | 1 |
| | | |
| | | |
| | | |

# TABLE OF CONTENTS

List of Tables 4
List of Figures 4
List of Appendices 4
**1 PURPOSE OF THIS DOCUMENT - 1 -**
**2 DOCUMENT ROADMAP - 1 -**
**3 PROJECT OVERVIEW - 4 -**
3.1 Gas Independent Power Producers Procurement Programme - 4 -
3.2 The Project - 4 -
3.3 Project Location - 5 -
3.4 Project Description - 6 -
**4 ENVIRONMENTAL ASSESSMENT PRACTITIONER - 10 -**
**5 LEGAL FRAMEWORK - 10 -**
**6 METHOD STATEMENTS - 16 -**
**7 ROLES AND RESPONSIBILITIES - 17 -**
7.1 Department of Forestry, Fisheries and the Environment - 17 -
7.2 Project Applicant - 17 -
7.3 Project Manager - 17 -
7.4 Environmental Control Officer - 18 -
7.5 Contractor's Environmental Officer - 18 -
7.6 Contractor's Social Officer - 19 -
**8 MONITORING - 19 -**
8.1 Baseline Monitoring - 19 -
8.1.1 General - 19 -
8.1.2 Pre-Construction Survey - 19 -
8.2 Environmental Monitoring - 20 -
8.3 Compliance Monitoring and Auditing - 27 -
**9 ENVIRONMENTAL TRAINING AND AWARENESS CREATION - 28 -**
9.1 Introduction - 28 -
9.2 Construction Phase - 28 -
9.3 Operational Phase - 29 -
**10 EMPr REVIEW - 30 -**
**11 ENVIRONMENTAL ACTIVITIES, ASPECTS AND IMPACTS - 30 -**
11.1 Introduction - 30 -

11.2 Project Activities - 30 -
11.3 Environmental Aspects - 32 -
11.4 Potential Significant Environmental Impacts - 33 -
**12 SENSITIVE ENVIRONMENTAL FEATURES - 36 -**
**13 IMPACT MANAGEMENT - 40 -**
13.1 Introduction - 40 -
13.2 Pre-Construction & Construction Phases - 41 -
13.2.1 Administrative Requirements - 41 -
13.2.2 Site Layout and Establishment - 42 -
13.2.3 Environmental Awareness Creation - 44 -
13.2.4 Stakeholder Communication - 45 -
13.2.5 Management of Security - 46 -
13.2.6 Site Clearing - 47 -
13.2.7 Management of Geotechnical Conditions - 48 -
13.2.8 Management of Existing Services and Infrastructure - 49 -
13.2.9 Management of Access and Traffic - 51 -
13.2.10 Fencing Arrangements - 52 -
13.2.11 Management of Labour Force - 53 -
13.2.12 Management of Construction Camp - 55 -
13.2.13 Management of Ablution Facilities - 56 -
13.2.14 Management of Visual Aspects - 58 -
13.2.15 Management of Climate Change Impacts - 59 -
13.2.16 Management of Water - 62 -
13.2.17 Management of Soil - 64 -
13.2.18 Management of Excavations - 65 -
13.2.19 Management of Storage and Handling of Non-Hazardous Material - 67 -
13.2.20 Management of Storage and Handling of Hazardous Material - 68 -
13.2.21 Management of Waste - 71 -
13.2.22 Management of Workshop and Equipment - 72 -
13.2.23 Management of Pollution Generation Potential - 73 -
13.2.24 Management of Terrestrial and Freshwater Biodiversity - 76 -
13.2.25 Management of Heritage and Palaeontological Features - 83 -
13.2.26 Management of Emergency Procedures - 84 -
13.2.27 Management of Blasting (if required) - 87 -
13.2.28 Management of Socio-Economic Impacts - 88 -
13.2.29 Management of Health and Safety - 91 -

13.2.30 Management of Reinstatement and Rehabilitation - 94 -
13.3 Operational Phase - 99 -
13.3.1 Management of Climate Change Impacts - 99 -
13.3.2 Management of Air Quality - 101 -
13.3.3 Management of Plant Hazards - 102 -
13.3.4 Management of Water - 104 -
13.3.5 Management of Waste and Wastewater - 105 -
13.3.6 Management of Terrestrial Biodiversity - 107 -
13.3.7 Management of Access and Traffic - 109 -
13.3.8 Management of Socio-Economic Impacts - 110 -
13.3.9 Management of Health and Safety - 111 -

## List of Tables

Table 1: Document Roadmap - 2 -
Table 2: Coordinates of Property's Boundary - 5 -
Table 3: Project Summary - 6 -
Table 4: Environmental Statutory Framework - 10 -
Table 5: Environmental monitoring requirements - 21 -
Table 6: Environmental awareness and training for the operational phase - 29 -
Table 7: Simplified list of activities associated with the Project - 30 -
Table 8: Environmental aspects associated with the project phases - 32 -
Table 9: Potentially significant environmental issues - 34 -

## List of Figures

Figure 1: Regional locality map - 5 -
Figure 2: Plant layout (note: not all components labelled due to space constraints) - 9 -
Figure 3: Combined sensitivity map (freshwater ecosystems and terrestrial biodiversity) - 39 -

## List of Appendices

APPENDIX A: Emergency Response and Action Plan

# LIST OF ABBREVIATIONS

| | |
|---|---|
| **AEL** | Atmospheric Emission Licence |
| **AIP** | Alien and Invasive Plant |
| **CBA** | Critical Biodiversity Area |
| **CBD** | Central Business District |
| **CCGT** | Combined Cycle Gas Turbine |
| **CEMS** | Continuous Emissions Monitoring Station |
| **CO** | Carbon monoxide |
| **$CO_2$** | Carbon dioxide |
| **CoU** | City of uMhlathuze (CoU) Local Municipality |
| **DARD** | Department of Agriculture and Rural Development |
| **DEDTEA** | Department of Economic Development, Tourism and Environmental Affairs |
| **DEL** | Department of Employment and Labour |
| **DFFE** | Department of Forestry, Fisheries and the Environment |
| **DMPR** | Department of Mineral and Petroleum Resources |
| **DMRE** | Department of Mineral Resources and Energy |
| **DWS** | Department of Water and Sanitation |
| **EA** | Environmental Authorisation |
| **EAP** | Environmental Assessment Practitioner |
| **EAPASA** | Environmental Assessment Practitioners Association of South Africa |
| **EC** | Electrical Conductivity |
| **ECO** | Environmental Control Officer |
| **EFZ** | Estuarine Functional Zone |
| **EHS** | Environment, Health and Safety |
| **EIA** | Environmental Impact Assessment |
| **EKZNW** | Ezemvelo KZN Wildlife |
| **EMPr** | Environmental Management Programme |
| **EO** | Environmental Officer |
| **ERAP** | Emergency Response and Action Plan |
| **GASIPPPP** | Gas Independent Power Producers Procurement Programme |
| **GBV** | Gender-Based Violence |
| **GHG** | Greenhouse Gas |
| **GN** | Government Notice |
| **GPS** | Global Positioning System |
| **GRM** | Grievance Redress Mechanism |
| **HRSG** | Heat Recovery Steam Generator |
| **I&APs** | Interested and Affected Parties |
| **IRP** | Integrated Resource Plan |

| | |
|---|---|
| **KCDM** | King Cetshwayo District Municipality |
| **KZN** | KwaZulu-Natal |
| **KZN BP** | KwaZulu-Natal Biodiversity Plan |
| **LDAR** | Leak Detection and Repair |
| **LNG** | Liquefied Natural Gas |
| **MES** | Minimum Emission Standards |
| **MHI** | Major Hazard Installation |
| **NAEIS** | National Atmospheric Emission Inventory System |
| **NEMA** | National Environmental Management Act (No. 107 of 1998) |
| **NHRA** | National Heritage Resources Act (Act No. 25 of 1999) |
| **NOx** | Nitrogen Oxides |
| **NPAES** | National Protected Area Expansion Strategy |
| **NWA** | National Water Act (Act No. 36 of 1998) |
| **OHS** | Occupational Health and Safety |
| **PM** | Project Manager |
| **PoRB** | Port of Richards Bay |
| **PPE** | Personal Protective Equipment |
| **RBIDZ** | Richards Bay Industrial Development Zone |
| **S&EIR** | Scoping and Environmental Impact Reporting |
| **SA** | South Africa |
| **SACNASP** | South African Council for Natural Scientific Professions |
| **SAGERS** | South African Greenhouse Gas Emissions Reporting System |
| **SAHRA** | South African Heritage Resources Agency |
| **SANS** | South African National Standard |
| **SAPS** | South African Police Service |
| **SCC** | Species of Conservation Concern |
| **SDS** | Safety Data Sheet |
| **SEZ** | Special Economic Zone |
| **SO** | Social Officer |
| **$SO_2$** | Sulfur dioxide |
| **STG** | Steam Turbine Generator |
| **TNPA** | Transnet National Ports Authority |
| **TSS** | Total Suspended Solids |
| **WUL** | Water Use Licence |
| **ZET** | Zululand Energy Terminal |

# DEFINITION OF KEY TERMS

| | |
|---|---|
| **Environment** | *The surroundings in which humans exist and which comprise:*<br>• *The land, water and atmosphere of the earth.*<br>• *Micro-organisms, plant and animal life.*<br>• *Any part or combination of a) and b) and the interrelationships among and between them.*<br>• *The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.* |
| **Environmental Aspect** | *Those components of the company's activities, products and services that are likely to interact with the environment.* |
| **Environmental Feature** | *Elements and attributes of the biophysical, economic and social environment.* |
| **Environmental Impact** | *The change to the environment resulting from an environmental aspect, whether desirable or undesirable. An impact may be the direct or indirect consequence of an activity.* |
| **Environmental Management Programme (EMPr)** | *A detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and/or limiting or preventing negative environmental impacts are implemented during the life-cycle of a project.* |
| **Environmental Objective** | *Overall environmental goal pertaining to the management of environmental features.* |
| **Environmental Target** | *Performance requirement that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.* |
| **Monitoring** | *A systematic and objective observation of an organisation's activities and services conducted and reported on regularly.* |
| **Project Area** | *The greater area within which the project is executed.* |
| **Sensitive environmental features** | *Environmental features protected by legislation (e.g. heritage resources), or identified as sensitive through specialists' findings and input received from Interested and Affected Parties.* |
| **Watercourse** | *A geomorphological feature characterized by the presence of a streamflow channel, a floodplain and a transitional upland fringe seasonally or permanently conveying surface water. According to the National Water Act (Act 36 of 1998), a watercourse constitutes a river or spring, a natural channel in which water flows regularly or intermittently, a wetland, lake or dam into which, or from which, water flows, and any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.* |

# 1 PURPOSE OF THIS DOCUMENT

Nemai Consulting was appointed by Mabasa Energy and Fuels (Pty) Ltd (the "Applicant"), to conduct the Scoping and Environmental Impact Reporting (S&EIR) process for the **proposed 750MW Combined Cycle Gas Turbine Power Plant in Richards Bay, City of uMhlathuze (CoU) Local Municipality, King Cetshwayo District Municipality (KCDM), KwaZulu-Natal** (KZN) (the "Project").

The S&EIR process is being undertaken according to the process prescribed in the Environmental Impact Assessment (EIA) Regulations of 2014, published under Government Notice (GN) No. 982 in Gazette No. 38282 of 4 December 2014 and amended by GN No. 326 of 7 April 2017 published in Gazette No. 40772 (the "EIA Regulations"). The EIA Regulations were promulgated in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA).

This document serves as the **Environmental Management Programme** (EMPr), which accompanies the EIA Report. An EMPr represents a detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and/or limiting or preventing negative environmental impacts are implemented during the lifecycle of a project. This EMPr must be read in conjunction with the EIA Report.

The scope of the EMPr is as follows:

- To provide the legislative framework for the Project;
- To outline institutional structures and roles required to implement the EMPr;
- To provide environmental monitoring requirements;
- To establish management objectives associated with the Project's activities, in order to enhance benefits and manage (i.e. prevent, reduce, rehabilitate and/or compensate) adverse environmental impacts;
- To provide targets for management objectives, in terms of desired performance; and
- To describe actions required to achieve management objectives.

# 2 DOCUMENT ROADMAP

As a minimum, this document aims to satisfy the requirements of Appendix 4 of the EIA Regulations. Table 1 below presents the document's composition in terms of these regulatory requirements.

*Table 1: Document Roadmap*

| Chapter | Title | Appendix 4 of the EIA Regulations | |
|---|---|---|---|
| 1 | **Purpose of this Document** | N/A | |
| 2 | **Document Roadmap** | N/A | |
| 3 | **Project Overview** | N/A | |
| 4 | **Environmental Assessment Practitioner** | 1(a) | Details of –<br>(i) the Environmental Assessment Practitioner (EAP) who prepared the EMPr; and<br>(ii) the expertise of that EAP to prepare an EMPr, including curriculum vitae. |
| 5 | **Legal Framework** | N/A | |
| 6 | **Method Statements** | N/A | |
| 7 | **Roles & Responsibilities** | 1(i) | An indication of the persons who will be responsible for the implementation of the impact management actions. |
| 8 | **Monitoring** | 1(g) | The method of monitoring the implementation of the impact management actions contemplated in paragraph (f). |
| | | 1(h) | The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f). |
| | | 1(k) | The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f). |
| | | 1(l) | A programme for reporting on compliance, taking into account the requirements as prescribed by the Regulations. |
| 9 | **Environmental Training & Awareness Creation** | 1(m) | An environmental awareness plan describing the manner in which -<br>(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and<br>(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment. |
| 10 | **EMPr Review** | N/A | |
| 11 | **Environmental Activities, Aspects and Impacts** | 1(b) | A detailed description of the aspects of the activity that are covered by the final environmental management plan. |
| 12 | **Sensitive Environmental Features** | 1(c) | A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers. |
| 13 | **Impact Management** | 1(d) | A description of impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including –<br>(i) planning and design;<br>(ii) pre-construction activities;<br>(iii) construction activities;<br>(iv) rehabilitation of the environment after construction and where applicable post closure; and<br>(v) where relevant, operation activities. |
| | | 1(f) | A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to -<br>(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; |

| Chapter | Title | Appendix 4 of the EIA Regulations | |
|---|---|---|---|
| | | | (ii) comply with any prescribed environmental management standards or practices;<br>(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and<br>(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable. |
| | | 1(j) | The time periods within which the impact management actions contemplated in paragraph (f) must be implemented. |
| | | 1(l) | A programme for reporting on compliance, taking into account the requirements as prescribed by the Regulations. |
| N/A | | 1(n) | Any specific information that may be required by the competent authority |
| N/A | | 2 | Where a government notice gazetted by the Minister provides for a generic EMPr, such generic EMPr as indicated in such notice will apply. |
| N/A | | - | |

# 3 PROJECT OVERVIEW

## 3.1 Gas Independent Power Producers Procurement Programme

Following the promulgation of the Integrated Resource Plan (IRP) in 2019, the then Minister of Mineral Resources and Energy determined that the procurement of new generation capacity is required to ensure energy security and that approximately 3 000 megawatts (MW) would be procured, to be generated from gas. The Gas Independent Power Producers Procurement Programme (GASIPPPP) was identified by the former Department of Mineral Resources and Energy (DMRE), which is now known as the Department of Mineral and Petroleum Resources (DMPR), as the appropriate programme to procure the new generation capacity.

The GASIPPPP was designed to procure the target of 2 000 MW of new generation capacity (including Capacity, Ancillary Services and Energy Output) to be derived from land-based gas fired power generation facilities anywhere within the borders of South Africa (SA). The facilities must utilise natural gas to produce the Energy Output and Ancillary Services.

The Transnet National Ports Authority (TNPA) has undertaken a separate procurement process to conclude a 25-year concession agreement for the design, construction, operation and maintenance of a natural gas terminal in the CoU. Accordingly, any Bidders wishing to submit facilities located within the borders of the CoU for participation in this GASIPPPP are required to secure their fuel through the TNPA's natural gas terminal.

## 3.2 The Project

The Applicant intends to bid for the GASIPPPP and/or other suitable energy markets and has proposed the development of a 750MW Combined Cycle Gas Turbine (CCGT) Power Plant (the "Plant") in Richards Bay, which falls within the CoU. The Project is located within Phase 1F of the Richards Bay Industrial Development Zone (RBIDZ) under a long-term lease agreement. The RBIDZ, which is a Special Economic Zone (SEZ), is a purpose-built and secured industrial estate linked to the Port of Richards Bay (PoRB) which aims to attract local and foreign direct investment.

The PoRB is one of the country's largest ports in size, with total land and water surfaces of 2 174 hectares (ha) and 1 443 ha, respectively. While numerous mining and other products move through the Port, coal remains the single largest export commodity in terms of volumes. The TNPA, which is a division of Transnet Limited, is mandated to control and manage all eight commercial Ports on the South African coastline to ensure efficient and economic functioning while improving safety, health and environmental management. The TNPA operates within a legislative and regulatory environment and is governed by the National Ports Act (Act No. 12 of 2005). The TNPA, as the landlord of the PoRB, is in the process of rolling out the development of Port infrastructure (marine and landside) for a Liquefied Natural Gas (LNG) Import Terminal. The PoRB lies approximately 5 km to the south of the site.

## 3.3 Project Location

The project site is located in Alton North within Ward 2 of the CoU, approximately 1.5 km from the Richards Bay Central Business District (CBD) (refer to regional locality maps in Figure 1 below). The earmarked site is located on Erf 16673 in Phase 1F of the RBIDZ, which is approximately 12.7 ha in extent. The access point to the industrial complex is via Alumina Allee Road, which runs along the eastern boundary of the site.

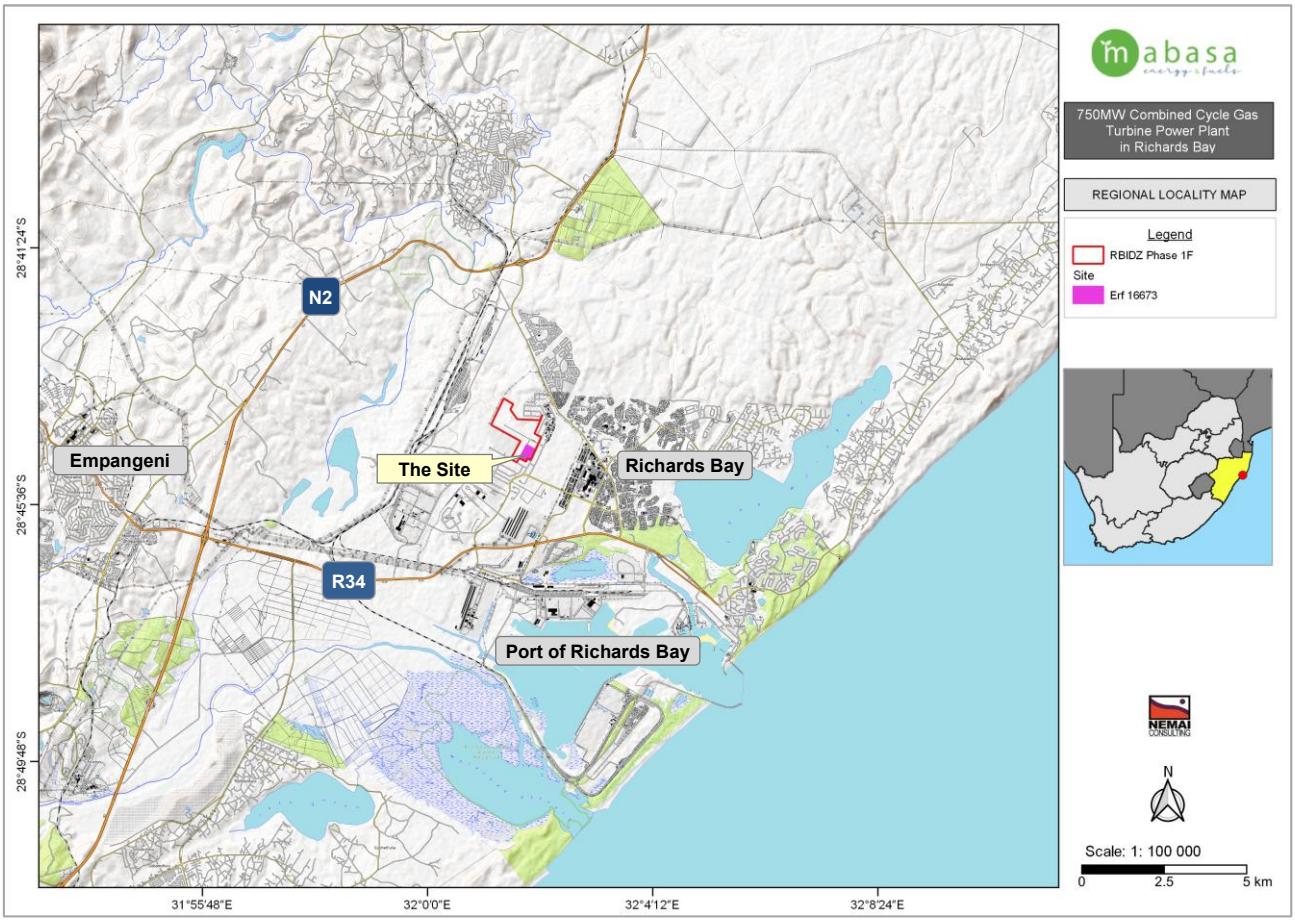



*Figure 1: Regional locality map*

The coordinates of the property's boundaries are provided in Table 2 below. The coordinates of the approximate centre point of the site are 28°44'44.2202"S 32°1'52.938"E.

*Table 2: Coordinates of Property's Boundary*

| FEATURE | LATITUDE (S) | | | LONGITUDE (E) | | |
|---|---|---|---|---|---|---|
| | Degrees | Minutes | Seconds | Degrees | Minutes | Seconds |
| Point 1 | 28° | 44' | 53,4221" | 32° | 1' | 50,3134" |
| Point 2 | 28° | 44' | 53,1251" | 32° | 1' | 49,2377" |
| Point 3 | 28° | 44' | 53,5931" | 32° | 1' | 50,2075" |
| Point 4 | 28° | 44' | 53,8778" | 32° | 1' | 50,0304" |

| FEATURE | LATITUDE (S) | | | LONGITUDE (E) | | |
|---|---|---|---|---|---|---|
| | Degrees | Minutes | Seconds | Degrees | Minutes | Seconds |
| Point 5 | 28° | 44' | 50,2768" | 32° | 1' | 42,568" |
| Point 6 | 28° | 44' | 37,045" | 32° | 1' | 50,7896" |
| Point 7 | 28° | 44' | 41,7084" | 32° | 2' | 0,4535" |
| Point 8 | 28° | 44' | 42,3863" | 32° | 2' | 0,7109" |
| Point 9 | 28° | 44' | 50,1108" | 32° | 1' | 56,7466" |
| Point 10 | 28° | 44' | 52,5822" | 32° | 1' | 55,2108" |
| Point 11 | 28° | 44' | 51,9212" | 32° | 1' | 54,9916" |
| Point 12 | 28° | 44' | 50,5306" | 32° | 1' | 52,1101" |
| Point 13 | 28° | 44' | 53,4221" | 32° | 1' | 50,3134" |

## 3.4 Project Description

The Combined Cycle Power Plant (CCPP) Module will consist of a circa 750 MW Power Block. It will consist of two (2) Gas Turbines each having capacity of 250 to 300 MW along with Electrical Generators, two (2) Heat Recovery Steam Generators (HRSGs) and one (1) Steam Turbine Generator (STG) having capacity of 250 to 300 MW. The CCPP is based on the latest state of the art heavy duty industrial type Class F Gas Turbines, which are suitable for base load and mid merit operation in both simple (open) cycle and combined cycle mode.

In order to provide natural gas importation infrastructure, TNPA is proposing to build a LNG Terminal in the PoRB, namely the Zululand Energy Terminal (ZET). The Applicant will source the supply and delivery of natural gas from this planned terminal development at the PoRB. The natural gas is expected to be supplied through a pipeline from the Transnet natural gas terminal to the Plant. The gas turbines are also capable of operating on a liquid fuel in the event of the loss of Natural Gas supply.

A summary of the Project is provided in Table 3 below.

***Table 3: Project Summary***

| Component | Description / Dimensions |
|---|---|
| **Location of the Site** | Erf 16673 in Phase 1F of the RBIDZ. |
| **Landowner** | The land is owned by RBIDZ. The premises is leased under a long-term agreement. |
| **Municipal Jurisdiction** | KCDM (district) and CoU (local) |
| **Electricity Generating Capacity** | The Plant will be designed for base load operations at 500MW in Simple Cycle and 750MW in Combined Cycle. |
| **Proposed Technology** | The CCGT power plant will utilise a gas turbine generator to generate electricity using natural gas as fuel. The waste heat is used to generate steam to produce additional electricity via a steam turbine.<br><br>The gas turbine operates on the Brayton Cycle, wherein the ambient air is first filtered, then compressed. In the combustor, the compressed air is heated by combustion of natural gas fuel. The high pressure-high temperature gas from the combustor is expanded in the turbine section and the remaining pressure drives the gas through the HRSG and stack. |

| Component | Description / Dimensions |
|---|---|
| | The heat from the exhaust gas is recovered in the HRSG to generate high pressure-high temperature steam, which in turn is expanded in the steam turbine and condensed to water in the condenser. The condensate from the condenser is pumped back to the HRSG. This steam-water cycle connected to the HRSG operates on the Rankine Cycle.<br><br>After passing through the HRSG, the flue gas will be exhausted to the atmosphere through the main stack.<br><br>The proposed Plant will employ the most recently developed CCGT technology. |
| **Extent of the Property** | Approximately 12.7 Ha. |
| **Extent of the Proposed Plant** | Approximately 12.2 Ha. |
| **Stack Dimensions** | The Plant needs to maintain a minimum 30 m of stack height with a diameter of approximately 6.9 m for the bypass stack and 60 m with a diameter of approximately 6.3m for the HRSG stack. |
| **Elevation of Site** | Elevations for the site area range from 40 to 43 m above mean sea level |
| **Fuel Type for Plant** | LNG, potentially backed up by diesel for short periods of gas interruption. |
| **Site Access** | The access point to RBIDZ Phase 1F is via Alumina Allee Road. The site within the industrial estate is accessed via an existing tarred road (external to the leased premises). |
| **Water Requirements** | **Construction phase**:<br>Water for construction purposes will be directly sourced from the water available at the boundary of the site within the RBIDZ Phase 1F. |
| | **Operational phase**:<br>The Plant's water requirements are (water-cooled case):<br>• Potable water for domestic use: 6,000 ℓ/d<br>• Demineralised water for HRSG and other: 256,000 ℓ/d<br>• Service water requirement: 48,000 ℓ/d<br>• Possible cooling water makeup: 21,000,000 ℓ/d<br><br>Allowing for water treatment losses, this water requirement can be met by:<br>• Potable water: 415,000 ℓ/d<br>• Bulk clarified water: 21,000,000 ℓ/d if the water-cooled option is selected<br><br>Water for operational purposes will be sourced from uMngeni-uThukela Water (UUW). |
| **Associated Infrastructure** | ▪ Construction camp and laydown area<br>▪ Workshop<br>▪ Main Office<br>▪ Control Building<br>▪ Warehouse<br>▪ Fire water pump house<br>▪ Maintenance facilities<br>▪ Storage facilities<br>▪ Ablution facilities<br>▪ Guard house<br>▪ Fencing and gates<br>▪ Waste management facilities |
| **Bulk Services Required** | The following bulk services will be supplied by RBIDZ Phase 1F:<br>▪ Potable water<br>▪ Bulk clarified water<br>▪ Sewage<br>▪ Stormwater<br>▪ Roads<br>▪ Electricity<br><br>External services will be required for:<br>▪ Waste oil sludge removal;<br>▪ Water treatment sludge removal |

| Component | Description / Dimensions |
|---|---|
| | General waste during the operational phase will form part of the municipal waste stream. |

The proposed Plant will comprise of the following key equipment (refer to Figure 2 below for the plant layout):

- Two (2) Class F, heavy-duty combustion turbines and generators;
- Two (2) triple pressure reheat Heat Recovery Steam Generators (HRSGs);
- One (1) condensing steam turbine and generator;
- One (1) de-aerating surface condenser;
- One (1) induced draft cooling tower, or Air-Cooled Condenser (fin-fan radiators)
- Balance of plant (BOP) equipment consisting of Pumps, Heat Exchangers, Transformers, Power Electrics, Storage etc.;
- One (1) integrated plant distribution control system; and
- 400kV Switchyard comprising of three (3) x 15kV to 400kV step-up transformers and two (2) auxiliary transformers (the rating to be defined during detailed design).

The application excludes the natural gas pipeline and grid connection associated with the proposed development.

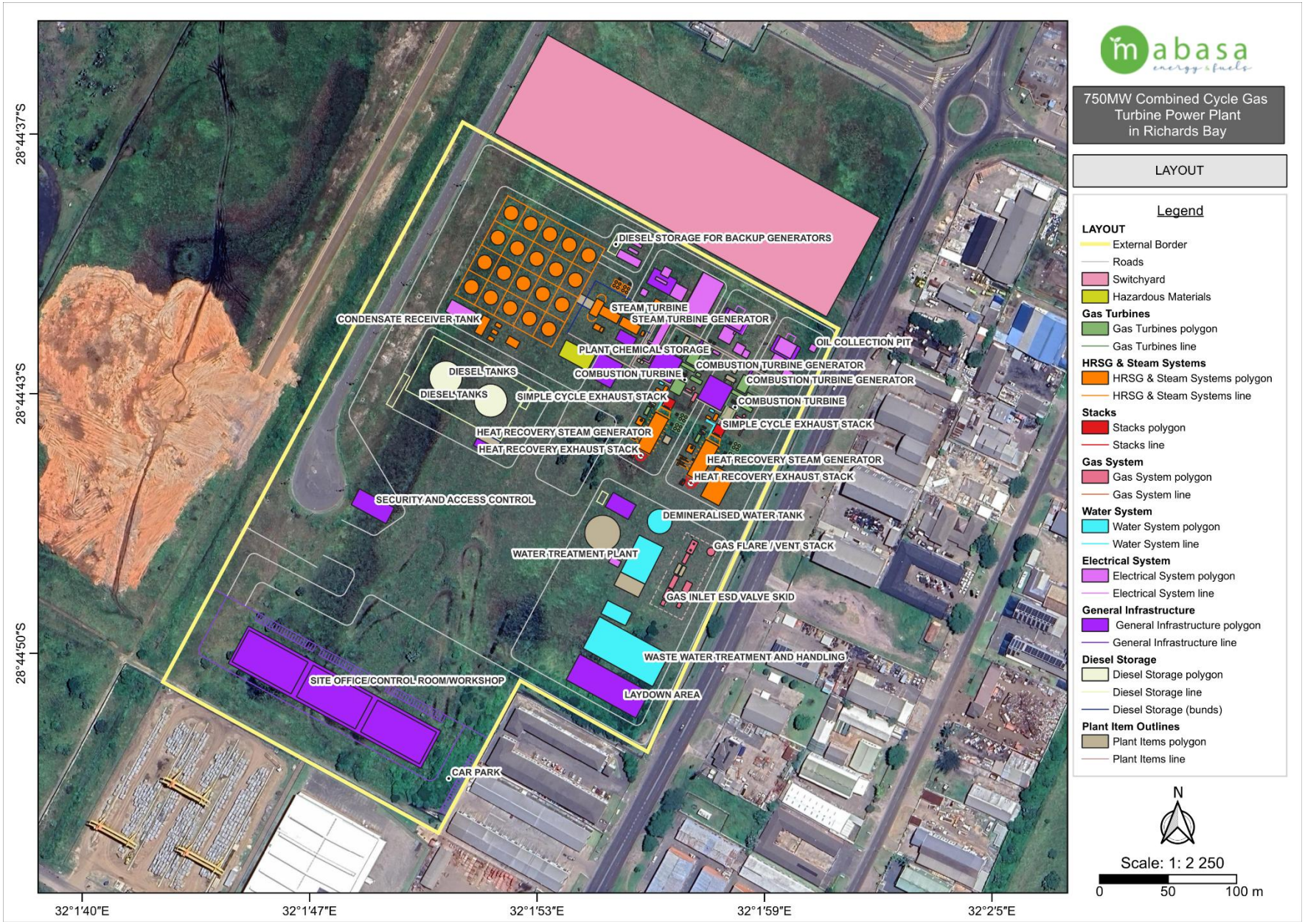



*Figure 2: Plant layout (note: not all components labelled due to space constraints)*

# 4 ENVIRONMENTAL ASSESSMENT PRACTITIONER

The details of the EAP from Nemai Consulting are as follows:

**Name of EAP:** Donavan Henning
**Postal address:** PO Box 1673, SUNNINGHILL, 2157
**Tel No:** 011 781 1730
**E-mail address:** donavanh@nemai.co.za
**Experience:** 25 years
**Qualifications:** MSc (River Ecology)
**Registration:** Registered EAP (EAPASA reg. no. 2020/1217); Professional Natural Scientist (SACNASP reg no: 400108/17).

The CV of the EAP is appended to the EIA Report.

# 5 LEGAL FRAMEWORK

Activities during the pre-construction, construction and operational phases of the Project will be undertaken according to the measures prescribed within this EMPr. The EMPr shall form part of the Contractor's contract documents.

The project activities must comply with all relevant South African legislation. Some of the pertinent environmental legislation is captured in Table 4 below. Refer to Section 5 of the EIA Report for an overview of the relationship between the Project and key pieces of environmental legislation.

***Table 4: Environmental Statutory Framework***

| Legislation | Description and Relevance |
|---|---|
| **National** | |
| Constitution of the Republic of South Africa (No. 108 of 1996) | ▪ Chapter 2 – Bill of Rights.<br>▪ Section 24 – Environmental Rights. |
| National Environmental Management Act (Act No. 107 of 1998) | ▪ Key sections (amongst others):<br>o Section 2 – Principles.<br>o Section 24 – Environmental Authorisation (control of activities which may have a detrimental effect on the environment).<br>o Section 28 – Duty of care and remediation of environmental damage.<br>o Section 30 – Control of incidents.<br>▪ Authorisation type – Environmental Authorisation (EA) (*required for the Project*).<br>▪ Authorities – Department of Forestry, Fisheries and the Environment (DFFE) (national) (competent authority for this application) and the KZN Department of Economic Development, Tourism & Environmental Affairs (DEDTEA) (provincial). |
| EIA Regulations | ▪ Purpose - regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to EIA, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto. |

<table>
<tr><th>Legislation</th><th colspan="2">Description and Relevance</th></tr>
<tr><td>GN No. 327 of 7 April 2017 (Listing Notice 1)</td><td colspan="2">▪ Purpose – identify activities that would require environmental authorisations prior to commencement of that activity and to identify competent authorities in terms of sections 24(2) and 24D of NEMA.<br>▪ The investigation, assessment and communication of potential impact of activities must follow a Basic Assessment process, as prescribed in regulations 19 and 20 of the EIA Regulations. However, according to Regulation 15(3) of the EIA Regulations, Scoping and Environmental Impact Reporting (S&EIR) must be applied to an application if the application is for two or more activities as part of the same development for which S&EIR must already be applied in respect of any of the activities.<br>▪ The following activities under Listing Notice 1 are relevant to this Project:</td></tr>
<tr><td></td><td>GN R327, Activity 11(ii)<br><br>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; or<br>(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more,<br>excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is-<br>(a) temporarily required to allow for maintenance of existing infrastructure;<br>(b) 2 kilometres or shorter in length;<br>(c) within an existing transmission line servitude; and<br>(d) will be removed within 18 months of the commencement of development.</td><td>The proposed project entails the development of a 275kV Switchyard comprising of three (3) x 15kV to 275kV step-up transformers and one (1) station auxiliary transformer.<br><br>However, the power line for the grid connection is excluded from the Application.</td></tr>
<tr><td></td><td>GN R327, Activity 13<br><br>The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.</td><td>Provision is made in the design of the Plant for a freshwater storage reservoir with a capacity of two-day storage, which equals to 50,000 $m^3$. This reservoir will also cater as fire water source.</td></tr>
<tr><td></td><td>GN R327, Activity 27<br><br>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for-<br>(i) the undertaking of a linear activity; or<br>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</td><td>The proposed project is a greenfield development and entails the clearance of indigenous vegetation. The total area encompassed by the earmarked property is 12,7 hectares.<br><br>It is noted that the site was also previously cleared under the EA for RBIDZ Phase 1F that was granted in Sept 2016 (reference no.: 14/12/16/3/3/2/665). The site is currently undeveloped/vacant and is mowed and maintained by the RBIDZ.</td></tr>
<tr><td></td><td>GN R327, Activity 28(i)<br><br>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:<br>(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or<br>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;<br>excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</td><td>The proposed project entails an industrial development on land that was likely used for agriculture in the past. The total area encompassed by the earmarked property is 12,7 hectares.<br><br>The site is currently undeveloped/vacant and it is zoned for industrial use.</td></tr>
</table>

<table>
<tr><th>Legislation</th><th colspan="2">Description and Relevance</th></tr>
<tr><td rowspan="3">GN No. 325 of 7 April 2017 (Listing Notice 2)</td><td colspan="2">▪ Purpose - identify activities that would require environmental authorisations prior to commencement of that activity and to identify competent authorities in terms of sections 24(2) and 24D of NEMA.<br>▪ The investigation, assessment and communication of potential impact of activities must follow a S&EIR process, as prescribed in regulations 21 to 24 of the EIA Regulations.<br>▪ The following activities under Listing Notice 2 are relevant to this Project:</td></tr>
<tr><td>GN R325, Activity 2<br><br>The development and related operation of facilities or infrastructure for the generation of electricity from a non-renewable resource where the electricity output is 20 megawatts or more.</td><td>The proposed project entails the development of a CCGT Power Plant with a total generation capacity of 750MW.<br><br>The Combustion Turbines are capable of firing on a variety of fuels however most commonly natural gas or light distillate oil. The combustion system installed on the units will be configured for natural gas fuel, which is a non-renewable resource.</td></tr>
<tr><td>GN R325, Activity 4<br><br>The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.</td><td>Construction phase:<br>▪ Dangerous goods will be stored on the site during construction, which will include lubricants, oils, etc.<br><br>Operational phase:<br>▪ Fire Protection system $CO_2$ storage: The fire protection system consists of $CO_2$ delivery from a bottle bank containing approximately 10 tons or 5 100 $Nm^3$. This $CO_2$ is delivered to the gas turbines and generator compartments in the event of a fire. The cylinders will be contained in a framed skid that can be relocated using a forklift. The skids are typically equipped with a pressure regulator to decrease the pressure to that required.<br>▪ Hydrogen cooling system for Generator: This is required to maintain hydrogen pressure inside the generators after the first fill and the operation is controlled by a dedicated hydrogen cooling control panel. The hydrogen will be stored in up to three cylinder banks (one per generator), each containing up to 16 cylinders. The cylinders will be up to 50L in volume and will be at a pressure of 50 bar. The cylinders will be contained in a framed skid that can be relocated using a forklift. The skids are typically equipped with a pressure regulator to decrease the pressure to that required.<br>▪ Nitrogen for purging and blanketing: This is used for</td></tr>
</table>

| Legislation | Description and Relevance | |
|---|---|---|
| | | purging of gas lines and equipment before maintenance is carried out so as to purge any dangerous hydrocarbons, typically at startup and after maintenance. It is also used to blanket the HRSG's during maintenance to prevent air ingress which would cause corrosion and the demin water tank to prevent oxygen ingress that results in water quality deterioration. The nitrogen will be stored in cylinder banks, typically at a pressure of 200 bar and will be reticulated around the site as needed. During normal operations, approximately 500 $Nm^3$ of nitrogen will be stored, but this may be increased to 1 000 $Nm^3$ prior to planned maintenance work.<br>▪ Diesel for backup and black start generators: One, or potentially two, backup diesel generators of up to 1 MW each will used to shut down the plant in a safe and orderly manner in the event of a trip. A black start generator might be required so that the plant can be restarted in the event of total loss of power from the grid. Up to 45 $m^3$ of diesel will be stored on site in suitably designed and bunded day tanks for these purposes.<br>▪ Diesel as backup fuel: In the unlikely event that diesel or a similar middle distillate fuel is required to enable operation during NG supply failure events, up to 12 000 $m^3$ of diesel will be stored on site, in two suitably designed and bunded tanks. |
| | ***GN R325, Activity 6***<br><br>*The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding-*<br>*(i) activities which are identified and included in Listing Notice 1 of 2014;*<br>*(ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies;*<br>*(iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or* | The proposed project will require an Atmospheric Emission Licence (AEL) in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004). |

| Legislation | Description and Relevance | |
|---|---|---|
| | *(iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day.* | |
| GN No. 324 of 7 April 2017 (Listing Notice 3) | ▪ Purpose - list activities and identify competent authorities under sections 24(2), 24(5) and 24D of NEMA, where environmental authorisation is required prior to commencement of that activity in specific identified geographical areas only.<br>▪ The investigation, assessment and communication of potential impact of activities must follow a Basic Assessment process, as prescribed in regulations 19 and 20 of the EIA Regulations. However, according to Regulation 15(3) of the EIA Regulations, S&EIR must be applied to an application if the application is for two or more activities as part of the same development for which S&EIR must already be applied in respect of any of the activities.<br>▪ The following activities under Listing Notice 3 are relevant to this Project: | |
| | ***GN R324, Activity 4 – (d)(viii)***<br><br>*The development of a road wider than 4 metres with a reserve less than 13.5 metres.*<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.* | Internal roads to be developed on the project site will generally be 6m wide. These roads will occur in an area designated as a Critical Biodiversity Area (CBA) Irreplaceable according to the KwaZulu-Natal Biodiversity Plan (KZN BP). |
| | ***GN R324, Activity 10 – (d)(ix)***<br><br>*The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.*<br><br>*(d) KwaZulu-Natal*<br>*(ix) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.* | Storage of dangerous goods during construction and operational phases in containers with a combined capacity of up to 80 cubic metres. The storage facilities will be located within an area designated as a CBA Irreplaceable according to the KZN BP. |
| | ***GN R324, Activity 12 – (d)(iv) & (v)***<br><br>*The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.*<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.* | The proposed project is a greenfield development and entails the clearance of indigenous vegetation in an area designated as a CBA Irreplaceable according to the KZN BP, as well as the Endangered Maputaland Wooded Grassland threatened ecosystem.<br><br>It is noted that the site was also previously cleared under the EA for RBIDZ Phase 1F that was granted in Sept 2016 (reference no.: 14/12/16/3/3/2/665). The site is currently undeveloped/vacant and is mowed and maintained by the RBIDZ. |
| National Water Act (Act No. 36 of 1998) | ▪ Key sections (amongst others):<br>o Chapter 3 – Protection of water resources.<br>o Section 19 – Prevention and remedying effects of pollution.<br>o Section 20 – Control of emergency incidents.<br>o Chapter 4 – Water use.<br>▪ Authorisation type – General Authorisation / Water Use Licence (*required for the Project*).<br>▪ Authority – Department of Water and Sanitation (DWS). | |
| National Environmental Management: Waste Act (Act No. 59 of 2008) | ▪ Key sections (amongst others):<br>o Part 2 – General duty on the holder of waste in respect of waste management.<br>o Part 3 – Reduction, re-use, recycling and recovery of waste.<br>o Part 4 – Regulation of waste management activities.<br>o Part 5 – Storage, collection and transportation of waste.<br>o Part 6 – Treatment, processing and disposal of waste. | |

| Legislation | Description and Relevance |
|---|---|
| | ○ Part 8 – Legal mechanism for managing contaminated land.<br>▪ Authorisation type – Waste Management Licence (*not required for the Project*).<br>▪ Authority – DFFE (national) and DEDTEA (provincial). |
| National Environmental Management Air Quality Act (Act No. 39 of 2004) | ▪ Key sections (amongst others):<br>○ Chapter 2 – National Framework and National, Provincial and Local Standards.<br>○ Chapter 4 – Air Quality Management Measures.<br>○ Chapter 5 – Licensing of Listed Activities.<br>▪ Authorisation type – AEL (*required for the Project*).<br>▪ Authority – DFFE (national), DEDTEA (provincial) and KCDM (local). |
| National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008) | ▪ Key sections (amongst others):<br>○ Section 58 – Duty to avoid causing adverse effects on coastal environment.<br>○ Section 63 – Environmental authorisations for coastal activities.<br>○ Section 69 – Discharge of effluent into coastal waters.<br>○ Section 71 – Dumping permits.<br>▪ Authorisation types (*none of these are required for the Project*):<br>○ Approval for reclamation of land.<br>○ Coastal Waters Discharge Permit.<br>○ Dumping Permit.<br>▪ Authority – DFFE Oceans & Coasts. |
| National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) | ▪ Key sections (amongst others):<br>○ Section 7 – National environmental management principles.<br>○ Section 40 – Bioregions and bioregional plans.<br>○ Chapter 4 – Threatened or Protected Ecosystems and Species.<br>○ Chapter 5 – Species and Organisms Posing Potential Threats to Biodiversity.<br>○ Chapter 7 – Permits.<br>▪ Authorisation type – Permit (*not required for the Project*).<br>▪ Authority – Ezemvelo KZN Wildlife (EKZNW). |
| National Forests Act (Act No. 84 of 1998) | ▪ Key sections (amongst others):<br>○ Chapter 3 – Special Measures to Protect Forests and Trees.<br>▪ Authorisation type – Licence (*not required for the Project*).<br>▪ Authority – DFFE. |
| National Environmental Management: Protected Areas Act (Act No. 57 of 2003) | ▪ Management authorities include the organ of state or other institution or person in which the authority to manage the protected area is vested.<br>▪ *Not relevant to the Project*. |
| Climate Change Act (Act No. 22 of 2024) | ▪ Enables the development of an effective climate change response and a long-term, just transition to a low-carbon and climate-resilient economy and society for SA in the context of sustainable development; and to provide for matters connected therewith.<br>▪ Key sections (amongst others):<br>○ Section 3 – Principles.<br>○ Section 5 – Application of NEMA.<br>○ Section 7 – Alignment of policies.<br>○ Chapter 4 – National Adaptation to Impacts of Climate Change.<br>○ Chapter 5 – Greenhouse Gas Emissions and Removals.<br>▪ Authority – DFFE. |
| Minerals and Petroleum Resources Development Act (Act No. 28 of 2002) | ▪ Key sections (amongst others):<br>○ Section 22 – Application for mining right.<br>○ Section 27 – Application for, issuing and duration of mining permit.<br>○ Section 53 – Use of land surface rights contrary to objects of Act.<br>▪ Authorisation types (*none of these are required for the Project*):<br>○ Mineral resources – Reconnaissance Permit, Prospecting Right, Mining Permit, or Mining Right.<br>○ Petroleum resources – Exploration Right or Production Right.<br>▪ Authority – DMPR. |
| National Heritage Resources Act (Act No. 25 of 1999) | ▪ Key sections:<br>○ Section 34 – protection of structure older than 60 years.<br>○ Section 35 – protection of heritage resources.<br>○ Section 36 – protection of graves and burial grounds.<br>○ Section 38 – Heritage Impact Assessment for linear development exceeding 300m in length; development exceeding 5 000m$^2$ in extent, etc.<br>▪ Authorisation type – Permit (*not required for the Project*).<br>▪ Authority – South African Heritage Resources Agency (SAHRA) and Amafa and Research Institute. |

| Legislation | Description and Relevance |
|---|---|
| Marine Living Resources Act (Act No 18 of 1989) | ▪ Aims to provide for the conservation of the marine ecosystem, the long-term sustainable utilisation of marine living resources, the orderly access to exploitation, utilisation and protection of certain marine living resources and to provide for the exercise of control over marine living resources in a fair and equitable manner to the benefit of all citizens of SA.<br>▪ Authority – EKZNW acts as an agent on behalf of DFFE Oceans and Coasts and enforces the law with regard to marine matters in KZN. |
| Conservation of Agricultural Resources Act (Act No. 43 of 1983) | ▪ Control measures for erosion.<br>▪ Control measures for alien and invasive plant species.<br>▪ Authority – KZN Department of Agriculture and Rural Development (DARD). |
| Occupational Health & Safety Act (Act No. 85 of 1993) | ▪ Provisions for Occupational Health & Safety.<br>▪ Authority – Department of Employment and Labour (DEL).<br>▪ Relevant regulations, such as Electrical Installation Regulations, Construction Regulations, etc. |
| Hazardous Substance Act (No 15 of 1973) and Regulations | ▪ Provides for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances, and for the control of certain electronic products<br>▪ Provides for the division of such substances or products into groups in relation to the degree of danger.<br>▪ Provides for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products. |
| Major Hazard Installation Regulations, 2023 | ▪ Ensure that employees as well as the public are protected from Major Hazard Installation (MHI) incidents, which include fire, toxic emissions, as well as confined explosions.<br>▪ Need tor a MHI Risk Assessment for the Plant.<br>▪ Authority – DEL. |
| Spatial Planning and Land Use Management Act (Act No. 16 of 2013) | ▪ Framework for spatial planning and land use management in SA.<br>▪ Land development and land use applications.<br>▪ Authority – CoU. |
| **Provincial** | |
| KwaZulu-Natal Nature Conservation Management Act (Act No. 9 of 1997) | ▪ Institutional bodies for nature conservation in KZN.<br>▪ Establish control and monitoring bodies and mechanisms.<br>▪ Authority – EKZNW. |
| KZN Heritage Act (Act No. 4 of 2008) | ▪ Conservation, protection and administration of both the physical and the living or tangible heritage resources of KZN.<br>▪ Authority – Amafa and Research Institute. |

# 6 METHOD STATEMENTS

The Contractor shall provide detailed method statements on how the performance criteria in the EMPr will be met. These method statements are to be reviewed and approved by the Project Manager (PM) to ensure that they are adequate.

The method statements must be project- and site specific and should explain in detail the following:

1. The manner in which the work is to be undertaken;
2. The estimated schedule for the works (timing);
3. The area where the works will be executed (location);
4. The materials and plant / equipment needed for the works;
5. The necessary mitigation measures that need to be implemented to adequately safeguard the environment, construction workers and the public (where applicable);
6. Training of employees;
7. Roles and responsibilities; and

8. Monitoring and reporting requirements.

The list of method statements required to assist in the implementation of this EMPr includes at least the following (where applicable):

- Method Statement for environmental monitoring (see Section 8.2 below);
- Method Statement for site clearing;
- Method Statement for establishing the construction camp(s);
- Method Statement with regard to waste and wastewater management;
- Method Statement to show procedures for dealing with possible emergencies that can occur, such as fire and accidental leaks and spillage of carbon fuels and oils;
- Method Statement for dust control;
- Method Statement for the storage and handling of hazardous substances;
- Method Statement for management of concrete and batching plants;
- Method Statement for controlling alien invasive species and noxious weeds;
- Method Statement for the decommissioning of the construction works area;
- Method Statement for rehabilitation of construction footprint; and
- Method Statement for the management of stormwater and erosion.

# 7 ROLES AND RESPONSIBILITIES

## 7.1 Department of Forestry, Fisheries and the Environment

In terms of NEMA, the Department of Forestry, Fisheries and the Environment (DFFE) is the Competent Authority to decide on the application. DFFE also fulfils a compliance and enforcement role with regards to the EA and EMPr. DFFE may perform random inspections to check compliance. DFFE will also review the monitoring and auditing reports compiled by the independent Environmental Control Officer (ECO).

## 7.2 Project Applicant

Mabasa Energy and Fuels (Pty) Ltd is the Applicant in terms of NEMA and is ultimately responsible for the development and implementation of the EMPr and ensuring that the conditions in the EA are adhered to. The liability associated with environmental non-compliance rests with the Applicant.

## 7.3 Project Manager

The PM has over-all responsibility for managing the Contractor and for ensuring that the environmental management requirements are met. During the construction phase, the PM will be the Applicant's construction manager. During the operations phase it is expected that this role will be fulfilled by the Operations Manager.

The PM will be on site and the responsibilities of this party will include the following (amongst others):

- Overseeing of all environmental matters and compliance with all environmental requirements and authorisations; and
- Act as the interface between the ECO and the other project role players.

## 7.4 Environmental Control Officer

The ECO is a competent (minimum of 5 years' experience) and independent representative appointed by the Applicant. The ECO will undertake weekly inspections of the site and at least 6-monthly full compliance auditing against the EMPr and EA. The audit reports will be submitted to the PM and DFFE.

The ECO will check the following:

- Compliance with the EMPr and the EA;
- The record of environmental incidents (spills, impacts, legal transgressions, etc.) as well as corrective and preventive actions taken;
- The public complaints register in which all complaints are recorded, as well as actions taken; and
- Results from the environmental monitoring programme.

## 7.5 Contractor's Environmental Officer

The primary role of the Contractor's competent Environmental Officer (EO) is to coordinate the environmental management activities of the Contractor on site.

Specific responsibilities of the EO, who will be on site, will include the following:

- Aiding the Contractor to comply with all the Project's environmental management requirements;
- Assisting the Contractor in compiling Method Statements;
- Facilitating environmental activities and environmental awareness training of relevant persons on site;
- Exercise an internal compliance management system on behalf of the Contractor;
- Inspect the site as required to ensure adherence to the management actions of the EMPr and Method Statements, as well as the requirements of the EA;
- Provide inputs to the regular environment report to be prepared by the ECO (as required);
- Liaise with the construction team on issues related to implementation of, and compliance with the EMPr and the EA; and
- Maintain a record of environmental incidents (such as spills, impacts, legal transgressions) as well as corrective and preventive actions taken.

## 7.6 Contractor's Social Officer

The primary role of the Contractor's competent Social Officer (SO) is to manage relations with the community and institutional stakeholders.

Specific responsibilities of the SO, who will be on site, will include the following:

- Manage the Grievance Redress Mechanism (GRM), which entails the process for publicising, receiving, evaluating, and addressing project-related grievances; and
- Provide inputs to the regular environment report to be prepared by the ECO (as required).

# 8 MONITORING

Monitoring is required to ensure that the receiving environment is suitably safeguarded against the identified potential impacts, and to ensure that the environmental management requirements are adequately implemented and adhered to during the execution of the Project.

## 8.1 Baseline Monitoring

### 8.1.1 General

Baseline monitoring aims to determine the pre-construction state of the receiving environment and serves as a reference to measure the residual impacts of the Project by evaluating the deviation from the baseline conditions and the associated significance of the adverse effects. The environmental parameters to be included as part of the baseline monitoring need to be confirmed in consultation with the PM and ECO, and need to take into consideration the environmental monitoring requirements listed in Table 5 below.

### 8.1.2 Pre-Construction Survey

A pre-construction survey needs to be conducted for all areas that are to be affected by construction activities. The survey needs to include the following:

- Site investigations by appropriate members of the project team and specialists (as relevant);
- Generate records from survey which include site details, photographs, explanatory notes, etc. (as required);
- Record the condition of existing structures and infrastructure on the site; and
- Identify site-specific mitigation measures.

The records from the pre-construction survey must be used to establish and inform the reinstatement and rehabilitation requirements for the affected areas, outside of the permanent development footprint.

## 8.2 Environmental Monitoring

Environmental monitoring entails checking, at pre-determined frequencies, whether thresholds and baseline values for certain environmental parameters are being exceeded. The parameters and sampling localities used during the baseline monitoring will form the basis of the environmental monitoring programme. The environmental parameters to be included as part of the environmental monitoring programme need to be confirmed in consultation with the PM and ECO.

The following requirements need to be incorporated into the programme:

- Monitoring during normal operations, abnormal situations and emergency situations;
- Measuring equipment must be accurately calibrated;
- Adequate quality control of the sampling must be ensured;
- Certified methods of testing must be employed;
- Where legal specifications exist for testing and sampling methods, these must be considered; and
- Establish a process for identifying and implementing corrective measures.

Table 5 below lists the environmental monitoring requirements for the Project.

*Table 5: Environmental monitoring requirements*

| Theme | Monitoring Objective | Performance Indicator | Frequency | Monitoring Method | Responsibility |
|---|---|---|---|---|---|
| **Construction Phase** | | | | | |
| **Vegetation and Site Clearance** | Ensure clearing is limited to the approved footprint. | Extent of cleared area matches approved layout; no unauthorised vegetation removal. | Weekly during clearing. | Visual inspection, GPS verification, photographic record. | EO & ECO |
| **Terrestrial Biodiversity** | Identify and manage emerging edge-related impacts on adjacent natural habitats. | Erosion, alien invasive plants and vegetation degradation promptly identified and remedied. | Monthly during construction. | Visual inspections of development edges, with implementation of adaptive management measures where required. | Independent Specialist, EO & ECO |
| **Air Quality (Dust)** | Limit dust generation and emissions from construction activities and hauling of material and equipment. | Visible dust < acceptable level (National Dust Control Regulations). | Weekly. | Visual inspection; use of dust fall buckets where applicable. | Independent Specialist, EO & ECO |
| **Noise** | Ensure noise levels remain within SANS 10103:2008 limits for nearby receptors. | Noise levels ≤ permissible thresholds. | Monthly or upon complaint. | Sound level meter readings. | Independent Specialist, EO & ECO |
| **Waste Management** | Prevent pollution from construction and domestic waste. | • Waste stored in designated, labelled areas.<br>• Waste manifest / removal records.<br>• Spill response log.<br>• Cleanliness of construction site.<br>• Related entries in Public Complaints Register. | Weekly. | Site inspection and waste register. | EO & ECO |
| **Hazardous Substances** | Prevent spillage or leakage of fuels, oils, and chemicals. | • Spill containment and spill kit availability.<br>• No evidence of spills, contaminated soils or seepage to groundwater. | • Weekly.<br>• After refuelling.<br>• After significant spill incidents. | • Inspection of storage and refuelling areas.<br>• Spill and clean-up records. | EO & ECO |
| | Verify effectiveness of bunding and containment systems. | No evidence of leakage from oil, fuel or chemical storage facilities. | Monthly. | Inspection of bunds, storage tanks, pipelines and containment infrastructure. | EO & ECO |
| **Stormwater and Surface Water** | Monitor runoff generated during site preparation and construction to ensure that polluted runoff, sedimentation | • No visible evidence of polluted runoff leaving the site | Monthly visual inspections, with additional inspections during or shortly after | Visual inspection of active work areas, drainage routes, discharge points, exposed soils, erosion-prone areas and | EO & ECO |

| Theme | Monitoring Objective | Performance Indicator | Frequency | Monitoring Method | Responsibility |
|---|---|---|---|---|---|
| | and erosion do not affect the receiving environment, particularly the canal along the western boundary of the site. | • No excessive sedimentation, erosion, oil sheen or hydrocarbon contamination observed at discharge points or near the canal. | significant rainfall events, where required. | areas where sedimentation may occur. | |
| | Confirm the water quality status where visual monitoring identifies areas of concern, such as increased erosion, sedimentation or suspected contamination. | • Additional samples collected where required<br>• Results reviewed and mitigation measures implemented based on the scale and nature of the observed impact. | As required, where visual observations identify erosion, sedimentation, contamination or other areas of concern. | Collection of water samples from the observation point or closest affected water source; laboratory analysis and interpretation of results. | ECO, EO and suitably qualified specialist, where required. |
| **Traffic and Access** | Prevent accidents, congestion, and road degradation. | Traffic flow maintained; no major incidents. | Weekly and after complaints. | Visual inspection, log of vehicle movements. | EO, SO & ECO |
| **Health and Safety** | Ensure safety compliance on-site. | • Personal Protective Equipment (PPE) usage.<br>• Number of incidents/near-misses. | Daily toolbox talks and weekly audits. | Site observation and Occupational Health and Safety (OHS) audits. | Contractor's Safety Officer |
| **Cultural Heritage & Palaeontological Features** | • Monitor occurrence of unrecorded cultural heritage and palaeontological features. | • Initiation of chance finds protocol, if required.<br>• Incident reports of damage or near-miss. | Weekly. | Site observation and field surveys by heritage specialist (if required). | Independent Specialist (if required), EO & ECO |
| **Rehabilitation** | Ensure disturbed areas outside permanent development footprint are restored successfully. | Vegetation cover and species diversity within target range. | Monthly after completion until establishment. | Visual inspection and photo records. | EO & ECO |
| **Socio-Economic and Community Relations** | Maintain transparent engagement and address grievances. | Record of complaints and responses; stakeholder satisfaction. | Continuous. | Community liaison officer reporting. | SO & ECO |
| **Operational Phase** | | | | | |
| **Stormwater and Surface Water** | Monitor the canal, stormwater infrastructure and discharge points to identify potential operational impacts on surface water quality and stormwater performance. | No oil sheen, sediment build-up, blockages, erosion or evidence of contaminated runoff observed in drains, discharge points or the receiving canal. | Monthly. | Visual inspection of drains, channels, discharge points, stormwater infrastructure and the canal. | Operations Manager / Environmental Health and Safety (EHS) Manager and suitably qualified specialist or accredited laboratory (as required). |
| | Confirm runoff quality and detect any contaminants in stormwater discharged from | Stormwater quality remains acceptable, with no material deterioration relative to | Quarterly. | Field sampling and laboratory analysis of stormwater and/or | |

| Theme | Monitoring Objective | Performance Indicator | Frequency | Monitoring Method | Responsibility |
|---|---|---|---|---|---|
| | the site to the receiving environment. | baseline or applicable water quality criteria; exceedances are investigated and corrected. | | canal water at designated monitoring points. | |
| | Assess stormwater quality during actual discharge conditions following significant rainfall events. | Runoff generated during significant rainfall events does not show unacceptable levels of sediment, hydrocarbons, oil and grease or other contaminants. | During or shortly after significant rainfall events. | Event-based inspection and, where necessary, sampling during or immediately after rainfall events. | |
| | Confirm that oil separators, silt traps and other stormwater pollution control measures remain functional and effective. | Oil separators, silt traps and treatment structures are operational, free of excessive sediment or debris, and maintained as required. | Monthly or quarterly. | Operational checks and inspections of oil separators, silt traps, attenuation facilities, drainage channels and discharge structures. | |
| | Track key water quality indicators associated with stormwater runoff, sedimentation and potential industrial contamination. | Results for pH, Electrical Conductivity (EC), Total Suspended Solids (TSS), oil and grease/hydrocarbons, and metals where relevant, are reviewed against baseline conditions and applicable guideline values. | Quarterly. | Laboratory analysis of water samples for pH, electrical conductivity, total suspended solids, oil and grease/hydrocarbons, and metals where transformers or industrial equipment present a contamination risk. | |
| | Ensure indirect impacts on adjacent wetlands remain low. | • No measurable decline in wetland structure or function attributable to the Project.<br>• Adaptive management implemented where required. | Every 3 years. | Specialist assessment of wetland condition and ecological functioning. | Operations Manager / EHS Manager Independent Wetland Specialist. |
| **Air Quality** | Demonstrate compliance with the AEL and applicable atmospheric emission reporting requirements. | Emissions comply with AEL limits; required National Atmospheric Emission Inventory System (NAEIS), South African Greenhouse Gas Emission System (SAGERS) and AEL performance reports submitted. | As specified in the AEL; annual reporting where required. | Stack emissions monitoring, emissions inventory reporting, greenhouse gas (GHG) reporting, compliance review and complaint register review. | Operations Manager / EHS Manager and suitably qualified specialist. |
| | • Confirm effective combustion and emission control performance. | • NOx, $SO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations remain within AEL and | Continuous emissions monitoring and routine ambient | • Stack emissions monitoring.<br>• Ambient air quality monitoring. | |

| Theme | Monitoring Objective | Performance Indicator | Frequency | Monitoring Method | Responsibility |
|---|---|---|---|---|---|
| | • Verify that project emissions do not contribute to unacceptable cumulative respiratory health risks within the Richards Bay airshed. | ambient air quality standards.<br>• Community complaints investigated and trends tracked. | monitoring; monthly review and reporting. | • Compliance audits.<br>• Trend analysis.<br>• Complaint register review. | |
| **Wastewater and Effluent Infrastructure** | Prevent seepage from wastewater and process water systems. | No wastewater leaks, seepage or containment failures. | Monthly. | Inspection of tanks, pipelines, oil-water separators and wastewater treatment infrastructure. | Operations Manager / EHS Manager |
| **Groundwater Surveillance Monitoring** | Provide early warning of potential groundwater contamination associated with hazardous substances, wastewater infrastructure and long-term plant operations. | No deterioration in groundwater quality relative to baseline conditions attributable to Project activities. | • Baseline prior to operation.<br>• Annually thereafter. | Sampling of appropriately located upgradient and downgradient monitoring boreholes, with laboratory analysis for pH, EC, TDS, chlorides, sulphates, hydrocarbons, oil and grease, and relevant metals. | Operations Manager / EHS Manager and suitably qualified specialist or accredited laboratory (as required). |
| | Confirm that hazardous materials and wastewater activities are not affecting groundwater quality. | Results remain within baseline trends and applicable guideline values. | Annual. | Analysis of relevant variables. | |
| **Cooling System and Legionella Control** | Prevent the development and transmission of Legionella and other waterborne biological hazards. | Water chemistry maintained within operational specifications; acceptable microbiological counts; no Legionella outbreaks. | Routine monitoring in accordance with plant maintenance requirements. | Water quality monitoring, microbiological testing, inspection of drift eliminators and cooling equipment. | Operations Manager / EHS Manager and suitably qualified specialist (as required). |
| **Occupational Health** | Protect workers from occupational exposures associated with heat, noise, hazardous substances and operational activities. | Exposure levels remain below occupational limits; medical surveillance outcomes acceptable; no increase in occupational illness. | Routine occupational monitoring throughout construction and operation. | Occupational hygiene monitoring, medical surveillance, incident investigations and workplace inspections. | Operations Manager / EHS Manager |
| **Traffic and Injury Prevention** | Monitor safety risks associated with construction and operational traffic activities. | Number of incidents, near misses and traffic-related complaints; effectiveness of traffic controls. | Ongoing; monthly review and reporting. | Incident reporting systems, near-miss tracking, traffic audits and route inspections. | Operations Manager / EHS Manager |
| **Community Health and Safety** | Determine whether project activities are contributing to health complaints or perceived health impacts within surrounding communities. | Number and type of community complaints; trends and recurring issues identified and resolved. | Ongoing; reviewed during routine reporting cycles. | Community grievance mechanism, complaint register analysis, stakeholder engagement processes. | Operations Manager / EHS Manager |

| Theme | Monitoring Objective | Performance Indicator | Frequency | Monitoring Method | Responsibility |
|---|---|---|---|---|---|
| **Health Systems Monitoring** | Track potential pressure on local healthcare services and emergency response systems. | Health complaints, referral patterns, emergency response incidents and healthcare service interactions. | Periodic review throughout construction and operation. | Review of incident records, referral data, emergency response reporting and coordination with healthcare facilities. | Operations Manager / EHS Manager |
| **Mitigation Effectiveness and Adaptive Management** | Verify the effectiveness of mitigation measures and provide early warning of emerging health risks. | Identified risks remain within predicted impact envelope; corrective actions implemented where required. | Continuous review; reported through environmental and health management systems. | Trend analysis, audits, monitoring data review, adaptive management assessments and compliance reporting. | Operations Manager / EHS Manager |
| **Major Hazard Installation and Process Safety Monitoring** | Ensure safe storage and handling of fuels, oils and chemicals. | No leaks, spills or containment failures. | Monthly | Inspection of tanks, pipelines, storage areas, bunds and transfer facilities. | Operations Manager / EHS Manager and suitably qualified specialist (as required). |
| | Verify effectiveness of bunding and containment systems. | No evidence of leakage from oil, fuel or chemical storage facilities. | Monthly. | Inspection of bunds, storage tanks, pipelines and containment infrastructure. | |
| | Ensure gas detection, pressure monitoring, emergency shutdown systems and safety instrumentation remain functional. | All critical systems tested and operational. | Quarterly and during planned shutdowns. | Functional testing, calibration and maintenance records review. | |
| | Detect gas releases. | No uncontrolled gas releases. Gas detectors operational, calibrated and tested. | Continuous monitoring; calibration and functional testing quarterly and during planned shutdowns. | Fixed gas detection system monitoring; functional testing and calibration; alarm trend review; maintenance and inspection records. | |
| | Maintain preparedness for fires, explosions, gas releases and hazardous material incidents. | • Emergency equipment available.<br>• Drills completed.<br>• Corrective actions implemented. | Annually and after major incidents. | Emergency exercises, training records and audits. | |
| | Verify implementation HAZOP and MHI risk reduction measures. | Recommendations implemented and closed out. | Annually and following major modifications. | Internal audits, risk reviews and management-of-change procedures. | |
| | Confirm compliance with statutory requirements, licence conditions and relevant standards. | No significant non-compliances identified. | Annual. | Independent compliance and safety audits. | |
| **Noise** | Verify that operational noise remains within predicted levels | • No substantiated noise complaints. | • Complaint-based monitoring. | Inspections, maintenance of equipment, complaint register | Operations Manager / EHS Manager and |

| Theme | Monitoring Objective | Performance Indicator | Frequency | Monitoring Method | Responsibility |
|---|---|---|---|---|---|
| | and does not result in significant nuisance to surrounding receptors. | • Compliance with applicable noise limits. | • Periodic verification during operation. | review, and noise measurements where complaints are received or significant changes occur. | suitably qualified specialist (as required). |
| **Occupational Health and Safety** | Protect workers from operational hazards, including noise, heat, hazardous substances, confined spaces and process safety risks. | • No occupational illnesses or Lost Time Injuries (LTIs).<br>• Exposure levels remain within applicable occupational limits. | Monthly review; annual medical surveillance. | Workplace inspections, occupational hygiene monitoring, medical surveillance and incident reporting. | Operations Manager / EHS Manager |
| **Emergency Preparedness** | Ensure readiness to respond to fires, gas releases, explosions and other emergency incidents. | • Emergency equipment operational.<br>• Emergency drills completed.<br>• Corrective actions closed out. | • Quarterly inspections.<br>• Annual drills. | Emergency preparedness audits, equipment inspections and emergency exercises. | Operations Manager / EHS Manager |

## 8.3 Compliance Monitoring and Auditing

Compliance monitoring will commence in the pre-construction phase, where those conditions in the EA that need to be adhered to prior to project implementation will need to be checked and recorded, as well as to check compliance with the provisions in the EMPr. Compliance monitoring will be completed at the end of the defects liability period to check the performance of rehabilitation measures and whether the related objectives have been met.

It is recommended that the ECO undertake weekly monitoring and compliance auditing, including an audit at the end of construction and one at the end of the defects notification period.

Auditing of compliance with the EA and EMPr must be conducted in accordance with Regulation 34 of the EIA Regulations in terms of the following:

1. The holder of the EA must, for the period during which the EA and EMPr remain valid -
    a. Ensure that the compliance with the conditions of the EA and EMPr is audited; and
    b. Submit an environmental audit report to DFFE.
2. The environmental audit report must -
    a. Be prepared by an independent person with the relevant environmental auditing expertise;
    b. Provide verifiable findings, in a structured and systematic manner, on-
        i. The level of performance against and compliance of an organisation or project with the provisions of the requisite EA and EMPr; and
        ii. The ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity;
    c. Contain the information set out in Appendix 7 of the EIA Regulations; and
    d. Be conducted and submitted to DFFE at intervals as indicated in the EA.
3. The environmental audit report must determine -
    a. The ability of the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an ongoing basis and to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and
    b. The level of compliance with the provisions of the EA and EMPr.

A document handling system must be established to ensure accurate updating of EMPr documents, and availability of all documents required for the effective functioning of the EMPr.

Supplementary EMPr documentation may include:

- ❑ Method Statements;
- ❑ Site instructions;
- ❑ Emergency preparedness and response procedures;
- ❑ Record of environmental incidents;
- ❑ Non-conformance register;
- ❑ Training records;

- Site inspection reports;
- Monitoring reports;
- Auditing reports;
- Public complaints register; and
- Grievance Mechanism/Process for public and contractor/employees.

# 9 ENVIRONMENTAL TRAINING AND AWARENESS CREATION

## 9.1 Introduction

Training aims to create an understanding of environmental management obligations and prescriptive measures governing the execution of the Project. It is generally geared towards project team members that require a higher-level of appreciation of the environmental management context and implementation framework for the project.

## 9.2 Construction Phase

Awareness creation strives to foster a general attentiveness amongst the construction workforce to sensitive environmental features and an understanding of implementing environmental best practices.

The various means of creating environmental awareness during the construction phase of the Project may include:

- Induction course for all workers before commencing work on site;
- Refresher courses (as and when required);
- Daily toolbox talks, focusing on particular environmental issues (task- and area specific);
- Courses must be provided by suitably qualified persons and in a language and medium understood by the workers;
- Erect signage and barricading (where necessary) at appropriate points in the construction domain, highlighting sensitive environmental features (e.g. grave sites, protected trees); and
- Place posters containing environmental information at areas frequented by the construction workers (e.g. eating facilities).

Training and awareness creation will be tailored to the audience, based on their designated roles and responsibilities. Records will be kept of the type of training and awareness creation provided, as well as containing the details of the attendees.

The Contractor must compile a project-specific Environmental Training and Awareness Programme, taking into consideration the abovementioned factors, to be approved by the PM/ECO.

## 9.3 Operational Phase

For the operational phase, environmental awareness and training should focus on maintaining environmental compliance, preventing pollution incidents, ensuring effective emergency response, and reinforcing staff awareness of environmental responsibilities.

Environmental awareness and training requirements for the operational phase, based on the environmental risks identified for the Project, are presented in Table 6 below. These requirements need to be included in a detailed programme by the Operator.

*Table 6: Environmental awareness and training for the operational phase*

| Training Topic | Objective | Target Personnel | Frequency | Method |
|---|---|---|---|---|
| **Environmental Induction** | Ensure all personnel understand the EMPr, environmental obligations, site sensitivities and reporting requirements. | All employees and contractors | Upon appointment and for new personnel | Formal induction training |
| **Environmental Legal Compliance** | Promote awareness of the EA's conditions, AEL requirements and other relevant legal obligations. | Supervisors, operators and management personnel | Annually | Refresher training and workshops |
| **Hazardous Materials Management** | Prevent pollution associated with fuels, oils, chemicals and hazardous substances. | Operational personnel and maintenance teams | Annually | Classroom and practical training |
| **Spill Prevention and Response** | Ensure personnel can effectively respond to spills and releases to prevent environmental contamination. | Operational personnel, maintenance teams and emergency response personnel | Annually and following significant incidents | Practical drills and toolbox talks |
| **Waste Management** | Promote correct waste segregation, handling, storage and disposal practices. | All personnel and contractors | Annually | Awareness sessions and toolbox talks |
| **Stormwater and Water Pollution Prevention** | Prevent contamination of stormwater systems, adjacent wetlands and receiving watercourses. | Operational and maintenance personnel | Annually | Environmental awareness training |
| **Air Quality and Emissions Management** | Promote understanding of emission controls and reporting requirements. | Operations and plant personnel | Annually | Refresher training |
| **Biodiversity Awareness** | Raise awareness of adjacent natural habitats, wetlands and alien invasive plant management requirements. | Site personnel, maintenance teams and contractors | Every 2 years | Site-based awareness training |
| **Emergency Preparedness and Incident Reporting** | Ensure rapid and effective response to environmental emergencies and incidents. | All personnel | Annual drills and refresher training | Emergency simulations and practical exercises |
| **Community and Stakeholder Awareness** | Promote understanding of grievance procedures and community interaction requirements. | Supervisors and management personnel | Annually | Awareness sessions |
| **Environmental Monitoring and Reporting** | Ensure monitoring requirements, incident reporting procedures and corrective action processes are implemented consistently. | EHS personnel, supervisory staff and management | Annually | Workshops and refresher training |

# 10 EMPr REVIEW

Due to its dynamic nature, this EMPr will be reviewed and revised when necessary to ensure continued environmental improvement.

Following detailed design and planning, the EMPr may need to be revised to render the management actions more explicit and accurate to the final project specifications. Changes to the EMPr shall also be required where the existing system:

- Does not make adequate provision for protecting the environment against the Project's activities;
- Needs to be modified to meet conditions of statutory approval;
- It is not achieving acceptable environmental performance;
- Requires changes due to the outcome of a monitoring or auditing event or management review;
- Provides redundant, impracticable or ineffective management measures; and
- Based on provisions in Regulation 34 of the EIA Regulations.

The amendment of the EMPr will be undertaken in terms of Regulation 34 – 37 of the EIA Regulations, as applicable.

# 11 ENVIRONMENTAL ACTIVITIES, ASPECTS AND IMPACTS

## 11.1 Introduction

In order to establish best management practices and prescribe mitigation measures, the following project-related information needs to be adequately understood:

- **Activities** associated with the proposed Project;
- **Environmental aspects** associated with the project activities;
- **Environmental impacts** resulting from the environmental aspects; and
- The nature of the surrounding **receiving environment**.

## 11.2 Project Activities

In order to understand the impacts related to the Project it is necessary to unpack the activities associated with the project phases, as listed in the table to follow.

*Table 7: Simplified list of activities associated with the Project*

| PROJECT PHASE: PRE-CONSTRUCTION |
|---|
| **Project Activities** |
| • Finalisation of detailed engineering design and plant layout. |
| • Environmental authorisation and permitting processes. |

| |
|---|
| • Finalisation of water, wastewater, electricity and other utility supply agreements. |
| • Geotechnical, survey and other pre-construction investigations. |
| • Site establishment planning and contractor procurement. |
| • Detailed transport planning for abnormal and oversized loads. |
| • Vegetation clearance and site preparation planning. |
| • Establishment of temporary construction facilities and laydown areas. |
| • Review Contractor's method statements (as relevant). |
| • Arrangements for accommodation of construction workers (off site). |
| **High Level Environmental Activities** |
| • Diligent compliance monitoring against the EMPr, Environmental Authorisation, AEL, Water Use Licence (WUL), and other relevant environmental legislation, as relevant to the pre-construction phase. |
| • Undertake pre-construction environmental survey. |
| • Undertake baseline environmental monitoring. |
| • Barricade sensitive environmental features (as relevant). |
| • On-going consultation with I&APs. |
| • Other activities as per EMPr. |
| **PROJECT PHASE: CONSTRUCTION** |
| **Project Activities** |
| • Construction employment. |
| • Clearing and grubbing of vegetation within the development footprint. |
| • Site levelling, earthworks and ground preparation. |
| • Construction of access roads and internal roads. |
| • Construction of foundations and structural platforms. |
| • Construction of the freshwater storage reservoir and associated water infrastructure. |
| • Installation of underground and surface services, including stormwater and wastewater infrastructure. |
| • Construction of the gas turbine generator foundations and buildings. |
| • Installation of two combustion turbine generators. |
| • Installation of two HRSGs. |
| • Installation of the steam turbine generator and air-cooled condenser. |
| • Construction of the control room, administration buildings and maintenance facilities. |
| • Installation of water treatment, demineralisation and wastewater treatment systems. |
| • Installation of fire protection systems, including $CO_2$ storage facilities. |
| • Installation of electrical infrastructure, including transformers and the 275 kV switchyard. |
| • Storage and handling of construction materials, fuels, lubricants and other hazardous substances. |
| • Transportation of plant components, equipment and construction materials to site. |
| • Testing and commissioning of plant infrastructure and systems. |
| **High Level Environmental Activities** |
| • Diligent compliance monitoring against the EMPr, Environmental Authorisation, AEL, WUL, and other relevant environmental legislation, as relevant to the construction phase. |
| • Implement Environmental Monitoring Programme. |
| • Reinstatement and rehabilitation of construction domain (as necessary) (outside permanent development footprint). |
| • On-going consultation with I&APs. |
| • Other activities as per EMPr. |
| **PROJECT PHASE: OPERATION** |
| **Project Activities** |
| • Receipt and use of natural gas as the primary fuel source. |

| |
|---|
| • Operation of the combustion turbine generators for electricity generation. |
| • Operation of the HRSGs to recover waste heat and generate steam. |
| • Operation of the steam turbine generator. |
| • Operation of the air-cooled condenser and steam-water cycle. |
| • Operation of water treatment, demineralisation and wastewater management systems. |
| • Operation and maintenance of the freshwater storage reservoir. |
| • Operation and maintenance of the 275 kV switchyard and associated electrical infrastructure. |
| • Storage and handling of operational chemicals, lubricants, oils, hydrogen and $CO_2$. |
| • Operation of fire protection and emergency response systems. |
| • Management of solid and hazardous wastes. |
| • Routine inspection, maintenance and repair of plant equipment and infrastructure. |
| • Management of stormwater, wastewater and environmental monitoring programmes. |
| • Export of electricity to the national grid. |
| • Emergency response and contingency actions. |
| **High Level Environmental Activities** |
| • Diligent compliance monitoring against the EMPr, Environmental Authorisation, AEL, WUL, and other relevant environmental legislation, as relevant to the operational phase |
| • Implement Environmental Monitoring Programme. |

## 11.3 Environmental Aspects

Environmental aspects are regarded as those components of an organisation's activities, products and services that are likely to interact with the environment and cause an impact. Table 8 below provides the environmental aspects that have been identified for the proposed Project, are linked to the project activities (note that only high-level aspects are provided).

*Table 8: Environmental aspects associated with the project phases*

| Project Phase | Environmental Aspects |
|---|---|
| **Pre-Construction Phase** | • Inadequate consultation with stakeholders.<br>• Poor construction site planning and layout.<br>• Inaccurate pre-construction environmental survey.<br>• Vegetation clearing.<br>• Land occupancy by temporary buildings, provisional on-site facilities and storage areas in proximity to sensitive areas (including watercourses).<br>• Noise, dust, and vehicle emissions from site preparation activities.<br>• Risk of accidental fuel or oil spills during mobilisation of machinery.<br>• Use of existing road network and access routes.<br>• Uncovering archaeological or heritage resource during initial clearing.<br>• Inadequate environmental and compliance monitoring.<br>• Absence of relevant permits, where applicable.<br>• Poor waste management.<br>• Absence of ablution facilities. |
| **Construction Phase** | • Inadequate consultation with stakeholders.<br>• Inadequate environmental and compliance monitoring.<br>• Lack of environmental awareness creation.<br>• Indiscriminate site clearing.<br>• Poor site establishment.<br>• Human presence and increased activity levels.<br>• Poor management of access and use of access roads.<br>• Disruptions to traffic.<br>• Poor transportation practices.<br>• Poor fencing arrangements. |

| Project Phase | Environmental Aspects |
|---|---|
| | • Erosion.<br>• Noise, vibration, and dust from heavy machinery.<br>• Disruptions to existing services.<br>• Disturbance of topsoil.<br>• Poor management of excavations.<br>• Inadequate storage and handling of material.<br>• Inadequate storage and handling of hazardous material.<br>• Poor maintenance of equipment and plant.<br>• Poor management of labour force.<br>• Pollution from ablution facilities.<br>• Inadequate safeguarding of construction crew and the public from OHS risks.<br>• Inadequate management of construction camp.<br>• Poor waste management practices – hazardous and general solid, liquid.<br>• Wastage of water.<br>• Poor management of pollution generation potential.<br>• Damage to significant flora and fauna (if encountered).<br>• Inadequate stormwater management.<br>• Improper dewatering of excavations.<br>• Damage to cultural heritage and palaeontological features (if encountered).<br>• Disturbance of community.<br>• Poor reinstatement and rehabilitation. |
| **Operational Phase** | • Excessive emissions associated with power generation activities.<br>• Inappropriate operation and maintenance of gas turbines, HRSGs and associated equipment.<br>• Excessive noise generation from plant operations.<br>• Excessive artificial lighting.<br>• Inappropriate storage and handling of hazardous substances.<br>• Leakage or spillage of transformer oil, lubricating oils and hydraulic fluids, or diesel associated with emergency power systems.<br>• Leakage or release of hydrogen associated with generator cooling systems or $CO_2$ associated with fire protection systems.<br>• Inappropriate storage and handling of water treatment chemicals.<br>• Excessive consumption of water.<br>• Inappropriate operation of water treatment systems.<br>• Generation and inappropriate management of process wastewater.<br>• Generation and inappropriate management of sewage and sanitation systems.<br>• Inappropriate management of stormwater runoff.<br>• Inappropriate management of contaminated stormwater.<br>• Generation and inappropriate storage, handling and disposal of waste.<br>• Excessive vehicle movements associated with operation and maintenance activities.<br>• Inappropriate maintenance of plant and infrastructure.<br>• Failure of pollution prevention and containment systems.<br>• Inadequate emergency preparedness and response.<br>• Inadequate management of fire and explosion risks.<br>• Inadequate rehabilitation and maintenance of landscaped or disturbed areas.<br>• Inadequate environmental monitoring and compliance management.<br>• Inappropriate management of climate resilience and extreme weather risks.<br>• Presence and operation of permanent industrial infrastructure within the receiving environment. |

## 11.4 Potential Significant Environmental Impacts

Environmental impacts are the change to the environment resulting from an environmental aspect, whether desirable or undesirable. Table 9 below lists the potentially significant environmental impacts associated with the Project. These impacts were identified using a conservative approach, representing the possible adverse effects prior to the implementation of any mitigation measures. These potential impacts were assessed through specialist studies and considered by the engineering team, and appropriate mitigation measures are proposed in the EIA Report and EMPr.

*Table 9: Potentially significant environmental issues*

| Environmental Factor | Construction Phase<br>Potential Issues / Impacts | Operational Phase<br>Potential Issues / Impacts |
|---|---|---|
| **Land Use** | ▪ Nuisance and disruptions caused by noise, vibration, and traffic.<br>▪ Visual impacts. | ▪ Health risks associated with gaseous emissions.<br>▪ Nuisance and disruptions caused by noise and vibration.<br>▪ Visual impacts. |
| **Climate** | ▪ Emission of GHGs during construction. | ▪ Climate change may impact on the proposed Project in various ways, including increased storm frequency and extreme floods events.<br>▪ GHG emissions associated with the combustion of natural gas, including cumulative climate change impacts. |
| **Geology** | ▪ Geotechnical constraints affecting excavation, foundation design and construction. | ▪ Geotechnical constraints affecting long-term infrastructure stability and maintenance. |
| **Geohydrology** | ▪ The area is subject to a shallow perched water table.<br>▪ Potentially problematic geotechnical conditions associated with groundwater, such as groundwater seepage into excavations;<br>▪ Groundwater pollution due to poor construction practices. | ▪ Groundwater contamination associated with chemical storage, wastewater infrastructure, hazardous materials and maintenance activities. |
| **Topography** | ▪ Visual impacts caused by poor construction practices.<br>▪ Erosion of areas cleared for construction purposes. | ▪ Visual impact caused by proposed Project infrastructure and landscape transformation.<br>▪ Alteration of the drainage on the site and cause an increase in runoff. |
| **Soil** | ▪ Erosion, if stormwater is not adequately managed.<br>▪ Use of heavy equipment during the construction phase could lead to soil compaction.<br>▪ Soil contaminated through poor construction practices.<br>▪ Loss of topsoil.<br>▪ Impacts associated with the sourcing of construction material. | ▪ Erosion may take place due to inadequate stormwater management.<br>▪ Soil contamination through inadequate operation and maintenance activities.<br>▪ Heavy equipment and structures associated with the Plant can compact soil and affect the stability of the ground. This can potentially cause localised subsidence or other stability issues. |
| **Surface Water** | ▪ Sediment runoff and siltation of watercourses.<br>▪ Surface water contaminated through poor construction practices.<br>▪ Damage to the structure and functioning of the wetland to the south-west of the site due to construction activities.<br>▪ Introduction and spread of invasive alien plants and noxious weeds into watercourses. | ▪ Accidental spills, wastewater discharges and inadequate stormwater management and discharges could impact watercourses (including the nearby canal and the wetland to the south-west of the site).<br>▪ Damage to infrastructure from major flood events. |
| **Estuarine Environment** | ▪ Impacts to freshwater resources may adversely affect the freshwater inflows into the Richards Bay Estuary and adjacent uMhlathuze Estuary. | ▪ Impacts to freshwater resources may adversely affect the freshwater inflows into the Richards Bay Estuary and adjacent uMhlathuze Estuary.<br>▪ Indirect impacts to estuarine ecosystem caused by emissions from the Plant. |
| **Terrestrial Biodiversity** | ▪ Clearance of vegetation to be disturbed by construction activities.<br>▪ Habitat loss and fragmentation.<br>▪ Loss, disturbance or displacement of flora and fauna species, including Species of Conservation Concern (SCC).<br>▪ Human - animal conflicts. | ▪ Continued encroachment of invasive alien species into disturbed areas.<br>▪ Offsite impacts to surrounding natural areas. |

| Environmental Factor | Construction Phase<br>Potential Issues / Impacts | Operational Phase<br>Potential Issues / Impacts |
|---|---|---|
| | ▪ Disruption/alteration of species activities due to noise and vibration.<br>▪ Nights lights may affect nocturnal faunal species.<br>▪ Illegal harvesting and poaching of faunal and floral species by construction workers.<br>▪ Pollution of the biophysical environment from poor construction practices.<br>▪ Proliferation of invasive alien species in disturbed areas. | |
| **Socio-Economic Environment** | ▪ Influx of people seeking employment and associated impacts.<br>▪ Safety and security of local community during construction.<br>▪ Use of local road network by construction vehicles and plant.<br>▪ Nuisance from dust, noise, vibration and light pollution.<br>▪ Consideration of local labourers and suppliers in area – stimulation of local economy (positive impact).<br>▪ Transfer of skills (positive impact). | ▪ Health risks associated with gaseous emissions.<br>▪ Visual impacts caused by the components of the Plant.<br>▪ Noise from the operation of the Plant.<br>▪ Risks posed by hazardous components of the Plant. |
| **Air Quality** | ▪ Dust from the use of dirt roads on the site by construction vehicles.<br>▪ Dust from bare areas that have been cleared for construction purposes.<br>▪ Emissions from construction equipment and machinery.<br>▪ Tailpipe emissions from construction vehicles.<br>▪ Emission of GHG during construction | ▪ Air quality deterioration as a result of gaseous emissions caused by the Plant.<br>▪ Emission of GHG during operational phase, including cumulative impacts.<br>▪ Emissions from equipment, machinery and vehicles used for the operation of the Plant. |
| **Noise** | ▪ Localised increases in noise may be caused by construction activities. | ▪ Operational noise associated with turbines, HRSGs, transformers, air-cooled condensers and ancillary equipment. |
| **Agriculture** | ▪ Based on the location of the site within an industrial estate and the zoning of the land, no impacts are expected from an agricultural perspective. | |
| **Historical and Cultural Features** | ▪ Possible direct impacts on undiscovered heritage resources as a result of ground disturbance during construction. | - |
| **Existing Structures & Infrastructure** | ▪ Damage or disruption to existing infrastructure and services during construction activities. | ▪ Demand of the proposed Plant on existing utility services and infrastructure. |
| **Transportation** | ▪ Increase if traffic from the transportation of materials and construction personnel to site.<br>▪ Traffic disruptions caused by abnormal load vehicles.<br>▪ Speeding and reckless driving by construction personnel. | ▪ Transportation of maintenance materials, and operational and maintenance staff, to the Plant. |
| **Aesthetics** | ▪ Clearing of vegetation.<br>▪ Construction-related activities.<br>▪ Light pollution.<br>▪ Inadequate waste management and housekeeping.<br>▪ Inadequate reinstatement and rehabilitation of areas affected by construction activities, outside of the permanent development footprint. | ▪ Visual impacts associated with large structures and other facilities associated with the Plant.<br>▪ Visible plumes of steam or smoke from stacks.<br>▪ Inadequate housekeeping and waste management during operations. |
| **Health** | ▪ Hazards related to construction work with potential occupational injuries and diseases, as well as risks to community health and safety. | ▪ Hazards related to operation and maintenance work.<br>▪ Risks posed by hazardous components of the Plant. |

| Environmental Factor | Construction Phase<br>Potential Issues / Impacts | Operational Phase<br>Potential Issues / Impacts |
|---|---|---|
| | ▪ Increased levels of dust and particulate matter.<br>▪ Increased levels of noise.<br>▪ Water (surface and ground) contamination.<br>▪ Poor water and sanitation.<br>▪ Communicable diseases.<br>▪ Psychosocial disorder.<br>▪ Safety and security.<br>▪ Lack of suitable health services. | |
| **Water & Wastewater** | ▪ Water consumption for construction activities.<br>▪ Impacts associated with wastewater generated during construction. | ▪ Water consumption for process and domestic purposes.<br>▪ Impacts associated with generation of process wastewater, blowdown water, chemical wastewater, oily wastewater and sewage. |
| **Major Hazard & Risk** | ▪ Storage and handling of fuels, oils and hazardous materials during construction. | ▪ Fire, explosion and accidental release risks associated with natural gas infrastructure, hydrogen systems, $CO_2$ storage systems, diesel storage, chemicals and electrical infrastructure. |

Potential cumulative impacts associated with the Project are assessed in the EIA Report.

# 12 SENSITIVE ENVIRONMENTAL FEATURES

The following sensitive environmental features associated with the Project's receiving environment are highlighted, for which mitigation measures are included in the EIA Report and EMPr:

- Surface water –
  - Although there are no recognised streams near the site, a stormwater canal runs parallel to the western side of the site, which conveys stormwater from the RBIDZ in a south-westerly direction to a non-perennial stream (Mhlangabezani stream) about 3.7 km downstream of the site.
  - Much of the hydrology of the area is linked with the shallow water table of the coastal plain.
  - Two wetlands were delineated on the site, namely a seep wetland and wetland flat. *It is noted that various wetlands were infilled in the RBIDZ Phase 1F to allow for the development on these portions of land within the industrial estate, under the requisite approvals in terms of NEMA and NWA. A wetland (known as remainder of Wetland B) remains to the south-west of the site*.
  - Due to the flood risk posed to the project infrastructure, further flood modelling work is considered necessary and would require more detailed topographical data.
- Groundwater –
  - The project area overlies a coastal aquifer and shallow groundwater is encountered on the sites.

- During high rainfall periods, a rebound of the perched water table usually occurs with shallow excavations and topographical depressions becoming waterlogged for extended periods.
- The project area is situated in both the Richards Bay ground water-fed estuary Strategic Water Source Area (SWSA) and the Zululand Coast surface water.

- Geotechnical constraints are encountered at the site, including a shallow perched water table, permeable and compressible sandy soils, low bearing capacity, unstable excavations, and the absence of a competent shallow founding horizon.
- Terrestrial biodiversity –
  - The site encroaches into areas designated as Critical Biodiversity Area (CBA) Irreplaceable according to the KwaZulu-Natal Biodiversity Plan (KZN BP). In addition, the site is located within the Maputaland Wooded Grassland vegetation type, which is classified as Endangered. Despite this high conservation context at a regional scale, field verification indicates that the study area has been subject to varying degrees of historical disturbance.
  - Four primary habitat units were identified on the site, namely Degraded Hygrophilous Grassland, Thicket Habitat, Freshwater Habitat (wetland flats and seep systems), and Transformed Habitat.
  - Overall, while portions of the study area retain moderate ecological value, particularly within freshwater-associated habitats, the site is characterised by disturbance, fragmentation, and reduced connectivity.
- Ambient air quality –
  - Richards Bay is an existing industrial airshed with cumulative emissions from numerous industries.
- Climate –
  - The site is located within an established industrial area in Richards Bay, where the main climate-related risks include increasing temperatures, extreme rainfall, localised flooding, and disruption to upstream infrastructure and logistics during severe storm events. The Project site is not expected to be directly affected by sea-level rise over its operational life, although indirect exposure remains relevant through reliance on port and fuel-supply infrastructure, high-impact, low-probability (HILP) events, including severe coastal storms, cut-off low systems with subtropical characteristics, and tropical cyclones, are also relevant in the regional context and may have disproportionate consequences despite their low probability. These risks are not considered, in themselves, to preclude the proposed development.
- Visual environment –
  - Sensitive visual receptors include nearby residential areas, motorists, and visitors to nearby protected areas, although vegetation, terrain and existing industrial development substantially reduce visual exposure.
- Noise environment –
  - Existing residential areas and community facilities constitute sensitive noise receptors.

- Richards Bay Estuary –
  - At its closest point, the site is located approximately 2.6 km to the south of the Estuarine Functional Zone (EFZ) of the Richards Bay Estuary. Although outside the immediate footprint, the estuarine environment is an important regional ecological receptor that could be indirectly affected by project-related impacts.
- Protected areas –
  - Nearby protected areas include Enseleni Nature Reserve (approximately 5.2 km to the north-west) and Richards Bay Game Reserve (approximately 6.1 km to the south), which represent regional ecological receptors.
  - The site falls within a National Protected Area Expansion Strategy (NPAES) Priority Focus Area. However, this designation should be considered in the context of the proposed development being located within RBIDZ, a formally designated Special Economic Zone (SEZ) that has been earmarked for industrial development.
- Socio-economic environment –
  - Sensitive receptors from a socio-economic perspective include the neighbouring industries and operations within the RBIDZ, businesses in Alton industrial area, residential areas, Richards Bay CBD, public amenities, PoRB, transport infrastructure (road and rail), and Zululand Energy Terminal (ZET) gas distribution supply take-off point.
- Existing services and infrastructure –
  - Water and sewer pipelines, as well as the tarred access road, run along the western boundary of the site. In addition, a stormwater canal also runs parallel to the western side of the site. There are no existing registered servitudes on the site.

A sensitivity map in terms of freshwater ecosystems and terrestrial biodiversity is provided in Figure 3 below. It is important to recognise that the wetlands on the site were previously assessed as part of the RBIDZ Phase 1F environmental authorisation process, during which the clearance of indigenous vegetation and the infilling of wetlands within the authorised development footprint were approved. Consequently, the current EIA for the proposed Plant does not seek approval for wetland-related impacts on the site, nor does it re-assess the acceptability of the previously authorised habitat transformation and wetland infilling. Rather, the current assessment has focused on the environmental impacts specifically associated with the construction and operation of the proposed Power Plant and associated infrastructure within an already authorised industrial development footprint.

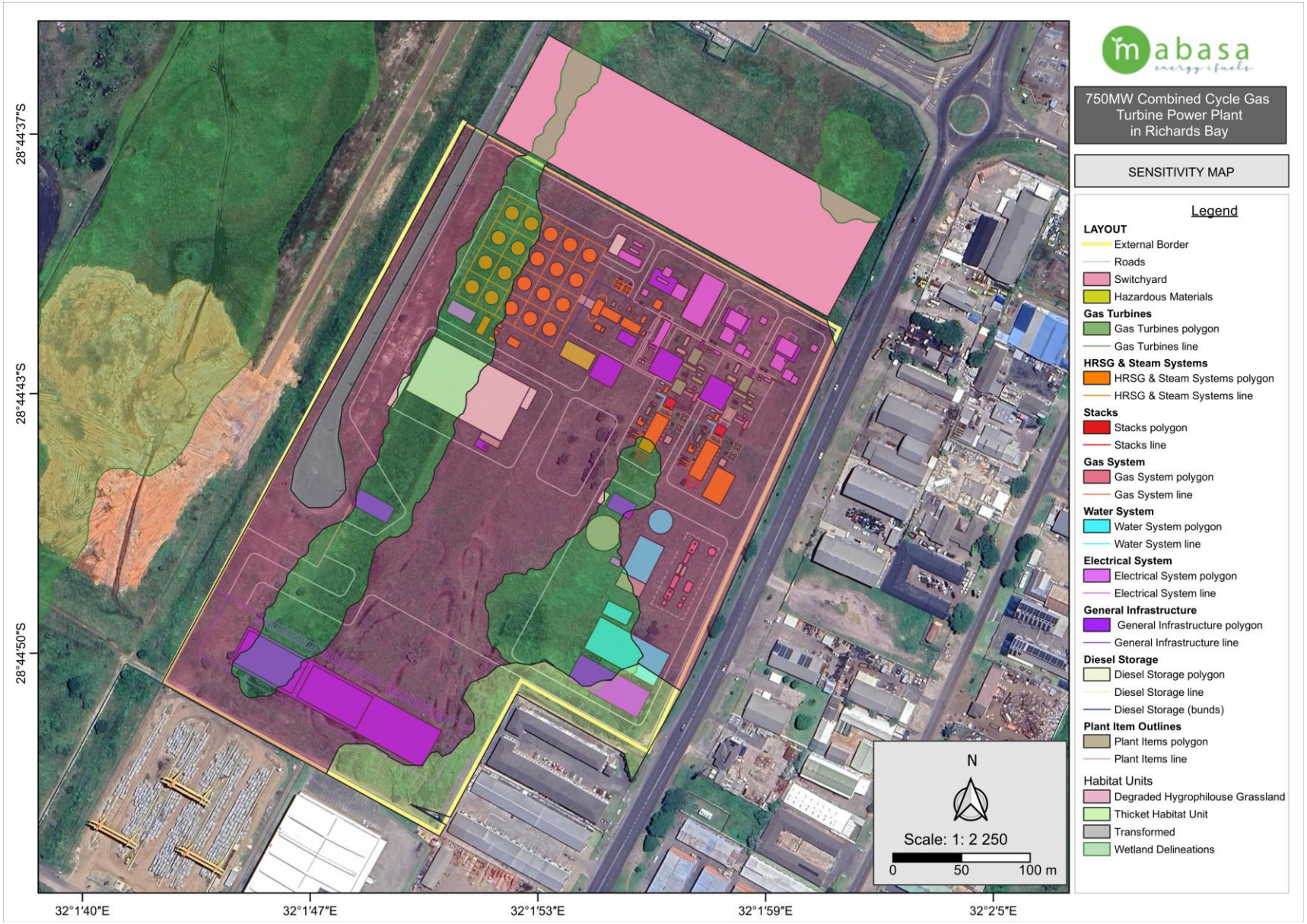



*Figure 3: Combined sensitivity map (freshwater ecosystems and terrestrial biodiversity)*

# 13 IMPACT MANAGEMENT

## 13.1 Introduction

The mitigation measures are presented in the sub-sections to follow. The framework used for the mitigation measures consists of the following:

- **Management objectives** – i.e. desired outcome of management measures for mitigating negative impacts and enhancing the positive impacts related to project activities and aspects (i.e. risk sources);
- **Targets** – i.e. level of performance to accomplish management objectives;
- **Management actions** – i.e. practical actions aimed at achieving management objectives and targets;
- **Responsibilities**; and
- **Monitoring requirements** (also refer to the environmental monitoring requirements listed in Table 5 above).

## 13.2 Pre-Construction & Construction Phases

### 13.2.1 Administrative Requirements

| | |
|---|---|
| **Management Objectives** | • Ensure that all administrative measures and arrangements associated with the compliance with the EA and EMPr are in place. |
| **Targets** | • Administrative measures and arrangements are confirmed, checked and maintained.<br>• Document control procedure is in place. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Adequate financial provision is made for the implementation of the conditions of the EA and the mitigation measures contained in the EMPr. Differentiate between those requirements that relate to the Applicant/Proponent, Contractor, environmental team and other responsible parties. | • Proponent & Contractor – administrative provisions for compliance.<br>• EO and ECO – to monitor compliance. | • Pre-construction & construction phases. | • Financial provisions (e.g. bill of quantities, budgets, etc.). | • Once-off, prior to construction. |
| • Document control procedure shall be provided and adhered to.<br>• Filing system shall be provided and maintained. | | • Throughout the duration of the construction period. | • Document control procedure.<br>• Filing systems. | • Monthly. |

### 13.2.2 Site Layout and Establishment

| | |
|---|---|
| **Management Objectives** | • Proper planning and layout of construction domain to ensure protection of receiving environment and to manage impacts.<br>• Minimise negative environmental impacts associated with site establishment. |
| **Targets** | • All construction activities to take place within the approved site plan.<br>• No negative impacts to the receiving environment as a result of poor site planning, layout and establishment.<br>• The entire construction footprint shall be included in the pre-construction survey.<br>• No damage to the receiving environment outside of the demarcated construction area during site establishment.<br>• No justifiable complaints regarding general disturbance and nuisance. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Conduct a pre-construction survey of the area to be affected by construction activities. This shall include site investigations with photographic records. | • Contractor to implement management actions.<br>• PM to approve site layout.<br>• EO and ECO - to monitor compliance. | • Prior to the establishment of the construction site. | • Pre-construction survey report. | • Once-off, prior to site establishment. |
| • The Contractor shall produce a site plan for the approval of the PM prior to the establishment of the site, which aims to identify construction activities, facilities and structures in relation to sensitive environmental features. This plan will serve as a spatial tool that facilitates the execution of the construction phase with due consideration of sensitive environmental features. The plan shall show the following (as relevant):<br>o Contractors' camp and laydown areas;<br>o Site offices;<br>o Site laboratories;<br>o Batching area;<br>o Access routes;<br>o Gates and fences;<br>o Essential services (permanent and temporary water, electricity and sewage); | | | • Approved site plan.<br>• Barricading and signage.<br>• Records of awareness creation. | • Once-off, prior to site establishment – site plan approval.<br>• Monthly – compliance with site plan. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Solid waste storage and disposal sites;<br>○ Site toilets and ablutions;<br>○ Hazardous waste storage and disposal site;<br>○ Firebreak;<br>○ Excavations and trenches;<br>○ Cut and fill areas;<br>○ Topsoil stockpiles;<br>○ Spoil areas;<br>○ Construction material stores;<br>○ Vehicle and equipment stores;<br>○ Workshop;<br>○ Wash bay;<br>○ Fuel stores;<br>○ Hazardous substance stores;<br>○ Sensitive environmental features (including the canal that runs parallel to the western side of the site as well as the wetland to the south-west of the site); and<br>○ Any other activities, facilities and structures deemed relevant. | | | | |
| • The Contractor shall produce a method statement for site establishment.<br>• Locate site camp, laydown area and storage facilities in areas that are already disturbed.<br>• Fence off site camp, if deemed necessary.<br>• Maintain barricading around sensitive environmental features until the cessation of construction works. | • Contractor to implement management actions.<br>• PM to approve method statement.<br>• EO and ECO - to monitor compliance. | • Prior to the establishment of the construction site. | • Approved method statement.<br>• Evidence of site establishment in accordance with method statement (photographic records). | • Once-off, prior to site establishment – method statement approval.<br>• Monthly – compliance with management actions. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| | | | • Adequate fencing and barricading. | • Fencing and barricading – monthly. |

### 13.2.3 Environmental Awareness Creation

| | |
|---|---|
| **Management Objectives** | • Ensure that the Contractor, construction workers and site personnel are aware of the relevant conditions of the EA and provisions of the EMPr. |
| **Targets** | • All construction workers and employees are to have completed appropriate environmental training before being allowed to undertake any construction work.<br>• A record of environmental training undertaken shall be kept on site. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Environmental Training and Awareness Programme shall be developed, which is to be approved by the PM/ECO.<br>• The Contractor shall arrange that all of his employees and those of his sub-contractors go through the project specific environmental awareness training courses before the commencement of construction and as and when new staff or sub-contractors are brought on site.<br>• The environmental training is compulsory for all employees and structured in accordance with their relevant rank, level and responsibility, as they apply to the works and site. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • From pre-construction and throughout the duration of the construction period. | • Records of training and awareness creation (e.g. training material, training programme, completed attendance registers, etc.) | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Courses must be provided by suitably qualified persons and in a language and medium understood by the workers (including isiZulu and English).<br>• Place posters containing environmental information at areas frequented by the construction workers (e.g. eating facilities). | | | | |

### 13.2.4 Stakeholder Communication

| | |
|---|---|
| **Management Objectives** | • Maintain adequate communication with stakeholders regarding construction activities.<br>• Effectively manage grievances raised by Interested and Affected Parties (I&APs).<br>• Adhere to agreements made with the RBIDZ, custodians of infrastructure as well as neighbouring operations (as relevant). |
| **Targets** | • All complaints and claims shall be acknowledged within 5 working days and shall be responded to within 10 working days of receipt, unless additional information and / or clarification are required. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Establish lines of communications with stakeholders (including authorities, adjoining operations and businesses and community members).<br>• Develop a Grievance Redress Mechanism (GRM).<br>• Make use of established communication channels when engaging with stakeholders.<br>• Provide advance notice of construction schedules and restricted areas (if relevant).<br>• Complaints or liaison with surrounding businesses and community members with regard to environmental | • Contractor to implement management actions.<br>• SO – manage stakeholder relations and the GRM.<br>• EO and ECO - to monitor compliance. | • From pre-construction and throughout the duration of the construction period. | • Documented GRM.<br>• Proof of communication.<br>• Related entries into Public Complaints Register. | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| aspects shall be recorded, reported to the correct person and a record of the response shall be entered in the complaints register.<br>• Provide the relevant contact details to surrounding businesses and community members for queries / raising of issues or complaints.<br>• Provide all information, especially technical findings, in a language that is understandable to the general public (including isiZulu and English). | | | | |

### 13.2.5 Management of Security

| | |
|---|---|
| **Management Objectives** | • The safety and security of surrounding businesses and community members is of paramount importance and shall not be compromised by the Project's construction activities. |
| **Targets** | • No security related incidents associated with the labour force and construction activities. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Ensure suitable management of the labour force to prevent security-related issues or disturbance to l surrounding businesses and community members.<br>• A security policy shall be developed which amongst others requires that permission be obtained prior to entering any property outside of the construction area, and which make provision for controlling trespassing by construction workers. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • From pre-construction and throughout the duration of the construction period. | • Intact fencing.<br>• Contractor's method statement.<br>• Related entries into Public Complaints Register. | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Only security staff shall be allowed to reside at the construction camp.<br>• The construction camp shall be fenced for the duration of construction.<br>• The Contractor shall establish crime awareness programmes at the site camp.<br>• *See requirements for Management of Labour Force, Management of Health and Safety, and Management of Access.* | | | | |

### 13.2.6 Site Clearing

| | |
|---|---|
| **Management Objectives** | • Manage environmental impacts associated with site clearing.<br>• Ensure that only areas that are specifically required for the construction purposes are cleared. |
| **Targets** | • No area outside of authorised footprint to be cleared. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The Contractor shall produce a method statement for site clearing.<br>• Restrict site clearing activities to the approved construction area.<br>• No damage shall be caused to sensitive environmental features outside of the demarcated construction area (including the canal that runs parallel to the western | • Contractor to implement management actions.<br>• PM to approve method statement.<br>• EO and ECO - to monitor compliance. | • From pre-construction and throughout duration of site clearing activities. | • Approved method statement.<br>• Evidence of site clearing in accordance with method statement | • Once-off, prior to site clearing – method statement approval.<br>• Monthly – compliance with |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| side of the site as well as the wetland to the south-west of the site). | | | (photographic records). | management actions. |

### 13.2.7 Management of Geotechnical Conditions

| | |
|---|---|
| **Management Objectives** | • Address geotechnical constraints. |
| **Targets** | • Full compliance with recommendations from geotechnical investigations in detailed design and construction planning. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Detailed geotechnical investigations must be undertaken during detailed design to confirm foundation requirements for all major infrastructure.<br>• Implement recommendations from the Geotechnical Investigations to overcome any geotechnical constrains encountered at the site.<br>• Foundation systems must be designed by a suitably qualified geotechnical engineer.<br>• Heavy and vibration-sensitive structures (including gas turbines, HRSGs, steam turbine generators and transformers) should be founded on appropriately designed pile foundations or other suitable engineered solutions.<br>• Ground improvement measures must be implemented, where required. | • Contractor to implement management actions.<br>• PM to approve method statement.<br>• EO and ECO - to monitor compliance. | • From pre-construction and throughout duration of site clearing activities. | • Approved method statement.<br>• Plant design that incorporates geotechnical requirements.<br>• Evidence of compliance with recommendations from geotechnical investigations. | • Once-off before construction (investigations and design).<br>• Monthly / as required – compliance with recommendations from geotechnical investigations. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Excavations deeper than recommended depths must be battered, benched, shored or otherwise stabilised.<br>• Earthworks should be planned to minimise the exposure of excavated areas during periods of heavy rainfall.<br>• All foundations, platforms and infrastructure must be constructed in accordance with approved engineering specifications.<br>• Settlement monitoring should be undertaken where required for critical infrastructure. | | | | |

### 13.2.8 Management of Existing Services and Infrastructure

| | |
|---|---|
| **Management Objectives** | • Prevent impacts to existing services and infrastructure.<br>• Adhere to agreements made with owners/custodians of services and infrastructure (as relevant). |
| **Targets** | • No unwarranted complaints regarding damages or disturbances to existing services and infrastructure.<br>• No damages or disturbances to existing services and infrastructure.<br>• All relevant approvals shall be obtained prior to working within existing servitudes (if required). |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Identify and record existing services and infrastructure.<br>• Liaise with RBIDZ, utility providers and relevant infrastructure custodians prior to commencing construction activities.<br>• Safeguard / deviate existing services to accommodate construction activities, as necessary. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • From pre-construction and throughout the duration of the construction period. | • Proof of identification of existing services and infrastructure. | • Monthly / as required if an incident occurs. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Conform to requirements of relevant service providers and infrastructure custodians.<br>• Ensure access to infrastructure is available to service providers at all times.<br>• Accommodate existing operations within the RBIDZ.<br>• Immediately notify the relevant authority or service provider of any disturbance or damage to infrastructure. Repair or reinstate damaged infrastructure in consultation with the relevant infrastructure owner.<br>• Maintain records of infrastructure disturbances, incidents and corrective actions.<br>• Monitor vibrations during excavation or blasting (if required) near sensitive structures.<br>• Adequate reinstatement and rehabilitation of affected environment.<br>• Implement routine inspections and maintenance of operational infrastructure and service connections. | | | • Proof of safeguarding / relocation of existing services and infrastructure.<br>• Inspection records. | |

### 13.2.9 Management of Access and Traffic

| | |
|---|---|
| **Management Objectives** | • Ensure that all construction vehicles use only dedicated access routes in RBIDZ to construction area.<br>• Ensure proper access control.<br>• Prevent unlawful access to the construction area.<br>• Ensure the safety of all road users by implementing proper signage and traffic control measures.<br>• Limit construction-related nuisance. |
| **Targets** | • No reports of construction vehicles using unauthorised routes.<br>• No direct harm to third parties due to inadequate access control.<br>• No transporting of unsafe loads.<br>• No speeding by construction vehicles.<br>• No accidents caused by construction activities. |

| **Management Actions** | **Responsibilities** | **Implementation Timeframe** | **Monitoring Requirements** | |
|---|---|---|---|---|
| | | | **Evidence** | **Frequency** |
| • Make use of the existing and planned road infrastructure serving RBIDZ Phase 1F and comply with any traffic management and road upgrade requirements implemented by the RBIDZ and relevant road authorities.<br>• Determine and document the conditions of access roads within the RBIDZ that will be affected by construction traffic, as relevant. Maintain adequate road conditions.<br>• Obtain the necessary approvals from the relevant road authorities, as applicable.<br>• Schedule deliveries outside peak traffic periods, where practical.<br>• Utilise designated routes approved by the relevant authorities (including SANRAL, KZN Department of Transport and CoU, as relevant). | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Throughout the duration of the construction period. | • Visible signage (photographic records)<br>• Proof of training.<br>• Related entries into Public Complaints Register.<br>• Inspection of access roads (photographic records). | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Permissions to be in place for abnormal loads transporting material to the site.<br>• Implement road safety measures and appropriate signage.<br>• Maintain all construction vehicles in a roadworthy condition.<br>• Repair any damage caused to roads by construction-related traffic.<br>• Strict adherence to speed limits by construction vehicles on public roads and access roads.<br>• Maintain road signage and flag personnel at critical points.<br>• Proper access control to the construction site is to be maintained to prevent any other unauthorised access. | | | | |

### 13.2.10 Fencing Arrangements

| | |
|---|---|
| **Management Objectives** | • Maintain adequate fencing for the construction site. |
| **Targets** | • Fencing to be installed prior to commencement of construction activities.<br>• Fencing to be kept in good condition.<br>• Damaged fencing to be repaired timeously. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Erect fencing around the construction camp, hazardous storage areas, and all access with restricted areas, as relevant.<br>• All fences erected for construction purposes shall be inspected to detect whether any damage has occurred. Damaged fences shall be repaired immediately.<br>• Maintain access control to the construction area.<br>• Remove temporary fencing once construction activities have been completed. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • From pre-construction and throughout the duration of the construction period. | • Inspection of fencing (photographic records).<br>• Related entries into Public Complaints Register. | • Monthly. |

### 13.2.11 Management of Labour Force

| | |
|---|---|
| **Management Objectives** | • Ensure suitable management of the labour force to prevent security-related issues or disturbance to surrounding businesses and community members.<br>• Optimise the use of local labour.<br>• Provide a work environment that is conducive to effective labour relations. |
| **Targets** | • No complaints from RBIDZ, surrounding businesses and community members regarding trespassing or misconduct by construction workers.<br>• All unskilled labour to be sourced from local area as far as possible. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Induction will be mandatory for all workers.<br>• Develop a Code of Conduct in terms of behaviour of construction staff.<br>• Prohibit trespassing of construction workers on private property. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Throughout the period that construction labour is required. | • Code of Conduct displayed.<br>• Proof of training. | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Workers shall be provided with identity cards and must wear identifiable clothing.<br>• Creating disturbances in surrounding businesses and communities shall be prohibited.<br>• Designated smoking areas shall be provided, with special bins for discarding of cigarette butts.<br>• Promote equal job opportunities for women and men during the construction and operational processes.<br>• Develop a grievance procedure, which also needs to address gender matters.<br>• Local SMMEs shall be given an opportunity to participate in the construction of the project through the supply of services, material or equipment.<br>• Prioritise and articulate gender inclusivity and equity in the project documents by including specific strategies and guidelines for implementation.<br>• Use local labour for unskilled positions wherever practicable, thereby maximising employment opportunities for surrounding communities.<br>• Implement applicable training of labour to benefit individuals beyond the completion of the project.<br>• All employment of locally sourced labour shall be controlled on a contractual basis. If possible, and if the relevant Ward Councillor deem it necessary, the employment process must include the affected Ward Councillors.<br>• No staff accommodation must be allowed on site (except for security personnel). | | | • Related entries into Public Complaints Register.<br>• Labour-related targets. | |

### 13.2.12 Management of Construction Camp

| | |
|---|---|
| **Management Objectives** | • Minimise environmental impacts associated with construction camp. |
| **Targets** | • No environmental contamination associated with construction camp.<br>• Minimise visual impact associated with construction camp and eating areas.<br>• Prevent socio-economic impacts associated with the construction camp. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Erect suitable fencing around the construction camp.<br>• Provide essential services (including appropriate sanitation and drinking water facilities) at the construction camp. Maintain essential services in a functional state.<br>• Provide adequate parking for site staff and visitors.<br>• Open uncontrolled fires will be forbidden at the site camp.<br>• Eating areas shall be designated and demarcated.<br>• Allow areas for social interaction.<br>• Sufficient vermin / weatherproof bins shall be present in this area for all waste material.<br>• Ensure that wastewater is appropriately disposed of.<br>• Locate all storage areas and material laydown sites within predetermined zones as per the approved site plan.<br>• Keep the camp and all its storage and laydown areas secure and neat at all times.<br>• Employ appropriate access control measures.<br>• Suitable security shall be provided at the construction camp at all times. | • Contractor to implement management actions.<br>• PM to approve de-establishment plan for construction camp.<br>• EO and ECO - to monitor compliance. | • Period from when the construction camp is created up to de-establishment. | • Visual inspections construction camp (photographic records).<br>• Approved de-establishment plan.<br>• Waste disposal certificates.<br>• Agreements with service providers (as relevant).<br>• Proof of training.<br>• Related entries into Public Complaints Register. | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Manage stormwater from construction camp to avoid environmental contamination and erosion.<br>• Provide medical and first aid facilities at the construction camp.<br>• Prepare de-establishment plan for construction camp for approval by the PM.<br>• Provide firefighting equipment at the camp area.<br>• *See requirements for Management of Waste, Management of Water, Management of Labour Force, Management of Ablution Facilities, Management of Storage and Handling of Non-Hazardous and Hazardous Material, Management of Workshop and Equipment, and Management of Flora and Fauna*. | | | | |

### 13.2.13 Management of Ablution Facilities

| | |
|---|---|
| **Management Objectives** | • Provide and maintain functional ablution facilities.<br>• Minimise environmental impacts associated with ablution facilities.<br>• Minimise visual impact associated with ablution facilities. |
| **Targets** | • No environmental contamination associated with ablution facilities. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Provide sufficient ablution facilities (e.g. mobile / portable toilets) at the construction camp and within the | • Contractor to implement management actions. | • Throughout the duration of the construction period. | • Inspection of ablution facilities | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| construction area, which shall conform to all relevant health and safety standards and codes.<br>• Sanitation facilities to comply with the requirements of the RBIDZ.<br>• No pit latrines, french drain systems or soak away systems shall be allowed.<br>• A sufficient number of toilets shall be provided to accommodate the number of personnel working in any given area. Toilets may not be further than 100m from any working area. Toilet facilities supplied by the Contractor for the workers shall occur at a maximum ratio of 1 toilet per 15 workers.<br>• There must be separate toilets for men and women.<br>• All temporary / portable / mobile toilets shall be secured to the ground to prevent them from toppling over due to wind or any other cause.<br>• Ensure the proper utilisation, maintenance and management of toilet, wash and waste facilities.<br>• The entrances to the toilets shall be adequately screened from public view.<br>• Ablution facilities shall be maintained in a hygienic state and serviced regularly.<br>• Toilet paper shall be provided.<br>• The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that a licensed service provider removes the contents from site. Disposal of such waste is only acceptable at a licensed waste disposal facility (proof of disposal to be provided). | • EO and ECO - to monitor compliance. | | (photographic records).<br>• Maintenance register for ablution facilities.<br>• Waste disposal certificates.<br>• Related entries into Public Complaints Register. | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Should shower facilities be provided for use by staff on site, the following controls shall be imposed:<br>o Proper positioning of the shower, and specifically its discharge point, shall be carried out to ensure that erosion and build-up of detergents does not occur;<br>o All discharge from the shower and other washing facilities shall be managed to prevent environmental contamination; and<br>o Use of the shower facilities shall be limited to staff or authorised persons only. | | | | |

### 13.2.14 Management of Visual Aspects

| | |
|---|---|
| **Management Objectives** | • Ensure that the visual appearance of the construction area is not an eyesore the adjacent areas. |
| **Targets** | • No verified complaints regarding visual impacts caused as a result of construction activities and facilities. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • On-going housekeeping to maintain a tidy construction site.<br>• Ensure that waste is regularly removed and disposed of at licensed facilities. No accumulation of waste on-site shall be permitted.<br>• Ensure proper storage of construction material. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Throughout the duration of the construction period. | • Inspection of project area (photographic records).<br>• Related entries into Public | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Restrict vegetation clearing and ground disturbance to the approved construction footprint to minimise the visual extent of disturbed areas. | | | Complaints Register. | |

### 13.2.15 Management of Climate Change Impacts

| | |
|---|---|
| **Management Objectives** | • Enhance the Project's resilience to climate-related physical risks.<br>• Reduce the Project's contribution to climate change by minimising greenhouse gas (GHG) emissions during construction, as far as practicable. |
| **Targets** | • Plant efficiency, energy efficiency and emissions management measures are incorporated into detailed design and construction planning.<br>• Stormwater, erosion control, corrosion protection, water efficiency and emergency preparedness measures are incorporated into design.<br>• No unnecessary idling of construction plant and vehicles, and material deliveries are consolidated where feasible. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The following mitigation measures are derived from the Climate Change Impact Assessment:<br>o The following measures are aimed at limiting the Project's emissions within the scope of influence of a gas-fired CCPP, with emphasis on designing the plant for operational efficiency and good construction practice -<br>▪ Implement energy-efficient design and equipment selection for auxiliary systems, including motors, pumps, compressors, and | • Proponent<br>• Design Engineers | • Detailed design and commissioning | • Plant design that incorporates climate change mitigation - design review records.<br>• Equipment specifications. | • Once-off before construction and commissioning; thereafter as required when design changes. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| lighting, to reduce indirect electricity demand during operation.<br>○ Measures recommended to enhance the Project's resilience to identified physical climate risks, including extreme rainfall, flooding, coastal climatic influences, and heat stress:<br>▪ Incorporate climate change considerations into site layout and detailed design, ensuring that critical infrastructure is positioned on suitably elevated and engineered platforms within the relatively flat coastal plain. Site grading should account for low relief (±40–43 m above mean sea level) and minimise localised ponding and flood risk.<br>▪ Design stormwater systems to integrate with existing RBIDZ infrastructure, including the stormwater canal along the western boundary of the site. Systems should be sized to accommodate increased rainfall intensity and ensure controlled discharge without overloading downstream channels.<br>▪ Although no rivers traverse the site, runoff is conveyed via the stormwater canal to downstream watercourses. Design measures should therefore ensure attenuation, flow control, and water quality management to prevent increased flooding or erosion risks downstream under extreme rainfall events.<br>▪ Given the flat topography and expected increase in runoff due to hard surfaces, the implementation of erosion control and flow | | | • Stormwater Management Plan.<br>• Procurement records. | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| dissipation measures (e.g. attenuation ponds, swales, energy breakers) to maintain pre-development hydrological conditions and avoid sediment transport, should be considered.<br>▪ Select materials and equipment suitable for high humidity (~80%), saline air influence, and moderate coastal wind regimes. Corrosion-resistant materials and protective coatings should be prioritised to maintain plant integrity and reduce lifecycle maintenance risks.<br>▪ Confirm availability and reliability of bulk water services for plant operations and auxiliary uses, and incorporate water efficiency and reuse measures where feasible, recognising dependence on regional infrastructure and potential climate-related supply variability. | | | | |
| ▪ Apply good practice construction management measures to limit emissions during construction, including efficient equipment use, minimisation of idling, and consolidation of material deliveries where feasible.<br>▪ Prioritise local or regional sourcing of bulk construction materials, where practicable, to reduce transport-related emissions and support regional economic activity. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Throughout the duration of the construction period. | • Inspections.<br>• Training register.<br>• Vehicle maintenance register.<br>• Approved method statement.<br>• Delivery schedules. | • Weekly. |

### 13.2.16 Management of Water

| | |
|---|---|
| **Management Objectives** | • Minimise environmental impacts associated with stormwater as well as water services for construction workers. |
| **Targets** | • No visual evidence of erosion caused by wastewater or stormwater practices.<br>• No environmental contamination associated with wastewater or stormwater practices.<br>• No water wastage (water conservation). |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • All construction activities to comply with the NWA.<br>• Any water to be sourced directly from natural watercourses or groundwater will require the necessary authorisation in terms of Section 21 of the NWA, as relevant.<br>• Implement recommendations from the Geotechnical Investigations related to groundwater.<br>• Practice water conservation. Prevent leakages from pipes or taps.<br>• Establish a dedicated vehicle maintenance area and wash-bay, where suitable stormwater management measures are in place to prevent pollution.<br>• Manage stormwater from construction site to avoid environmental contamination and erosion.<br>• Stormwater runoff from workshops, vehicle maintenance area, wash-bay and other potential pollution sources shall be collected and treated in hydrocarbon separation pits/tanks before being discharged in to drains and/or waterways.<br>• All wastewater discharges shall comply with legal requirements associated with the NWA. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Throughout the duration of the construction period. | • Authorisations under NWA (if required).<br>• Evidence of compliance with NWA authorisation conditions.<br>• Inspection of project area (photographic records).<br>• Water monitoring programme – water use and discharges. | • Continuous (development footprint)<br>• Monthly (inspections)<br>• Immediately after incidents. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Wastewater discharges shall form part of water monitoring programme.<br>• Manage stormwater runoff, as specified by the contracted civil engineer.<br>• Prevent erosion on access roads due to construction traffic.<br>• Reduce sediment loads in water from dewatering operations. All dewatering should be done through temporary sediment traps (e.g. constructed out of geo-textiles and hay bales).<br>• Ensure proper storage and careful handling of material that could cause water pollution.<br>• A stabilised site access must be established and, if possible, limited to one point only. The access allows construction vehicles to enter the work area while preventing unnecessary sediment tracking into the nearby environment from multiple locations. A stabilised entry/exit point normally consists of a stabilised rock pad.<br>• Suitable material storage areas must be located up-slope of the main sediment barrier (e.g., sediment fence).<br>• Stockpiles kept on site for more than two weeks will require an impervious cover (e.g., builder's plastic or geofabric) to protect against raindrop impact. Stockpiles of sandy material located behind a sediment fence will only require a protective cover if they are likely to be exposed to strong winds.<br>• Adequate waste containers must be provided on-site and maintained in a way that potential and actual | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| environmental harm resulting from such material waste is minimised.<br>• Building activities must be carried out on a pervious surface, such as grass or open soil, or in such a manner that all sediment-laden runoff is prevented from discharging into a water body.<br>• Ensure that eroded areas are re-vegetated, to ensure reduced sedimentation risk and reduced runoff volumes to the streams.<br>• Park heavy machinery in lined areas and place drip trays under vehicles at the site.<br>• Backfill the material in the same order it was excavated to reduce contamination of deeper soils with shallow oxidised soils.<br>• Retain as much indigenous vegetation as possible.<br>• Exposed soils are to be protected using a suitable covering or revegetation.<br>• Visual soil assessments for signs of contamination during construction. | | | | |

### 13.2.17 Management of Soil

| | |
|---|---|
| **Management Objectives** | • Ensure suitable removal, storage and transportation of topsoil for re-use during rehabilitation.<br>• Minimise erosion of areas cleared by construction activities.<br>• Ensure adequate management of potentially contaminated soil that may be encountered on the site due to previous land use practices on and adjacent to the site. |
| **Targets** | • At least 95% of recovered topsoil from disturbed areas is to be stored for future use.<br>• No visual evidence of erosion from topsoil stockpiles.<br>• No visual evidence of erosion from areas where topsoil has been reinstated. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Remove, stockpile and preserve topsoil for re-use during rehabilitation (outside permanent development footprint) as the final soil layer. Determine the average depth of the topsoil prior to excavations, as relevant. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Prior to site clearing up to when topsoil is used for rehabilitation. | • Inspection of project area (photographic records). | • Monthly. |
| • Stabilise cleared areas to prevent and control erosion. The method chosen (e.g. watering, planting, retaining structures, commercial anti-erosion compounds) will be selected according to the site-specific conditions.<br>• Control drainage over the site to minimise erosion.<br>• Restrict vehicle movement to designated routes.<br>• Acceptable reinstatement and rehabilitation of disturbed areas (outside permanent development footprint) to prevent erosion during operational phase. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Throughout the duration of the construction period. | • Inspection of project area (photographic records). | • Monthly. |
| • Adequate clean up and remediation of contaminated soil caused by spills and other construction activities. | • Contractor to implement management actions. | • Throughout the duration of the construction period. | • Inspection of project area (photographic records). | • As and when required for spills. |

### 13.2.18 Management of Excavations

| | |
|---|---|
| **Management Objectives** | • Minimise environmental impacts associated with excavations. |
| **Targets** | • No damage to sensitive environmental features outside construction area during excavations.<br>• No harm to people or animals as a result of excavations. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Implement recommendations from the Geotechnical Investigations to overcome any geotechnical constrains encountered at the site.<br>• Construction activities shall remain within the designated construction area.<br>• Suitable barricading shall be erected around open excavations / trenches, as per the Construction Regulations (2014) or the prevailing legislation.<br>• Provide signage as a warning of open excavations.<br>• Divert runoff away from excavations, where necessary.<br>• Provide suitable protection of groundwater during excavations.<br>• Trench lengths shall be kept as short as practically possible.<br>• Trench walls shall be stabilised using battering, shoring and bracing or similar techniques depending on the stability of the trench sides.<br>• Inspect open excavations at least daily to ensure that animals have not become trapped. Such animals will be safely removed and released, where possible. Special equipment for handling of venomous snakes shall be available on site to ensure safe removal.<br>• Make adequate provision for subsidence. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Prior to excavations and up to reinstatement. | • Excavation register.<br>• Inspection of excavations (photographic records). | • Monthly. |

### 13.2.19 Management of Storage and Handling of Non-Hazardous Material

| | |
|---|---|
| **Management Objectives** | • Effective and safe management of materials on site, in order to minimise the impact of non-hazardous materials on the environment. |
| **Targets** | • No pollution due to handling, use and storage of non-hazardous material. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Materials shall be suitably stored to prevent environmental contamination and visual impacts.<br>• Storage requirements to be determined based on chemical qualities of material and Safety Data Sheets (SDS).<br>• Where required, stored material shall be protected from rain and run-off to avoid environmental contamination.<br>• Materials shall be appropriately transported to avoid environmental contamination.<br>• Loose loads (e.g. sand, stone chip, refuse, paper and cement) shall be covered when vehicles travel on public roads.<br>• Suitable remedial measures, depending on the nature of the contaminant and the receiving environment, shall be instituted for spillages.<br>• Materials shall be suitably used to prevent environmental contamination. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Period during which materials are stored and handled on site. | • Evidence of spillages and appropriate remedial measures.<br>• SDS register.<br>• Inspection of project area (photographic records). | • Once-off – method statement approval.<br>• Monthly – compliance with management actions. |

### 13.2.20 Management of Storage and Handling of Hazardous Material

| | |
|---|---|
| **Management Objectives** | • Ensure the protection of the natural environment and the safety of personnel on site, by the correct management and handling of hazardous substances. |
| **Targets** | • No pollution due to handling, use and storage of hazardous material.<br>• 100% compliance with Safety Data Sheets (SDS).<br>• In the event of a spill, appropriate containment, clean up and disposal of contaminated material. Spills to be cleaned within 24 hours or sooner (depending on the nature of the spill). |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The Contractor shall develop a method statement for the storage and handling of hazardous substances.<br>• Hazardous substances shall be stored and handled in accordance with the appropriate legislation and standards, which include the Hazardous Substances Act (Act No. 15 of 1973), Occupational Health and Safety Act (Act No. 85 of 1993), relevant associated Regulations and applicable SANS and international standards.<br>• Storage and use of hazardous materials will be strictly controlled to prevent environmental contamination and will adhere to the requirements stipulated on the SDS.<br>• SDS, which contain the necessary information pertaining to a specific hazardous substance, shall be present for all hazardous materials stored on the site.<br>• All storage tanks containing hazardous materials must be placed in bunded containment areas with impermeable surfaces. The bunded area must be able to contain 110% of the total volume of the stored hazardous material. | • Contractor to implement management actions.<br>• Engineer to approve method statement.<br>• EO and ECO - to monitor compliance. | • Period during which hazardous materials are stored and handled on site. | • Approved method statement.<br>• Evidence of spillages and appropriate reporting and remedial measures.<br>• SDS register.<br>• Training register.<br>• Inspection of project area (photographic records). | • Once-off – method statement approval.<br>• Monthly – compliance with management actions.<br>• Immediately after an incident (inspection and rectification). |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Provide sufficient and suitable sanitation facilities during construction and operational phases, which shall conform to all relevant health and safety standards and codes.<br>• Manage batching areas to prevent runoff. Collect and neutralise wash water.<br>• In the event of spillages of hazardous substances, the appropriate clean up and disposal measures shall be implemented.<br>• Use biodegradable cleaning products where possible. Water used for cleaning will not contain any harmful chemicals or additives.<br>• Ensure adequate storage of explosives, if blasting will be required, in accordance with legal requirements.<br>• Record the details and quantities of hazardous and flammable substances on the construction site.<br>• Appropriate signage shall be displayed at storage areas for hazardous substances.<br>• Where flammable liquids are being used, applied or stored the workplace will be effectively ventilated.<br>• No person shall smoke in any place in which flammable liquid is used or stored.<br>• Install an adequate number of fire-fighting equipment in suitable locations around the flammable liquids store.<br>• Where flammable liquids are decanted, the metal containers shall be bonded or earthed.<br>• No flammable material (e.g. paper, cleaning rags or similar material) shall be stored together with flammable liquids. | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Staff that will be handling hazardous materials will be trained to do so.<br>• Any hazardous materials (apart from fuel) shall be stored within a lockable store with a sealed floor. Suitable ventilation shall be provided.<br>• Spill kits will be available for the clean-up of hazardous material spillages.<br>• Drip trays shall be placed under parked heavy vehicles, equipment and other receptacles of hazardous material to prevent spillages.<br>• Spill reporting procedures shall be displayed at all locations where hazardous substances are being stored.<br>• Hazardous materials will be disposed of at registered sites or handed to registered hazardous waste disposal facilities for disposal / recycling. Proof of adequate disposal shall be provided.<br>• Proper and timeous notification will be undertaken of any pollution incidents associated with hazardous materials. Any major incidents to be reported to DFFE, as per the requirements of Section 30 of NEMA. | | | | |

### 13.2.21 Management of Waste

| | |
|---|---|
| **Management Objectives** | • Minimise negative environmental impacts associated with waste.<br>• Apply waste management principles to prevent, minimise, recycle or re-use material, with disposal as a last option. |
| **Targets** | • Maintain a clean and tidy construction site.<br>• A 100% record of all waste generated and disposed of at licenced waste disposal facilities.<br>• Valid disposal certificates for all waste disposed.<br>• Provision of adequate waste containers that are easily accessible and maintained.<br>• Waste bins to be removed and cleaned weekly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The Contractor shall develop a method statement for managing waste.<br>• Waste management activities shall comply with the National Environmental Management: Waste Act (Act No. 59 of 2008).<br>• The storage of general or hazardous waste in a waste storage facility shall comply with the norms and standards in GN No. R. 926 of 29 November 2013.<br>• Vermin / weatherproof bins shall be provided in sufficient numbers and capacity to store domestic waste. These bins shall be kept closed to reduce odour build-up and emptied regularly to avoid overfilling and other associated nuisances.<br>• Segregate recyclables. Where possible, waste shall be separated at source (e.g. containers for glass, paper, metals, plastics, organic waste and hazardous wastes).<br>• Establish and monitor recycling targets.<br>• Provide waste skips at the construction areas. These skips shall be sufficient in number, the skip storage | • Contractor to implement management actions.<br>• Engineer to approve method statement.<br>• EO and ECO - to monitor compliance. | • Throughout the duration of the construction period. | • Approved method statement.<br>• Waste register.<br>• Recycling targets.<br>• Disposal certificates.<br>• Inspection of project area (photographic records). | • Once-off – method statement approval.<br>• Monthly – compliance with management actions. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| area shall be kept clean, and skips shall be emptied and replaced before overflowing or spillage occurs.<br>• Ensure suitable housekeeping.<br>• The Contractor shall ensure that no burying, dumping or burning of waste materials, vegetation, litter or refuse occurs.<br>• All waste will be disposed of at suitable licensed disposal sites, based on the waste type (general versus hazardous).<br>• Wastewater to be properly disposed of. Contaminated water will not be discharged to the environment.<br>• Ensure that waste is transported so as to avoid waste spills *en route*.<br>• Maintain records of all waste that is disposed of. | | | | |

### 13.2.22 Management of Workshop and Equipment

| | |
|---|---|
| **Management Objectives** | • Minimise environmental impacts associated with workshops and equipment use. |
| **Targets** | • No environmental contamination associated with workshops and equipment use. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Maintenance of equipment and vehicles will be performed in such a manner so as to avoid any environmental contamination (e.g. use of drip trays). | • Contractor to implement management actions. | • Period from when the workshop is | • Inspection of workshop and equipment | • Monthly |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • No washing of plant may occur on the construction site. Plant to be washed in dedicated areas.<br>• Drip trays will be provided for the stationary plant and for the "parked" plant.<br>• All vehicles and equipment shall be kept in good working order and serviced regularly. Leaking equipment will be repaired immediately or removed from the site.<br>• Suitable storage and disposal of hydraulic fluids and other vehicle oils.<br>• All wastewater discharges from the workshop shall comply with the NWA. | • EO and ECO - to monitor compliance. | created up to de-establishment.<br>• Period during which equipment is utilised. | (photographic records) | |

### 13.2.23 Management of Pollution Generation Potential

| | |
|---|---|
| **Management Objectives** | • Ensure that all possible causes of pollution are mitigated as far as possible to minimise impacts to the surrounding environment. |
| **Targets** | • No verified complaints regarding pollution.<br>• No measurable signs of pollution.<br>• Dust fallout and noise levels to adhere to relevant standards.<br>• Water quality – construction activities may not cause an adverse impact that results in more than a 10% change in baseline values.<br>• All water discharges to comply with legal requirements associated with the NWA, including GN No. 399. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Noise –<br>o The provisions of SANS 10103:2008 will apply to all areas within audible distance of residents.<br>o Working hours to be agreed upon with PM, so as to minimise disturbance to landowners/occupiers and community members.<br>o Use well-maintained equipment and employ noise preventative measures (e.g., screening, muffling, timing, pre-notification of affected parties) to be employed.<br>o Notify nearby residents and stakeholders before blasting or piling.<br>o No amplified music will be allowed on the site. The use of radios, tape recorders, compact disc players, television sets etc. will not be permitted unless at a level that does not serve as an intrusion to adjacent landowners.<br>• Dust –<br>o Implement dust suppression measures in active work areas and on exposed surfaces where dust generation occurs.<br>o Limit unnecessary disturbance of exposed areas and keep construction footprints to the minimum required.<br>o Ensure construction vehicles and equipment operate in a manner that minimises dust generation on site roads and disturbed areas.<br>o Investigate and address air quality complaints associated with dust generation<br>o Speed limits to be strictly adhered to. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Throughout the duration of the construction period. | • Evidence of pollution.<br>• Review periodic results from environmental monitoring.<br>• Inspection of project area (photographic records).<br>• Complaints register.<br>• Corrective action records. | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ All vehicles and machinery used at the site are to be in good working condition and fitted with appropriate emission controls.<br>• Lights –<br>○ Prior to construction the position and type of lighting will be planned to ensure that unnecessary light pollution will be eliminated.<br>○ All lighting installed on site must not lead to unacceptable light pollution to the surrounding community and natural environment (e.g. use of down-lighters).<br>• Cement –<br>○ Cement mixing shall take place on an impervious surface (e.g. cement mixing pit).<br>○ Waste concrete and cement sludge shall be removed on a regular basis (prevent overflowing) and shall be disposed of at a suitable facility.<br>○ Unused cement bags will be stored in an area not exposed to the weather and packed neatly to prevent leakage of cement.<br>○ Used cement bags will be stored so as to prevent windblown dust and potential water contamination. Used bags will be disposed of adequately at a licenced waste disposal facility.<br>○ Concrete transportation will not result in spillage.<br>○ Cleaning of equipment and flushing of mixers will not result in pollution, with all contaminated wash water entering the waste water collection system.<br>○ To prevent spillage onto roads, ready mix trucks will rinse off the delivery shoot into a suitable sump prior to leaving the site. | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Suitable screening and containment will be in place to prevent windblown contamination from cement storage, mixing, loading and batching operations.<br>○ All visible remains of excess concrete will be physically removed on completion of the plastering or concrete pouring and disposed of in an acceptable manner. | | | | |

### 13.2.24 Management of Terrestrial and Freshwater Biodiversity

| | |
|---|---|
| **Management Objectives** | • Maintain the integrity of remaining natural terrestrial habitats adjacent to the site.<br>• Prevent re-establishment and spread of invasive alien plants.<br>• Manage impacts to protected flora and fauna species that may be encountered within the construction domain.<br>• Control invasive alien plants and noxious weeds. |
| **Targets** | • No further clearing or disturbance beyond the authorised footprint.<br>• No unpermitted disturbance to protected flora and fauna species.<br>• No recorded faunal mortalities associated with infrastructure. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The following mitigation measures are derived from the Freshwater Ecosystem Assessment:<br>○ All development footprint areas must be minimised as far as practicable, with disturbance limited strictly to the authorised wetland infilling areas and associated infrastructure footprint. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • From pre-construction phase up to end of defects liability period (as relevant for specific | • Pre-construction survey report.<br>• Inspection of project area (photographic records). | • Monthly |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ The boundaries of all footprint areas, including construction and laydown areas, must be clearly demarcated prior to construction, and all activities must remain within these defined areas to prevent unnecessary disturbance to adjacent, non-impacted portions of the wetland and surrounding environment. Edge effects must be carefully managed and contained.<br>○ Appropriate sanitary facilities must be provided for the duration of the construction phase, with all waste collected and disposed of at a licensed waste disposal facility.<br>○ All hazardous substances and stockpiles must be stored on bunded surfaces, with adequate measures implemented to contain and control runoff from these areas.<br>○ All hazardous storage containers and storage areas must comply with relevant SANS standards to prevent leaks and spills.<br>○ No open fires shall be permitted within or in close proximity to the construction area.<br>○ Sufficient waste receptacles and spill kits must be provided on-site to ensure effective waste management and rapid response to accidental spills.<br>○ Vehicle access:<br>▪ All vehicles must be regularly inspected for leaks. Re-fuelling must take place on a sealed surface area to prevent ingress of hydrocarbons into the topsoil. | • Specialist – monitoring. | management actions). | • Encroachment of invasive alien plants and noxious weeds.<br>• Successful rehabilitation.<br>• Approved fire management plan.<br>• Approved Invasive Alien Plant Control Programme. | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ▪ In the event of a vehicle breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practiced near the surface area to prevent ingress of hydrocarbons into topsoil and subsequent habitat loss.<br>▪ All spills should they occur, should be immediately cleaned up and treated accordingly.<br>o Vegetation:<br>▪ The proliferation of alien and invasive plant species is anticipated within disturbed areas associated with the proposed development. Although current levels of invasion are not considered severe, the vegetation within the freshwater ecosystem is already transformed, creating conditions conducive to further invasion. Alien invasive species are highly opportunistic and are likely to establish and spread in response to disturbance; therefore, these species must be actively controlled and eradicated to prevent their spread beyond the authorised project footprint. In addition, the potential for seed dispersal from the upper soil layers within disturbed footprint areas must be managed, as this may negatively affect future rehabilitation success.<br>▪ The removal and control of alien and weed species must be undertaken in compliance with applicable legislation, including the Conservation of Agricultural Resources Act | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| (Act No. 43 of 1983), and the duty of care provisions outlined in Section 28 of NEMA.<br>▪ Eradication efforts must be implemented in a manner that minimises additional disturbance, with footprint areas kept as small as practicable during clearing activities. Access by vehicles within designated sensitive freshwater ecosystem areas must be strictly prohibited during alien and weed eradication to prevent further degradation and the spread of invasive species.<br>o Soils:<br>▪ The establishment and maintenance of indigenous vegetation within and adjacent to disturbed areas should be promoted as far as practicable, in order to stabilise soils, reduce erosion, and minimise runoff and sediment transport into adjacent freshwater systems.<br>▪ Regular monitoring of the development footprint must be undertaken to assess the extent of soil disturbance and sedimentation, enabling the implementation of appropriate adaptive management measures where required.<br>• The following mitigation measures are derived from the Terrestrial Biodiversity Assessment, Floral Assessment and Faunal Assessment:<br>o Restrict all project infrastructure and activities to the approved development footprint and clearly demarcate construction areas, no-go areas, | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| sensitive habitats, access roads, laydown areas and stockpile areas prior to construction.<br>o Optimise the project layout to minimise vegetation loss, habitat disturbance and the need for new access roads, using existing roads where practicable.<br>o Ensure all contractors receive environmental inductions covering biodiversity sensitivities, permit requirements and no-go areas.<br>o Prepare and obtain approval for method statements relating to vegetation clearing, site establishment, earthworks, topsoil handling and rehabilitation prior to construction.<br>o Undertake a pre-construction ecological walkdown to verify sensitive habitats and the presence of protected or threatened species within the development footprint.<br>o Obtain all required permits prior to disturbing protected plant species or undertaking species rescue and relocation.<br>o Implement search, rescue and relocation of protected plant species and fauna where required, under the supervision of suitably qualified specialists and in accordance with permit conditions.<br>o Prepare and implement Topsoil Management, Rehabilitation, Erosion and Sediment Control, Stormwater Management and Alien and Invasive Plant (AIP) Management Plans prior to construction. | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Restrict vegetation clearing, vehicle movement, stockpiling, material storage and all construction activities to the approved development footprint and designated access routes.<br>○ Undertake phased vegetation clearing, where practicable, to allow fauna to disperse and to facilitate identification and rescue of protected species.<br>○ Prevent unauthorised access, disturbance and the creation of informal roads or tracks into adjacent natural areas.<br>○ Prohibit the collection, hunting, trapping, persecution or intentional killing of wildlife, as well as the removal or damage of indigenous vegetation.<br>○ If Species of Conservation Concern (SCC) are encountered, cease work in the immediate area and consult a suitably qualified specialist before continuing.<br>○ Relocate reptiles, amphibians and other fauna encountered during construction where safe and appropriate.<br>○ Implement effective stormwater, erosion and sediment control measures to prevent habitat degradation, erosion, sedimentation and altered drainage patterns.<br>○ Strip, stockpile, protect and reuse topsoil to facilitate rehabilitation.<br>○ Stabilise and rehabilitate disturbed areas as soon as practicable using indigenous vegetation, | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| including areas disturbed outside the approved footprint.<br>o Implement active monitoring and control of alien and invasive plant species throughout construction and clean vehicles and equipment where necessary to prevent their spread.<br>o Minimise dust emissions and prevent pollution through appropriate housekeeping, spill prevention and immediate clean-up of hydrocarbon, chemical and cement spills.<br>o Dispose of construction rubble, cleared vegetation and waste at authorised disposal facilities only.<br>o Prohibit uncontrolled fires on site.<br>o Design and manage external lighting to minimise impacts on nocturnal fauna.<br>o Where practicable, schedule vegetation clearing outside peak faunal breeding periods. | | | | |
| • *See requirements for Management of Waste, Management of Water, Management of Ablution Facilities, Management of Storage and Handling of Non-Hazardous and Hazardous Material, and Management of Workshop and Equipment.* | | | | |

### 13.2.25 Management of Heritage and Palaeontological Features

| | |
|---|---|
| **Management Objectives** | • Comply with legislative requirements with regards to archaeological, palaeontological, cultural resources and graves.<br>• Preserve and appropriately manage new discoveries made during construction, in accordance with the National Heritage Resources Act (Act No. 25 of 1999) (NHRA). |
| **Targets** | • No archaeological, palaeontological, cultural resources or graves to be damaged during construction. |

| **Management Actions** | **Responsibilities** | **Implementation Timeframe** | **Monitoring Requirements** | |
|---|---|---|---|---|
| | | | **Evidence** | **Frequency** |
| • Include an information section on cultural resources in the Environmental Training given to contractors involved in surface earthmoving activities.<br>• The KZN Amafa and Research Institute should be contacted if any heritage objects are identified during earth-moving activities and all development should cease until further notice.<br>• No structures older than sixty years or parts thereof are allowed to be demolished, altered, or extended without a permit from the KZN Amafa and Research Institute.<br>• Under no circumstances may any heritage material be destroyed, inundated, collected, or removed from site unless under direction of the KZN Amafa Research Institute and a heritage specialist.<br>• Should any remains be found on site that is potentially human remains, the South African Police Service (SAPS) should also be contacted. No SAPS official may disturb or exhume such remains, without the necessary permission from the KZN Amafa and Research Institute.<br>• Sources of all-natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt, etc.) | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance.<br>• Heritage specialists - chance finds. | • From pre-construction and throughout the duration of the construction period. | • Pre-construction survey report.<br>• Records of chance finds.<br>• Permits on record (if required).<br>• Inspection of barricading and visible signage (photographic records).<br>• Visual inspections (photographic records).<br>• Proof of training. | • Monthly / when chance finds occur. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| must be obtained in a sustainable manner and in compliance with the heritage legislation.<br>• Failure to comply with the requirements of the National Heritage Resources Act and the KZN Amafa and Research Institute Act could lead to legal action being instituted against the applicant.<br>• If significant fossil remains or trace fossils are discovered during construction, either on the surface or exposed by excavations, a Chance Finds Procedure be implemented. | | | | |

### 13.2.26 Management of Emergency Procedures

| | |
|---|---|
| **Management Objectives** | • Minimise environmental impacts associated with emergency procedures. |
| **Targets** | • Approved emergency response procedure.<br>• No site fires to be caused by construction activities and workers. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Adhere to the Emergency Response and Action Plan (ERAP) contained in Appendix A.<br>• The Contractor shall compile a detailed Emergency Response Plan for the construction phase.<br>• Fire – | • Contractor to implement management actions.<br>• PM to approve Emergency Response Plan. | • Throughout the duration of the construction period. | • Approved Contractor's Emergency Response Plan.<br>• Signage displayed. | • Once-off – Emergency Response Plan approval.<br>• Monthly – compliance with |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Comply with the National Veld and Forest Fire Act (No. 101 of 1998) and National Veld and Forest Fire Bill (B122B of 1998).<br>○ All contact details of the local fire brigade to list of emergency telephone numbers.<br>○ Proper emergency response procedure shall be in place for dealing with fires.<br>○ Burning of waste is not permitted.<br>○ Suitable precautions shall be taken (e.g. suitable fire extinguishers, water bowsers, welding curtains) when working with welding or grinding equipment.<br>○ All fire control mechanisms (fire-fighting equipment) shall be routinely inspected by a qualified investigator for efficacy thereof and shall be approved by local fire services.<br>○ All staff on site shall be made aware of general fire prevention and control methods, and the name of the responsible person to alert to the presence of a fire.<br>○ No fires are allowed on site.<br>○ Firebreaks shall be made for the construction area, as per requirements of the RBIDZ.<br>○ Dedicated smoking areas to be provided.<br>• Accidental Leaks and Spillages –<br>○ Proper emergency response procedure shall be in place for dealing with spills and leaks.<br>○ Ensure that the necessary materials and equipment for dealing with spills and leaks are available on site, where practicable. | • EO and ECO - to monitor compliance. | | • Incident Register and Report.<br>• Inspection of project area (photographic records). | management actions. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Remediation of the spill areas shall be undertaken to the satisfaction of the EO or PM.<br>○ In the event of a hydrocarbon spill, the source of the spillage shall be isolated and contained. The area shall be cordoned off and secured. The Contractor shall ensure that there is always appropriate absorbent material readily available to absorb, breakdown and where possible, encapsulate minor hydrocarbon spillages.<br>○ All staff on site shall be made aware of actions to be taken in case of a spillage.<br>○ Provide contact details of person and emergency services to be notified in a case of spillages – signage to be displayed at strategic points within the construction area (e.g. workshop, fuel storage area, hazardous material containers).<br>○ All major incidents (i.e. uncontrolled release of a hazardous substance, including from a major emission, fire or explosion, that causes, has caused or may cause significant harm to the environment, human life or property) to be reported to DFFE and/or other relevant authorities. | | | | |

### 13.2.27 Management of Blasting (if required)

| | |
|---|---|
| **Management Objectives** | • Minimise environmental impacts associated with blasting. |
| **Targets** | • Compliance with blasting-related legislation and standards.<br>• No blasting-related impacts to private property or human health. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Prior to commencing with blasting activities, the blasting Contractor should submit a Method Statement which should comply with the Explosives Regulations (2003) and all relevant SANS standards and health and safety standards for mitigating blasting.<br>• Conduct pre-blast surveys of nearby structures.<br>• The Contractor shall employ industry standard methods to control the impact of blasting and limit the risk of damage to buildings and structures by reducing blast vibrations induced in the rock mass, eliminating fly rock and limiting air-blast and noise to acceptable levels.<br>• Provide notification in advance of blasting schedules.<br>• Blast mats should be used wherever fly-rock may result in damage to any infrastructure or where it could result in any harm.<br>• Blasting operations should be controlled to ensure sound pressure levels are kept below the generally accepted 'no damage' level.<br>• All explosives shall be transported, stored and handled in accordance with applicable laws and good design engineering and constructions practices.<br>• Blasting operations are to be strictly controlled with regard to the size of explosive charge in order to | • Contractor to implement management actions.<br>• Contractor's Safety Officer and ECO - to monitor compliance.<br>• Client / Safety Agent to audit Contractor in terms of OHS requirements | • Prior to, during and after blasting events. | • Approved Health and Safety Plan.<br>• Signage displayed.<br>• Incident Register and Report.<br>• Inspection of project area (photographic records). | • Once-off – Health and Safety Plan approval.<br>• Monthly – compliance with management actions. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| minimise noise and air blast, and timings of explosions. The number of blasts per day should be limited, blasting should be undertaken at the same times each day and no blasting should be allowed at night.<br>• Maintain minimum buffer distances from sensitive receptors.<br>• Undertake monitoring at sensitive locations.<br>• Conduct post-blast inspections. | | | | |

### 13.2.28 Management of Socio-Economic Impacts

| | |
|---|---|
| **Management Objectives** | • Minimise adverse impacts to surrounding businesses and communities.<br>• Maximise job creation and promote local economic participation during construction.<br>• Prevent safety incidents or health risks to surrounding communities. |
| **Targets** | • Employment targets to be specified.<br>• Employment records reflect local participation.<br>• Zero public injury or incident related to project activities. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The following mitigation measures are derived from the Socio-Economic Impact Assessment:<br>o Prioritise local procurement for direct construction activities as well as for support services where feasible. | • Contractor to implement management actions.<br>• SO – manage stakeholder relations and the GRM. | • From pre-construction and throughout the duration of the construction period. | • Incident Register and Report.<br>• Inspection of project area (photographic records). | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Where feasible, encourage main contractors to sub-contract to local businesses for construction goods and services required.<br>○ Prioritise local hiring as far as possible especially from nearby settlements within Richards Bay and Empangeni and surrounding township areas.<br>○ Maintain ongoing communication with affected businesses and stakeholders, providing advance notice of any road works, noise, lane closures or abnormal load movements.<br>○ Engage regularly with local communities and stakeholders to communicate employment opportunities and requirements.<br>○ Enforce access control at the site to discourage unauthorised job-seeking presence.<br>○ Implement a transparent and well-communicated recruitment process to manage expectations and reduce perceptions of unfairness.<br>• The following mitigation measures are derived from the Social Impact Assessment:<br>○ Early consultation between the project authorities, adjacent landowners, tenants and other relevant stakeholders must take place to allow sufficient time before construction activity commences.<br>○ Public declaration outlining their governance frameworks and ethical values.<br>○ Clear, competitive bidding procedures should be used for contracting and procurement in order to avoid inappropriate influence.<br>○ Avoid overstating economic benefits.<br>○ Provide a transparent job assessment. | • Client / Safety Agent to audit Contractor in terms of OHS requirements | | • Employment records.<br>• Skills training attendance records.<br>• Documented GRM.<br>• Proof of communication.<br>• Related entries into Public Complaints Register. | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Prioritise local hiring for project-related jobs. Create specific programmes to train and upskill local residents.<br>○ Encourage local businesses to participate in the project by sourcing equipment, materials, and services locally.<br>○ Make provisions for a Community Liaison Officer.<br>○ Conduct a legal and regulatory compliance assessment to identify all applicable municipal by-laws.<br>○ Implement a local hiring policy and monitor local employment targets.<br>○ Collaborate with training institutions to upskill local labour.<br>○ Establish transparent recruitment procedures and maintain skilled and unskilled labour databases.<br>○ Promote local economic participation through the use of local suppliers and contractors.<br>○ Establish a Community Liaison Officer and Project Steering Committee.<br>○ Restrict construction activities to appropriate working hours.<br>○ Develop traffic management measures, including designated routes, warning signage and stakeholder communication regarding disruptions.<br>○ Implement site security measures, including security personnel, surveillance systems and regular security audits.<br>○ Develop and implement a construction waste management plan, including waste minimisation, recycling and appropriate disposal practices. | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • *See requirements for Stakeholder Communication, Management of Security, and Management of Pollution Generation Potential.* | | | | |

### 13.2.29 Management of Health and Safety

| | |
|---|---|
| **Management Objectives** | • Provide a safe working environment to construction workers and the public. |
| **Targets** | • Approved Health and Safety Plan.<br>• No incidents.<br>• Compliance with the OHS Act (Act No. 85 of 1993), Construction Regulations (2014) and other relevant regulations. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Dedicated OHS system to be implemented by the Contractor.<br>• The Contractor shall compile a Health and Safety Plan, prepared in accordance with the Health and Safety Specification, for approval prior to the commencement of work. These requirements are aligned with the Construction Regulations (2014).<br>• Undertake a hazard identification and risk assessment and identify preventive measures and safe work procedures.<br>• Fencing and barriers will be in place in accordance with the OHS Act (Act No. 85 of 1993). | • Contractor to implement management actions.<br>• Contractor's Safety Officer and ECO - to monitor compliance.<br>• Client / Safety Agent to audit Contractor in terms of OHS requirements | • From pre-construction and throughout the duration of the construction period. | • Approved Health and Safety Plan.<br>• Signage displayed.<br>• Incident Register and Report.<br>• Inspection of project area (photographic records). | • Once-off – Health and Safety Plan approval.<br>• Monthly – compliance with management actions. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Applicable notice boards and hazard warning notices will be put in place and secured.<br>• Night hazards will be suitably indicated (e.g. reflectors, lighting and traffic signage).<br>• Emergency contact details will be prominently displayed.<br>• All construction personnel shall be clearly identifiable. All employees will also be issued with employee cards for identification purposes.<br>• All workers will be supplied with the required Personal Protective Equipment (PPE) as per the OHS Act (Act No. 85 of 1993).<br>• Maintain access control to prevent access of the public to the construction areas.<br>• The Contractor shall establish HIV/AIDs awareness programmes at the construction camp.<br>• Put in place a monitoring system to monitor health risks throughout the life of the project.<br>• Conduct basic safety awareness training with construction workers.<br>• Provide potable water and sanitation services to workers.<br>• Ensure adequate control of communicable diseases.<br>• The following mitigation measures are derived from the Community Health Impact Assessment:<br>o Develop and implement a Project Health Management Plan, including occupational health, emergency response and community health management. | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Undertake hazardous chemical risk assessments and maintain an up-to-date chemical inventory and SDS.<br>○ Store fuels, oils and hazardous chemicals in secure, bunded and clearly labelled storage areas, and maintain appropriate spill response equipment.<br>○ Maintain on-site first aid facilities, occupational health services and emergency medical response procedures, and establish referral arrangements with local healthcare facilities.<br>○ Coordinate emergency response procedures with local emergency services, fire services and healthcare providers, and conduct regular emergency drills.<br>○ Implement occupational hygiene monitoring for noise, heat stress, dust, fumes and chemical exposure, and provide appropriate medical surveillance and hearing conservation programmes where required.<br>○ Implement air quality and noise mitigation measures in accordance with the Air Quality Impact Assessment, AEL and relevant specialist recommendations.<br>○ Include hazardous materials handling, emergency response, community conduct, Gender-Based Violence (GBV), harassment, substance abuse and health awareness training in worker inductions and toolbox talks.<br>○ Develop and implement a transparent local employment and procurement plan that promotes | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| local employment, local suppliers, skills development and equitable recruitment.<br>o Establish and maintain an accessible GRM for workers and affected communities, and monitor grievances and community concerns.<br>o Implement a Worker Code of Conduct and manage worker accommodation to minimise impacts on surrounding communities.<br>o Engage local authorities, community leaders, healthcare providers and recognised community structures throughout construction.<br>o Provide culturally appropriate health communication (including isiZulu and English where appropriate) and encourage early referral of workers and community members with potentially serious health symptoms to local healthcare facilities.<br>o Monitor occupational health incidents, community health complaints, environmental health complaints and referral patterns, and implement corrective actions where required. | | | | |

### 13.2.30 Management of Reinstatement and Rehabilitation

| | |
|---|---|
| **Management Objectives** | • Adequate reinstatement and rehabilitation of construction area (outside permanent development footprint). |
| **Targets** | • Complete site clean-up.<br>• Reinstate and rehabilitate all areas disturbed by construction activities. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The areas affected by construction activities, which will not form part of the development footprint shall be reinstated and rehabilitated.<br>• Cordon off areas that are under rehabilitation as no-go areas.<br>• Removal of structures and infrastructure -<br>o Clear and completely remove from site all construction plant, equipment, storage containers, temporary fencing, temporary services and fixtures.<br>o Rehabilitate all temporary access roads utilised during construction which are not earmarked for use during the operational phase, and do not form part of the development footprint.<br>• Inert waste and rubble -<br>o Clear the site of all inert waste and rubble, including spoil material, surplus rock, foundations and batching plant aggregates. After the material has been removed, the site shall be re-instated and rehabilitated.<br>• Domestic waste -<br>o Remove from site all domestic waste and dispose of in the approved manner at a licenced waste disposal site.<br>• Hazardous waste and pollution control -<br>o Remove from site all pollution containment structures.<br>o Remove from site all temporary sanitary infrastructure and waste water disposal systems. Take care to avoid leaks, overflows and spills and dispose of any waste in the approved manner. | • Contractor to implement management actions.<br>• EO and ECO - to monitor compliance. | • Throughout the duration of the construction period up to end of defects liability period. | • Inspection of project area (photographic records). | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Final shaping -<br>  ○ Make safe all excavations by backfilling and grading, as required.<br>  ○ Monitor backfilled areas for subsidence (as the backfill settles) and fill depressions using available material.<br>  ○ Ensure that no excavated material or stockpiles are left on site and that all material remaining after backfill is landscaped to blend in with the surrounding landscape.<br>• Topsoil replacement and soil amelioration -<br>  ○ Execute top soiling activity prior to the rainy season or any expected wet weather conditions.<br>  ○ Execute topsoil placement only after all construction work has ceased.<br>  ○ Replace topsoil to the original depth.<br>  ○ Place topsoil in the same area from where it was stripped.<br>  ○ Do not use topsoil suspected to be contaminated with the seed of alien vegetation. Alternatively, the soil is to be appropriately treated.<br>  ○ Ensure that stormwater run-off is not channelled alongside the gentle mounding, but that it is taken diagonally across it.<br>  ○ Shape remaining stockpiled topsoil not utilised elsewhere in an acceptable manner so as to blend in with the local surrounding area.<br>  ○ After topsoil placement is complete, spread available stripped vegetation randomly by hand over the top-soiled area.<br>• Ripping and scarifying - | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Rip and/or scarify all areas following the application of topsoil to facilitate mixing of the upper most layers. Whether ripping and/or scarifying is necessary it will be based on the site conditions immediately before these works commence.<br>○ Rip and/or scarify all disturbed (and other specified) areas of the construction site, including temporary access routes and roads, compacted during the execution of the works.<br>○ Rip and/or scarify along the contour to prevent the creation of down-slope channels.<br>○ Do not rip and/or scarify areas under wet conditions, as the soil will not break up.<br>• Planting -<br>○ All plant species for use by the project must be reviewed and approved by qualified specialists prior to use on site.<br>○ Revegetation must match the vegetation type which previously existed, unless otherwise indicated by a suitable specialist.<br>○ Although the use of indigenous vegetation is promoted, where there is a risk of soil erosion (e.g. steep slopes) a suitable specialist must be consulted to determine the most appropriate stabilisation measures.<br>○ All planting work is to be undertaken by suitably experienced personnel, making use of the appropriate equipment.<br>○ After planting, each plant must be well watered, adding more soil upon settlement if necessary. | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Grassing -<br>  ○ Suitably trained personnel must undertake grassing by making use of the appropriate equipment and indigenous grass species, as specified by the qualified specialists.<br>  ○ Sodding may be done at any time of the year, but seeding must be done by sowing appropriate seed mixtures at the most suitable time under the guidance of a qualified specialist. | | | | |

## 13.3 Operational Phase

Where relevant, all management actions are to be carried forward from the construction phase to the operational phase. Specific management measures for the operational phase follow below.

### 13.3.1 Management of Climate Change Impacts

| | |
|---|---|
| **Management Objectives** | • Reduce the Project's contribution to climate change by minimising GHG emissions during operation, as far as practicable.<br>• Maintain efficient operation of the CCGT plant and associated auxiliary systems to minimise fuel use and emissions per unit of electricity generated.<br>• Manage fugitive methane emissions from gas handling and associated infrastructure through inspection, maintenance and leak detection controls.<br>• Enhance the Project's resilience to climate-related physical risks. |
| **Targets** | • Plant efficiency, energy efficiency and emissions management measures are incorporated into detailed design and operational procedures.<br>• Inspection, maintenance and performance optimisation of turbines, heat recovery systems and auxiliary equipment are implemented during operation.<br>• Leak inspection procedures are implemented for relevant gas handling infrastructure.<br>• Stormwater, erosion control, corrosion protection, water efficiency and emergency preparedness measures are incorporated to operational management systems.<br>• Operational emissions are monitored and reported in accordance with applicable regulatory requirements and internal management procedures. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The following mitigation measures are derived from the Climate Change Impact Assessment:<br>  ○ The following measures are aimed at limiting the Project's emissions within the scope of influence of | • Operator to implement management actions.<br>• EHS Manager - to monitor compliance. | • Operational Phase. | • As-built drawings.<br>• Performance test reports. | • As per conditions of AEL or other regulatory requirements. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| a gas-fired CCPP, with emphasis on operational efficiency –<br>▪ Optimise plant efficiency through combined cycle operation, appropriate turbine selection, and operational controls to minimise fuel use and emissions per unit of electricity generated.<br>▪ Maintain regular inspection, maintenance, and performance optimisation of turbines, heat recovery systems, and auxiliary equipment to ensure sustained operational efficiency and minimise emissions over the plant lifecycle.<br>▪ Implement leak detection and repair (LDAR) programmes to identify and minimise fugitive methane emissions from gas handling and associated infrastructure.<br>▪ Maintain transparent monitoring and reporting of operational emissions, to support ongoing emissions management and regulatory reporting requirements.<br>○ The following measures are recommended to enhance the Project's resilience to identified physical climate risks –<br>▪ Integrate climate-related risks (e.g., intense rainfall, flooding, heatwaves, infrastructure failure) into emergency preparedness and response planning, ensuring that response systems remain functional under extreme conditions and align with plant safety requirements.<br>▪ Engage with RBIDZ management and relevant authorities to ensure alignment of | • Climate Change Specialist to assist, where necessary. | | • Preventive maintenance schedule.<br>• Inspection records.<br>• Performance monitoring records.<br>• Corrective action records.<br>• GHG inventory.<br>• Fuel use records.<br>• Emissions calculations.<br>• Bulk service confirmation.<br>• Water balance and water use monitoring records.<br>• Regulatory submissions where required.<br>• Post-event assessment reports following major rainfall or flood events.<br>• ERAP. | • As per OEM requirements and plant maintenance schedule. Review at least annually.<br>• As per LDAR procedure; frequency to be defined before operation and reviewed annually.<br>• Operational checks as per Stormwater Management Plan.<br>• After major flood / extreme weather event: Within 7 days. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| stormwater management, infrastructure resilience, and emergency response systems across the broader industrial zone. | | | | |

### 13.3.2 Management of Air Quality

| | |
|---|---|
| **Management Objectives** | • Ensure compliance with AEL and Minimum Emission Standards (MES).<br>• Minimise emissions of $SO_2$, NOx, Particulate Matter and CO during operation.<br>• Protect surrounding receptors from air quality impacts. |
| **Targets** | • The facility complies with AEL and MES requirements.<br>• Atmospheric emissions remain within authorised limits.<br>• No material deterioration in local ambient air quality attributable to the Project. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Operate the plant in accordance with the approved design, AEL and applicable MES.<br>• Maintain combustion turbines, HRSGs and associated equipment in accordance with manufacturer specifications to ensure efficient combustion and minimise emissions.<br>• Implement and maintain the selected NOx emissions control technology, where required, to ensure compliance with emission requirements.<br>• Undertake atmospheric emissions monitoring and reporting as required by the AEL and applicable legal requirements. | • Operator to implement management actions.<br>• EHS Manager - to monitor compliance.<br>• Air Quality Specialist to undertake monitoring. | • Operational Phase. | • Operational procedures.<br>• Compliance records.<br>• Maintenance records.<br>• Service reports.<br>• Equipment specifications.<br>• Performance records. | • Continuous for operational requirements.<br>• As per AEL. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Connect each stack to a Continuous Emissions Monitoring Station (CEMS) for continuous emissions monitoring.<br>• Install gas sensors/detectors around the gas-handling equipment to detect small leaks, including potential valve gland leaks.<br>• Maintain records of operational performance and emissions to demonstrate compliance.<br>• Investigate operational incidents or exceedances that may result in elevated emissions and implement corrective actions. | | | • Emissions monitoring reports and regulatory submissions.<br>• Incident reports and corrective action records. | |

### 13.3.3 Management of Plant Hazards

| | |
|---|---|
| **Management Objectives** | • Verify implementation HAZOP and MHI risk reduction measures.<br>• Prevent loss of primary containment from storage tanks, vaporisers, and pipelines. |
| **Targets** | • 100% operational systems for detecting and controlling hazards.<br>• 100% capacity maintenance of bund walls for hazardous storage areas.<br>• Zero uncontained spills or releases entering the surrounding environment. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Adhere to the Emergency Response and Action Plan (ERAP) contained in Appendix A.<br>• The following mitigation measures are derived from the Quantitative Risk Assessment:<br>  ○ Natural gas pipeline installation - | • Operator to implement management actions.<br>• EHS Manager - to monitor compliance. | • Operational Phase. | • ERAP updated with MHI Risk Assessment & Project's OHS documentation. | • As per legal requirements and MHI Risk Assessment. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ▪ Instrumentation, to determine significant loss of containment, such as pressure transmitters could be used to activate emergency shutdown systems reducing the loss of containment impacts. As the risks from the hydrogen storage are currently not excessive to both the workers and the public, risks reduction would be at the discretion of the owner and the engineering contractor.<br>▪ An Emergency Shutdown Valve has been included at the interface between the main incoming pipeline and the power plant pipeline. This will reduce the impacts in the event of a loss of containment<br>o Minimisation of hazardous material inventories, where practicable, to reduce the potential consequences of accidental releases while maintaining operational requirements.<br>o Substitution of hazardous substances with less hazardous alternatives where feasible, thereby reducing inherent process risks.<br>o Undertaking detailed Process Hazard Analyses, including formal hazard identification studies such as HAZOPs, to identify process hazards, evaluate safeguards and inform additional risk reduction measures.<br>o Compliance with recognised engineering codes, standards and industry best practices for the design, construction and operation of facilities handling hazardous materials. | | | • Inspection records.<br>• Incident reports and corrective action records.<br>• Internal audits.<br>• Risk reviews. | • Continuous for compliance.<br>• Monthly inspections.<br>• Immediately after incidents (inspections and rectification). |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Implementation of Safety Instrumented Systems designed in accordance with applicable international standards to ensure adequate protection against abnormal operating conditions and major accident scenarios.<br>○ Independent review and auditing of safety systems and risk management measures to confirm that safety functions remain effective throughout the operational life of the facility.<br>• Incorporate mitigation measures from MHI Risk Assessment.<br>• All recommendations from the MHI Risk Assessment, Quantitative Risk Assessment, and ERAP shall be implemented and incorporated into operational procedures.<br>• Proper and timeous notification will be undertaken of any pollution incidents associated with hazardous materials. Any major incidents to be reported to DFFE, as per the requirements of Section 30 of NEMA. | | | | |

### 13.3.4 Management of Water

| | |
|---|---|
| **Management Objectives** | • Minimise environmental impacts associated with stormwater as well as water services. |
| **Targets** | • No visual evidence of erosion caused by wastewater or stormwater practices.<br>• No environmental contamination associated with wastewater or stormwater practices.<br>• No water wastage (water conservation). |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • All operational activities to comply with the NWA.<br>• Practice water conservation.<br>• Manage stormwater from the Plant to avoid environmental contamination and erosion.<br>• Clear any sandy deposits and debris that collect in the stormwater systems.<br>• Routine hydraulic monitoring of the stormwater system. | • Operator to implement management actions.<br>• EHS Manager - to monitor compliance. | • Operational Phase. | • Evidence of compliance with NWA authorisation conditions and any other legal requirements.<br>• Inspection records.<br>• Operational procedures.<br>• Incident reports and corrective action records. | • Continuous for compliance.<br>• Monthly inspections. |

### 13.3.5 Management of Waste and Wastewater

| | |
|---|---|
| **Management Objectives** | • Minimise environmental impacts associated with waste and wastewater. |
| **Targets** | • No environmental contamination associated with waste and wastewater.<br>• Full compliance with legal requirements associated with waste and wastewater management.<br>• No water wastage (water conservation). |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • All operational activities to comply with the NWA.<br>• Implement an integrated waste management hierarchy focused on avoidance, minimisation, reuse, recycling and disposal as a last resort.<br>• Segregate waste streams at source and provide clearly labelled waste receptacles.<br>• Store hazardous waste in designated, covered and bunded areas.<br>• Waste to be disposed of at a licenced waste disposal facility.<br>• Maintain waste manifests and disposal records for all waste transported off site.<br>• Recycle scrap metal, waste batteries, electronic waste and other recyclable materials through approved recyclers.<br>• Route oily wastewater through oil-water separators before discharge.<br>• Route chemical-contaminated wastewater to the neutralisation system for treatment prior to discharge.<br>• Manage cooling tower blowdown and process effluents in accordance with applicable discharge requirements.<br>• Implement spill prevention and emergency response procedures.<br>• Conduct regular inspections of waste storage, wastewater infrastructure and containment systems.<br>• Train personnel in wastewater management and emergency response procedures.<br>• All wastewater discharges shall comply with legal requirements associated with the NWA. | • Operator to implement management actions.<br>• EHS Manager - to monitor compliance. | • Operational Phase. | • Evidence of compliance with NWA authorisation conditions any other legal requirements.<br>• Inspection records.<br>• Water monitoring programme – discharges.<br>• Incident reports and corrective action records. | • Continuous for compliance.<br>• Monthly inspections.<br>• Immediately after incidents (inspections and rectification). |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Wastewater discharges shall form part of water monitoring programme. | | | | |

### 13.3.6 Management of Terrestrial Biodiversity

| | |
|---|---|
| **Management Objectives** | • Ensure long-term stability and functionality of all rehabilitated areas.<br>• Promote sustainable indigenous vegetation establishment in areas disturbed by construction and operational activities (outside permanent development footprint on authorised site). |
| **Targets** | • No visible erosion gullies or instability along access roads, berm removal areas, or weir.<br>• Indigenous species dominate (>90%) in rehabilitated areas.<br>• 100% of detected invasive alien plants cleared. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The following mitigation measures are derived from the Terrestrial Biodiversity Assessment, Floral Assessment and Faunal Assessment:<br>o Maintain clearly defined development boundaries and prevent encroachment into adjacent natural areas.<br>o Maintain stormwater infrastructure to prevent erosion, sedimentation, concentrated flows and degradation of adjacent habitats.<br>o Continue implementation of the Alien and Invasive Plant Management Plan, including routine monitoring and follow-up control. | • Operator to implement management actions.<br>• EHS Manager - to monitor compliance. | • Operational Phase. | • Inspection records.<br>• Proof of training<br>• Performance records. | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Use indigenous species for landscaping and prohibit the use of invasive plant species.<br>○ Monitor and maintain rehabilitated areas until vegetation is established and ecological functioning has been restored.<br>○ Manage erosion, invasive species, dust, soil compaction and other edge effects affecting adjacent natural habitats.<br>○ Prevent littering, illegal dumping and waste accumulation within the site and surrounding natural areas.<br>○ Prohibit hunting, trapping and persecution of wildlife during operation.<br>○ Educate operational staff on biodiversity sensitivities and appropriate interactions with wildlife.<br>○ Safely relocate reptiles and other wildlife encountered during maintenance activities using suitably trained personnel where required.<br>○ Conduct routine inspections of biodiversity management measures and implement corrective actions where degradation or non-compliance is identified. | | | | |

### 13.3.7 Management of Access and Traffic

| | |
|---|---|
| **Management Objectives** | • Ensure proper access control to the Plant.<br>• Ensure the safety of all road users along the access roads. |
| **Targets** | • No direct harm to third parties due to inadequate access control.<br>• No speeding by operational vehicles.<br>• No accidents caused by operational activities. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Restrict heavy vehicle movements to approved access routes.<br>• Maintain a Traffic Management Plan throughout the operational phase.<br>• Ensure hazardous material transportation complies with applicable legislation and standards.<br>• Schedule deliveries to minimise congestion and operational disruptions.<br>• Conduct routine road safety awareness training for drivers and contractors.<br>• Maintain internal roads and traffic control infrastructure.<br>• Implement emergency response procedures for traffic accidents and hazardous material spills.<br>• Train operational staff of best practices regarding road safety. | • Operator to implement management actions.<br>• EHS Manager - to monitor compliance. | • Operational Phase. | • Approved Traffic Management Plan.<br>• Road inspection records.<br>• Visible signage.<br>• Proof of training. | • Monthly. |

### 13.3.8 Management of Socio-Economic Impacts

| | |
|---|---|
| **Management Objectives** | • Maximise local economic benefits.<br>• Minimise adverse impacts to surrounding businesses and communities. |
| **Targets** | • Zero public injury or incident related to project activities. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • The following mitigation measures are derived from the Socio-Economic Impact Assessment:<br>o Maximise local procurement for operation and maintenance where feasible to strengthen regional production linkages<br>o Support development of local supplier capacity to capture a greater share of operation and maintenance expenditure.<br>o Optimise plant dispatch and integration with grid to prioritise operation during peak demand periods and system constraints, thereby maximising its contribution to energy security and reliability.<br>o Ensure robust early detection and rapid response systems are in place to enhance preparedness.<br>o Maintain exclusion zones and controlled access around high-risk infrastructure.<br>• The following mitigation measures are derived from the Social Impact Assessment:<br>o Prioritise employment of local residents for suitable operational and maintenance-related positions.<br>o Procure goods and services from local and regional businesses where feasible.<br>o Maintain infrastructure regularly to ensure reliable electricity supply. | • Operator to implement management actions.<br>• EHS Manager - to monitor compliance. | • Operational Phase. | • Records.<br>• Skills training attendance records.<br>• Documented GRM.<br>• Proof of communication. | • Monthly. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| ○ Implement adequate security measures, including lighting and local security personnel.<br>○ Continue supporting local economic development through procurement and employment opportunities.<br>• Ensure appropriate skills transfer to operational staff. | | | | |

### 13.3.9 Management of Health and Safety

| | |
|---|---|
| **Management Objectives** | • Provide a safe working environment to operational staff and the public. |
| **Targets** | • No incidents.<br>• Compliance with the OHS Act (Act No. 85 of 1993) and other relevant regulations. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Dedicated OHS system to be implemented by the Operator.<br>• Undertake a hazard identification and risk assessment and identify preventive measures and safe work procedures.<br>• Applicable notice boards and hazard warning notices will be put in place.<br>• Emergency contact details will be prominently displayed.<br>• All workers will be supplied with the required Personal Protective Equipment (PPE) as per the OHS Act (Act No. 85 of 1993). | • Operator to implement management actions.<br>• EHS Manager - to monitor compliance. | • Operational Phase. | • OHS System for operational phase.<br>• Signage displayed.<br>• Incident Register and Report.<br>• Inspection of project area (photographic records). | • As per OHS system. |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| • Maintain access control to prevent access of the public.<br>• Establish HIV/AIDs awareness programmes.<br>• Put in place a monitoring system to monitor health risks throughout the life of the project.<br>• Conduct safety awareness training with operational staff.<br>• The following mitigation measures are derived from the Community Health Impact Assessment:<br>o Continue implementation of the Project Health Management Plan and maintain occupational health, emergency response and community health management systems.<br>o Maintain hazardous chemical management systems, including chemical inventories, SDSs, secure storage, spill prevention and emergency response procedures.<br>o Maintain cooling water treatment programmes, including Legionella monitoring where applicable.<br>o Maintain transformer bunding, firewater containment systems and spill response capability.<br>o Continue occupational hygiene monitoring, medical surveillance and hearing conservation programmes where required.<br>o Implement operational air quality, noise and odour management measures in accordance with the Air Quality Impact Assessment, AEL and operational monitoring requirements.<br>o Monitor and investigate environmental health complaints relating to emissions, odours, noise and | | | | |

| Management Actions | Responsibilities | Implementation Timeframe | Monitoring Requirements | |
|---|---|---|---|---|
| | | | Evidence | Frequency |
| other operational activities, and implement corrective actions where necessary.<br>o Monitor respiratory and other environmental health complaints, maintain referral pathways with local healthcare facilities and promote early healthcare seeking where appropriate.<br>o Continue stakeholder engagement, culturally appropriate health communication and operation of the community grievance mechanism.<br>o Monitor local employment, procurement, workforce diversity and community investment commitments, and continue to prioritise local employment, skills development and local suppliers where feasible.<br>o Maintain emergency preparedness through regular training, emergency response drills and coordination with local emergency and healthcare services.<br>o Maintain occupational health records and report notifiable incidents in accordance with applicable legislation.<br>o Monitor community perceptions, protest risks and social issues throughout the operational phase and implement appropriate mitigation where required. | | | | |

# APPENDIX A

Emergency Response and Action Plan

PROPOSED 750MW COMBINED CYCLE GAS TURBINE POWER PLANT IN RICHARDS BAY, CITY OF UMHLATHUZE LOCAL MUNICIPALITY, KING CETSHWAYO DISTRICT MUNICIPALITY, KWAZULU-NATAL

# EMERGENCY RESPONSE ACTION PLAN

SEPTEMBER 2026




Environmental, Social and OHS Consultants

P.O. Box 1673
Sunninghill
2157

147 Bram Fisher Drive
Ferndale
2194

Tel: 011 781 1730
Fax: 011 781 1731
Email: info@nemai.co.za

# Table of Contents


**1 PURPOSE OF THE DOCUMENT - 3 -**

**2 LEGISLATION AND GUIDELINES - 3 -**

**3 SITE-SPECIFIC EMERGENCY RISKS - 4 -**

3.1 Construction Phase - 4 -

3.2 Operational Phase - 5 -

**4 ROLES AND RESPONSIBILITIES - 6 -**

4.1 Construction Phase - 6 -

4.2 Operational Phase - 7 -

**5 TRAINING - 8 -**

**6 DRILLS AND MONITORING - 9 -**

**7 MANAGEMENT OF EMERGENCY PROCEDURES - 10 -**

7.1 Construction Phase Emergency Procedures - 10 -

7.1.1 Evacuation - 10 -

7.1.1.1 Evacuation Site Plan - 10 -

7.1.1.2 Evacuation Procedure - 10 -

7.1.2 Medical Emergency - 10 -

7.1.3 Fire - 11 -

7.1.4 Flooding and Extreme Weather - 11 -

7.1.5 Accidental Leaks and Spillages - 12 -

7.1.6 Environmental Incident - 12 -

7.1.7 Traffic Accident or Abnormal Load Incident - 12 -

7.1.8 Utility Strike or Damage to Existing Infrastructure - 13 -

7.1.9 Security Incident, Labour Unrest or Public Protest - 13 -

7.2 Operational Phase Emergency Procedures - 13 -

7.2.1 Evacuation and Emergency Shutdown - 14 -

7.2.2 Natural Gas Leak or LNG Supply Interface Incident - 14 -

7.2.3 Fire Emergency - 15 -

7.2.4 Explosion or Major Hazard Event - 15 -

7.2.5 Abnormal Emissions and Air Quality Incident - 16 -

7.2.6 Hazardous Material, Wastewater or Stormwater Incident - 16 -

7.2.7 Aquatic or Estuarine Pollution Incident - 16 -

7.2.8 Extreme Weather, Flooding or Storm Damage - 17 -

7.2.9 Utility Failure, Fuel Supply Interruption or Process Failure - 17 -
7.2.10 Security Threat, Sabotage or Civil Disturbance - 18 -
7.2.11 Community Notification and External Communication - 18 -
7.2.12 Incident Recovery, Remediation and Close-out - 19 -
**8 ERAP REVIEW - 19 -**
**9 PROJECT-SPECIFIC DOCUMENTS - 19 -**

## List of Tables

Table 1: Site-specific emergency risks – Construction Phase ..... - 4 -
Table 2: Site-specific emergency risks – Operational Phase ..... - 5 -
Table 3: Roles and Responsibilities – Construction Phase ..... - 6 -
Table 4: Roles and Responsibilities – Operational Phase ..... - 7 -

# 1 PURPOSE OF THE DOCUMENT

This Emergency Response and Action Plan (ERAP) accompanies the Environmental Management Programme (EMPr) for the proposed 750MW Combined Cycle Gas Turbine Power Plant in Richards Bay, City of uMhlathuze (CoU) Local Municipality, King Cetshwayo District Municipality (KCDM), KwaZulu-Natal (KZN) (the "Project").

The purpose of this ERAP is to:

- Protect human life, the environment, property and infrastructure;
- Ensure rapid and coordinated response to emergency incidents;
- Minimise secondary environmental impacts;
- Protect sensitive receptors including terrestrial biodiversity, freshwater features, stormwater infrastructure and surrounding industrial developments; and
- Ensure compliance with the EMPr and applicable legislation.

The ERAP needs to be updated and supplemented with the relevant conditions of environmental approvals and emergency-related requirements of the Project's Occupational Health and Safety System, Major Hazard Installation (MHI) Risk Assessment, and any other relevant and related documents.

# 2 LEGISLATION AND GUIDELINES

The Project shall comply with all relevant legislation, authorisations and associated conditions, as well as recognised standards applicable to emergency preparedness, response, reporting and recovery, including but not limited to the following:

- National Environmental Management Act (Act No. 107 of 1998), including –
  - Duty of care to prevent, minimise and remediate pollution and environmental degradation;
  - Environmental Authorisation, approved EMPr and all emergency-related conditions imposed by the competent authority; and
  - Environmental Impact Assessment (EIA) Regulations of 2014, as amended, including implementation and auditing of the approved EMPr.
- National Water Act (Act No. 36 of 1998), including –
  - Pollution prevention, stormwater controls, and protection of wetlands and watercourses; and
  - Water Use Licence (WUL) requirements.
- National Environmental Management: Air Quality Act (Act No. 39 of 2004), including –
  - Atmospheric Emission Licence (AEL) requirements; and

  - Procedures for abnormal emission incidents.

- National Environmental Management: Waste Act (Act No. 59 of 2008), including lawful storage, handling, transport and disposal of waste generated during emergency response and clean-up.
- National Environmental Management: Biodiversity Act (Act No. 10 of 2004), including protection of Species of Conservation Concern and biodiversity features during emergency response.
- National Heritage Resources Act (Act No. 25 of 1999), including chance-find requirements during emergency works or repairs.
- Occupational Health and Safety Act (Act No. 85 of 1993) and applicable regulations, including Construction Regulations, Hazardous Chemical Agents Regulations and General Safety Regulations.
- Major Hazard Installation (MHI) Regulations, where applicable, including risk assessment, emergency planning, emergency drills and communication with relevant authorities.
- Disaster Management Act (Act No. 57 of 2002), Municipal Fire By-laws, municipal disaster management requirements and directions from emergency services.
- Applicable SANS, NFPA, ISO and manufacturer standards relevant to fire protection, gas systems, hazardous substances, emergency shutdown, emergency communications, environmental management and occupational health and safety.

# 3 SITE-SPECIFIC EMERGENCY RISKS

## 3.1 Construction Phase

Table 1 below lists site-specific emergency risks during the construction phase of the Project. Note that this list is not exhaustive and will be reviewed based on the MHI Risk Assessment and the Project's OHS system.

*Table 1: Site-specific emergency risks – Construction Phase*

| Emergency Type | Relevance to Project |
|---|---|
| **Traffic accidents** | Construction traffic, delivery vehicles, abnormal loads, contractor vehicles and interaction with existing RBIDZ traffic and access routes. |
| **Worker injury or fatality** | Earthworks, excavations, working at heights, lifting operations, mobile plant, confined spaces, electrical works and construction equipment. |
| **Excavation collapse** | Deep excavations associated with foundations, underground services, drainage systems and utility installations. |
| **Fire incident** | Hot works, welding, cutting, fuel storage areas, generators, temporary electrical installations and construction camp activities. |
| **Hazardous substance spill** | Diesel, lubricants, hydraulic oils, paints, solvents, concrete additives and other construction chemicals. |

| Emergency Type | Relevance to Project |
|---|---|
| **Stormwater contamination** | Sediment-laden runoff, accidental spills, construction wastewater and contamination of drainage infrastructure. |
| **Watercourse or wetland pollution** | Accidental release of fuels, oils, chemicals or sediment-laden runoff affecting freshwater features, drainage lines or receiving aquatic systems. |
| **Biodiversity incident** | Unauthorised clearing, disturbance to sensitive habitats, injury to fauna or damage to Species of Conservation Concern. |
| **Heritage or palaeontological chance find** | Discovery of heritage, archaeological or palaeontological material during earthworks or excavations. |
| **Extreme weather** | Heavy rainfall, lightning, strong winds, localised flooding, erosion and damage to temporary construction infrastructure. |
| **Security incident, labour unrest or public protest** | Unauthorised access, theft, vandalism, sabotage, civil disturbance or workforce/community-related disruption. |
| **Utility strike** | Damage to underground or overhead services, including electricity, water, sewer, stormwater, telecommunications or other existing infrastructure. |

## 3.2 Operational Phase

Table 2 below lists site-specific emergency risks during the operational phase of the Project. Note that this list is not exhaustive and will be reviewed based on the MHI Risk Assessment and the Project's OHS system.

***Table 2: Site-specific emergency risks – Operational Phase***

| Emergency Type | Relevance to Project |
|---|---|
| **Natural gas leak** | Gas supplied from LNG import infrastructure and pipeline network to the Planty. |
| **Fire and explosion** | Natural gas systems, auxiliary fuel systems, electrical equipment, transformers, turbine equipment and process areas. |
| **Major hazard event** | Potential off-site consequence scenario associated with gas release, fire, explosion or hazardous material incident. |
| **Hazardous substance spill** | Fuels, oils, lubricants, chemicals, wastewater treatment chemicals, laboratory reagents and contaminated firewater. |
| **Wastewater or stormwater contamination** | Process water, wastewater, contaminated runoff, firewater and drainage infrastructure. |
| **Aquatic or estuarine pollution incident** | Emergency release that may affect freshwater features, stormwater infrastructure or downstream aquatic receiving environments. |
| **Air-quality incident** | Gas combustion systems, fuel handling infrastructure, abnormal emissions and plant upset conditions. |

| Emergency Type | Relevance to Project |
|---|---|
| **Extreme weather** | Heavy rainfall, flooding, lightning, strong winds and storm damage to operational infrastructure. |
| **Traffic accidents** | Operational traffic, maintenance vehicles, chemical deliveries, waste collection vehicles and emergency access routes. |
| **Injury or fatality** | Operational, maintenance, electrical, mechanical, confined-space and process safety activities. |
| **Security incident** | Unauthorised access, theft, sabotage, civil disturbance or threat to critical plant infrastructure. |
| **Utility or fuel supply failure** | Water, electricity, communications, natural gas supply, diesel backup or critical process system interruptions. |

# 4 ROLES AND RESPONSIBILITIES

## 4.1 Construction Phase

The Project Proponent has the responsibility to provide emergency response services and to structure and coordinate emergency response procedures, ensure that specific emergency responsibilities allocated are organised and undertaken and ensure that employees and contractors are trained and aware of all required emergency procedures during the construction phase.

Response personnel must develop the specific response strategies for individual scenarios, whilst relying on the general measures described in this plan.

Table 3 below indicates the potential roles and responsibilities on site with regards to emergency procedures during the construction phase.

*Table 3: Roles and Responsibilities – Construction Phase*

| Role | Responsibility |
|---|---|
| **Emergency Response Coordinator** | • Respond to emergencies on site.<br>• Coordinate personnel on site during an emergency procedure.<br>• Ensure the necessary resources required in the event of an emergency. |
| **Evacuation Officer** | • To ensure they are easily recognisable to site personnel and the emergency services.<br>• Responsible for all onsite occupants' safety during evacuations and to ensure the safety for personnel to renter the site.<br>• Keep an updated list of employees and visitors on site and carry the name list with them during evacuation.<br>• Ensure all occupants of the site have evacuated the area where the incident has taken place.<br>• To be fully trained in the provision of first aid. |
| **Health and Safety Officer** | • Distribution of the ERAP to all parties with responsibilities in implementing the plan (including Contractors). |

| Role | Responsibility |
|---|---|
| | • Plan emergency response drills with Contractors and Project Manager.<br>• Develop and conduct training on the ERAP.<br>• Lead any reviews or investigations into reported accidents/incidents.<br>• Receive all notifications of incidents/accidents and ensure proper appropriate measures are being followed, including documentations. |
| **Project Manager** | • Responsible for staffing, planning and daily execution of the management measures contained in this plan during the Construction Phase.<br>• Develop and propose staff plans and contractual language to ensure that these measures are implemented by employees and contractors throughout the Construction Phase, as needed. |

## 4.2 Operational Phase

The Operator shall maintain sufficient emergency response resources, systems and personnel throughout the operational life of the Plant to ensure effective management of emergency situations associated with gas-fired power generation activities. These responsibilities include ensuring that personnel are trained, emergency response equipment is maintained in a state of readiness, and emergency procedures are implemented and periodically reviewed. The Operator shall ensure that all operational personnel, contractors and service providers are familiar with the emergency response requirements applicable to the Plant.

Response personnel shall develop and implement project-specific emergency response strategies for individual scenarios whilst relying on the general measures described in this Plan.

Table 4 below indicates the potential roles and responsibilities on site with regards to emergency procedures during the operational phase.

*Table 4: Roles and Responsibilities – Operational Phase*

| Role | Responsibility |
|---|---|
| **Emergency Response Coordinator** | • Respond to emergencies on site.<br>• Coordinate personnel and resources during emergency incidents.<br>• Activate the Incident Command Structure where required.<br>• Liaise with external emergency services and relevant authorities.<br>• Ensure appropriate emergency resources remain available and functional. |
| **Plant Manager** | • Assume overall responsibility for emergency preparedness and response.<br>• Ensure implementation of this ERAP.<br>• Allocate resources necessary for emergency response.<br>• Authorise operational shutdowns where required.<br>• Ensure corrective actions arising from incidents are implemented. |

| Role | Responsibility |
|---|---|
| **Environmental Health and Safety (EHS) Manager** | • Lead personnel safety management during emergency situations.<br>• Coordinate evacuations and account for personnel at assembly areas.<br>• Investigate incidents and maintain all incident records.<br>• Facilitate emergency response training and drills.<br>• Liaise with medical response personnel where required.<br>• Assess environmental impacts associated with emergency incidents.<br>• Coordinate pollution containment and remediation actions.<br>• Oversee spill response and contaminated material management.<br>• Coordinate environmental monitoring following incidents.<br>• Ensure statutory environmental reporting requirements are met. |
| **Operations Supervisor** | • Implement emergency shutdown and isolation procedures.<br>• Coordinate operating personnel during emergency incidents.<br>• Ensure plant systems are safely secured.<br>• Assist with incident containment and recovery activities.<br>• Verify equipment integrity prior to recommissioning. |
| **Control Room Operator** | • Monitor plant alarms and emergency systems.<br>• Initiate emergency shutdown procedures when required.<br>• Notify emergency response personnel.<br>• Maintain communication logs throughout the incident.<br>• Coordinate communications with operational teams. |
| **Fire Response Team** | • Respond to fires, explosions and gas-related emergencies.<br>• Operate firefighting equipment and suppression systems.<br>• Assist with evacuation procedures.<br>• Support municipal fire services during major incidents.<br>• Maintain firefighting equipment in a state of readiness. |
| **Security Supervisor** | • Control site access during emergencies.<br>• Establish security perimeters and exclusion zones.<br>• Facilitate emergency vehicle access.<br>• Assist with evacuation management.<br>• Coordinate response to security-related incidents and threats. |
| **Medical Response Personnel / First Aiders** | • Provide immediate medical assistance to injured personnel.<br>• Coordinate transport to medical facilities where required.<br>• Maintain emergency medical equipment and supplies.<br>• Support emergency drills and preparedness activities. |
| **Employees and Contractors** | • Comply with emergency procedures and instructions.<br>• Immediately report incidents, unsafe conditions and emergencies.<br>• Participate in emergency training and drills.<br>• Evacuate when instructed and report to designated assembly points.<br>• Assist with incident response only when authorised and trained to do so. |

# 5 TRAINING

Training aims to create an understanding of the ERAP and the responsibilities of the relevant personnel, as well as educate site employees on the procedures to be followed during an emergency. To be effective, an ERAP must be clearly communicated to all site personnel.

Training will be tailored to the audience, based on their designated roles and responsibilities. Records will be kept of the training provided, as well as containing the details of the attendees.

All employees and contractors will be trained in emergency response procedures. The Health and Safety Officer (construction phase) / EHS Manager (operational phase) shall distribute the ERAP to all parties in charge of ensuring the plan's implementation. All relevant information in the ERAP shall be communicated to all employees and contractors. This information shall include information on potential emergency risks/threats, appropriate first-person response to incidents/emergencies and notification procedures.

All site personnel, including contractors, are to be trained in the appropriate responses for emergencies. The training is mandatory and is to be conducted on a regular basis. The frequency and timing of training is at the discretion of the Project Manager (construction phase) / Plant Manager (operational phase).

Training is to include, but not limited to the following:

- Firefighting and fire prevention;
- First Aid;
- Emergency Evacuation; and
- Medical, environmental, gas leak, fire/explosion, spill, evacuation and emergency shutdown scenarios.

# 6 DRILLS AND MONITORING

In order to ensure site personnel are fully aware of the procedures to be followed when an emergency event takes place, emergency drills must be undertaken. These include the following:

- Fire Drills;
- Medical Drills;
- Chemical, fuel, wastewater and stormwater spill drills;
- Emergency evacuation, gas leak, fire/explosion, emergency shutdown and environmental incident drills.

Reporting and monitoring requirements for the ERAP will include:

- Monthly inspections and audits;
- Quarterly report of accidents/incidents;
- Reporting at the time of any environmental incidents;
- Bi-annual emergency response drills during construction and at least annual operational emergency simulations, including gas leak/fire scenarios; and
- Annual reporting on training.

Emergency response drills and reporting will provide information regarding required revisions to training or the measures contained in the ERAP. Each incident reported will be reviewed and investigated upon occurring. Actions will be identified where possible to improve the site's overall response to emergencies.

# 7 MANAGEMENT OF EMERGENCY PROCEDURES

## 7.1 Construction Phase Emergency Procedures

### 7.1.1 Evacuation

7.1.1.1 Evacuation Site Plan

An Evacuation Site Plan must be on site at all times and be visible to all personnel. The plan must display the areas of responsibility of the contingency officers, as well as all emergency exits. Site plan of the construction site and camp including all buildings, boundaries and outside features must indicate the positions of the following:

- Emergency exits;
- Assembly points;
- Locations of fire extinguishers
- Fire alarm pull stations' location
- Roads; and
- Site layout plan.

7.1.1.2 Evacuation Procedure

All staff must be aware of the possible evacuation routes prior to the emergency situation through organised training and drill sequences. Always assure safety of the assembly point prior to evacuation. The procedure is provided below:

- The designated Emergency Response Coordinator will provide instruction or the alarm will sound to evacuate a specific area.
- All personnel appointed as Evacuation Officers must assist with the evacuation.
- All personnel onsite must follow the instructions of the Evacuation Officer.
- In the case of fire or smoke, evacuating personnel must move under the level of the smoke and cover their nose/mouth.
- Evacuation must be undertaken in accordance with the Evacuation Site Plan.
- Onsite personnel must stay calm and must not panic.
- Visitors that are not familiar with the evacuation procedure must be assisted.
- A daily record of staff and visitors must be kept.
- The professional Emergency Services entering the site must not be obstructed.
- All personnel onsite must report directly to the allocated assembly point.
- Personnel must not leave the assembly point until it has been deemed safe to do so.

### 7.1.2 Medical Emergency

Management Actions:

- Trained first aid personnel to be available on site.
- Emergency medical transport arrangements to be established.
- Working-at-heights rescue procedures to be available.

- Excavation rescue procedures to be available.
- Incident scene to be secured for investigation.
- Contractor to maintain first aid equipment and emergency contact lists.
- All incidents to be reported in accordance with OHS requirements.

Monitoring Requirements:

- First aid inspection records.
- OHS incident register.
- Medical emergency drill records.
- Corrective action register.

### 7.1.3 Fire

Management Actions:

- Hot work permit system.
- Fire extinguishers located at fuel storage areas, welding areas and construction camps.
- No burning of waste.
- Dedicated smoking areas.
- Storage of flammable materials in designated areas.
- Daily inspection of fuel storage areas.
- Water bowsers or firefighting equipment available during high-risk activities.

Monitoring Requirements:

- Hot work permits.
- Fire extinguisher inspection records.
- Fire drill records.
- Fuel storage inspection checklists.

### 7.1.4 Flooding and Extreme Weather

Management Actions:

- Weather forecasts monitored daily.
- Earthworks halted during severe weather events.
- Stockpiles protected.
- Temporary stormwater controls maintained.
- Excavations inspected after rainfall.
- Erosion and sediment controls repaired immediately following storms.

Monitoring Requirements:

- Weather monitoring records.
- Stormwater inspection reports.
- Erosion inspection records.

### 7.1.5 Accidental Leaks and Spillages

Management Actions:

- Spill kits available at fuel storage and refuelling areas.
- Refuelling only in designated areas.
- Hydrocarbon-contaminated soil removed and disposed of appropriately.
- Stormwater drains protected.
- Incidents reported to the ECO immediately.

Monitoring Requirements:

- Spill response records.
- Waste disposal certificates.
- Incident reports.
- Spill kit inspection records.

### 7.1.6 Environmental Incident

Management Actions:

- Stop work immediately.
- Notify ECO.
- Protect affected biodiversity features.
- Implement fauna rescue measures where required.
- Implement heritage chance-find procedure.
- Obtain specialist input before recommencing works.

Monitoring Requirements:

- ECO inspection reports.
- Specialist recommendations.
- Rehabilitation records.

### 7.1.7 Traffic Accident or Abnormal Load Incident

Management Actions:

- Stop work in the immediate area and secure the accident scene.
- Provide first aid and notify emergency medical services where required.
- Implement traffic control, warning signage and safe diversion routes.
- Assess potential fuel, oil or chemical releases from vehicles and implement spill response actions where required.
- Report, investigate and close out the incident before affected routes or work areas are reopened.

Monitoring Requirements:

- Traffic incident reports.
- Medical response records, where applicable.

- Spill response records, where applicable.
- Corrective action register.

### 7.1.8 Utility Strike or Damage to Existing Infrastructure

Management Actions:

- Stop work immediately and evacuate the immediate area where there is a risk to personnel.
- Isolate damaged services where this can be done safely by competent persons.
- Notify the relevant service owner and the Project Manager.
- Demarcate the affected area and prevent unauthorised access.
- Repair or reinstate damaged infrastructure only after the relevant service owner has confirmed the required approach.

Monitoring Requirements:

- Incident reports.
- Service-owner notifications.
- Repair and reinstatement records.
- Updated services drawings, where required.

### 7.1.9 Security Incident, Labour Unrest or Public Protest

Management Actions:

- Notify the Security Supervisor, Project Manager and Emergency Response Coordinator.
- Restrict access to affected areas and protect personnel, visitors and contractors.
- Suspend affected construction activities where safety cannot be assured.
- Notify SAPS, RBIDZ Management or relevant authorities where required.
- Record the incident and implement corrective or preventive actions, including stakeholder communication where appropriate.

Monitoring Requirements:

- Security incident register.
- Access-control records.
- Stakeholder communication records, where applicable.
- Corrective action register.

## 7.2 Operational Phase Emergency Procedures

The operational-phase procedures below address the higher-risk industrial and process safety profile of the Plant. These procedures must be aligned with the final plant design, the Occupational Health and Safety system, the Major Hazard Installation risk assessment,

operating manuals, emergency shutdown philosophy, fire protection design and applicable authorisation, licence and permit conditions.

### 7.2.1 Evacuation and Emergency Shutdown

Management Actions:

- Activate alarms and the Incident Command Structure where the incident cannot be managed through normal operating controls.
- Evacuate personnel to designated assembly areas and account for all personnel, contractors and visitors.
- Implement emergency shutdown and isolation procedures for affected plant systems where required.
- Isolate gas, electrical, fuel, chemical or process systems where this can be done safely by trained personnel.
- Prevent re-entry until the Plant Manager, Emergency Response Coordinator or authorised competent person has confirmed that the area is safe.

Monitoring Requirements:

- Emergency shutdown test records.
- Evacuation drill reports.
- Incident logs and communications records.
- Re-entry authorisation records.

### 7.2.2 Natural Gas Leak or LNG Supply Interface Incident

Management Actions:

- Respond immediately to gas detection alarms or reports of gas odour, visible vapour, abnormal pressure loss or fuel supply abnormality.
- Eliminate ignition sources and prohibit smoking, hot work, vehicle movement and non-essential electrical switching within the affected area.
- Isolate the gas supply, activate emergency shutdown systems and establish hot, warm and cold zones where required.
- Evacuate non-essential personnel upwind and restrict access to authorised emergency response personnel only.
- Notify external emergency services, the gas supplier and relevant authorities where the release presents a major safety or environmental risk.
- Undertake gas monitoring and allow re-entry only once gas concentrations are confirmed to be within safe limits.

Monitoring Requirements:

- Gas detector calibration records.
- Gas alarm testing records.
- Emergency shutdown activation records.
- Incident reports and authority notifications.

- Re-entry gas monitoring records.

### 7.2.3 Fire Emergency

Management Actions:

- Raise the alarm, notify the Fire Response Team and evacuate personnel from the affected area.
- Activate fixed fire protection or suppression systems where applicable.
- Isolate fuel, gas, electrical and process systems where safe to do so.
- Coordinate with municipal fire services for fires that cannot be safely controlled by trained site personnel.
- Contain contaminated firewater and prevent discharge to stormwater infrastructure, freshwater features or downstream receiving environments.
- Inspect the affected area before recommissioning equipment or allowing re-entry.

Monitoring Requirements:

- Fire detection and suppression inspection records.
- Fire drill records.
- Firewater containment inspection records.
- Incident investigation reports.

### 7.2.4 Explosion or Major Hazard Event

Management Actions:

- Activate the Incident Command Structure and emergency communication procedure immediately.
- Evacuate personnel from the affected area and establish exclusion zones based on the type and scale of the event.
- Notify emergency services, RBIDZ Management, municipal disaster management and relevant authorities where off-site impacts or public safety risks may occur.
- Account for personnel and initiate medical response for injured persons.
- Prevent secondary incidents by isolating fuel, gas, electrical, chemical and process systems where safe.
- Preserve the incident scene for investigation once life-safety risks have been addressed.

Monitoring Requirements:

- Major emergency drill records.
- Authority notification records.
- Incident command logs.
- Personnel accountability records.
- Investigation and close-out reports.

### 7.2.5 Abnormal Emissions and Air Quality Incident

Management Actions:

- Investigate abnormal emissions, alarms, visible plumes, odours or plant upset conditions.
- Stabilise, reduce load or shut down affected equipment where required to prevent or limit abnormal emissions.
- Implement corrective maintenance or operational controls before returning affected equipment to normal operation.
- Record the incident and report to the relevant authority where required by the Atmospheric Emission Licence or applicable legislation.
- Review monitoring data and implement additional control measures where repeated incidents occur.

Monitoring Requirements:

- Emissions monitoring data.
- Alarm and plant operating records.
- AEL incident notifications, where applicable.
- Corrective action and maintenance records.

### 7.2.6 Hazardous Material, Wastewater or Stormwater Incident

Management Actions:

- Stop or isolate the source of the release where safe to do so.
- Deploy spill kits, temporary bunds, drain covers, booms or other containment measures to prevent off-site movement.
- Protect stormwater infrastructure and prevent contaminated water from reaching freshwater or downstream aquatic environments.
- Contain wastewater or contaminated firewater and arrange removal, treatment or disposal through approved channels.
- Undertake sampling where required and implement remediation to the satisfaction of the relevant responsible manager and environmental representative.

Monitoring Requirements:

- Spill reports.
- Water quality monitoring results.
- Waste manifests and disposal certificates.
- Remediation and close-out records.

### 7.2.7 Aquatic or Estuarine Pollution Incident

Management Actions:

- Immediately stop the source of contamination and prevent further release into stormwater, freshwater or downstream aquatic systems.

- Deploy containment measures such as booms, berms, absorbents or temporary diversion controls where appropriate.
- Notify the environmental representative and relevant authorities where a water resource may be affected.
- Undertake water quality sampling upstream and downstream of the affected area where required.
- Implement remediation and monitoring until the affected area has been stabilised and closure is verified.

Monitoring Requirements:

- Incident reports.
- DWS or authority notifications, where applicable.
- Water quality sampling results.
- Remediation and monitoring records.

### 7.2.8 Extreme Weather, Flooding or Storm Damage

Management Actions:

- Monitor weather warnings and implement precautionary measures during heavy rainfall, high wind, lightning or flood-risk conditions.
- Secure loose equipment, chemicals, hazardous materials and waste storage areas.
- Suspend high-risk outdoor activities and isolate vulnerable electrical or process systems where required.
- Inspect stormwater, containment, access, drainage and erosion-control infrastructure after severe weather events.
- Confirm plant integrity and environmental controls before restarting affected systems.

Monitoring Requirements:

- Weather warning records.
- Post-storm inspection reports.
- Maintenance records.
- Incident reports, where applicable.

### 7.2.9 Utility Failure, Fuel Supply Interruption or Process Failure

Management Actions:

- Implement contingency operating procedures for loss of water, electricity, communications, natural gas, diesel backup or other critical services.
- Secure affected systems and initiate controlled shutdown where continued operation presents a safety or environmental risk.
- Activate backup systems where available and maintain communications with relevant service providers.
- Protect critical environmental controls, including wastewater, stormwater, emissions control and fire protection systems.

- Verify system integrity and operating conditions before returning to normal operation.

Monitoring Requirements:

- Incident reports.
- Maintenance and restart records.
- Service-provider communications.
- Emergency power or backup system test records.

### 7.2.10 Security Threat, Sabotage or Civil Disturbance

Management Actions:

- Notify the Security Supervisor, Plant Manager and Emergency Response Coordinator.
- Control access, establish exclusion zones and protect personnel, visitors and contractors.
- Notify SAPS, RBIDZ Management or relevant authorities where required.
- Protect critical plant areas, including fuel systems, control rooms, substations, hazardous materials and emergency response equipment.
- Implement business continuity and recovery procedures where the incident affects safe plant operation.

Monitoring Requirements:

- Security incident register.
- Access-control logs.
- Authority notification records, where applicable.
- Corrective action records.

### 7.2.11 Community Notification and External Communication

Management Actions:

- For Level 2 and Level 3 incidents, ensure communication with relevant authorities, RBIDZ Management and affected stakeholders is coordinated through authorised representatives.
- Notify potentially affected neighbouring facilities or communities where an incident may create off-site safety, health, air-quality, traffic or environmental risks.
- Maintain accurate records of notifications, instructions received from authorities and public communication issued.
- Ensure communication is factual, timely and consistent with the incident classification and legal reporting requirements.

Monitoring Requirements:

- Notification records.
- Communications log.
- Stakeholder query and grievance records.
- Authority instructions and close-out records.

### 7.2.12 Incident Recovery, Remediation and Close-out

Management Actions:

- Stabilise the incident area and prevent secondary safety or environmental impacts.
- Undertake environmental clean-up, rehabilitation or remediation where required.
- Investigate root causes and identify corrective and preventive actions.
- Verify that affected systems, infrastructure and environmental controls are safe before recommissioning.
- Update the ERAP, training material or operating procedures where the incident identifies a gap in emergency preparedness.

Monitoring Requirements:

- Incident investigation reports.
- Corrective action register.
- Remediation close-out records.
- Training and ERAP revision records.

# 8 ERAP REVIEW

This ERAP shall be reviewed:

- Based on findings from MHI Risk Assessment;
- Prior to commencement of construction;
- Following any major incident;
- Following significant design changes;
- Following changes to applicable legislation; and
- At least annually during operation.

# 9 PROJECT-SPECIFIC DOCUMENTS

The following project-specific documents will be compiled to supplement the ERAP:

- Site Emergency Contact List;
- Emergency Assembly Point Map;
- Firewater and Hydrant Layout;
- Stormwater and Containment Infrastructure Layout;
- Spill Response Flowchart;
- Evacuation Plan;
- LNG/Natural Gas Emergency Shutdown Procedure; and
- Environmental Incident Notification Form.