



DRAFT ENVIRONMENTAL & SOCIAL MANAGEMENT PROGRAMME

PROPOSED DEVELOPMENT AND UPGRADING OF INFRASTRUCTURE WITHIN THE GREAT FISH RIVER NATURE RESERVE, EASTERN CAPE PROVINCE

DECEMBER 2023

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PARKS & TOURISM AGENCY

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SYNOPSIS Draft Environmental and Social Management Programme for the proposed Infrastructure Development and Upgrading in the Great Fish River Nature Reserve, Eastern Cape.				
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DEFINITIONS

For the purpose of this document the following definitions will apply:

Alien vegetation means all undesirable vegetation, defined as but not limited to, all declared category 1 and category 2 plants in terms of the Conservation of Agricultural Resources Act (43 of 1983) (CARA) amended regulations 15 and 16 as promulgated in March 2001.

Construction activity refers to any action taken by the Contractor, his subcontractors, suppliers, or personnel in undertaking the construction work.

Construction area(s) refers to all areas used by the Contractor in order to carry out the required construction activities. This includes, all offices, accommodation facilities, testing facilities/laboratories, batching areas, storage & stockpiling areas, workshops, spoiling areas, access roads, traffic accommodation (e.g., bypasses), etc.

Contractor is a person or company appointed by the Applicant to carry out construction activities.

Emergency is an undesired event that does result in a significant environmental impact and requires the notification of the relevant statutory body, such as a Local Authority.

Environment means the surroundings within which humans exist and that are made up of - land, water, and atmosphere; micro-organisms, plant and animal life; any part or combination of the above and the interrelationships among and between them; the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Control Officer is an individual appointed to monitor and audit the implementation and of the ESMPr.

Environmental and social Impacts refer to any change, potential or actual, to: (i) the physical, natural, or cultural environment, and (ii) impacts on surrounding community and workers, resulting from the project activity..

Environmental and Social Management Programme is a detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. This ESMPr focuses on the Construction, Post Construction Rehabilitation and Operation / Maintenance Phases of the proposed project.

Hazardous material/substances refer to any substance that contains an element of risk and could have a deleterious effect on the environment.

Incident is an undesired event which may result in a significant environmental impact but can be managed through internal response.

ABBREVIATIONS

AfRSG	African Rhino Specialist Group
AVCP	Alien Vegetation Clearing Programme
BA	Basic Assessment
BAR	Basic Assessment Report
DFFE	Department of Forestry, Fisheries and the Environment
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
ECPTA	Eastern Cape Parks and Tourism Agency
EIA	Environmental Impact Assessment
ELO	Environmental Liaison Officer
ESMPr	Environmental and Social Management Programme
ER	Employers Representative
GFRNR	Great Fish River Nature Reserve
IAP	Interested and Affected Party
IDP	Integrated Development Plan
MEC	Member of the Executive Council
MS	Method Statement
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:PAA	National Environmental Management: Protected Areas Act
WCB	Wildlife Conservation Bond

ENVIRONMENTAL & SOCIAL MANAGEMENT PROGRAMME

PROPOSED DEVELOPMENT OF INFRASTRUCTURE AND UPGRADING WITHIN THE GREAT FISH RIVER NATURE RESERVE, EASTERN CAPE PROVINCE

1. INTRODUCTION AND PROJECT DESCRIPTION

Protected Areas (PAs) in South Africa are increasingly under threat; resulting in adverse impacts on the biodiversity and ecosystems they harbour, on the rural population dependent on them, and on the broader regional and national economies. Illegally traded natural resources contribute significantly to the loss of biodiversity and threaten sustainable and inclusive development. One of such illegal activities is rhino poaching.

The Great Fish River Nature Reserve (GFRNR), in the Eastern Cape Province, supports a particular significant black rhino population that meets the African Rhino Specialist Group (AfRSG) criteria for Key 1 status. The Eastern Cape Parks and Tourism Agency (ECPTA) is responsible for the management of provincial nature reserves in the Eastern Cape, including the GFRNR.

The GFRNR, approximately 40 000 Ha in extent, straddles the Great Fish River in the south-east of the Eastern Cape Province, and is located north-west of the N2, midway between Makhanda (Grahamstown) and Qonce (King William's Town). The central GPS co-ordinates of the project site are Latitude: 33°06'38.55" S; Longitude: 26°49'41.83" E.

The GFRNR has been selected as one of two sites to participate in the World Bank funded Wildlife Conservation Bond (WCB) project, which is an innovative financial instrument that channels investments to achieve conservation outcomes.

In addition to aspects relating to rhino population management, the following activities are proposed to be undertaken as part of the infrastructure development and upgrading within the GFRNR to secure the rhino population in the reserve - **PLEASE NOTE: The infrastructure requiring EA is represented in bold text below:**

- a) **Perimeter fence and perimeter road (4 x 4 track) and associated gabion structures:**
 - Repair and maintenance to sections of the approximately 100 km perimeter fence around the reserve;
 - **Establishment of a 4 x 4 track on the internal side of the fence which will require the clearing of vegetation along a cumulative length of 89 km and up to a maximum width of 2 m;**
 - **Installation of new gabions structures and repair works to existing gabions along this perimeter track;** and
 - Refurbishment of existing river crossings within their current footprint.

- b) **Internal roads and associated low-level crossings:**
 - Maintenance of sections of the existing internal gravel road network measuring approximately 3 m wide and with a cumulative length of approximately 63 km. All road maintenance activities will occur within the current footprints; however, **any vegetation that has become established within these existing sections of road will be cleared;**
 - Existing low-level crossings, along these internal roads, that have fallen into a state of disrepair will also be repaired within their current footprint; and,
 - **Additionally, a new road will be developed around the eastern side of the Double Drift airfield strip measuring approximately 470 m in length and 3 m in width.**

c) **Watering points:**

- **Upgrading of three (3) existing watering points at Botha's Post, Ballysaggart and Inkerman. Each of these watering points have a current capacity not exceeding 600 m³. Once upgraded by means of excavation and repairing the walls, each watering point will have a new capacity not exceeding 2 000 m³; and,**
- **Decommissioning of eleven (11) unwanted small farm watering points by removal of watering point walls and the earth to be spread over the area of the watering points.**

d) **Airfields (runway) strips:**

- Refurbishment of the airfield (runway) strips at Kamadolo and Double Drift. Refurbishment activities will occur within the current footprints; however, **vegetation that has established on these runways will be cleared;** and
- The existing alignment of the Double Drift runway will only be graded while the **Kamadolo airfield strip will undergo both earthworks and grading to extend it by 100 m x 15 m, thereby increasing the footprint of the airfield by 1 500 m² (0.15 Ha).**

JG Afrika (Pty) Ltd. has been appointed as the independent Environmental Assessment Practitioners by the Eastern Cape Parks and Tourism Agency (ECPTA) to apply for Environmental Authorisation subject to a Basic Assessment (BA) process, in terms of the Environmental Impact Assessment (EIA) Regulations (2014, as amended) promulgated under the National Environmental Management Act (NEMA) (Act 107 of 1998), for those proposed infrastructure developments and upgrades in the GFRNR.

Since the WCB project is a World Bank funded project, the ECPTA must comply with the World Bank's Environmental and Social Standards (ESSs) which are articulated in its Environmental and Social Framework (ESF¹). In addition to complying with the ESF, the ECPTA must also adhere to subordinate World Bank policy and good practice documents. The ECPTA's commitments to the World Bank in relation to the WCB are further outlined in the Environmental and Social Management Framework (ESMF) and associated Labour Management Procedures (LMP). Although this Environmental & Social Management Programme (ESMPr) has been produced to meet the requirements of Appendix 4 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) NEMA: Environmental Impact Assessment (EIA) Regulations (2014, as amended) (refer to Section 2.1.2), it is aligned with the requirements of *Annexures 2 and 3 of the ESMF*, relating to the *Standard Good Practice Procedures* and *Generic Terms of Reference for Preparation*, respectively.

¹ [World Bank. 2016. World Bank Environmental and Social Framework. World Bank, Washington, DC.](#)
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2. LEGISLATIVE REQUIREMENTS

Chapter 2 of the Constitution comprises the Bill of Rights which makes provision for Environmental Rights. These include that everyone has the right:

- To an environment that is not harmful to their health or well-being; and
- To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that
 - Prevent pollution and ecological degradation;
 - Promote conservation; and
 - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

2.1 NEMA: EIA Regulations (2014, as amended)

The EIA Regulations (2014, as amended) as promulgated in terms of Section 24(5) and Section 44 of the NEMA (Act 107 of 1998) consists of the following:

- Regulation 982 provide details on the processes and procedures to be followed when undertaking an Environmental Authorisation process.
- Listing Notice 1 define activities which will trigger the need for a BA process.
- Listing Notice 2 define activities which trigger an EIA process. If activities from both R 983 and R 984 are triggered, then an EIA process will be required.
- Listing Notice 3 define certain additional listed activities for which a BA process would be required within identified geographical areas.

2.1.1 Listed Activities

The above regulations were reviewed to determine which activities in terms of the above listing notices would be triggered by the proposed project, and what Environmental Authorisation Process would be required. As per the current application, the following Listed Activities in terms of the NEMA: EIA Regulations of 2014 (as amended), as indicated in Table 2-1 below, are being applied for and will be undertaken if approved:

Table 2-1: Listed Activities triggered by the proposed development.

ACTIVITY AND NOTICE NUMBER	LISTED ACTIVITY	DISCUSSION IN TERMS OF APPLICABILITY
Activity 12 Listing Notice 1 of GNR. 327 (983) (EIA Regulations (2014, as amended))	<i>The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —</i>	<u>Perimeter fence and perimeter road (4x4 track) and associated gabion structures:</u> The establishment of a 4x4 track as well as the installation of gabion structures along the road and perimeter fence will exceed the cumulative footprint of 100 m² and works will occur both within and within 32 m of watercourses. This Listed Activity is therefore TRIGGERED.
Activity 19	<i>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles, or</i>	<u>Perimeter fence and perimeter road (4x4 track) and associated gabion structures:</u> The installation of gabion structures along the road and perimeter fence will involve the excavation,

ACTIVITY AND NOTICE NUMBER	LISTED ACTIVITY	DISCUSSION IN TERMS OF APPLICABILITY
Listing Notice 1 of GNR. 327 (983) (EIA Regulations (2014, as amended))	<i>rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving—</i>	<p>removal and/or moving of material (soil) of a cumulative volume of more than 10 m³ from watercourses. This Listed Activity is therefore TRIGGERED.</p> <p><u>Watering points to be upgraded:</u> The proposed activity of expanding 3 existing watering points will involve the dredging, excavation, removal or moving of soil of more than 10 m³ for each dam. As these watering points are considered ‘watercourses’, this Listed Activity is TRIGGERED.</p> <p><u>Watering points to be closed:</u> The proposed activity of closing 11 unwanted farm watering points will involve earthworks by bulldozer, removal of the watering point walls and the earth to be spread over the area of the watering points. The watering points are considered ‘watercourses’, and the closing of the watering points will include the moving of soil. As such, this Listed Activity is TRIGGERED.</p>
Activity 48 Listing Notice 1 of GNR. 327 (983) (EIA Regulations (2014, as amended))	<p><i>The expansion of—</i></p> <p>(i) <i>infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or</i></p> <p><i>Where such expansion occurs—</i></p> <p>(a) <i>within a watercourse;</i></p> <p>(c) <i>if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse...</i></p>	<p><u>Watering points to be upgraded:</u> The proposed activity of expanding 3 existing watering points will involve the dredging, excavation, removal or moving of soil of more than 10 m³ for each dam. As these watering points are considered ‘watercourses’, this Listed Activity is TRIGGERED.</p>
Activity 12 Listing Notice 3 of GNR. 324 (985) (EIA Regulations (2014, as amended))	<p><i>The clearance of an area of 300 square metres or more of vegetation where 75% 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.</i></p> <p>(a) <i>In the Eastern Cape</i></p> <p>(ii) <i>Within critical biodiversity areas identified in bioregional plans;</i></p> <p>(v) <i>On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</i></p>	<p><u>Perimeter fence and perimeter road (4x4 track) and associated gabion structures AND Internal roads and associated low-level crossings:</u> If it is assumed that all vegetation to be cleared is indigenous, and so, more than 300m² of indigenous vegetation will be cleared along the fence line for the development of the new 4x4 track along the fence. For the internal roads, any vegetation that has become established within the roads itself will be cleared.</p> <p>The proposed clearing activity falls within ecosystems not identified as critically endangered or endangered according to Section 52 of the NEMBA (2004). In addition, the NBA (2018) listed these areas as “Least Concern”. Furthermore, the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019) itself is not a Bioregional Plan, but is rather deemed in terms of the EIA Regulations (2014, as amended) to be a Systematic Biodiversity Conservation Plan adopted</p>

ACTIVITY AND NOTICE NUMBER	LISTED ACTIVITY	DISCUSSION IN TERMS OF APPLICABILITY
		<p>by the competent authority. Therefore, although the site falls within a CBA as contemplated in the ECBCP, this is not one of the geographical areas as contemplated in Activity 12. However, the zoning of the land is conservation. As such, this Listed Activity is therefore TRIGGERED.</p> <p><u>Watering points to be upgraded:</u> Each watering point will be expanded by 300 m² or more, and so the expansion activity will require the clearance of vegetation. It is likely that 75 % or more of the vegetation to be cleared is indigenous. The proposed development falls within ecosystems not identified as critically endangered or endangered according to Section 52 of the NEMBA (2004). In addition, the NBA (2018) listed these areas as “Least Concern”. Furthermore, the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019) itself is not a Bioregional Plan, but is rather deemed in terms of the EIA Regulations (2014, as amended) to be a Systematic Biodiversity Conservation Plan adopted by the competent authority. Therefore, although the site falls within a CBA as contemplated in the ECBCP, this is not one of the geographical areas as contemplated in Activity 12. However, the zoning of the land is conservation. This Listed Activity is therefore TRIGGERED.</p> <p><u>Airfields (runway) strips:</u> The airfield strips will require the clearance of vegetation of an area of more than 300 m². It is likely that 75 % or more of the vegetation to be cleared is indigenous. The proposed activity falls within ecosystems not identified as critically endangered or endangered according to Section 52 of the NEMBA (2004). In addition, the NSBA (2004) listed these areas as “Least Concern”. Furthermore, the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019) itself is not a Bioregional Plan, but is rather deemed in terms of the EIA Regulations (2014, as amended) to be a Systematic Biodiversity Conservation Plan adopted by the competent authority. Therefore, although the site falls within a CBA as contemplated in the ECBCP, this is not one of the geographical areas as contemplated in Activity 12. However, the zoning of the land is conservation. This Listed Activity is TRIGGERED.</p>
<p>Activity 14 Listing Notice 3 of GNR. 324 (985)</p>	<p><i>The development of –</i> <i>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</i> <i>where such development occurs –</i> <i>(a) Within a watercourse;</i></p>	<p><u>Perimeter fence and perimeter road (4x4 track) and associated gabion structures:</u> The establishment of a 4x4 track as well as the installation of gabion structures along the road and perimeter fence will exceed the cumulative</p>

ACTIVITY AND NOTICE NUMBER	LISTED ACTIVITY	DISCUSSION IN TERMS OF APPLICABILITY
(EIA Regulations (2014, as amended))	<p>(b) ...within 32 meters of a watercourse, measured from the edge of the watercourse;</p> <p>(a) In Eastern Cape:</p> <p>i. Outside urban areas:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</p>	<p>footprint of 100 m². These developments will occur both within and within 32 m of watercourses.</p> <p>The developments will occur outside urban areas within a protected area in terms of NEMPAA (2003), i.e., the Great Fish River Nature Reserve (GFRNR). In addition, the GFRNR also falls within CBA's as identified by the ECBCP (2019). This Listed Activity is therefore TRIGGERED.</p>
<p>Activity 23</p> <p>Listing Notice 3 of GNR. 324 (985) (EIA Regulations (2014, as amended))</p>	<p>The expansion of—</p> <p>(ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more;</p> <p>where such expansion occurs—</p> <p>(a) within a watercourse;</p> <p>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>a. Eastern Cape</p> <p>i. Outside urban areas:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</p>	<p><u>Watering points to be upgraded:</u></p> <p>All three (3) watering points will be expanded by more than 10 m² cumulatively. These existing watering points are considered 'watercourses'. The development occurs outside urban areas within a protected area in terms of NEMPAA (2003), i.e., the Great Fish River Nature Reserve (GFRNR). In addition, the GFRNR also falls within CBA's as identified by the ECBCP (2019). This Listed Activity is therefore TRIGGERED.</p>

The proposed activities require Environmental Authorisation (EA) prior to commencement, subject to a BA in terms of the NEMA. The applicant, the ECPTA, must therefore apply to the Competent Authority, the national Department of Forestry, Fisheries and the Environment (DFFE), for EA to proceed with the project.

2.1.2 ESMP Requirements

Moreover, in terms of Section 19 of the EIA Regulations, an ESMP is required to accompany the BAR. This document constitutes such management programme. Appendix 4 of the NEMA: EIA Regulations (2014, as amended) sets out the required content of an ESMP. This ESMP has been developed in fulfilment of these requirements. Refer to Table 2-2 below which references applicable sections in this document to the information required.

Table 2-2: Content of the ESMP

Information required in terms of Appendix 4 of the EIA Regulations (2014, as amended) – Content of ESMP	Reference in the ESMP
(a) Details of – (i) The EAP who prepared the ESMP; and (ii) The expertise of that EAP to prepare an ESMP, including a curriculum vitae.	Section 4 – the authors and reviewers of the ESMP Appendix B – compilers' CV
(b) A detailed description of the aspects of the activity that are covered by the ESMP as identified in the project description	Section 2.1.1.1 – Listed Activities Section 1 – Project Description Section 5 – Specialist Studies Section 6 – Aspects and Activities
(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.	Appendix A – Project Maps
(d) A description of the impact management objectives, 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 – (i) Planning and design; (ii) Pre-construction activities; (iii) Construction activities; (iv) Rehabilitation of the environment after construction and where applicable, post-closure; and (v) Where relevant, operational activities.	Section 8 – Impact Management Objectives and Outcomes
(e) A description and identification of impact management outcomes required for the aspects contemplated in paragraph (d).	Section 8 – Impact Management Objectives and Outcomes
(f) A description of proposed impact management actions, identifying the way the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop an action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable.	Section 0 – Impact Management Actions
(g) The method of monitoring the implementation of the impact management actions contemplated in paragraph (f).	Section 10 – Monitoring
(h) The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f).	Section 10 – Monitoring
(i) An indication of the persons who will be responsible for the implementation of the impact management actions.	Section 7.2 – Roles and Responsibilities
(j) The time periods within which the impact management actions contemplated in paragraph (f) must be implemented.	Sections 8 and 10

Information required in terms of Appendix 4 of the EIA Regulations (2014, as amended) – Content of ESMPr	Reference in the ESMPr
(k) The mechanism for monitoring compliance with the impact management actions contemplated in in paragraph (f).	Section 10 – Monitoring
(l) A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations.	Section 10 – Monitoring
(m) An environmental awareness plan describing the manner in which – (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and; (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment.	Section 7.3 – Environmental Awareness Plan
(n) Any specific information that may be required by the competent authority.	This will be addressed, if required, if Environmental Authorisation (EA) is issued.

This ESMPr, which forms an integral part of all contract documents for the project, informs ECPTA, and all its appointed Agents, of their duties in the fulfilment of the project objectives, with reference to the prevention and mitigation of environmental impacts caused by construction and operational / maintenance activities associated with the project.

The ECPTA and all appointed Agents should note that the obligations imposed by the ESMPr are legally binding in terms of environmental statutory legislation. As such, failure to comply with the ESMPr will constitute an offence and ECPTA and/or their Agents may be liable for penalties and/or legal action. Therefore, it is important for all the responsible parties to understand their duties and undertake them with due care.

It is expected that the ECPTA and its appointed Agents will be conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the project, including, but not limited to:

- Constitution of the Republic of South Africa No. 108 of 1996;
- National Development Plan 2030;
- National Environmental Management Act No. 107 of 1998 (NEMA);
- National Environmental Management Waste Act No. 59 of 2008 (NEMWA);
- Norms and Standards for the Storage of Waste and List of Waste Activities (November 2013);
- National Environmental Management: Biodiversity Act, No. 10 of 2004;
- National Water Act No. 36 of 1998 (NWA);
- South African Heritage Resources Act, No 25 of 1999;
- Occupational Health and Safety Act No. 85 of 1993 (OHSA);
- Hazardous Substances Act No. 15 of 1973;
- Basic Conditions of Employment Act No. 75 of 1997;
- Employment Equity Act No. 55 of 1998;
- Labour Relations Act No. 66 of 1995;
- Protected Areas Act No. 57 of 2003;
- Promotion of Equality and Prevention of Unfair Discrimination Act No. 4 of 2000;
- National Building Regulations and Building Standards Act, No 103 of 1977;
- Relevant regulations as promulgated under the Standards Act, No 30 of 1982; and
- Relevant municipal by-laws.

In addition to the legislative requirements listed above, the appointed contractor shall be required to comply with the World Bank Environmental and Social Standards as well as their Environmental, Health and Safety guidelines including but not limited to:

- ESS1: Assessment and Management of Environmental and Social Risks and Impacts;
- ESS2: Labour and Working Conditions;
- ESS3: Resource Efficiency and Pollution Prevention and Management;
- ESS4: Community Health and Safety;
- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- ESS10: Stakeholder Engagement and Information Disclosure;

In terms of environmental, health, and safety guidelines, the project will apply the World Bank Group's General Guidelines for Environment, Health and Safety, which require the early identification of potential activity hazards and risks informing the site selection and design of activities; an activity risk management strategy which reduces risks to human health and the environment by preventing irreversible and/or significant impacts, eliminating hazards, and reducing and minimizing remaining impacts; and the preparedness of workers and communities to deal with accidents. Specific guidelines may apply to activities and mitigation measures, as relevant are included in this site-specific ESMP.

3. APPLICABLE DOCUMENTATION

The following environmental documentation is applicable for the project, and must be read in conjunction with this ESMP:

- a) *Final Basic Assessment Report* (JG Afrika (Pty) Ltd, July 2023).
- b) *Environmental Authorisation* (once issued).
- c) *ECPTA's standard ESMP for construction and maintenance projects* - As all proposed development and upgrading activities will take place within the GFRNR, the ECPTA, as the management authority, is responsible for ensuring that all activities within GFRNR are executed in an environmentally sound manner. A Standard ESMP has been developed by the ECPTA (attached as Appendix C to this document), and so, should also be implemented in conjunction with this ESMP compiled by JG Afrika (Pty) Ltd.
- d) *Environmental and Social Management Framework (ESMF)*
- e) *Labour Management Procedure (LMP)*

4. DETAILS OF THE AUTHOR/S

JG Afrika (Pty) Ltd. is a South African consulting engineering and environmental consulting firm with a complement approximately 221 staff comprising engineers, environmental scientists, specialist professionals and administrative staff working together with a common goal: to provide the highest quality of consulting engineering services for the benefit of the community and the environment.

Established in 1922 and headquartered in Johannesburg, JG Afrika has offices in major South African cities and provides consulting services in all fields of civil and structural engineering, as well as environmental services, throughout Africa. Apart from the main operating company, the Group comprises specialist companies operating in the fields of geotechnical, environmental and geosciences consultancy, pavement technology, traffic and transportation, materials testing, and institutional support. JG Afrika is member of Consulting Engineers South Africa (CESA) and affiliated to FIDIC and GAMA. The company has rigorous quality assurance standards and is ISO 9001 accredited.

Table 4-1 below provides information on the Environmental Scientists and Environmental Assessment Practitioner who compiled this document.

Table 4-1: Details of compilers

NAME AND POSITION	QULAIFICATIONS. PROFESSIONAL REGISTRATION AND AFFILIATIONS	EXPERIENCE	CONTACT DETAILS
Ryan Jonas - Senior Environmental Scientist	M.Sc (Environmental Science), BSc (Natural Sciences), EAPASA Registered EAP, SACNASP Pr. Sci. Nat.	16 years	Tel: 021 530 1800 E-mail: jonasr@jgafrika.com
Cherize Coetzee - Environmental Scientist	MSc (Zoology) IAIAsa	10 years	Tel: 041 390 8700 E-mail: coetzeec@jgafrika.com
Linmarie Troskie – Environmental Scientist	BSc (Hons) (Botany and Environmental Management) IAIAsa SACNASP Registered Candidate Natural Scientist	2 years	Tel: 041 390 8700 E-mail: troskiel@jgafrika.com

Refer to Appendix B for the Curriculum Vitae of compilers.

5. SPECIALIST STUDIES

Five (5) specialist studies have been conducted for the BA, namely an Aquatic Impacts Assessment, Terrestrial Biodiversity and Plant Species Impact Assessment, Faunal Impact Assessment, Archaeological Impact Assessment and Palaeontological Impact Assessment (PIA). These studies were undertaken to determine the potential impact of the project on the surrounding area within the different areas mentioned above. It was also used to identify and rank impacts and to ascertain the mitigation measures / action items as detailed in Section 0 of this ESMP. The following must be noted with regards to environmental sensitive areas/ sites that are to be impacted by the proposed activities, and in some cases likely to be impacted by the activities, within the GFRNR as reported by the various specialists:

5.1.1 Terrestrial and Plant Biodiversity Impact Assessment

Site sensitivity was determined for two environmental themes as listed in the Department of Forestry, Fisheries and the Environment (DFFE) Screening Report (for the entire GFRNR). Due to the nature of the Reserve, intact and pristine faunal habitats are present throughout the site, thus the entire GFRNR site has been classified as follows:

- Very High to High Sensitivity for Terrestrial Biodiversity
- High Sensitivity for Plant Species

Owing to the extent of the project area, various vegetation units are present that are in pristine to near pristine condition, this carries a high probability for high plant biodiversity occurring across the different construction areas. Various common as well as sensitive plant species occur on site. The GFRNR is a

proclaimed protected area (according to the National Environmental Management Protected Areas Act; NEMPAA) which increases the probability for high biodiversity environments and a variety of plant species of conservation concern (SCC).

A total of 244 plant species were identified to potentially occur in the GFRNR. Species biodiversity is considered as high to very high with little alien invasive plants present. Various plant SCCs were observed during the site visit.

All proposed development footprints must undergo a Search and Rescue (S&R) exercise before any clearing commences. The S&R must be done by a qualified botanist. A Threatened or Protected Species (ToPS) permit must be obtained for any SCC found on site. This includes species found on site but not listed in the specialist report.

5.1.2 Terrestrial Animal Species Impact Assessment

As the site is a nature reserve with intact and pristine faunal habitats occurring throughout the site, the entire GFRNR site has been classified as Very High Sensitivity for faunal species. This would usually mean that no development be allowed in the site but because of the nature of the proposed development within the GFRNR (upgrading internal infrastructures for the better management of the Nature Reserve and to provide income through tourism), the proposed development activities may be allowed provided all mitigation activities as described in this report are implemented. This will ensure a reduced risk on identified faunal sensitivities within the GFRNR.

5.1.3 Aquatic Impact Assessment

No buffers are proposed for the actual activities; however, buffers are prescribed for the location of the site camps, construction storage areas or ablution facilities. All such facilities associated with each of the construction sites must be placed at a distance greater than 40m from the demarcated edge of the riparian vegetation.

It is the specialist's opinion that the construction and operation of the proposed infrastructure at the Great Fish River Nature Reserve should be authorised as they pose a LOW to NO risk to the characteristics of the identified aquatic features if the implantation of the management and mitigation measures are ensured.

5.1.4 Archaeological and Cultural Heritage Impact Assessment

Due to the cultural significance of the wider area within the GFRNR it is important that special care must be taken where upgrading and maintenance is done near any of the heritage sites along the perimeter fence and elsewhere within the reserve such as historical buildings or graves. Should there be any doubt about the impact of the use of heavy machinery or equipment on any of these sites a historian / heritage practitioner must be appointed to assess the site/s and to make recommendations for mitigation (if required). This is also applicable if any historical artefacts or structures are exposed as a result of the activities.

5.1.5 Palaeontological Impact Assessment

A two day-site-specific field survey of the development footprint was conducted on foot and motor vehicle in late February and early March 2023. New fossiliferous sites containing in situ *Glossopteris* leaves, and trace fossils were detected within the sub-project areas (see Figures 26 and 28 in PIA Report). Loose fragments of fossilized wood were also detected during the site visit (Figure 29 in PIA Report).

It is recommended that a buffer of 5m is placed around the in-situ trace fossil and 15m buffer around the *Glossopteris* and loose wood fossils (Figure 2 of Appendix A in PIA Report). If possible, these fossils could be used for educational purposes with information available for the tourists. By implementing mitigation

measures the significance of the impact will be reduced to low. If mitigation measures are followed the development will not lead to detrimental impacts on the palaeontological reserves of the area and construction of the development may be authorised to its whole extent.

Refer to Appendix E of the Final BAR for copies of these specialist reports.

6. ACTIVITIES AND ASPECTS

The proposed project activities will interact with the existing environment (resulting in potential environmental impacts) during the Construction and Operation Phase. The Construction Phase includes all the construction related activities to be undertaken by the appointed Contractor/s on site, including site clearing, excavations, importing of material, etc. A breakdown of the construction related activities are stated in Table 6-1: below.

Even though this document primarily refers to the construction phase, a section on the operational phase has also been included. The impacts, which are anticipated during the operational phase, are those resulting from inappropriate maintenance management of the road and other applicable facilities. By taking pro-active measures during the operation of the plant, potential environmental impacts emanating during the operational phase will be minimised.

Table 6-1: Details of the construction activities to be undertaken.

Type of Activity	Size of activity	Type of equipment to be used during construction	Duration of construction	Labourers Required	Nature of waste and waste disposal
Repair and maintenance of perimeter fence and perimeter road (4x4 track) and associated gabion structures	<p>Perimeter road: Approximately 109 sections along the fence, with a cumulative length of 89 km. Those sections requiring clearance of 1m in width amount to approximately 5.5 Ha while those sections requiring clearance of 2 m in width add up to approximately 7 Ha. Thus 13 Ha in total.</p> <p>Gabions: Typical mesh baskets ranging from 1–2 m in length and 0.5–1 m in width and height and stacked with stones (100–250 mm) brought in from a registered quarry. Each gabion will not exceed 2m³ in size.</p>	<p>Perimeter road: chainsaws and brush cutters</p> <p>Gabions: bulldozer / excavator</p>	24 months (Taking into consideration the delays due to terrain and inclement weather conditions)	25 labourers, based on assumption that it is maintenance and not a completely new erection.	<p>Cleared vegetation material</p> <p>Alice waste disposal facility</p>
<p>Maintenance of the internal and existing gravel road network and development of a new gravel road east of Double Drift airfield strip.</p> <p>In addition, low-level crossings along the internal roads will be refurbished.</p>	<p>Internal gravel road network: 22 x road sections measuring approximately 3 m wide and a cumulative length of approximately 63 km. Thus approximately 19 Ha in total.</p> <p>Double Drift Road: 1 410 m²</p> <p>Low-level crossings: average size of 3m x 3m x 3m</p>	<p>Internal gravel road network: Most of the roads will be graded, while some will need to be ripped by a bulldozer and then graded.</p> <p>Double Drift Road: Will undergo earthworks and grading.</p> <p>Low-level crossings: Blocked pipe culverts under the road will be cleared, and repairs will be undertaken to any damaged concrete work and the road surface over the pipes. Concrete surfaces of the crossings will be cleared of</p>	24 months (Taking into consideration the delays due to terrain and inclement weather conditions)	15 Labourers, excluding the professional team.	<p>Vegetation material, soil, and debris from blocked pipes</p> <p>Alice waste disposal facility</p>

		accumulated materials and any damaged concrete works will be repaired.			
Upgrading of watering points	3 x watering points with upgraded volume not exceeding 2 000 m ³	A bulldozer and excavator will be used, and the excess material will be pushed to the existing watering point wall and compacted.	6 Months	20 Labourers	N/A
Unwanted small farm watering points are to be decommissioned	11 x watering points with average volume of 1 050 m ³	This will involve breaking the watering point walls with a bulldozer and then spreading the material over the surface of the watering point.			N/A
Extension and/or grading of airfield strips	1 500 m ²	Kamadolo Airstrip: Will undergo earthworks and grading. Double Drift Airstrip: Will only require grading during refurbishment process.	8 Months	15 Labourers	N/A

7. GENERAL REQUIREMENTS OF THE ESMPr

7.1 ESMPr Administration

7.1.1 Construction Phase

During the Construction Phase, copies of this ESMPr shall be kept at the construction site office and must be distributed to all senior contract personnel. All senior personnel shall be required to familiarise themselves with the contents of this document and will further be required to sign a register confirming their understanding of the document. As changeover of senior personnel takes place during the construction phase, senior personnel will be required to educate their workers regarding the contents of this document and how to comply with its requirements. This register shall be continuously updated.

It is recommended that site inspections be undertaken by the Environmental Control Officer (ECO) on a monthly basis for the duration of the construction phase and compile monthly audit reports after the second inspection regarding the compliance of the Contractor with the audit checklist. Copies of monthly audit reports should be kept in the Environmental File on site, submitted in full to the World Bank on request but recent observations summarized in progress reports provided to the World Bank. The contractor/ ECO will be required to submit the monthly reports to the GFRNR Environmental & Social specialist assigned to the project.

7.1.2 Post-construction / Rehabilitation Phase

It is recommended that a Post-Construction / Close-Out and Rehabilitation Audit be undertaken upon completion of both construction and rehabilitation.

7.1.3 Operational Phase

During the Operational Phase, a copy of this ESMPr must be maintained by the ECPTA. All senior operational and maintenance staff, including those sub-contracted by the ECPTA, will be required to familiarise themselves with the contents of the document and will have to sign a register to the effect that they have read and understood the contents of the document.

7.2 Roles and Responsibilities

The successful implementation of this ESMPr requires co-operation between ECPTA and the appointed Project Manager, Contractors, and the Environmental Control Officer (ECO).

The project has not yet been authorised in terms of the EIA Regulations and no contractors have been formally appointed for the project at the time of the compilation of this Draft ESMPr. However, general roles and responsibilities have been outlined in Table 7-1 and the Project Team will be required to comply with the conditions defined herein.

In terms of employment of labour, contractors will be expected to maximise the employment of individuals with the required skills residing in the area or adjacent residential area. The ECPTA should make use of local construction companies as far as possible. Contractors outside of the area should only be used to provide skills not readily available in the area.

Table 7-1: Roles and Responsibilities

RESPONSIBLE AGENT	ROLE / RESPONSIBILITY
Applicant / Employer (The Eastern Cape Parks & Tourism Agency)	<ul style="list-style-type: none"> Under South African environmental legislation, the Applicant/Employer is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts.

	<ul style="list-style-type: none"> • Ensure that the implementation of this ESMPr complies with the relevant legislation and the conditions of the EA. • The Employer will appoint a Contractor to undertake the construction and operation of the proposed development but will still ultimately be responsible for any environmental impacts.
Reserve Manager (RM)	<ul style="list-style-type: none"> • Controls all personnel and staff that enter the site and grants permission if staff need to stay on after hours (when reserve gates close).
Project Manager (PM) / Environmental Planner (EP)	<ul style="list-style-type: none"> • Ensure compliance with the contract and legislative environmental requirements as well as those of the World Bank (WB); • Maintain overall responsibility for ensuring that the functions defined in the ESMPr are carried out effectively; • Ensure that a copy of the applicable ESMPr, EA (when issued) and all agreed Method Statements and a layout plan are available on-site; • Ensure that all environmental protection procedures defined in this ESMPr are being adhered to; • Ensure adherence to DFFE conditions of authorisation, the WB's requirements and any other laws and standards relevant to construction of the new facilities; • Appoint appropriately qualified contractors to co-ordinate, supervise and expedite different tasks; • Appoint an independent ECO to monitor implementation of the ESMPr, during construction; • Ensure all staff, Sub-contractors, suppliers, etc. are familiar with and understand the ESMPr, EA and all agreed Method Statements; and • Liaise with DFFE and Interested and Affected Parties (IAPs), if required. • Provide quarterly reports to the World Bank and immediately report ESHS incidents to the Applicant and WB. • Monitor, audit and implement the requirements in this ESMPr as well as any contractor specific sub-project specific management plans or method statements that may need to be prepared. • Ensure that the necessary permits, if any, have been obtained prior to commencement of the project. • Identify the environmental and social risks and impacts associated with the sub-project activities and propose actions/ requirements necessary to avoid and or mitigate the identified environmental and social impacts and risks. Follow-up on areas of non-compliance and corrective actions taken by the contractor to address environmental and social impacts and risks. • Undertake regular site visits to monitor the contractor's implementation of the ESMPr and keep photographic records of the construction site prior, during and after completion of the units' activities. • Report back to the Reserve Manager and Bank on any environmental and social issues/ incidents and review the contractors monthly ESHS reports. • Review contractor environmental and social management plans and if necessary, update the sub-project specific environmental and social instruments for the project. • Prepare environmental, social, health and safety performance reports on a bi-annual basis or upon request for the Bank.

<p>Community Liaison Officer (CLO)</p>	<ul style="list-style-type: none"> • Participate and oversee any stakeholder engagement related to the sub-project activities set out in this ESMPr. • Ensure that the project remains a standing item in the existing park forum meetings and provide an update on the status of implementation of the sub-project activities during these meetings. • Oversee the management of the grievance mechanism, including separate procedures to manage SEA/SH-related complaints and ensure that the contractors have adequate workers grievance mechanisms in place which allows for safe reporting of any SEA/SH-related matters. • Participate in the monthly project committee monthly meetings during which comments, feedback, and status of resolution of correspondence received via the GRM will be discussed. • Proactively identify stakeholders, project risks and opportunities and inform the Parks Manager to ensure that the necessary planning can be done to either mitigate risk or exploit opportunities. • Review the contractors labour management practices to ensure it is in line with the legislative requirements and those set out in the ESMPr. • Participate in induction and sensitization sessions to ensure contractors are aware of the Great Fish River Nature Reserve (GFRNR) and project Code of Conduct, and matters related to GBV/SEA/SH, HIV/AIDS and interaction with local communities. The socio-economic transformation officer will conduct inspections to ensure all workers have signed and are adhering to the CoC developed for this project.
<p>Contractor</p>	<ul style="list-style-type: none"> • Ensure all personnel are fully aware of all environmental, social and occupational health and safety issues relating to construction activities being undertaken on site and the related precautions that need to be taken; • Ensure compliance with the project environmental, social, health and safety requirements as stipulated in the bidding documents, this ESMPr and any other applicable environmental and social instruments or rules provided by GFRNR. • Ensure all mitigation measures outlined in this ESMPr are properly and competently directed, guided, and executed during construction; • Ensure that all workers, including sub-contractors and suppliers are aware of the requirements set out in this document, either through induction or including it as part of the sub-contractor procurement requirements. • Conduct self-monitoring to ensure compliance with the requirements in this ESMPr and provide monthly compliance reports to GFRNR. • Ensure that incidents are immediately reported to GFRNR and that the necessary corrective and preventative measures are implemented to prevent re-occurrence. • Ensure that all workers are trained on the necessary environmental and social including Code of conduct and SEA/SH requirements of the project. • Pro-actively identify any activities that may pose an environmental, social or health and safety risk and put measures in place to either avoid or mitigate the risks in line with the ESMPr and prepare and submit activity specific method statements for GFRNR review. • Ensure that all documented records as stipulated in this ESMPr are kept for GFRNR or Bank review.

	<ul style="list-style-type: none"> • Ensure that sufficient budget provisions have been made available to ensure compliance with the sub-project ESHS requirements.
<p>Contractor's Environmental, Health and Safety (EHS) Officer</p>	<ul style="list-style-type: none"> ▪ Conduct daily evaluations of the activities on site to ensure compliance. ▪ Identify issues relating to day-to-day activities that can have a detrimental effect on the environment or health and safety of the workers, public and community members. ▪ Conduct induction and site-specific training to ensure workers and sub-contractors are familiar with the project ESHS risks and requirements. ▪ Participate in the preparation of risk assessments and method statements to ensure all relevant activity specific EHS risks and hazards have been identified and addressed. ▪ Ensure that the correct Personal Protective Equipment (PPE) is available, issued and used by all workers and sub-contractors. ▪ Conduct regular inspection on construction equipment to ensure that it is in a good working condition and do not pose a risk to users. ▪ Ensure that all EHS documentation, records and competencies have been obtained, are up to date and kept in the EHS file. ▪ Take charge of EHS incidents or emergency situations and correspond with the relevant emergency response units as needed. ▪ Ensure that incidents are reported, investigated as needed and corrective actions implemented.
<p>Environmental Control Officer (ECO)</p>	<ul style="list-style-type: none"> • Ensure contractors have copies of the ESMPr (including revisions), EA (when issued) and all agreed Method Statements; • Undertake independent monthly audits (or as per conditions of EA), and record key findings. This includes monitoring of the construction site and an evaluation of the implementation, effectiveness, and level of compliance of on-site construction activities with the ESMPr and associated plans and procedures; • Record and provide monthly reports (written documentation) of non-conformances with the ESMPr that require ECPTA or its Contractor/s to implement corrective action; • Review preventative and corrective actions to ensure implementation of recommendations made from audits and site inspections; • Via the Client's, order the Contractor to suspend part or all of the works if the Contractor and/or any sub-contractors, suppliers, etc. fail to comply with any aspect of either the ESMPr or EA; • Advise the Project Manager on actions or issues impacting on the environment and provide appropriate recommendations to address and rectify these matters; • Identify possible areas of improvement in the execution of the contract from an environmental perspective; • Assess the suitability and/or effectiveness of the ESMPr on an on-going basis, in liaison with the Contractor/s and the Project Manager. Make recommendations accordingly; • Submit of audit reports to the Project Team (or as per conditions of EA);

	<ul style="list-style-type: none"> • Monitor the processing of public complaints relating to the construction activities; and • Ensure that revisions to this ESMP (as necessary) are communicated to the ECPTA, PM, and the contractor and that they understand the requirements.
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7.3 Environmental and Social Awareness Training

Appendix 4 of the EIA Regulations (2014, as amended) requires the development of an Environmental Awareness Plan, describing the way the Contractor intends informing its employees of any environmental risks which may result from their work as well as the manner in which the risk must be dealt with to avoid pollution or degradation of the environment.

All internal staff and external agents undertaking work on the proposed development must undergo Environmental Inductions and Training which must include the contents of the approved ESMP. During the construction phase, regular Health and Safety Toolbox Talks must be held to discuss how to address potential occupational health and safety and environmental risks, near misses or incidents and how they can be avoided in future. Regular drills are to be held to ensure that all staff are aware of the spill contingency and other environmental health and safety emergency procedures as applicable and can perform these procedures in reasonable timeframes. The Contractor shall ensure that adequate environmental and social awareness training of senior site personnel takes place and that all construction phase workers receive an induction on the importance and implications of the ESMP prior to commencement with their work. The presentation shall be conducted, as far as possible, in the employees' *language of choice*.

The OHS measures will be designed and implemented to address:

- (a) identification of potential hazards to project workers, particularly those that may be life threatening;
- (b) provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances;
- (c) training of project workers and maintenance of training records;
- (d) documentation and reporting of occupational accidents, diseases and incidents;
- (e) emergency prevention and preparedness and response arrangements to emergency situations; and
- (f) remedies for adverse impacts such as occupational injuries, deaths, disability and disease.

As a minimum, training shall include:

- Explanation of the importance of complying with the ESMP;
- Discussion of the potential environmental, social and occupational health and safety impacts of construction / operational activities;
- The benefits of improvement personal performance;
- Employees' roles and responsibilities, including emergency preparedness;
- Explanation of the mitigation measures that must be implemented when carrying out their activities;
- Explanation of the specifics of this ESMP and its implementation; and
- Explanation of the management structure of individuals responsible for matters pertaining to the ESMP.

The contractor shall keep records of all environmental training sessions, including names, dates and the information presented. These records will be presented at the project meetings and to the ECO on request during his/her audits.

7.4 Method Statements

Method Statements (MS) are written submissions by the Contractor to the PM in response to the requirements of this ESMP or to a request by the PM. The Contractor shall be required to prepare Method Statements for several specific construction activities and/or environmental management aspects. The

Contractor shall not commence the activity for which a Method Statement is required until PM has approved the relevant Method Statement.

Method Statements must be submitted at least 20 working days prior to date on which approval is required to the PM. The PM must in turn accept or reject the Method Statement within 10 working days of receipt. *Failure to submit a Method Statement may result in suspension of the activity concerned until such time as a Method Statement has been submitted and approved.*

An approved Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the contract. However, any damage caused to the environment through activities undertaken without an approved Method Statement shall be rehabilitated at the Contractor's expense.

The Method Statements shall cover relevant details with regard to:

- Construction procedures and location of the construction camp
- Start date and duration of the procedure;
- Materials, equipment, and labour to be used;
- How materials, equipment and labour would be moved to and from the site as well as on site during construction;
- Storage, removal and subsequent handling of all materials, excess materials, and waste materials of the procedure;
- Emergency procedures in case of any reasonably potential accident/incident which would occur during the procedure; and
- Compliance/non-compliance with the ESMPr specifications and motivation if non-compliant.

Based on the specifications in this ESMPr, the following MS's are required as a minimum:

MS1: Construction camp layout and establishment (incl. social and environmental requirements)

MS2: Vegetation Clearing

MS3: Topsoil removal and stockpiling

MS4: Working in watercourses

MS5: Handling, storage, and disposal of hazardous substances

MS6: Waste management

MS7: Soil erosion control and Stormwater management

MS8: Alien vegetation control

MS9: Rehabilitation Management Plan

8. IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES

The intention of this ESMPr is to document appropriate objectives and actions and to assign responsibility and timing for those actions, to ensure that any impacts resulting from the construction, associated with the establishment of the residential development and its associated infrastructure, are minimised, and mitigated. This ensures that the basis on which any environmental decision is taken, is accurate and that the impacts on the surrounding environment are minimised.

The purpose of this ESMPr is to:

- Outline the ECPTA's environmental management commitments for construction of the proposed infrastructural upgrades;
- Act as a performance standard that construction activities can be audited against; and
- Ensure that appropriate monitoring is undertaken.

Research and the results of the specialist studies undertaken during the BA process informed the Impact Management Objectives and Outcomes as provided in

Table 8-1. Specific Impact Management Actions are detailed in Section 0 of this ESMPr.

Table 8-1: Impact Management Objectives & Outcomes

IMPACT	IMPACT MANAGEMENT OBJECTIVES	IMPACT MANAGEMENT OUTCOMES	TIMEFRAME
Alteration to surface water features	A sufficient stormwater management plan must be in place.	Minimum alteration to surface water features	<p>Progress on rectification of all ESMPr non-conformances as identified by the ECO in the audit report, is to be reported in the subsequent audit report.</p> <p>All construction phase outcomes to be achieved prior to final handover of the site.</p>
Prevention of Surface water and ground water contamination	A sufficient stormwater management plan must be in place to avoid impacts on the aquatic features present.	Quality of surface water and groundwater resources are not negatively impacted	
Prevention of soil contamination	Management of site activities should adhere to the protocols in place to ensure minimal cement or hydrocarbon contamination.	Little to no soil contamination	
Loss of natural vegetation and SCC's	<p>Buffer / No-Go areas are adhered to, and construction only takes place in designated areas.</p> <p>Conducting a formal search and rescue and obtain the requisite permits from the applicable authorities before vegetation clearance.</p>	<p>Minimum destruction to natural vegetation.</p> <p>SCC's are not destroyed but protected</p>	
Proliferation of alien vegetation in disturbed areas	The spread of alien vegetation prior, during, and post construction should be eradicated and appropriately disposed of.	Alien & Invasive Plant Species successfully eradicated	
Fauna	<p>Faunal species present on site are not harmed but rather relocated to a similar habitat.</p> <p>Conducting a formal search and rescue and obtain the requisite permits from the applicable authorities before vegetation clearance.</p>	Faunal species are not harmed but protected	
Soil disturbance	Any erosion is to be addressed immediately by implementing relevant erosion control measures. All areas disturbed are to be rehabilitated.	Little to no soil disturbance	
Solid Waste Pollution	<p>Construction activities are to be properly managed by following the correct waste management protocols to avoid pollution in and around the construction areas. This includes general waste, hazardous waste, and chemical (toilet) waste.</p> <p>Licensed waste disposal facilities are to be utilised.</p>	Minimal solid waste pollution	

IMPACT	IMPACT MANAGEMENT OBJECTIVES	IMPACT MANAGEMENT OUTCOMES	TIMEFRAME
	No waste to be buried on site.		
Damage to archaeological and Cultural heritage sites	Maintain presence of archaeological and cultural heritage sites by ceasing all work in the immediate area should any human remains and/or other archaeological remains be uncovered during construction. Report to the Albany Museum in Makhanda or to the Eastern Cape Provincial Heritage Resources Authority. A chance finds procedure must be implemented.	Archaeological and cultural heritage sites are not damaged	
Damage to palaeontological sites	Maintain presence of palaeontological sites by implementing a chance find protocol immediately if paleontological remains are uncovered during clearing and excavations.	Palaeontological sites are not damaged	
Deterioration of local air quality	Management measures and techniques must be implemented to keep dust and vehicle emissions to a minimum.	Air quality does not deteriorate	
Increase in noise	<p>Construction workers are sensitised to the need to minimise noise impacts.</p> <p>The regular servicing of all construction machinery and equipment and road dampening will ensure minimum noise.</p>	Minimum noise impacts	
Visual aesthetic intrusion	<p>Generation of dust will increase the visibility of the project, and it is therefore important to employ techniques to suppress dust generation during construction.</p> <p>The contractor should maintain good housekeeping on site to prevent litter and minimise waste.</p> <p>Erosion risks should be assessed and minimised as erosion scarring can create areas of strong visual contrast with the surrounding vegetation.</p> <p>Equipment not being used should be removed from site.</p>	No interference with the visual aesthetics	
Fire Risk	The Contractor shall take all reasonable steps to avoid increasing the risk of fire through activities on site.	No fire damage	

IMPACT	IMPACT MANAGEMENT OBJECTIVES	IMPACT MANAGEMENT OUTCOMES	TIMEFRAME
	All fire management should be done in compliance with the Fire Management Plan of the Protected Area.		
Construction Traffic impedance	Minimise/reduce significant traffic disruptions due to construction activities. Repair any damage that may result from construction activities.	Minimal construction traffic impedance	
Occupational Health & Safety	Occupational Health and Safety measures need to be implemented to ensure that incidents are resolved/prevented via regular site inspections, training, and the use of PPE.	No serious occupational health & safety incidents.	
Staff Management	Staff Management measures need to be implemented to ensure that grievances are prevented via regular site inspections and staff meetings.	Staff management grievances are effectively resolved	
Safety and security are jeopardised	Safety and security measures must be place for the duration of the construction period.	Maintain safety and security	
Disturbance to existing infrastructure	Avoid damage or disturbance to all existing structures and infrastructure where possible by following management measures described in Section 9.	No damage to existing infrastructure disturbance	
Socio-Economic	Employment & skills training of local labour is maximised.	Local communities prioritized during recruitment of labour & skills training Zero (0) grievances relating to unfair recruitment processes received.	

9. IMPACT MANAGEMENT ACTIONS

The Impact Management Actions required to meet the Impact Management Objectives and Outcomes are provided in Table 9-1, Table 9-2, Table 9-3, Table 9-4 overleaf for the Pre-Construction, Construction, and Post-Construction / Rehabilitation and Operational Phases. The following abbreviations have been used in these tables to follow: ECO = Environmental Control Officer; EA = Environmental Authorisation; C = Contractor; PM = Project Manager; MS = Method Statement.

Table 9-1: Impact Management Actions during the Pre-construction phase.

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
Permitting	Non-compliance with the relevant legislation and policies of South Africa, as they pertain to the environment, could lead to damage to the environment, unnecessary delays in planned construction activities, and could potentially result in criminal cases, based on the severity of the non-compliance, being brought against the proponent and their Contractors.	<ul style="list-style-type: none"> • All necessary permitting and authorisations must be obtained prior to the commencement of any construction activities; and • A suitably qualified Environmental Control Officer (ECO) must be appointed prior to the commencement of the construction phase. 	PM
Environmental, Occupational Health & Safety, and Social Awareness Training	To make all employees aware of the environmental, OHS and social risks which may result from their work and the manner in which the risk must be dealt with to avoid pollution or degradation of the environment	<ul style="list-style-type: none"> • An upfront training session must be held to ensure all construction personnel are aware of the provisions contained in the ESMPr. • The training session shall be conducted, as far as possible, in the employees' language of choice. • As a minimum, training shall include: <ul style="list-style-type: none"> ○ Explanation of the importance of complying with the ESMPr; ○ Discussion of the potential environmental and social impacts of construction activities; ○ The benefits of improvement personal performance; ○ Employees' roles and responsibilities, Code of Conduct, Grievance mechanism and emergency preparedness; ○ Explanation of the mitigation measures that must be implemented when carrying out their activities; ○ Explanation of the specifics of this ESMPr and its implementation; and ○ Explanation of the management structure of individuals responsible for matters pertaining to the ESMPr. • The contractor shall keep records of all environmental, social and OHS training sessions, including names, dates and the information presented. These records will be presented to the ECO on request during his/her audits. 	C
Translocation and protection of plant species of	Requisite permits from the applicable authorities must be obtained should species of special concern be destroyed by the development	<ul style="list-style-type: none"> • Permits must be obtained to remove any plant SCC and protected species identified prior to commencement of any activity on site. • A Plant Search and Rescue must be conducted by a qualified botanist prior to 	Applicant/PM

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
conservation concern (SCC's)		<p>commencement of any activity on site.</p> <ul style="list-style-type: none"> As many SCC and permitted plants as possible must be relocated into the surrounding areas. A nursery will not be required if all plant species are immediately relocated to the surrounding environment. No plant harvesting will be allowed. 	
Faunal Search & Rescue		<ul style="list-style-type: none"> A Faunal Search and Rescue must be conducted by a qualified Faunal specialist prior to commencement of any activity on site. As many SCC as possible must be relocated into the surrounding areas. No animals must be kept in cages or containers for longer than necessary during relocation. It is recommended that only small mammals, frogs, scorpions, baboon spiders and reptiles be relocated. There is no need to relocate any big faunal species as they will naturally move away from the construction areas. The construction site must be daily inspected (before activities for the day starts) for any trapped faunal species. These species must be relocated to nearby No-Go areas by an employee that is qualified in dangerous animal handling. 	Applicant/PM
Method Statements	Ensure all construction works are undertaken in accordance with the approved Method Statements	Method Statements must be submitted at least 20 working days prior to date on which approval is required to the PM. The PM must in turn accept or reject the Method Statement within 10 working days of receipt.	PM/C
Site Establishment	No construction work to take place outside of the designated construction footprint	Demarcate all constructed areas to prevent work taking place outside of the designated footprint areas prior to commencement of works. (For linear activities, the construction footprint at that point in time must be demarcated with barrier mesh (barricade) netting.)	C

Table 9-2: Impact Management Actions during the Construction Phase. *Blue text refers to the standard good practice (Annex 2) and Generic Terms of Reference for Preparation of ESMP (Annex 3).*

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
Site Establishment	The footprint of the construction site will be limited as far as possible.	<ul style="list-style-type: none"> • The Contractor is to adhere to the following with regards to the Materials Storage Area and Contractors Camp: <ul style="list-style-type: none"> ○ All servitudes and existing services must be verified prior to establishment. ○ The camp site must be fenced before construction commences. ○ The Contractor shall restrict all his activities, materials, equipment, and personnel to within the area specified in the approved Construction Site Development Plan. ○ The Contractor shall ensure that the approved construction area will be adequate to cover the project without further space adjustments being required later. ○ Adequate parking must be provided on site for site staff and visitors. 	C
Movement of Personnel & Equipment	All staff and equipment must remain within the demarcated work areas at all times.	<ul style="list-style-type: none"> • This should be monitored by the Contractor if appointed or by the Reserve Manger. Permission should be obtained from the Reserve Manager prior to movement of staff and/or equipment outside the boundaries of the agreed work areas. 	C
Ablutions	Ablution facilities will not negatively impact on the environment or human health.	<ul style="list-style-type: none"> • Portable chemical toilets must be provided for the construction workforce. These facilities must be regularly serviced by an appropriate service provider. Ablutions must be provided at a ratio of at least 1 facility per 15 workers. Separate facilities for males and females must be provided. • Temporary chemical toilets must be provided for the duration of the construction period. These toilets must be made available for all site staff during the construction phase and should be at least 50m from any watercourse present on-site or in proximity. The developers should also appoint and enter a contract with a qualified third-party service provider for the maintenance of the sanitation system. • The construction of long drop toilets is forbidden. • The Contractor shall be responsible for ensuring that all ablation facilities are maintained in a clean and sanitary condition to the satisfaction of the PM. Evidence of appropriate management (in the form of service receipts / waybills) must be maintained and presented to the ECO during audits. • Sanitation facilities should be well maintained and serviced, any breakages or leaks should be fixed immediately to prevent loss of containment. • Under no circumstances may neighbouring open areas or the surrounding bush be used as a toilet facility. 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> To prevent toilets from blowing over, they must be properly secured, containing a function door and lock. 	
Water supply	A sustainable and lawful water supply will be utilised.	<ul style="list-style-type: none"> The Contractor shall make available safe drinking water fit for human consumption at the site offices and all other working areas. All drinking water must be from a legal source and comply with recognised standards for potable use. If water is stored on site, drinking water and multi-purposed water storage facilities shall be clearly distinguished and demarcated. 	C
Eating Facilities	Ensure that no food is left outside overnight or discarded into the surrounding areas	<ul style="list-style-type: none"> No food may be left outside unattended, and no foodstuff is to be left overnight. No food may be disposed of in the surrounding areas. 	C
Access & Movement	Ensure safety and environmental well-being during the duration of the construction phase.	<ul style="list-style-type: none"> Access shall only be granted to the site during normal working hours (08:00-17:00) Mondays – Fridays, unless specified. All personnel shall be off site by gate closing time unless permission was granted by the Reserve Manager to stay on site and provided for as part of the contract. Work areas and access routes must be demarcated by snow netting on site posts or temporary fencing to minimise environmental impact. All vehicles must remain within demarcated access router and working areas on site. To ensure no disturbance to PA management activities, especially for compliance monitoring, all existing roads should not be blocked during the project. The proclaim speed limit of 40 km/h, unless otherwise specified in the PA must be strictly adhered to. The Contractor’s EHS Officer should monitor the conduct of drivers and report any negative impact to the Contractor immediately. Upon the completion of the project, the Contractor (if appointed) or Reserve Manager must ensure that the access roads are returned to a state no worse than prior to commencement of works. A photographic record should be documented of the construction camp (if required), all access roads and proposed development sites. If two-way traffic movement is to take place, passing bays are to be used where specified by the environmental officer to prevent access/detours into the surrounding areas. The drivers delivering project materials to site are to be made aware of this. They may not drive off the road in order to allow another vehicle to pass. 	C/Reserve Manager (ECPTA)

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> • Continual use of dirt access roads by heavy machinery and increased transport loads means they will have to be carefully monitored and regularly graded as soon as potholes or rutting occurs. • All Contractors, subcontractors and staff shall be identified by clothing with company logos and be in possession of valid South African identity documents. • All drivers of vehicles must be in possession of a valid drivers licence while driving within the PA. • Deliveries, removals etc. are to be completed during gate open times only. 	
Soil disturbances	Soil disturbances outside the development footprint are minimised.	<ul style="list-style-type: none"> • The Contractor shall remove topsoil from all areas where topsoil will be impacted on by construction activities, including temporary activities such as storage and stockpiling areas. • Stripped topsoil shall be stockpiled in areas identified in the approved Construction Site Development Plan, for later use in rehabilitation and shall be adequately protected. Topsoil is considered to be the natural soil covering, including all the vegetation and organic matter. The depth of the soil may vary and due to this reason the top 300mm of soil must be removed and preserved as topsoil. • Topsoil must be treated with care, must not be buried or in any other way be rendered unsuitable for further use (e.g., by mixing with spoil) and precautions must be taken to prevent unnecessary handling and compaction. • Topsoil stockpiles shall be convex in shape and no more than 1,5m high. Stockpiles shall be shaped so that no surface water ponding can take place. • Topsoil stockpiles shall be protected from erosion by wind and rain by providing suitable stormwater and cut-off drains and/or the establishment of temporary indigenous vegetation. • Topsoil stockpiles shall not be subject to compaction greater than 1 500 kg/m² and shall not be pushed by a bulldozer for more than 50m. • Topsoil stockpiles shall be monitored regularly to identify any alien plants. If any establish, these must be removed when they germinate to prevent contamination of the soil. Before topsoil is to be re-used the stockpiles should be fertilised. • Any topsoil contaminated by hazardous substances shall not be used but shall be disposed of at a registered H:h landfill site. Proof of appropriate disposal must be filed in the Environmental File in the Contractor's Camp. • The Contractor shall be held responsible for the replacement, at his expense, of any unnecessary loss of topsoil due to his failure to work according to the requirements of this ESMP. 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
Soil erosion	Soil erosion is prevented.	<ul style="list-style-type: none"> • Soil must be stockpiled in such a way as to minimize erosion. • Clearing of vegetation should be kept to a minimum, keeping the width and length of the earth works to a minimum. • Construction activities should not exceed the proposed construction boundaries by more than 2m to avoid the secondary impact of construction and increasing the areas that would require clearing and rehabilitation • Any bare soils exposed to surface water runoff should be managed. • Prior to any construction within the estuary, a silt curtain (fence created from geofabric) must be placed at the toe of the proposed works area and remain until the vegetation has stabilised any bare or loose soils. • The Contractor shall, as and when necessary, implement erosion control measures to the satisfaction of the Project Engineer or PM. • Any runnels or erosion channels developed during the construction or maintenance period shall be backfilled and compacted and the areas restored to a proper condition similar to the condition before the erosion occurrence. • Traffic and movement over stabilised areas shall be restricted and controlled and damage to stabilised areas shall be repaired and maintained to the satisfaction of the PM. • Stripped topsoil shall be stockpiled in areas identified in the approved Construction Site Development Plan, for later use in rehabilitation and shall be adequately protected. • Exposed areas must be promptly rehabilitated with indigenous vegetation to avoid soil erosion at the earliest possible stage. Where necessary, temporary stabilisation measures must be used until vegetation establishes. • Plan for the worst case, that is, for heavy rainfall and runoff events, or high winds. • Appropriate erosion control measures must be implemented (e.g., silt traps) and a monitoring programme established to ensure that no erosion is taking place. At the first sign of erosion the necessary remedial action must be taken. 	C
Watercourses	Prevent any damage either via erosion, pollution, or contamination	<ul style="list-style-type: none"> • All activities should be conducted at least 40m away from all watercourses unless directed to do so through the relevant permits. • No vehicles allowed in watercourse areas. • No destruction of watercourses is allowed unless permitted to do so by the relevant permit(s). • The project area footprint should be maintained at a bare minimum to minimise the potential ecological impacts. 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> • No dumping of any excess building materials or other wastes or litter should be allowed within the watercourse. • No soil (for any purposes) will be sourced from the watercourse. • Earthmoving equipment and vehicles should be inspected and services regularly to allow for timeous identification of fluid leaks. • Subsistence hunting or harvesting of fauna or flora within the watercourse is prohibited. • Digging and construction of boreholes will be undertaken after appropriate clearances from authorities 	
Altered hydrological regime	Impacts associated with altered stormwater flows are controlled and minimised.	<ul style="list-style-type: none"> • The Contractor shall submit a Method Statement to the PM for approval detailing the method of stormwater control measures for the entire project area. • Temporary stormwater control measures must be installed as and when necessary, to prevent and minimise the erosion of exposed soils. • To prevent stormwater damage, the increase in stormwater runoff resulting from the construction activities must be estimated and the drainage patterns accessed accordingly. A drainage plan must be submitted to the PM for approval. • Temporary cut off drains and berms may be required to capture stormwater and promote infiltration. 	C
Contamination of surface water and groundwater resources/ Management of Hazardous Material	Surface water and groundwater resources are not negatively impacted by the construction works	<ul style="list-style-type: none"> • A Method Statement (MS) for the handling, storage, and management of hazardous substances during the construction phase must be drawn up by the appointed Contractor and approved by the PM in consultation with the ECO, prior to the commencement of construction. This MS must, as a minimum, include the following: <ul style="list-style-type: none"> ○ A list of all potentially hazardous materials used during the construction phase ○ Provision for all potentially hazardous materials (including cement and solvents) to be housed under cover and within bunded areas. ○ Reasonable measures to prevent potential spills of these substances. ○ All potentially hazardous materials must be handled, stored, and managed in line with the approved method statement. ○ A Spill Contingency Procedure must be developed by the Contractor and approved by the PM in consultation with the ECO. This plan must detail measures for the immediate clean-up of spills, as well as the appropriate storage and disposal of contaminated material, so as to prevent environmental pollution or contamination. 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> • All spills must be cleared up, stored, and disposed of in accordance with the approved spill contingency procedure. • Stormwater to be managed to avoid contaminated. • Chemicals used for construction must be stored safely on site within bunds. Chemical storage containers must be regularly inspected so that any leaks are detected early. • Littering and contamination of water sources during construction must be prevented by effective construction camp and on-site management. Adequate waste disposal (litter) bins must be available on site. These must be properly secured and scavenger proof. • No stockpiling should take place within a watercourse. • All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. • The construction camp and necessary ablution facilities meant for construction workers must not be located in any of the delineated watercourses. Temporary chemical toilets must be provided for the duration of the construction period. These toilets must be made available for all site staff during the construction phase and should be at least 50m from any watercourse present on-site or in proximity to the site footprint. The developers should also appoint and enter into a contract with a qualified third-party service provider for the maintenance of the sanitation system. • Drip trays will be placed underneath all stationary plant (excavators, trucks, and mobile cranes) whether they are in operation or not. Drip trays will also be in place where fuel is transferred. The contents of drip trays will be appropriately disposed of in a manner that prevents environmental pollution or contamination. • If concrete or cement mixing is to be undertaken on the site, this must be undertaken on an impermeable surface. Any contaminated water generated by these activities must be contained and appropriately treated / disposed of. No contaminated water may be discharged to the environment. • At the end of each day, any leftover / unused cement is to be removed from the site for appropriate disposal by the concrete supplier. • Used cement bags shall be collected and stored in containers to prevent wind-blown cement dust and water contamination. • The re-use of discarded cement bags on site is forbidden. 	

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> • Water from concrete washing must either be re-used in concrete mixes or must be stored in drums, then removed from the site and disposed of at a licensed municipal dump site. • Washing of the excess concrete into the ground is not allowed. • Establish a dedicated area for construction vehicles to refuel. Vehicle re-fuelling must only take place on impervious surfaces and/or drip trays. • Ensure all construction machinery is in sound working order to prevent oil leaks. 	
Loss of indigenous vegetation	Clearance of indigenous vegetation on the site is minimised.	<ul style="list-style-type: none"> • The construction footprint must be surveyed and demarcated prior to construction commencing. All contractors must be made aware of this demarcation. • All areas outside the demarcated footprint will be considered as No-Go areas. • No construction activities (temporary or permanent) will be allowed in these No-Go areas. • Temporary infrastructure such as the site camps, laydown areas and storage areas must be placed in areas already transformed and within the construction footprint. • Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles and during site clearing. • No on-site fires will be permitted. This will reduce the risk of accidental veld fires and further vegetation loss. • ECPTA's standard ESMPr for construction and maintenance projects (Appendix C). • No plants outside the demarcated work areas may be damaged. • No firewood may be collected. • No natural features should be defaced, painted, damaged or marked, if these should occur (e.g., trees, rock formations, buildings) situated in or around the site the environmental officer must be informed at once. • The areas of vegetation that are to be protected during construction/maintenance project must be demarcated and indicated on a site plan. A method statement is to be submitted to the environmental officer by the Contractors, detailing the method of fencing for protection of the conservation areas. 	C
Loss of SCCs	Any SCCs found during construction are relocated to a similar suitable habitat.	<ul style="list-style-type: none"> • Permits must be obtained to remove any plant SCC and protected species identified prior to commencement of any activity on site. • A Plant Search and Rescue must be conducted by a qualified botanist prior to commencement of any activity on site. • As many SCC and permitted plants as possible must be relocated into the surrounding areas. 	C/PM

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> A nursery will not be required if all plant species are immediately relocated to the surrounding environment. No plant harvesting will be allowed. 	
Fire Management	Ensure the prevention of a wildfire outbreak	<ul style="list-style-type: none"> No fires are permitted in areas that are not dedicated for such purposes. All relevant fire-fighting equipment should be kept on site. Due to the threat of fire poses to the PA smoking will only be allowed in designated smoking area which are clearly demarcated and signposted with a facility for safe containment and disposal of cigarette butts. Firebreak should be maintained around offices (including temporary construction offices). All fire management should be done in compliance with the Fire Management Plan of the PA. Emergency contact details of the PA fire department should be clearly displayed on site. 	C
Spread of alien invasive vegetation	<p>Alien vegetation currently established on the site is completely cleared and appropriately disposed of.</p> <p>Any new alien invasive vegetation establishing on site during construction is cleared and appropriately disposed of.</p>	<ul style="list-style-type: none"> Develop and implement an Alien Vegetation Management Plan to mitigate the establishment and spread of undesirable alien plant species during construction. All visible alien plants must be continually removed during construction phase. Removal must occur through appropriate methods such as hand pulling, application of chemicals, cutting, etc. as in accordance with the NEMBA: Alien Invasive Species Regulations. 	C
Fauna	Any faunal species encountered on site during construction are not harmed but rather relocated by a professional handler.	<ul style="list-style-type: none"> A Faunal Search and Rescue must be conducted by a qualified Faunal specialist prior to commencement of any activity on site. As many SCC as possible must be relocated into the surrounding areas. No animals must be kept in cages or containers for longer than necessary during relocation. It is recommended that only small mammals, frogs, scorpions, baboon spiders and reptiles be relocated. There is no need to relocate any big faunal species as they will naturally move away from the construction areas. Construction and/or maintenance activities shall be confined to the demarcated areas to avoid accidental injury of animals. No animals, including mammals, birds, snakes, and invertebrates may be harmed or killed. 	C/PM

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> The construction site must be daily inspected (before activities for the day starts) for any trapped faunal species. These species must be relocated to nearby No-Go areas by an employee that is qualified in dangerous animal handling. Trapping, poisoning and/or shooting animals is strictly forbidden. No domestic pets or livestock are permitted on site. 	
Construction Traffic and Road Safety	<p>Traffic congestion in the external road network is limited.</p> <p>A reduction in road safety conditions on the road network, for all road users, is avoided.</p>	<ul style="list-style-type: none"> The delivery of construction materials must be scheduled out of peak hours to avoid traffic, where possible Road repairs must be made immediately should construction machinery cause damage to any of the existing roads. All construction vehicles must be roadworthy and should be serviced regularly Flag staff should regularly patrol areas especially on site to prevent onsite incidents Construction vehicles must adhere to the relevant speed limits Appropriate signage must be used to indicate the construction site; and All mitigation measures/recommendations as set out in the TIA must be adhered to. 	C
Damage of sub-surface heritage resources	Sub-surface heritage resources uncovered by excavation (if any) are not damaged or destroyed.	<ul style="list-style-type: none"> If any archaeological or paleontological artefacts or remains/graves are uncovered during earthmoving activities, work in the vicinity of the find shall cease immediately. The Contractor shall immediately notify the PM, who shall contact the relevant Competent Authority who will take appropriate steps. The Contractor will be required to abide by the specifications as set out by the Competent Authority or the heritage specialist appointed to investigate the find. The environmental officer shall inform the relevant agency and arrange for a palaeontologist/ archaeologist to inspect, and if necessary excavate, the material, subject to acquiring the requisite approval from the relevant Heritage Agency Note that without a permit issued by the responsible Heritage Agency it is illegal to destroy, damage, excavate, alter, deface or otherwise disturb any archaeological site or archaeological material. The latter is a criminal offence under the National Heritage Resources Act. The Contractor may not, without a permit issued by the relevant heritage resources authority, destroy, damage, excavate, alter, deface or otherwise disturb archaeological material. Chance Find Protocol: 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> ○ If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find. ○ The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates. ○ A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates. ○ Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found. ○ Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary. ○ The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find. ○ In the event that the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO (site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site. ○ Once the Heritage Agency has issued the written authorisation, the developer may continue with the development on the affected area. 	
Air quality impacts on nearby residents	Deterioration of local air quality arising as a result of dust and vehicle emissions is minimised and prevented.	<ul style="list-style-type: none"> • Dust minimisation and control measures should be implemented on the construction site at regular intervals. This could include wetting down by water tankers. 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> • The frequency of implementation of dust suppression measures should be increased when it is expected that high wind conditions will develop. Cognisance should however be given to the current water restrictions. • Vegetation clearing shall take place in a phased manner in order to retain vegetation cover for as long as possible. • During dry periods, a high moisture content should be maintained on unpaved surfaces or soil stockpiles within the construction site to reduce windblown dust as far as practically possible. • When stockpiling topsoil during construction, the drop heights from front end loaders and stackers should be minimised to control the fall of materials and, thus, reduce dust emissions. • Vegetation clearing should only take place immediately prior to the commencement of construction activities in an area, in order to minimise the amount of exposed soil on the site. • Limit spillages on paved roads and ensure that vehicle speeds are maintained as required on-site to reduce the possibility of the entrainment of dust on paved roads. • Limit vehicle idling and keep vehicles well maintained to minimise particulate and gaseous emissions. • If fine building materials/sands are to be transported at the back of trucks, they must be adequately covered. • Provide dust masks for the workers where necessary. • If possible, bulk earth work or work creating fugitive dust must be ceased during periods of strong winds. 	
Visual Impacts	Minimise visual intrusions	<ul style="list-style-type: none"> • Generation of dust will increase the visibility of the project, and it is therefore important to employ techniques to suppress dust generation during construction. • Dust from exposed soil surfaces shall be minimised at all times, only using water spray during very windy conditions. • The contractor should maintain good housekeeping on site to prevent litter and minimise waste. • Erosion risks should be assessed and minimised as erosion scarring can create areas of strong visual contrast with the surrounding vegetation. • Equipment not being used should be removed from site. • Lighting will be sufficient to ensure security but will not constitute 'light pollution' to the surrounding areas. 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> The site will be shielded from the adjacent landowners to minimise the visual impact where this is feasibly possible. 	
Solid Waste Generation/Pollution	<p>All waste material is handled and disposed of according to waste type.</p> <p>Waste generation is minimisation.</p> <p>Waste generated by the construction phase does not give rise to environmental pollution or contamination.</p>	<ul style="list-style-type: none"> The Contractor must, prior to the commencement of construction prepare a Waste Management Procedure/method statement. This plan must identify all waste types generated on the construction site, which may include, but is not limited to: <ul style="list-style-type: none"> General solid wastes Hazardous solid wastes; Sewage and effluent; Hazardous liquid wastes; Cement bags; Scrap metal; Building rubble; Cleared vegetation. This plan must be approved by the PM (in consultation with the ECO) ECO and must be implemented during construction so to prevent pollution of the surrounding environment or creation of a health hazard. Rubble and other construction waste produced should be re-used if possible and where it is not possible must be disposed of at the nearest registered waste disposal facility (Port Alfred). Litter must be controlled during construction – adequate bins must be made available on site at all times. These must be made scavenger proof and must be emptied on a regular basis. Ensure that all litter is collected daily from the work area and transported back to the main camp for proper disposal. All bins shall be emptied daily. All waste should be discarded at a registered waste management facility/landfill site particularly those waste or materials that could have an impact on surface or groundwater quality when coming into contact with water. Construction materials stored on site must be secured – i.e., plastics must be anchored to prevent being blown off site. Skips must be regularly emptied and must be covered. Any hazardous materials that need to be stored on site must be done under lock and key. The excavation and use of rubbish pits on site are forbidden. The burning of waste is forbidden. 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> • Contaminated soil (resulting from oil spills, etc.), unwanted cement bags and water used for washing concrete equipment are regarded as hazardous waste and should be disposed of at a permitted hazardous waste landfill site. Written proof of disposal at the permitted waste landfill site should be obtained and provided to the environmental officer. • General good housekeeping should be practiced on site. 	
Management & Storage of Materials	Materials to be used during construction/demolition/maintenance shall only be stored at demarcated sites.	<ul style="list-style-type: none"> • Contractors will not be allowed to store new material outside demarcated areas (e.g., on the sides of the access road or among the natural vegetation or next to the existing access road). • All vehicles and equipment must be maintained in a good condition in order to minimise the risk of leakage and possible contamination of the soil or storm water by fuels, oils and hydraulic fluids. • Earthmoving equipment and vehicles should be inspected and services regularly to allow for timeous identification of fluid leaks. • If relevant, a method statement should be provided for activities related to the scope of work: <ul style="list-style-type: none"> ○ Type and quantity of materials to be stored; ○ Whether any oil contaminated/containing equipment will be stored; ○ How (including what type of vehicles will be required) the materials will be delivered on site at the necessary storage area; and ○ Where there is any risk of spill or runoff of any materials or chemicals and how the risk/spill will be mitigated. 	C
Administration	The administration of the construction phase has regard to environmental sensitivity	<ul style="list-style-type: none"> • A copy of the EA (if issued), this ESMP as well as any other environmental permits / licenses must be maintained on site in the Environmental File. • A Complaints Register must be maintained on the site for the duration of the construction phase. This should be kept in the Environmental File. An example of the format of the complaints register is attached in Appendix D. • The Grievance Redress Mechanism must be made accessible to all stakeholders. • All grievance must be lodged following procedures outlined in the Grievance Redress Mechanism. • ECPTA must aim to resolve all grievances within 35 days from the date of receipt. These timeframes can be extended to cater for more complex grievances, but only where there are good reasons for this. These reasons must be documented and clearly communicated to the complainant along with the revised time frames. 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> An Environmental Incidents Register must be maintained on the site for the duration of the construction phase. This should be kept in the Environmental File. An example of the format of the environmental incidents register is attached in Appendix E. 	
Socio-economic	Employment & skills training of local labour is maximised.	<ul style="list-style-type: none"> Employment must be managed by selecting suitable employees according to a selection system that ensures transparent recruitment from local, impacted communities. Local employment opportunities should be maximised, with appropriate skill transfers from outside or migrant workers onto local workers. Applicable legislative requirements related to labour and working conditions, non-discrimination, and equal opportunity must be adhered to. 	C/PM
Occupational Health & Safety	The application of all OHS regulations must be adhered to at all times.	<ul style="list-style-type: none"> The contractor must ensure that a health and safety plan is in place for all construction, including emergency procedures and COVID-19 mitigation for the duration of the pandemic, in the form of a simplified OHS Plan in line with the requirements of ESS2. <p>ESS2 OHS Requirements:</p> <ul style="list-style-type: none"> The OHS measures will be designed and implemented to address: <ul style="list-style-type: none"> identification of potential hazards to project workers, particularly those that may be life threatening; provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; training of project workers and maintenance of training records; documentation and reporting of occupational accidents, diseases, and incidents; emergency prevention and preparedness and response arrangements to emergency situations; remedies for adverse impacts such as occupational injuries, deaths, disability, and disease. 	C/Applicant (ECPTA)

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> • All parties who employ or engage project workers will develop and implement procedures to establish and maintain a safe working environment, including that workplaces, machinery, equipment, and processes under their control are safe and without risk to health, including by use of appropriate measures relating to chemical, physical and biological substances, and agents. Such parties will actively collaborate and consult with project workers in promoting understanding, and methods for, implementation of OHS requirements, as well as providing information to project workers, training on occupational safety and health, and provision of personal protective equipment without expense to the project workers. • Workplace processes will be put in place for project workers to report work situations that they believe are not safe or healthy, and to remove themselves from a work situation which they have reasonable justification to believe presents an imminent and serious danger to their life or health. Project workers who remove themselves from such situations will not be required to return to work until necessary remedial action to correct the situation has been taken. Project workers will not be retaliated against or otherwise subject to reprisal or negative action for such reporting or removal. • Project workers will be provided with facilities appropriate to the circumstances of their work, including access to canteens, hygiene facilities, and appropriate areas for rest. Where accommodation services are provided to project workers, policies will be put in place and implemented on the management and quality of accommodation to protect and promote the health, safety, and well-being of the project workers, and to provide access to or provision of services that accommodate their physical, social, and cultural needs. • Where project workers are employed or engaged by more than one party and are working together in one location, the parties who employ or engage the workers will collaborate in applying the OHS requirements, without prejudice to the responsibility of each party for the health and safety of its own workers. • A system for regular review of occupational safety and health performance and the working environment will be put in place and include identification of safety and health hazards and risks, implementation of effective methods for responding to identified hazards and risks, setting priorities for taking action, and evaluation of results. 	

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> • The contractor must adhere to healthy and safety regulations by making use of cover buckets for trucks carrying construction materials such as sand, quarry dust, etc. • The contractor must mark active construction areas with high-visibility tape • The contractor needs to ensure that open trenches and excavated areas are backfilled and or secured • The contractor must provide adequate sanitary facilities • The contractor must provide PPEs for construction workers • The contractor must ensure that construction workers are educated on the on-site rules/regulation and hygiene and disease (HIV/AIDS) prevention • The contractor must make provision for the availability of clean drinking water to all staff as well as proper sanitation services – one ablution facility must be present for every 20 workers; all such facilities associated with each of the construction sites must be placed at a distance greater than 40m from the demarcated edge of the riparian vegetation. <p>ESMF OHS Requirements:</p> <ul style="list-style-type: none"> • In accordance with the PA’s OHS policies, every individual engaged has the duty to: <ul style="list-style-type: none"> ○ Uphold health and safety in the premises and outside of ECPTA premises. ○ Take care of their own health and safety and that of other persons who might be affected by their acts or omissions. ○ Comply with all the health and safety rules, instructions, training, supervision and all the safety systems provided through the program. ○ Attend health and safety training sessions. ○ Use personal protective equipment (PPE) provided by the employer. ○ Refrain from damaging, misusing or interfering with anything that has been provided for health and safety reasons. ○ Inform the safety representatives, safety committees and any health and safety organ of any situation that may be considered to be threatening the health and safety or any shortcomings in the safety program. ○ Undertake only those tasks that they are trained and authorized to undertake. 	

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> • The GFRNR is required to ensure the availability of health and safety policies and guidelines, alert employees to potential hazards, retain updated risk assessments and post risk profiles, have clear health surveillance arrangements, provided adequate PPE, and maintain clear accident and emergency procedures. • Safety induction is coordinated between the OHS office and the HR department. Training, including refresher courses, must be provided to ensure that all employees have instructions proportionally to their assigned tasks and responsibilities. • Persons who are required to use PPE must receive proper training in use. Registers will be kept of training and acceptance of PPE. • Every supervisor and at least one of every 50 employees must have first aid training. These first aid representatives must retain a valid certificate of competence. • First aid boxes are posted in accessible and well-known locations in the work locations and content must be replenished upon use. • Any incidents requiring first aid are recorded; in case of serious incidents the heads of departments must be notified. • The PA must regularly conduct fire drills, inspect escape routes, and maintain fire warning systems and equipment. • Incidents must be reported immediately and within the same shift to the ECPTA and Bank within the prescribe format. 	
Staff Management	Staff Management Protocols need to be adhered to prior and during construction.	<ul style="list-style-type: none"> • Age of Employment <ul style="list-style-type: none"> ○ The minimum age for engagement in the Project is 18. ○ Project activities may not engage child labour, defined as any person below 18 years of age. The GFRNR, contractors, and sub-contractors are therefore required to retain records of anyone engaged in activities funded by the Project and verify age through details obtained from the South African National Identify Card. ○ Should contractor or sub-contractor be found to be in violation of this policy they will be suspended pending further investigation and may face government prosecution. • Terms & Conditions <ul style="list-style-type: none"> ○ The employer will obtain a signed agreement with the following details when a worker is engaged. The information captured shall be readily available during inspection of contractor records by PAs and during World Bank supervision missions. The agreement, as applicable to the type of engagement, should be jointly signed by worker and employer. 	C/Applicant (ECPTA)

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> ▪ Name of employer(s) ▪ Job description ▪ Employee details ▪ South African National Identify Card ▪ Name ▪ Date of Birth ▪ Contact details/address ▪ Resident in PA community (yes/no) ▪ Date of employment commencement ▪ Wage agreement ▪ Remuneration ▪ Frequency of payment ▪ Method of payment ▪ Mandatory deductions, as relevant (taxes, other) ○ The employer must keep a signed record that affirms that the following information has been provided to the worker and associated induction training records: <ul style="list-style-type: none"> ▪ Collective agreement, if applicable ▪ Hours of work ▪ Probation period ▪ Notice period ▪ Acknowledgement of knowledge of access to grievances related to Project and/or employment (signature) ▪ Leave entitlements ▪ Code of Conduct (see following section) ▪ Other benefits, as relevant (Pension, Transport, Housing, Holiday, Education, Health) • Code of Conduct <ul style="list-style-type: none"> ○ The PAs have a strict policy to prevent sexual harassment as well as procedures for settling complaints or grievances. To reflect these procedures, and associated GBV or SEA, as well as procedures required to adhere to good procedures for OHS, all persons engaged under the Project must adhere to standard principles reflected in the GFRNR's Code of Conduct related to promote exemplary conduct in the workplace. 	

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> ○ The GFRNR must ensure that any employer is responsible to ensure that any persons engaged, including consultants, are appraised of the principles and keep diligent records of acceptance along with the records affirming terms and conditions (see prior section). • Contractor and sub-contractor’s personnel procured for works may submit their existing Codes of Conduct for review of equivalence in response to request for proposals or adopt Code of Conduct from the World Bank’s Standard Procurement Document, which is provided in Annex 9 of the ESMF. This document, or the Contractors approved Code of Conduct, must be signed by the worker engaged and maintained as part of the labour management procedure. 	
Noise Control	Minimum noise impacts	<ul style="list-style-type: none"> • Noise levels must be kept within acceptable limits for a PA and must not be of such nature as to detract from the natural experience of visitors. • The Contractors shall take into consideration that the project areas are located within a natural environment and that noise could be a major disturbance/ nuisance for the fauna and visitors. • No music shall be allowed on site. • Maintenance, construction and demolition activities shall be limited to normal working hours and not allowed during weekends. 	C
Safety and security	Maintain a safe and secure site	<ul style="list-style-type: none"> • Thorough background checks must be conducted on contractor’s employees before hiring them full time. Maintain a list of all individuals, including contractors, who are authorised to be on the job site. • Encourage employees to report theft or suspicious activity. Be sure to maintain complete records of any security incidents, as they can be beneficial to law enforcement in the event of theft, vandalism or similar occurrences. • Trespassing on private/commercial properties bordering the site is forbidden. Any construction personnel found trespassing must be subjected to a disciplinary hearing. • 	C
Existing infrastructure disturbance	<ul style="list-style-type: none"> • Damage to fences, or other existing structures or infrastructure could occur during the construction phase. • The proposed development/ registration will take place within the vicinity of the following Eskom powerlines:- 	<ul style="list-style-type: none"> • Avoid damage or disturbance to all existing structures and infrastructure where possible. • The following standard conditions must be adhered to: <ul style="list-style-type: none"> ○ Eskom services and equipment must be always acknowledged and may not be tampered or interfered with. The proposed development must be registered subject to Eskom existing powerlines. 	C Applicant

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
	a) Committees/Breakfastvlei 66kV Overhead Line b) Peddie/Naudeshoek 22kV Overhead Line (Albany CNC section) c) Fort Beaufort/Katberg 11kV Overhead Line (Alice CNC section) d) Committees/Fort Brown 22kV Overhead Line There is a building and tree restriction from the centre/structure of the powerline which must be observed in all future developments: a) 11m from the 66kV powerline and b) 9m from the 11&22kV powerline	<ul style="list-style-type: none"> ○ No construction work may be executed closer than 9m of the Eskom Distribution structure or 6 meters from structure supporting mechanism. ○ Natural ground level must be maintained within Eskom servitude area. ○ All work within Eskom servitude area must be carried out in accordance with the requirements of the Occupational Health and Safety Act, 85 of 1993. Special attention must be given to clearances between Eskom's conductors, structures, cables, electrical apparatus and proposed work as stipulated in Government notice GN R1593 of 12 August 1998 amended to GN R1185 of 1 June 1990 promulgated under the aforementioned act. ○ Eskom shall not be liable for the death or injury of any person, or for loss of or damage to any property, whether as a result of encroachment or use of the area where Eskom has its services, by applicant, his/her agents, contractors, employees or successors in title. ○ The applicant indemnifies Eskom against loss, claims or damages, including claims pertaining to interference with Eskom services, apparatus, or otherwise. ○ Eskom shall at all times have unobstructed access to and egress from its services. ○ No dumping shall be allowed with Eskom servitude area. ○ Any developments which necessitate the relocation of Eskom service will be to the account of the developer. Quote for relocations can be lodged with Eskom contact centre at number 086 0037566. <ul style="list-style-type: none"> ● Should the applicant or his/ her contractor damage any of Eskom service during commencement of any work whatsoever, the incident must be reported to Eskom 24 hour Contact Centre (086 0037566) immediately. 	

Table 9-3: Impact Management Actions during the Post-Construction and Rehabilitation Phase. Blue text refers to the standard good practice (Annex 2) and Generic Terms of Reference for Preparation of ESMP (Annex 3).

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
Site Clean-up & Rehabilitation	All areas that have been disturbed or impacted by construction are clean and rehabilitated.	<ul style="list-style-type: none"> ● Ensure that all temporary structures, materials and waste (including areas contaminated during the project, e.g. oil spillages on soil) should be removed from the PA. 	C

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> All disturbed areas should be fully rehabilitated. When landscaping and rehabilitating only indigenous plants from the area where the PA is located should be used. The final list of indigenous plants should be approved by the relevant Ecologist and Reserve Manager. 	
Alien vegetation	Control the spread of alien vegetation	<ul style="list-style-type: none"> Eradicate alien plants from the impacted area for one year post-construction every six months. 	C
Soil disturbance	Reduction in erosion and siltation	<ul style="list-style-type: none"> Stripped topsoil stockpiled during construction to be used in rehabilitation. Exposed areas must be promptly rehabilitated with indigenous vegetation to avoid soil erosion at the earliest possible stage. Where necessary, temporary stabilisation measures must be used until vegetation establishes. Banks must be rehabilitated, including re-establishment of vegetation cover. 	C

Table 9-4: Impact Management Actions during the Operational Phase. Blue text refers to the standard good practice (Annex 2) and Generic Terms of Reference for Preparation of ESMPr (Annex 3).

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
Alien Vegetation	The increase and spread of alien invasive species is controlled and minimised throughout the operational phase, keeping the indigenous vegetation of the reserve intact.	<ul style="list-style-type: none"> Areas of natural vegetation disturbed by the operational activities must be monitored for invasion by alien vegetation. Appropriate and continual removal and control measures must be implemented as necessary. Removal must occur through appropriate methods such as hand pulling, application of chemicals, cutting, etc. as in accordance with the NEMBA: Alien Invasive Species Regulations. Develop and implement alien vegetation management /control, as part of the ESMPr, to mitigate the establishment and spread of undesirable alien plant species. 	Applicant
Vehicle Collisions with wildlife	Wildlife within the reserve (especially slow-moving species) are not harmed as a result of vehicle collisions due to high speeds.	<ul style="list-style-type: none"> A designated speed limit must be set by the ECPTA to limit possible road collisions. A speed limit of 40km/h is recommended. Appropriate signage must be used to indicate the speed limit. All ECPTA / GFRNR vehicles must be roadworthy and must be serviced regularly. Experienced drivers employed by ECPTA are to be used in the GFRNR. 	Applicant

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		<ul style="list-style-type: none"> All vehicles must take heed of normal road safety regulations; thus, all ECPTA personnel and tourists must obey and respect the law of the road. A courteous and respectful driving manner should be enforced and maintained so as not to cause harm to any individual. <p><i>Enforce safe driving and take disciplinary action against repeat offenders.</i></p>	
Stormwater management	Increased runoff as a result of hardened surfaces is avoided through proper stormwater management procedures.	<ul style="list-style-type: none"> Where possible, energy dissipaters should be installed at stormwater discharge points. The discharge points should be monitored for erosion. If necessary, appropriate steps must be taken to repair and prevent erosion. Areas of natural vegetation disturbed by the operational activities must be monitored for invasion by alien vegetation. Appropriate alien vegetation removal and control measures must be implemented as necessary. 	Applicant
Fire Risk	The risk of increased veld fires is avoided through the implementation of proper fire control and prevention techniques.	<ul style="list-style-type: none"> <i>Fires are only permitted at designated locations.</i> ECPTA shall ensure that basic fire-fighting equipment is available at various locations across the reserve. Firebreak should be maintained around the reserve's offices. ECPTA shall ensure that all reserve personnel are aware of the procedure to be followed in the event of a fire. ECPTA staff and tourists must make use of designated smoking areas in the. These must be clearly demarcated and signposted for safe containment and disposal of cigarette butts. All fire management should be done in compliance with the Fire Management Plan of the Protected Area. 	Applicant
Noise pollution	Noise pollution resulting from aircraft activity is minimised.	<ul style="list-style-type: none"> The pilots can adjust their descent profiles so that a level off close to the ground is avoided. This so-called continuous descent approach reduces the requirement for the application of high thrust by the engines, which reduces the noise produced by the aircraft. ECPTA staff can familiarise themselves with the behaviour and lifecycles of on-site wildlife, so that you can avoid noisy maintenance during peak foraging or breeding times. Properly sited vegetation can help with noise control. The best sound buffers consist of dense, indigenous vegetation that extends down to the ground. A combination of trees and shrubs can provide soundproofing. For maximum impact, the vegetation should be planted close to the noise source (such 	Applicant

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS	RESPONSIBLE AGENT
		as a roadway or equipment room), rather than near the natural area you want to protect.	
Air emissions	Air emissions resulting from reserve vehicles are kept to a minimum.	<ul style="list-style-type: none"> • ECPTA vehicles should be serviced regularly to minimise exhaust fume pollution. • A designated speed limit must be set by the ECPTA to limit dust. A speed limit of 40km/h is recommended. Appropriate signage must be used to indicate the speed limit. 	Applicant
Safety, Security & surveillance	Increased awareness of activities in and around the reserve ensuring the protection of the Black Rhino population.	The operational phase may involve implementing and managing surveillance systems, such as cameras or patrols, to monitor the fences and ensure their effectiveness. This can involve additional staffing and technological investments.	Applicant
Increased accessibility to and within the reserve via road vehicles and aircraft	The functionality and longevity of the roads and airstrips are ensured, protecting the resources within the reserve.	<p>Upgraded infrastructure such as roads and airstrips may require ongoing maintenance to ensure their functionality and longevity. The operational phase must therefore involve the following:</p> <ul style="list-style-type: none"> • allocating adequate resources. • providing sufficient budget. <p>scheduling maintenance activities so as to not disrupt the reserve's operations.</p>	Applicant
Socio-economic	The safety of the reserves Black Rhino population is ensured while creating regular jobs for neighbouring communities.	<ul style="list-style-type: none"> • The new and upgraded infrastructure related to the rhinos' habitat and containment will require ongoing maintenance to ensure the infrastructures' functionality and longevity. This will in turn bolster counter-poaching operations in the GFRNR and thus securing the rhino population in the GFRNR. The operational phase must therefore involve the following: <ul style="list-style-type: none"> ○ allocating adequate resources, ○ providing sufficient budget, and, ○ scheduling maintenance activities so as to not disrupt the reserve's operations. • Ensure that the local communities from Makana, Ngqushwa and Raymond Mhlaba local municipalities are given preferred employment opportunities and provided with training (skilled) in terms of the reserve's operation and maintenance tasks. 	C

10. MONITORING

The key to a successful ESMP is appropriate monitoring and review to ensure effective functioning of the ESMP and to identify and implement corrective measures in a timely manner. In the event where discrepancies are identified, the problem must be investigated and attended to. All the results obtained during environmental monitoring must be documented for audit purposes.

The ECPTA is to appoint an independent auditor / ECO who is suitably qualified and experienced to undertake such audits. An audit of the environmental monitoring and management actions undertaken is essential to ensure that it is effective, is meeting specified goals, and performs in accordance with relevant regulations and standards.

Compliance monitoring is to be undertaken as specified in Table 10-1 below.

Table 10-1: Implementation of Compliance Monitoring

TIMEFRAME	METHOD OF MONITORING	MONITORING FREQUENCY	REPORTING FREQUENCY
External Monitoring by ECO			
Planning, design, and pre-construction	A site visit and associated pre-construction audit report to be prepared immediately prior to the start of construction. The report will document existing pre-construction conditions and any non-compliance to be addressed prior to the start of construction.	Once off	Once off
Construction	Minimum of monthly site visits with an audit report generated and submitted to the ECPTA and Contractor and the competent authority (if required) for the duration of construction.	Monthly	Monthly
Post-construction	A site visit and associated post-construction and post-rehabilitation audit report to be prepared upon completion of construction and rehabilitation. The report will document the state of the environment post-construction and any remaining non-compliance.	Once off	Once off
Operation	None proposed at this time.	None	None

During audits, the ECO will make observations regarding the implementation of the impact management outcomes. The ECO will then assess the extent to which the impact management outcomes are being achieved and issue non-conformances as required. Non-conformances will therefore be based on compliance with both the impact management outcomes and actions and will be reported to the ECPTA and its appointed Agents (including PM & Contractors).

11. AMENDMENTS

This first Draft ESMP produced for the construction phase will be amended to include comments received during the review of the Final BAR and the conditions of Environmental Authorisation. Amendments to the approved Final ESMP may also be required as the project proceeds. Regulation 36 (1) states:

“Where an amendment is required to the impact management actions of an ESMP, such amendments may immediately be effected by the holder and reflected in the next environmental audit report submitted as contemplated in the environmental authorisation and regulation 34.”

Regulation 36 (2) states:

“Where an amendment to the impact management outcomes or objectives of and ESMP or an amendment of the closure objectives of a closure plan is required before an audit is required in terms of the environmental authorisation, an ESMP or closure plan may be amended on application by the holder of the environmental authorisation.”

Therefore, while the impact management actions of the approved Final ESMP can be amended without a formal amendment application process, amendment of the impact management outcomes or objectives will require application to the authority and a public participation process as outlined in Regulation 37.

Any proposed amendment to the impact management actions of the approved Final ESMP in terms of Regulation 36(1) are to be discussed during site visits. Any amendments should then be agreed to by the Project Manager, Contractor, and ECO prior to being included in the audit reports.

12. EASTERN CAPE PARKS AND TOURISM AGENCY ACCEPTANCE

I, _____, (full name) representing _____, (company name) have read, understood and accept the above environmental management plan as a framework for my company's environmental performance during the above mentioned project.

Signed: _____ Date: _____

13. PROJECT MANAGER'S ACCEPTANCE

I, _____, (full name) representing _____, (company name) have read, understood and accept the above environmental management plan as a framework for my company's environmental performance during the above mentioned project.

Signed: _____ Date: _____

14. CONSTRUCTION CONTRACTOR'S ACCEPTANCE

I, _____, (full name) representing _____, (company name) have read, understood and accept the above environmental management plan as a framework for my company's environmental performance during the above mentioned project.

Signed: _____ Date: _____

Appendix A: Project maps

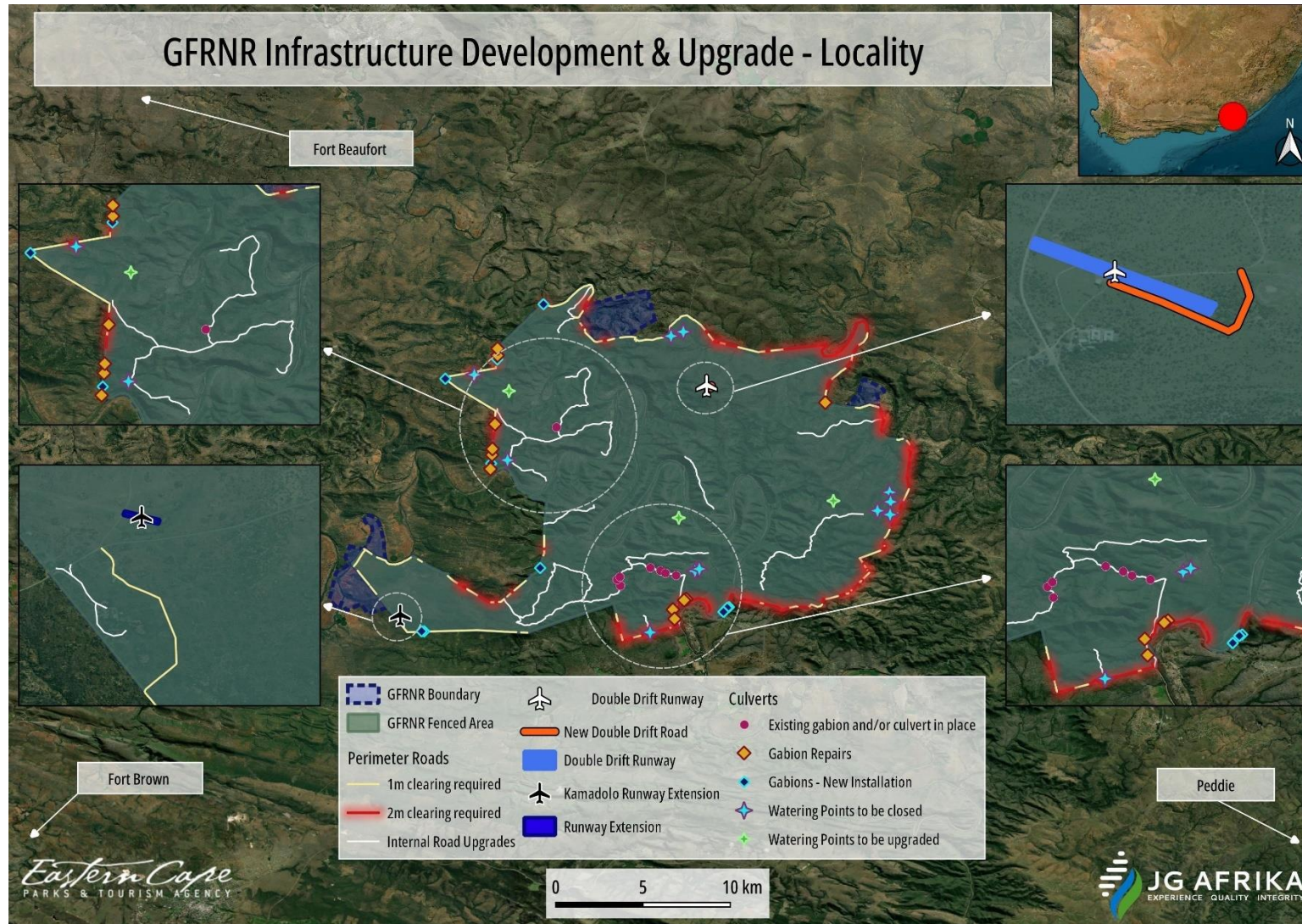


Figure 1: Locality Map showing all proposed infrastructure components to be developed or upgraded.

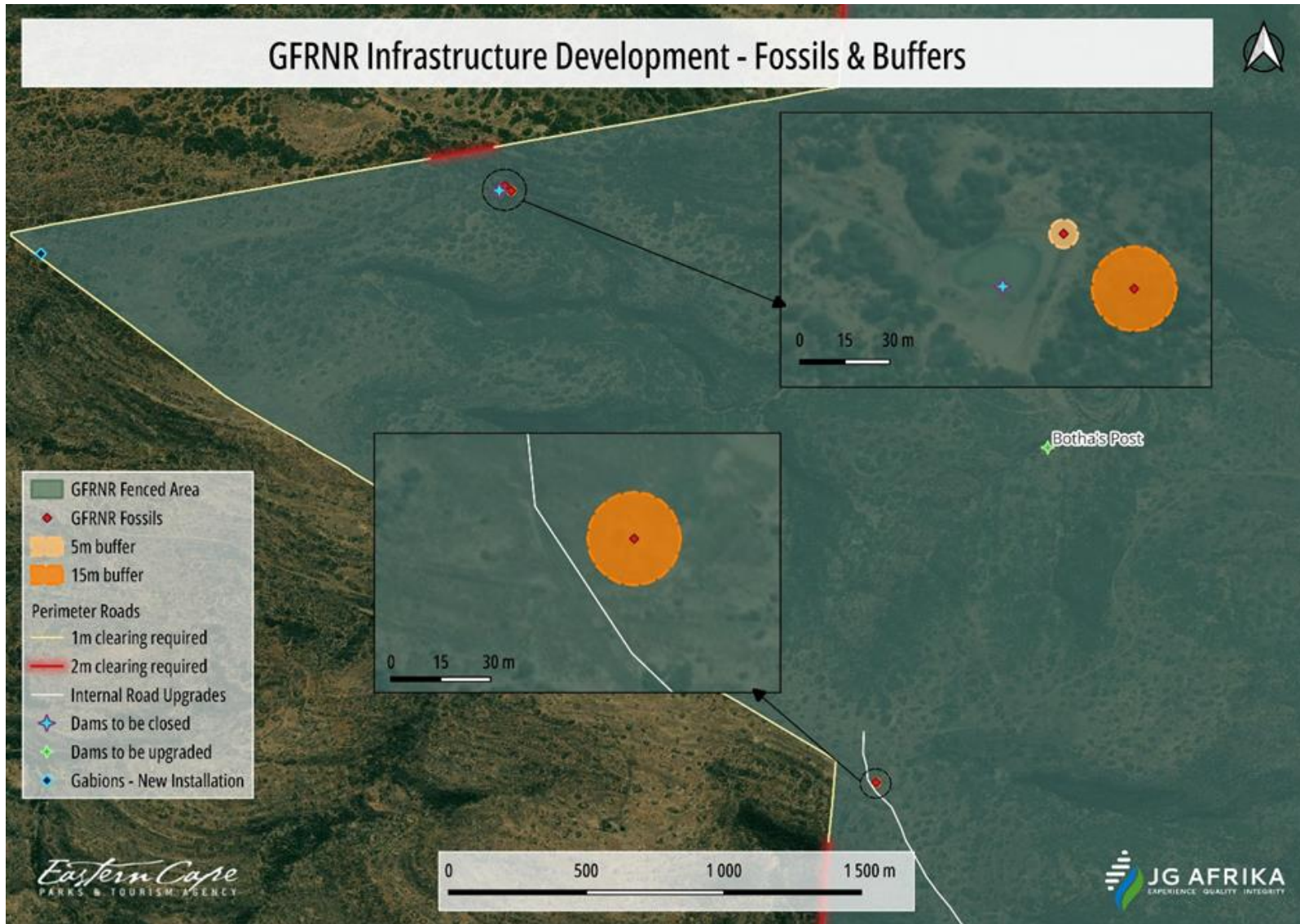


Figure 2: Buffers indicated around fossiliferous sites as identified through the PIA

Appendix B: Curriculum Vitae of EAP & Environmental Scientists

RYAN EMSLIE JONAS



Profession	<i>Environmental Scientist</i>
Position in Firm	<i>Senior Environmental Scientist</i>
Area of Specialisation	<i>Environmental services</i>
Qualifications	<i>M.Sc (Environmental Science)</i>
Years of Experience	<i>16 Years</i>
Years with Firm	<i>1 Year</i>

SUMMARY OF EXPERIENCE

Ryan Emslie Jonas is a professionally registered Environmental Scientist and works in the field of environmental management for large infrastructure-related developments, mining and Renewable Energy projects (solar and wind energy facilities) within Africa. He has acquired 16 years (full time) consulting experience in managing and executing various application processes for a diverse range of large infrastructure developments, mining and renewable energy (solar and wind energy facilities) projects in order to obtain environmental authorisations, licenses for waste management, water uses, air emissions release and compiling and implementing environmental management programmes. Ryan has also fulfilled numerous environmental compliance monitoring functions for infrastructure-related developments (e.g. roads, pipelines, airport developments, housing and mixed-used projects), renewable energy and various mining and industrial sites throughout Southern Africa. His project management experience includes client liaison, scheduling, professional services contract (i.e. NEC3) management, progress reporting, managing sub-consultants and junior staff, invoicing and ensuring the quality of deliverables to a Client. Also proficient in tender, expression of interest and proposal writing for local as well as IFC / World Bank projects. Ryan has gained an excellent working knowledge of African (i.e. South Africa, Zambia, Kenya, Lesotho, Mauritius, Namibia) and International Finance Corporation / World Bank environmental legislative requirements for major infrastructure, renewable energy and mining developments.

PROFESSIONAL REGISTRATIONS & INSTITUTE MEMBERSHIPS

IAIA - International Association of Impact Assessment (Membership number: 5065)
SACNASP - Professional Natural Scientist (Environmental Science) Registration no: 400159/15
EAPASA - Environmental Assessment Practitioner Association (Membership number: 2019/1674)

EDUCATION

2008 – M.Sc (Environmental Science), North-West University, South Africa.
2002 - BSc (Natural Sciences), North-West University (formally PU vir CHO), South Africa

SPECIFIC EXPERIENCE

Coastal Water Discharge Permits

- Compilation and submission of Coastal Water Discharge Permits for the Strandfontein, Monwabisi and V&A site Desalination Plants, City of Cape Town, 2017 – 2018
- Coastal Water Discharge Permit Amendment for the OTMS Oil Terminal, MOGS (Pty) Ltd, 2018

Environmental Authorisation Amendment applications / EA conditions review

- Langhoogte Wind Energy Facility Part 2 Substantive EA Amendment, Ceres, SAGIT, 2019 – 2020
- Wolseley Wind Energy Facility Part 2 Substantive EA Amendment, Caledon, SAGIT, 2019 - 2020
- 150MW Haga Haga Wind Energy Facility EA Conditions review, WKN Windcurrent 2019 - 2020

Environmental Feasibility Assessments

- Water Resilience project: Site selection for the Strandfontein, Monwabisi and V&A Desalination Plants. City of Cape Town, 2017
- Simons Town Housing Development. Department of Rural Development & Land Reform, 2018

Environmental Liability Closure & Rehabilitation quantification

- Calculation of financial provision for rehabilitation activities upon mine closure for LA FARGE Tygerberg, Peak, Dortsberg and Saldanha quarries, LA FARGE, 2012-2014

Environmental Impact Assessments

- ESIA for the Network Reinforcement and Access Project (NRAP). Eswatini Electricity Company, 2021 – 2022
- Mine Residue Facilities Expansion project. Glencore, 2022 -Current
- EIA for Wind Energy Facility Cluster, Northern Cape. Client – Confidential 2022 – Current
- 230MW Doornfontein PVSEF project, Veldfrift, Bergrivier Local Municipality, Western Cape. GPIPD Holding (Pty) Ltd, 2019 -2020
- 150MW Kruispad PVSEF project, Bergrivier Local Municipality, Western Cape. GPIPD Holding (Pty) Ltd, 2019 – 2020
- Expansion of the Saldanha Bay oil jetty and the construction of new crude oil pipeline system for the crude oil storage facility, Saldanha Bay, MOGS, 2017 – 2018
- HDPE Pipeline for Crude Oil Storage Tank Farm, Saldanha Bay, MOGS, 2017
- Blanco 400/132kV substation and powerline project, Eskom, 2015
- EIA for the Leeuwenkuil Vineyard Waste Water Treatment Works, Leeuwenkuil Family Vineyards, 2013-2014
- EIA for the Pearly Beach Sewage Treatment Works, GIBB, 2013-2014
- Xstrata Vekeerdepán Coal Mine Extension project, Xstrata, 2010-2012
- Waste Management Licence and assistance with completion of an Air Emissions Licence for the Flexilube Meyerton Oil Re-refinery expansion project, Flexilube, 2010-2012

- Construction of Ekangala Waste Water Treatment Works, Department of Water Affairs, 2009-2010
 - Upgrade (expansion) to the Sunderland Ridge Waste Water Treatment Works, City of Tshwane, 2008-2009
 - Construction of Morgenzon Waste Water Treatment Works, Lekwa Municipality, 2009-2010
 - Tembisa-link gas pipeline realignment project, SASOL, 2009-2010
 - Gas pipeline realignment through Ekurhuleni and Mogale City, SASOL, 2009-2010
 - Soland Park residential development, Masingita Developments, 2008-2010
 - Construction of Mankwe Hotel and Conference Centre, Mankwe Hotels, 2007-2008
 - Construction of Particle Board Manufacturing Plant, William Tell 2007-2008
-

Basic Assessments for the following projects:

- Witzenberg Regional Cemetery Sites, Witzenberg Municipality. 2021 - Current
 - Borrow Pits project, Clarkebury, Eastern Cape, Eastern Cape Department of Transport, 2021
 - 140 MW Wind Energy Facility project, Western Cape Client – Confidential, 2020
 - Car Park Extension at Koeberg Nuclear Power Station, Eskom, 2017
 - Hout Bay Dune area rehabilitation, City of Cape Town, 2014- 2015
 - Sea Point and Mouille Point promenade upgrade, City of Cape Town, 2014 -2015
 - Paardevlei Integrated Storm Water & Ecological Management System (ISW&EMS), Somerset West, Paardevlei Properties, 2013-2014
 - Eskom Wolfkop 66/22kV substation and powerline, Eskom 2012-2013
 - Rehabilitation of Blaauwpan and associated stormwater channel, Airports Company South Africa, 2008-2009
 - Northern Access Road Development at OR Tambo International Airport, Airports Company South Africa, 2008-2009
 - Cradle of Pilanesberg Lodge, Pilanesberg National Park, 2007-2008
 - Construction of Staff Houses in Pilanesberg National Park, 2007-2008
 - Bellevue residential development in GeelhoutPark, Rustenburg, Private Developer, 2007-2008
 - Villa Del Country Estate, Private Developer, 2007-2008
 - Marang Motor Retail, Hotel and Residential Development, Marang Estate, 2007-2008
 - Olifants River Bridge upgrade, Aurecon, 2015
-

Environmental Management Plans / Programmes

- ESMP for the Network Reinforcement and Access Project (NRAP). Eswatini Electricity Company, 2021 – 2022

- Water Resilience project: Environmental Management Programme, City of Cape Town, 2017 – 2018
- Simandou Port and Infrastructure (IFC/ World Bank) Bank Feasibility project, Guinea. WorleyParsons, 2015
- Anglo Greenside Colliery Environmental Management Programme Amendment for an expansion to the existing Co-Disposal Facility, Anglo American, 2012
- De Beers Kimberley Mines Environmental Management Programme Revision, De Beers Mines Consolidated, 2012
- Environmental Management Programme compilation for Xstrata Tweefontein Mine Optimisation project, Xstrata, 2010-2012
- Annual revision (update) of Exxaro's Zincor Industry Environmental Management Master Plan Upgrade, Exxaro, 2010-2012

Environmental Project Management

- Bird and Bat Monitoring for Wind Energy Facilities, Eastern Cape. Client Confidential 2022
 - Mine Residue Facilities Expansion project. Glencore, 2022 -Current
 - EIA for WEF Cluster, Northern Cape. Client Confidential, 2022
 - Witzenberg Regional Cemetery Sites, Witzenberg Municipality, 2021
 - Borrow Pits project, Clarkebury, Eastern Cape, Eastern Cape Department of Transport, 2021
 - 230MW Doornfontein PVSEF project, Veldfrift, Bergrivier Local Municipality, Western Cape. GPIPD Holding (Pty) Ltd, 2019 -2020
 - 150MW Kruispad PVSEF project, Bergrivier Local Municipality, Western Cape. GPIPD Holding (Pty) Ltd, 2019 - 2020
 - 140 MW Wind Energy Facility project, Western Cape Client – Confidential 2020
 - Langhoogte Wind Energy Facility Part 2 Substantive EA Amendment, Ceres, SAGIT, 2019 – 2020
 - Wolseley Wind Energy Facility Part 2 Substantive EA Amendment, Caledon, SAGIT, 2019 – 2020
 - Expansion of the Saldanha Bay Oil Jetty and the construction of new crude oil pipeline system for the crude oil storage terminal, Saldanha Bay, MOGS, 2018
 - Koeberg Nuclear Power Station Wellfields Optimisation project & WULA, Eskom, 2018
 - Transient Interim Storage Facility project at Koeberg Nuclear Power Station, Eskom, 2015 – 2018
 - Car Park Extension at Koeberg Nuclear Power Station, Eskom, 2017
 - Coastal Water Discharge Permit at Koeberg Nuclear Power Station, Eskom, 2017 – 2018
 - Geotechnical & Land surveyor assessment of the Car Park Extension at Koeberg Nuclear Power Station project, Eskom, 2018
-

Gap Analysis

- A comparative analysis of New Denmark Colliery's existing environmental authorization applications with regards to current environmental legislation and new FEL3 requirements, specifically for the North Shaft Re-opening project. Anglo American, 2010

Waste Management Licence applications

- Compilation and submission of waste management licence applications and Basic Assessment Process for the closure of seven landfill sites within the Matzikama Local Municipality and three landfill sites in the Overstrand Local Municipality, Department of Environmental Affairs, 2013-2014

Water Use Licence applications

- Magareng, Thorncliffe & Helena Mines WUL Amendments, Glencore, 2022
- SANRAL Olifants River Bridge upgrade project, Aurecon, 2015
- Eskom's Vierfontein – Viljoenskroon 88kV Refurbishment project, Eskom, 2014
- Apollo Brick Manufacturing Plant, Apollo Brick, 2014
- Eskom's Wolfkop 66/22kV substation and powerline project, Eskom, 2014
- Proposed Langeberg Residential Development, C5I, 2015
- Atlantis Housing Development, City of Cape Town, 2015
- Pearly Beach Sewage Treatment Works, GIBB, 2015
- Proposed Beacon Valley Housing Development, City of Cape Town, 2015
- Proposed Erf 3418 Industrial Development, VDMV Property Group, 2014
- Inyanda Mine Siding development, Exxaro, 2011

Air Emission Licence Process

- Compilation of an Air Emission Licence application (AEL) for the Gascon combustion installation, Gascon, 2022
- Compilation of an Air Emission Licence application (AEL) for the Maitland Crematorium, City of Cape Town, 2014

Environmental Compliance monitoring

- Project oversight of ECO services for Copperton Wind Energy Facility, Northern Cape, Elawan, 2019 -2020
- Annual IFC external compliance audit for operational Wind Energy Facility, Worcester, Client – Confidential, 2019 -2020
- Project oversight of ECO services for Val De Vie Estate, Paarl, Val De Vie Estate, 2019 -2020
- Upgrade to SANRAL National Road 7 between Melkbos and Atlantis, SANRAL, 2013-2015
- Housing Development on ERF 934, Pelican Park, Cape Town, POWER Development, 2014-2015

- MR302 road realignment and upgrade project, Aurecon, 2012-2015
- De Velde Residential Development, Somerset West, Balwin Properties, 2012-2015
- Elgin Anaerobic Digester Installation project, Bau Afrika Engineers, 2014
- Construction of a retaining wall structure for the Silwerstroom Resort, C2C Engineers, 2014
- Construction and installation of a 66kV electrical cable within the Stellenbosch municipal area, Aurecon, 2013-2014
- Construction of a 66kV underground electrical cable from an existing substation to the proposed 66/11kV substation, Hermanus, Aurecon, 2014 -2015
- Audit of Xstrata Alloys Carbon Division five industrial site operations situated between Witbank and Middelburg, Xstrata, 2012
- Audit of the Exxaro Tshikondeni mine clean and dirty water management measures as per Regulation GN704 of NWA, 1998 and the issued Water Use Licence, Exxaro, 2011
- Auditing for the construction of remote aprons on Taxiway Papa, Northern Ring Road, extension of Charlie Taxiway and extension of Golf Apron at OR Tambo International Airport. Airports Company South Africa, 2008-2010
- Auditing for Sunderland Ridge Waste Water Treatment Works upgrade project. City of Tshwane, 2008-2009
- Auditing for Dan Nkabinde Bridge reconstruction, Tembisa, City of Johannesburg, 2008-2009
- Auditing for PetroNet St James Transfer Station construction, PETRO SA, 2008
- Pre-construction monitoring to establish an environmental baseline of the biophysical environmental aspects (namely baseline geophysical, geotechnical, geohydrological, surface water and ecological survey) and to compile an Environmental Management Plan as input into the Construction Specification for the TCTA Mokolo Crocodile Water Augmentation Project (MCWAP), Trans Caledon Tunnel Authority, 2009-2010

CONTINUED PROFESSIONAL DEVELOPMENT

Presentation

Master's project poster presentation at Zoological Society of South Africa (Rhodes University)

PERSONAL DETAILS

Nationality – South African

Date of Birth – 1979-11-20

Domicile – Cape Town, South Africa

Languages

English – Fluently spoken and written

Afrikaans – Fluently spoken and written

isiZulu - Basic comprehension

Spanish - Basic comprehension

German- Basic comprehension

CHERIZE COETZEE (née MATTHEUS)



Profession	Environmental Consulting
Position in Firm	Environmental Scientist
Area of Specialisation	Environmental Impact Assessments, Environmental Management Programmes, Environmental Monitoring & Compliance, Water Use Authorisations, Environmental Screening Assessments
Qualifications	MSc (Zoology), BSc (Hons) (Zoology), BSc (Biological Sciences)
Years of Experience	10 Years
Years with Firm	10 Years

SUMMARY OF EXPERIENCE

Cherize is an Environmental Scientist with JG Afrika (Pty) Ltd with 10 years' experience. Through her postgraduate studies she has conducted research in the rocky shore habitat and estuarine systems.

She has, over the years, gained experience with Basic Environmental Impact Assessments (BA), Environmental Management Programmes (EMPr), Environmental Compliance Monitoring, Licence Applications for Waste Management activities, Application for Water Use Authorisations, and Pre-Application Environmental Screening Assessments. She has been involved with a wide range of projects, amongst others, substation upgrades, augmentation of bulk water supply systems and bulk sewer infrastructure, bridge and causeway reconstructions, road upgrades, wind farm establishment, etc.

Cherize is particularly interested in water resource management and hopes to make a significant contribution to the environment.

REGISTRATION BODIES

IAIASa - Member of the International Association for Impact Assessors South Africa

EDUCATION

- 2004 - **Matric** – Framesby High School, Port Elizabeth
- 2008 - **BSc (Biological Sciences)** - Nelson Mandela Metropolitan University
- 2009 - **BSc Honours (Zoology)** - Nelson Mandela Metropolitan University
- 2013 - **MSc (Zoology)** - Nelson Mandela Metropolitan University

SPECIFIC EXPERIENCE

JG Afrika (Pty) Ltd (Previously Jeffares & Green (Pty) Ltd)

2013 – Date

Position – Environmental Scientist

2023

King's College High School Campus and associated infrastructure, Jeffreys Bay, Kouga Local Municipality - Basic Assessment for Environmental Authorisation and Water Use Licence. Client: Victory4All Foundation Trust.

Wind Energy Facility on Farm RE/267 De Punt (The Point), west of the Olifants River, Matzikama Local Municipality, Western Cape Province – Desktop Environmental Screening Assessment Report. Client: Avianto Energy (Pty) Ltd

Brakpoort Photovoltaic Solar Facility, Victoria West, Northern Cape – Environmental Pre-construction conditions. Client: Tewa Power (Pty) Ltd.

Upgrading of Centerton Sewer Pump Station in Hankey Town, Kouga Local Municipality - Environmental Control Officer. Client: Kouga Local Municipality.

Extension of Duine Road in Pellsrus, Jeffreys Bay, Kouga Local Municipality - Basic Assessment for Environmental Authorisation. Client: Kouga Local Municipality.

2022

Sea Breeze Housing Development on Portion 125 of the Farm Estate Klein Zeekoei River No. 335, Jeffreys Bay, Eastern Cape, within the Kouga Local Municipality – Water Use Licence Application. Own Haven Housing Association.

Arlington Multiple-Use Development on Erven 3988, 4195 and 6991 in Walmer, Gqeberha, Nelson Mandela Bay Municipality – Scoping and Environmental Impact Report. Client: Adendorff Architects and Interiors.

Housing Development on Remainder of Erf 17, Remainder of Erf 250 and Erf 2326, Hankey, Kouga Local Municipality - Environmental Control Officer. Client: Kouga Local Municipality.

Mimosa Village Residential Development on Erven 256- 279 Fairview along Mimosa Road, Gqeberha, within the Nelson Mandela Bay Municipality - Basic Assessment for Environmental Authorisation. Client: Metroplan.

Development of a Lungisisa Indlela Village (LIV) Lukhanyiso Makhanda on Brakkefontein Farm, 243 (Remaining Extent), within the Makana Local Municipality - Basic Assessment for Environmental Authorisation and Water Use Licence Application. Client: LIV Lukhanyiso.

Social Housing Development and associated infrastructure on Remaining Extent of Erf 8709 Wells Estate (Phase 3), Gqeberha, Nelson Mandela Bay Municipality – Basic Assessment. Client: Coega Development Corporation.

Solar PV Facility on a Portion of Erf 1 Parsons Vlei (Parsons Power Park), Gqeberha, Nelson Mandela Bay Municipality – Water Use Authorisation Application. Client: Silikhaya Properties (Pty) Ltd.

2021

Sewer Rising Main between Apiesdraai Pump Station and Cormorant Pump Station along Dolphin Drive, Jeffreys Bay, Kouga Local Municipality – Water Use Licence Application. Client: C Max investments 276 (Pty) Ltd.

Storage Dam on Portion 1 on Farm Rietfontein 594 Uitenhage, Nelson Mandela Bay Municipality -. Client: Calvus Properties (Pty) Ltd.

Extension of Duine Road in Jeffreys Bay, Kouga Local Municipality - Basic Assessment for Environmental Authorisation and Water Use Authorisation Application. Client: Kouga Local Municipality.

Infrastructure Development and Upgrades in the Great Fish River Nature Reserve - Basic Assessment for Environmental Authorisation and Water Use Authorisation. Client: Eastern Cape Parks Tourism Agency.

2020

Upgrading of the Sanitation System in Hankey Town and Old Hankey Town, Kouga Local Municipality - Basic Assessment for Environmental Authorisation, Water Use Licence Application and Environmental Control Officer. Client: Kouga Local Municipality.

Maintenance and Upgrade of the Nelson Mandela Museum in Qunu near Mthatha, King Sabata Dalindyebo Local Municipality – Water Use Licence Application. Client: BVi Consulting Engineers on behalf of the National Department of Public Works.

Upgrading and Refurbishment of the Waainek Bulk Water Supply, near Grahamstown – Environmental Control Officer. Client: Bosch Projects (Pty) Ltd on behalf of Makana Local Municipality.

Establishment of Material Sources associated with the Upgrading of Main Road R335 from Motherwell to Addo within the NMBM and Sundays River Valley Local Municipality – Basic Assessment for Environmental Authorisation. Client: GIBB (Pty) Ltd on behalf of SANRAL.

2019

Refurbishment and Upgrade of the Alicedale Water Treatment Works and Riebeek East Bulk Water Supply (Phase 1) – Environmental Control Officer. Client: Makana Local Municipality

Upgrading and Refurbishment of the Waainek Bulk Water Supply, near Grahamstown – Environmental Control Officer. Client: Bosch Projects (Pty) Ltd on behalf of Makana Local Municipality.

Upgrading of R335 from Motherwell to Addo within the Nelson Mandela Bay Municipality and Sundays River Valley Local Municipality – Water Use Authorisation. Client: GIBB (Pty) Ltd on behalf of SANRAL.

Morgan's Bay and Igxara Sanitation Systems and Wastewater Treatment Works – Environmental Screening Assessment, Basic Assessment and Water Use Licensing. Client: iX Engineers on behalf of the Amathole District Municipality.

2018

Bayview Wind Farm near Port Elizabeth, Eastern Cape Province - Water Use Authorisation. Client: Atlantic Renewable Energy Partners (Pty) Ltd

Establishment of the Sonop Single Turbine within the Coega Industrial Development Zone, within the Nelson Mandela Bay Municipality, Eastern Cape Province - Environmental Control Officer. Client: Avianto Properties (Pty) Ltd

Upgrade and Expansion of the Hofmeyr Sanitation System, Eluxolweni, Chris Hani District Municipality - Environmental Control Officer. Client: JG Afrika (Pty) Ltd on behalf of the Chris Hani District Municipality.

Routine Road Maintenance of Riet River Access Road (gravel road), near Port Alfred, Ikwezi Local Municipality – Environmental Screening Assessment and Basic Assessment. Client: Madan Singh Bester & Associates cc on behalf of the Eastern Cape Department of Roads and Public Works.

Implementation of Road Safety Measures and Rehabilitation of National Route R75 Section 1 between km 0.0 and km 13.0 – Port Elizabeth to Despatch, Nelson Mandela Bay Municipality (NMBM) - Environmental Control Officer. Client: SMEC South Africa (Pty) Ltd on behalf of SANRAL.

Construction and Upgrading of Glenhurd Drive, Port Elizabeth, NMBM - Environmental Control Officer. Client: Uhambiso Consult (Pty) Ltd on behalf of NMBM.

Mixed-Use Residential Development in Kwanobuhle Extension 11: Uitenhage, NMBM – Phase 4 – Environmental Control Officer. Client: Lukhozi Consulting Engineers (Pty) Ltd on behalf of NMBM.

2017

Demolition of Telkom Park (former Boet Erasmus) Stadium, Port Elizabeth, NMBM – Basic Assessment for Environmental Authorisation. Client: Bosch Projects (Pty) Ltd on behalf of the Mandela Bay Development Agency (MBDA).

Augmentation of the Driftsands Collector Sewer - Phase 1, Port Elizabeth, NMBM – Environmental Control Officer. Client: Bosch Projects (Pty) Ltd on behalf of NMBM.

Upgrading and Refurbishment of the Waainek Bulk Water Supply, near Grahamstown – Basic Assessment for Environmental Authorisation. Client: Bosch Projects (Pty) Ltd on behalf of Makana Local Municipality.

2016

Establishment of a Wastewater Recycling and Treatment Facility in Uitenhage, NMBM – Basic Assessment for a Waste Management Licence. Client: Xtreme Projects (Pty) Ltd.

Upgrading of the James Kleynhans Bulk Water Supply in Grahamstown, Phase 1 – Environmental Control Officer. Client: Bosch Projects (Pty) Ltd on behalf of Makana Local Municipality.

Upgrading of Main Road R335 from Motherwell to Addo within the NMBM and Sundays River Valley Local Municipality – Basic Assessment for Environmental Authorisation. Client: GIBB (Pty) Ltd on behalf of SANRAL.

Development Storage Area on the Remainder of Cuyler Manor Farm No 322 on the corner of Mel Brooks and Algoa Road in Uitenhage, NMBM – Environmental Screening Assessment. Client: Motorvia

2015

Augmentation of the Kwazakhele Bulk Sewer (Phase 3) – Basic Assessment Report for an Environmental Authorisation, and Water Use Licence Application. Client: AfriCoast Consulting Engineers (Pty) Ltd on behalf of the Nelson Mandela Bay Municipality.

Construction of Sludge Ponds at the Patensie Water Treatment Works – Basic Assessment for a Waste Management Licence. Client: Siroccon International (Pty) Ltd on behalf of the Kouga Local Municipality.

Upgrading of the Patensie Water Treatment Works and Construction of Infrastructure - Environmental Control Officer. Client: Siroccon International (Pty) Ltd on behalf of the Kouga Local Municipality.

2014

Re-gravelling of roads in Adelaide - Environmental Screening Assessment and Environmental Management Programme. Client: Alvodex Engineering.

Walmer Stormwater Detention Ponds and Associated Infrastructure in the NMBM – Environmental Management Programme. Client: JG Afrika (Engineering Division) on behalf of the NMBM.

Reconstruction of an Existing Causeway across the Sundays River at Kirkwood Prison – Application for a General Authorisation for Water Use Activities. Client: BVi Consulting Engineers on behalf of Eastern Cape Department of Public Works.

Rehabilitation of the John Tallant Road, Deal Party, Port Elizabeth – External environmental review of the Draft Basic Assessment Report. Client: GIBB Engineering & Architecture on behalf of the NMBM.

2013

Replacement of Chatty Valley Collector Sewer, Bethelsdorp, NMBM – Water Use Licence Applications. Client: Madan Singh Bester & Associates cc on behalf of the NMBM.

Reconstruction of the Sand River Bridge on MR00391, St Francis Bay (Kouga Local Municipality) – Basic Assessment Report, General Authorisation and Environmental Control Officer. Client: BVi Consulting Engineers on behalf of Eastern Cape Department of Roads and Public Works.

Redhouse Chelsea Arterial Network – Assisted with Water Use Licence Applications. Client: Aecom Engineers on behalf of the NMBM.

Bulembu 66kV Substation Upgrade, King Williams Town – Environmental Control Officer. Client: Eskom Holdings Limited.

Bulk Stormwater Infrastructure Installation for Wells Estate Phase 3 Residential Development (NMBM), Extension 1 & 2 – Environmental Control Officer. Client: Hatch Goba (Pty) Ltd on behalf of the NMBM.

Upgrading of the James Kleynhans Bulk Water Supply in Grahamstown, Phase 1 – Environmental Control Officer. Client: Bosch Stemele (Pty) Ltd on behalf of Makana Local Municipality.

Department of Science & Technology and National Research Foundation (DST-NRF Internship)

Apr – Jun 2013

Position – Postgraduate Research Intern at Centre for African Conservation Ecology (ACE) (NMMU)

- Assist with research-related tasks specializing in the fields of conservation biology and ecology.
- Collection of faecal samples of herbivore species within the Addo Elephant National Park and recording of GPS positions for each collection - Collaborative project through ACE (NMMU) and Laboratoire d' Ecologie Alpine (LECA) Grenoble, France, entitled 'DNA meta-barcoding of the dietary contents of herbivore species in South Africa'.

Nelson Mandela Metropolitan University

2009 - 2011

Position – Chief Zoology Practical Co-ordinator

- Assist undergraduates with zoology practicals, marking and correcting their practical reports, co-ordinating fellow demonstrators, and collating marks.

CONTINUED PROFESSIONAL DEVELOPMENT

Courses

2014 - Environmental Impact Assessment Workshop

2015 - 2014 EIA Legal Regime Workshop, 2014 EIA Regulations and associated templates training session, NEMA 2014 EIA Regulations: Information Session, IMBEWU – 2014 EIA Legal Regime Workshop

2016 - Waste Legislation course, IAIAAsa 2016 National Conference

2017 - South African Roads Federation & SANRAL: Environmental Impact Assessment Regulations

PERSONAL DETAILS

Nationality – South African

Date of Birth – 1986/07/15

Domicile – Port Elizabeth, South Africa

Languages

English – Very Good

Afrikaans – Very Good

Xhosa - Poor

LINMARIE TROSKIE



Profession	Environmental Scientist
Position in Firm	Environmental Scientist
Area of Specialisation	GIS Mapping Vegetation & Ecological Assessments ECO & Environmental Auditing
Qualifications	BSc Hons (Botany & Environmental Management); BSc (Biological Sciences)
Years of Experience	< 2 years
Years with Firm	> 1 year

SUMMARY OF EXPERIENCE

Linmarie Troskie is a recent post-graduate within her first years of gaining professional experience. Prior to joining JG Afrika, she has worked with specialist consultants, assisting them with the compilation of specialist reports within the fields of aquatic and terrestrial ecology.

Throughout the duration of her undergraduate and postgraduate studies, Linmarie focussed primarily within the realm of Botany, specialising in Environmental Management, Landscape Ecology & GIS, and Plant Physiology.

At JG Afrika Linmarie forms part of the environmental team where she has the role of Environmental Scientist, dealing mainly with ECO related activities, GIS mapping and assisting with Environmental Assessments.

PROFESSIONAL REGISTRATIONS & INSTITUTE MEMBERSHIPS

SACNASP Registered with the South African Council for Natural Scientific Professions – Candidate Natural Scientist (Reg No: 151625).

IAIASa Member of the International Association for Impact Assessors South Africa (Membership No: 7193)

EDUCATION

2016 - Matric – Gill College, Somerset East

2020 - BSc (Biological Sciences) – Nelson Mandela University

2021 - Hons (Botany) (Environmental Science) *Cum Laude* – Nelson Mandela University

SPECIFIC EXPERIENCE

JG Afrika (Pty) Ltd

09/2022 – Present

Position – Environmental Scientist

2022 - Current

- **Burgersdorp Correctional Facility Upgrade** – ECO duties & Environmental Auditing of site during construction phase.

2022 – 2023

- **Wells Estate Housing Basic Assessment** – Assisted with compilation of Draft Basic Assessment Report (DBAR) and Environmental Management Programme (EMPr) (Gqeberha).
- **Mimosa Housing Project Basic Assessment** – Assisted with compilation DBAR and EMPr (Gqeberha).
- **Great Fish River Nature Reserve Infrastructure Development Basic Assessment** – Mapping & EMPr and assisted with the compilation of the DBAR.
- **Kouga Duine Weg Rd Extension Basic Assessment** – Assisted Public Participation Process (PPP), compiled EMPr.
- **LIV Village Basic Assessment & Water Use License Application** – Assisted with application process, and DBAR & EMPr compilation.
- **Hankey Sanitation Basic Assessment** – Compilation of Part 1 Amendment & ECO Close Out Report.
- **Hankey Housing ECO** – Compilation of consolidated audit reports.
- **Arlington Mixed Use Development Environmental Impact Assessment** – Review of Site Verification Report, GIS mapping, initial PPP (Gqeberha).
- **Glenroy Park Environmental Authorisation (EA)** – Split of EA (Gqeberha).
- **Killarney Drop-off Facility OEMP** – GIS mapping (City of Cape Town).
- **Infill Housing Elsies Rivier** – GIS mapping (City of Cape Town).
- **Brakpoort Solar PV Facility (Victoria West)** – ECO duties & Environmental Auditing of site during construction phase
- **Vanrhynsdorp Road Upgrade** – GIS mapping (Western Cape).
- **CCT Solar Projects** – GIS mapping of Athlone Waste Water Treatment Works, Wesfleur WWTW, & Fisantekraal WWTW (City of Cape Town).
- Feasibility Study Research & Compilation
- **Brakpoort Solar Farm (Victoria West) ECO & Monthly Audits.**
- **Mimosa Village Housing Development ECO & Monthly Audits.**
- **Somerset East Road Refurbishment Screening Report.**
- **GIS mapping** of Ethekwini Municipal WWTW locality maps & Emalahleni Collieries for a World Bank Reuse Study.
- **Feasibility screening assessment** for Avianto Energy.

Jamie Pote (Independent Biodiversity Advisor, Ecologist, & Environmental Scientist)

08/2022 – Present

Position – Specialist Consultant Intern/Assistant

Draft reporting and species identification – 2022

- Addo Fuel Depot Biodiversity Assessment Report
- Mbashe Royal House Biodiversity Assessment Report
- Kei Mouth Residential Retainer Wall Biodiversity Assessment Report
- MTN Mast Biodiversity Assessment Reports – Roussouw, Mount Steward, Misgund, and Pearston (including site visits).
- Harmony Chemwes and Kalgold PV facilities Terrestrial Biodiversity Assessment Reports.
- Bonsmara Terrestrial Biodiversity Assessment Report.

SIKHULISA SONKE • WE DEVELOP TOGETHER

- Victoria West Soutrivier & Taaibos WEF Terrestrial Biodiversity Assessment Report.
- Springbok Varsputs & Brakputs Screening Assessment.
- Glen Ewan School Terrestrial Biodiversity Report (including site visit).

Draft reporting and species identification – 2023

- Roodam WEF Screening Report.
- Perseverance Fuel Station Terrestrial Biodiversity Assessment (including site visit).
- Carissa WEF Screening Report.
- Brakdam Solar PV Facility Screening Report
- Koup WEF Walkdown Preparation.
- Perseverance Fuel Station Site Visit, GIS mapping & report compilation.
- Coega Mn Terminal Amendment Site Visit, GIS mapping, and assistance with report compilation.
- St. Francis Residential Unit Terrestrial Biodiversity & Floral Compliance Statement.
- Motherwell Filling Station Terrestrial Biodiversity Assessment inclusive of floral component.
- Pansy Villas Dune Maintenance and Management Plan.
- Plettenberg Bay – Kranshoek Ptn 7 & 8 Terrestrial Biodiversity Assessment inclusive of floral component.
- Aberdeen WEF GIS mapping, and assistance with report and species list compilation.
- Aggenys Hartebeest WEF species list compilation.

EnviroSci. Pty. Ltd.

01/2022 – 05/2022

Position – Specialist Consultant Intern/Assistant

GIS mapping & draft reporting –

- Hoogland Windfarm Aquatic Impact Assessment.
- EDF Wind Farm Aquatic Assessment – Noupoort for Coleskop, Umsobomvu, and Eskom MTS land parcels.
- Taleni Access Road Aquatic Impact Assessment.
- Matonga to Mantlaneni Access Road Aquatic Impact Assessment.
- Tsomo R61 (section 6) road upgrade aquatic assessment update.
- Mapping of Tsomo Pump Station & Overhead powerlines for Aquatic Impact Assessment.

Public Participation (PPP) –

- Haga Haga Wind Energy Facility WULA application.

PERSONAL DETAILS

Nationality – South African

Date of Birth – 1998-10-22

Domicile – Port Elizabeth, South Africa

Languages

English – Very Good

Afrikaans – Very Good

Appendix C: ECPTA's standard ES requirements for construction and maintenance projects

Eastern Cape Parks and Tourism Agency

Standard Environmental Management Programme for Construction and Maintenance Projects

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AUTHORISATION

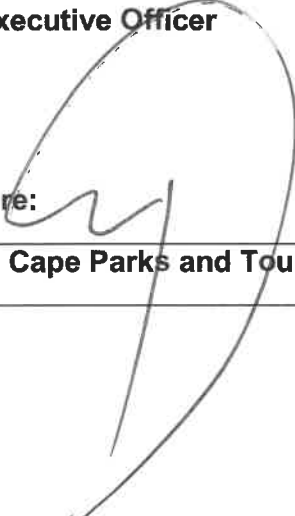
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Author:	Shanè October
Recommended by:	Dr N. Songelwa Chief Operations Officer  Signature:  Date:
Approved by:	Mr V. Dayimani Chief Executive Officer  Signature:  Date:
For:	Eastern Cape Parks and Tourism Agency



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GLOSSARY

Assessment: means the process of collecting, organising, analysing, interpreting and communicating information that is relevant for decision-making.

Biodiversity: has the meaning ascribed to it in section 1 of the National Environmental Management: Biodiversity Act (Act 10 of 2004), as follows: the variability among living organisms from all sources, including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species and of ecosystems.

Competent Authority: means an organ of state responsible for granting or refusing a permit in terms of the applicable Act.

Contaminated water: Means any water contamination by the Contractor's activities, e.g. concrete water and run-off from plant / personnel wash areas.

Contractor: Persons/organisations contracted by the Developer to carry out parts of the work for the planned development. The Contractor shall ensure compliance with this EMP, and shall request advice from the Environmental Control Officer where considered appropriate.

Construction Activities: Activities associated with physical disturbance to the land, including the storage machinery, equipment and materials.

Developer: The developer refers to the Eastern Cape Parks and Tourism Agency or a third party proposing development activities within the ECPTA Protected Areas.



Environment: As defined in the National Environmental Management Act, 1998 (Act 107 of 1998), environment means the surroundings within which humans live and that are made up of:

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

Environmental Audit: A systematic, documented verification process of objectively obtaining and evaluating evidence to determine whether specified environmental activities, events, conditions, management systems, or information about these matters conform with audit criteria, and communicating the results of this process to the developer.

Environmental Control Officer: The Environmental Control Officer is responsible for monitoring, reviewing and verifying compliance with the EMPr by the Contractor.

Environmental Management Programme: means Environmental Management Programme as contemplated in regulation 24 of the National Environmental Management Act (No 107 of 1998).

Groundwater: All subsurface water that fills voids between highly permeable ground strata comprised of sand, gravel, broken rocks, porous rocks, etc. and which moves under the influence of gravitation.



Hazardous waste: Waste, that even in small amounts can cause damage to plants, animals, their habitat and the well-being of human beings, e.g. waste from factories, detergents, pesticides, hydrocarbons, etc.

Impact: A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Infrastructure: The network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewerage.

Method statement: Written statements that contain details about construction/maintenance procedures required for work near sensitive environments in the site, including environmentally sensitive activities such as waste management, construction within wetlands, dust control, erosion and sediment control, etc. A work method statement is predominately used in construction to describe a document that gives specific instructions on how to safely perform a work related task, or operate a piece of plant or equipment.

Mitigation: means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

Protected Area: means any of the protected areas referred to in section 9 of the National Environmental Management: Protected Areas Act, Act 57 of 2003.



Pollution: National Water Act, Act 36 of 1998 defines pollution as follows: “Water pollution means the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it –

(a) less fit for any beneficial purpose for which it may reasonably be expected to be used; or

(b) harmful or potentially harmful –

(aa) to the welfare, health or safety of human beings;

(bb) to any aquatic or non-aquatic organisms;

(cc) to the resource quality; or

(dd) to property”.

National Environmental Management Act, Act 107 of 1998: defines pollution as follows: “pollution means any change in the environment caused by –

(i) substances;

(ii) radioactive or other waves; or

(iii) noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.”

Rehabilitation: Rehabilitation is defined as the return of a disturbed area to a state which approximates the state (wherever possible) which it was in before disruption.

Waste Management: Classifying, recycling, treatment and disposal of waste generated during construction and decommissioning activities.



ABBREVIATIONS

DEA:	Department of Environmental Affairs
DEDEAT:	Department of Economic Development, Environmental Affairs and Tourism
EA:	Environmental Authorisation
ECHRA:	Eastern Cape Heritage Resources Agency
ECPTA:	Eastern Cape Parks and Tourism Agency
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessment
EMPr:	Environmental Management Programme
OHS:	Occupational Health and Safety
NEMA:	National Environmental Management Act
PA:	Protected Area
SAHRA:	South African Heritage Resources Agency



1. INTRODUCTION

As the delegated management authority of various protected areas across the Eastern Cape Province, the Eastern Cape Parks and Tourism (hereafter the 'ECPTA') is responsible for ensuring that all activities within Protected Areas (PA) are executed in an environmentally sound manner. Hence this Standard Environmental Management Programme has been developed.

An Environmental Management Programme (EMPr) can be defined as a programme of action which sets out a process and methodology to manage and monitor activities that will have an impact on the environment.

This EMPr provides a set of guidelines for environmental management in accordance with all relevant legislation, policies and standards. The aim of this EMPr is to prevent avoidable damage and/or minimize or mitigate unavoidable environmental damage associated with any construction, maintenance or demolition work on any ECPTA PAs. The use of this EMPr is twofold:

- Firstly, the mitigation measures can be used to provide best practices to those activities which capacity is below the thresholds listed in the National Environmental Management Act (NEMA), Act 107 of 1998: Environmental Impact Assessment (EIA) Regulations of 2014; therefore no environmental authorization (EA) is required in terms of the NEMA.
- Secondly, the mitigation measures can provide guidance for NEMA: EIA applications to obtain EA prior to commencement of activities that trigger the thresholds in the NEMA: EIA Regulations of 2014.

In this regard this EMPr adopted a precautionary approach, or in the case of management recommendations, a philosophy of 'best practice'. The document should be regarded as a dynamic or 'living' document, which may require updating, or revision according to requirements, needs and specifications of projects. It is essentially a written strategy of how the environment is to be managed in practical and achievable terms. The efficiency of the EMPr will be limited by the level



of adherence to the conditions set forth in this document by the Developer and if required the Contractor/Suppliers. It is further assumed that compliance with the EMPr will be monitored on a regular basis as set out in the document and contractual clauses of contract/s awarded.

Key Objectives of the EMPr:

The key objectives are summarised as follows:

- Identify the possible environmental impact of the proposed activity;
- Promote compliance with the relevant environmental legislation and project commitments;
- Develop measures to avoid, minimize and/or mitigate possible environmental impacts;
- Provide a guidance to the management and notification of environmental incidents; and
- Provide general improvements in environment maintenance methods.

2. APPLICABLE LEGISLATION

The supreme law of the land is “The Constitution of the Republic of South Africa”, which states: “Everyone has the right-

- (a) to an environment that is not harmful to their health or well-being; and
- (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-
 - (i) prevent pollution and ecological degradation;
 - (ii) promote conservation; and
 - (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

In addition Section 28 of the National Environmental Management Act (Act 107 of 1998) states “Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorized by



law or cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment.”

Legislation applicable to protection of the environment in terms of Environmental Management include but are not restricted to:

- Animals Protection Act, 1962 (Act 71 of 1962)
- By-laws of the Municipal Area where the Protected Area is located.
- Ciskei Conservation, 1987 (Act 10 of 1987)
- Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)
- Constitution of South Africa Act, 1996 (Act 108 of 1996)
- Eastern Cape Parks and Tourism Agency Act, 2010 (Act 2 of 2010)
- Environment Conservation Act, 1989 (Act 73 of 1989)
- Game Theft Act, 1991 (Act 105 of 1991)
- National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)
- National Forest Act, 1998 (Act 84 of 1998)
- National Heritage Resources Act, 1999 (Act 25 of 1999)
- National Road Traffic Act, 1996 (Act 93 of 1996)
- National Veld and Forest Fire Act, 1998 (Act 101 of 1998)
- National Water Act, 1998 (Act 36 of 1998)
- Nature and Environmental Conservation Ordinance, 1974 (Act 19 of 1974)
- NEM: Biodiversity Act, 2004 (Act 10 of 2004)
- National Environmental Management Act, 1998 (Act 107 of 1998)
- NEMA: Environmental Impact Assessment Regulations, 2014 (as amended on 7 April 2017)
- NEM: Integrated Coastal Management Act, 2008 (Act 24 of 2008)
- NEM: Protected Areas Act, 2003 (Act 57 of 2003)
- NEM: Waste Management Act, 2008 (Act 59 of 2008)
- Mountain Catchment Areas Act, 1970 (Act 63 of 1970)
- Occupational Health and Safety Act, 1993 (Act 85 of 1993)
- Problem Animal Control Ordinance, 1957 (Act 26 of 1957)



- Soil Conservation Act, 1969 (Act 76 of 1969)
- Transkei Decree, 1992 (Act 9 of 1992)
- If required, the World Heritage Convention Act, 1999 (Act 49 of 1999) and Operational Guidelines for the Implementation of World Heritage Convention (2 Feb 2005)

This EMPr will be part of a project tender and contract and is thus a legally binding document. The incorporation of environmental considerations into the tender and contract documents is a fundamental prerequisite for the effective implementation of the EMPr. This EMPr should be kept on site where the construction, maintenance or demolition activities will occur, at all times.

Should an amendment to this EMPr be required, amendments may only be implemented once the amended EMPr has been approved by the ECPTA.

3. ROLES, RESPONSIBILITIES AND CONTRACT OBLIGATIONS

3.1 Implementation and Compliance

As the management authority of the ECPTA PAs, the ECPTA must ensure implementation and compliance of this EMPr, including any environmental rehabilitation that may be required. Supervision and monitoring are fundamental to the successful implementation of an EMPr. Therefore, it is vital that there is monitoring of the extent to which the mitigation measures of this EMPr are adhered to by consultants and contractors.

3.2 Competent Authority

The relevant competent authority responsible for granting environmental authorisations must be identified in terms of Section 24C of the NEMA.



3.3 Developer

The developer, ECPTA and/or third party, must take full responsibility to ensure implementation and compliance of this EMPr. The Developer must do the following to ensure compliance:

- Ensure that the professional team and the Contractors are appropriately briefed and that their appointment includes environmental management requirements as relevant.
- Ensure that he/she is kept up to date of the performance of the project against the requirements of the EMPr.
- Ensure that appropriate action is taken where consistent incidents of non-compliance are taking place.
- Ensure that any corrective action required by the authorities is implemented.

3.4 ECPTA Project Manager

The ECPTA must designate an ECPTA employee as the Project Manager to take responsibility for the implementation of the project, including this EMPr to ensure that the Principal Agent and Contractor fulfil their obligations.

3.5 Principal Agent

The Principal Agent is the designated or appointed person by the ECPTA to ensure the implementation and completion of any development contract as per the agreement with the ECPTA. The scope of the projects may determine who the Principle Agent for a project will be:

- For large projects (e.g. construction of lodges): The Principle Agent will usually be an appointed architect, engineer or a designated Project Manager appointed by contract with the ECPTA. The Principle Agent may also be an employee of the ECPTA, delegated to act as the project's Principle Agent.
- For smaller projects (e.g. construction of signage boards, maintenance of existing infrastructure): The Principal Agent for smaller projects may be an employee appointed by the ECPTA , such as the Reserve Manager where the project will be implemented.



3.6 Environmental Control Officer

The position of Environmental Control Officer has been created to ensure that the mitigation measures and other requirements set forth in the EMPr are adhered to.

The duties of the appointed ECO include the following:

- The ECO should be able to understand, interpret, monitor, audit and implement the EMPr. This is the core function of the ECO.
- Ensure the necessary permits, if any, have been obtained prior to commencement of the project.
- Identify the risks of environmental damage and the actions/ requirements necessary to avoid and/ or mitigate environmental damage.
- Determine site visit intervals prior to the commencement of project.
- Complete environmental monitoring checklists (see Appendix 1 for proforma) during site visits and keep a photographic record of progress of the project from an environmental perspective. It is recommended that the photographic record should contain photos prior, during and post monitoring of the project.
- Report back on any environmental issues/incidents to the Contractor and the Developer once per month; and as a standard item on the monthly project meeting agenda.
- If necessary, update the relevant competent authority/ies of work progress on site.
- Prepare an environmental audit report at the conclusion of the project.

These duties are to be carried out by an independent ECO or a person delegated by the Agency such as the Reserve Manager or Section Ranger (should the Reserve Manager fulfill the role as Principle Agent) of the Nature Reserve. The appointed official should liaise with the Principle Agent, Project Manager, Contractor, Ecologist and Environmental Planner to identify and mitigate risks of environmental damage. For projects where any ECPTA official is unable to carry out the above role then ECPTA should appoint a qualified independent consultant to fulfill the duties. Copies of the monitoring report should be circulated within five (5) working days after the site visit to the relevant staff in the ECPTA.



3.7 Contractor

Hereafter referred to as the 'Contractor' in this document. The construction team/ Contractor shall:

- Ensure that the environmental specifications of this document are effectively implemented. This includes the on-site implementation of steps to mitigate environmental impacts.
- Monitor environmental performance and conformance with the specifications contained in this document during site inspections.
- Discuss implementation of and compliance with this document with staff at routine site meetings.
- Report non-compliance with the EMPr and Environmental Authorisation (if required and obtained) to the ECPTA PM and ECO immediately (on discovery) or within 24 hours of the event discovered or occurred.
- Report progress towards implementation or non-conformances with this document at site meetings with the ECPTA PM.
- Ensure that suitable records are kept and appropriate documentation is available to the ECPTA PM.
- Ensure that employees under the contractor are trained in accordance with the requirements of the EMP.
- The Contractor will conduct all activities in a manner that minimises disturbances to and impacts on the environment.

3.8 Occupational, Health and Safety (OHS) Officer

The Contractor or Principal Agent must appoint an OHS Officer and his/her role is to support the successful implementation of the EMPr through:

- Site evaluation on a daily basis.
- Identifying issues relating to day to day activities and that can have a detrimental effect on the environment.
- Subcontractor audits to ensure compliance.
- Assist in the direct implementation of the EMPr.



- Ensure that the requirements of the EMPr are communicated understood by personnel on site via induction sessions.
- Ensure that the contractors on site develop, implement and monitor the required OHS management functions.
- Evaluate the applicability and accuracy of the EMPr and the method statements throughout the project phase.
- Coordinate all statutory requirements including permit authorization and license requirements.
- Conduct or have conducted a hazard analysis and take the necessary corrective action.
- Where it is not possible to remove any remaining hazards to inform employees thereof and what precautionary action is to be taken.
- Detail mitigation measures required to be taken and the procedures for their implementation to the project manager.
- Represent OHS issues at the project meetings.
- Coordinate OHS training of personnel.
- Coordinate spill response personnel.
- Inspect the integrity of the hazardous waste containers/bins/skips on a weekly basis.

3.9 The EMPr in Context

This EMPr will form part of a project tender and contract. The mitigation guidelines be written into the contract documents as specifications.

3.10 Flexibility

The EMPr is a dynamic and flexible document subject to review and updating. During the implementation of a project there is always the possibility that unforeseen issues could arise, this EMPr should therefore be revised where necessary to mitigate unanticipated impacts. Any major issues not covered in the EMPr shall be addressed as an addendum to this EMPr, submitted for approval by the ECO to the Developer (ECPTA and third party) prior to implementation.



Note: The purpose of the EMPr is to serve as a guiding document for addressing possible environmental impacts associated with construction, maintenance or demolition activities that does not trigger any listing activities in terms of the NEMA: EIA Regulations of 2014 (as amended 7 April 2017). Should any proposed activities trigger the NEMA: EIA Regulations of 2014 (as amended 7 April 2017), then the mitigation measures of this EMPr may be additional to the EMPr that will be developed by the Independent Environmental Consultant to assess the project.

3.11 EMPr Implementation Period

The EMPr will focus on and operate during the whole implementation of construction and maintenance phase of projects. This EMPr shall apply throughout the ECPTA, its employees and contractors/ suppliers.

3.12 Failure to comply with EMPr

Outlined below are a number of steps, relating to increasing severity of environmental problems, which will be implemented. The principle is to keep as many issues within the first few steps as possible.

Step 1: The ECO discusses the problem with the contractor or guilty party, and they work out a solution together. The ECO records the discussion and the solution implemented.

Step 2: The ECO or ECPTA observes a more serious infringement, and notifies the guilty party in writing, with a deadline by which the problem must be rectified. All costs will be borne by the contractor.

Step 3: The ECO shall order the contractor to suspend part, or all, the works. The suspension will be enforced until such time as the offending party(ies)', procedure or equipment is corrected and/or remedial measures (approved by the ECPTA) put in place if required. The ECPTA to provide written approval of rehabilitation measures proposed. No extension of time will be granted for such delays and all cost will be borne by the contractor.



Step 4: Breach of contract - One of the possible consequences of this is the removal of a contractor and/or equipment from the respective protected area and/or the termination of the contract, whether a construction contract or an employment contract. Such measures will not replace any legal proceedings that ECPTA may institute against the contractor.

3.13 On-site EMPr training

- Training on the EMPr shall be provided prior to the commencement of the contract. The purpose of the training is to communicate potential environmental impacts relating to construction, demolition and/or upgrade activities to ensure that precautionary measures are undertaken to avoid and/or mitigate the impacts.
- The ECO or official delegated by the ECPTA shall give initial EMPr training prior to any work starting on site. The training record must be kept on the project file for each training.

3.14 Communication Procedure/s

3.14.1 On project start-up meeting

- The mandatory on-site start-up meeting should be conducted preferably 14 days but not less than 5 working days prior to commencement of any site/camp establishment, earthworks and/or construction, demolition or upgrade activities and will relate to additional discussed information that must be complied with during the entire project.
- The project start-up meeting should consist of the Contractor, Principal Agent, ECO, Reserve Manager, OHS Officer, Project Manager, and relevant Ecologist.
- All site-specific issues and arrangements as discussed and agreed on a site start-up meeting, must be recorded and included as part of the EMPr.
- At the site start-up meeting, the following issues must be discussed:
 - ✓ The EMPr and other relevant site documents including permits that have been obtained.
 - ✓ Method statement/s to be discussed.
 - ✓ Access routes
 - ✓ Work Areas



- ✓ No- go areas demarcated and communicated
- ✓ Materials stockpile and lay down areas to be demarcated
- ✓ Method of stockpiling to be discussed
- ✓ Firefighting procedures
- ✓ Mandatory firefighting equipment and fire preventative measures
- ✓ Mandatory site equipment and facilities
- ✓ Waste facilities and removal intentions
- ✓ Placement, type and servicing of toilets to be agreed on
- ✓ Placement and type of rubbish bins and removal of rubbish to be agreed on
- ✓ Environmental awareness training session to all contractors and onsite staff.
- ✓ Location and establishment of concrete batching plant facility, if applicable.
- ✓ Frequency of site audits
- ✓ Emergency Incident Management and Reporting

3.14.2 Monthly progress meetings

- Environmental matters pertaining to the project must be included as an agenda item on the monthly project construction progress meeting.
- The Environmental Planner, or the ECPTA employee delegated to carry out the duties of the ECO, or an independent appointed ECO must be invited to monthly progress meetings to discuss findings of site audits, mitigation measures and other issues arising from or pertaining to the implementation of the EMP conditions.

3.15 Method Statements

The Contractor or relevant ECPTA employee responsible for implementing the project must provide written Method Statements to the Principal Agent and ECO for all environmentally sensitive activities, as per the Method Statement (Proforma attached at Appendix 2).



Method statements are required for the following aspects of works:

MS 1: Demarcation of working areas and No-go areas

MS 2: Location and establishment of Construction camp (if required)

MS 3: Storage of construction material and hazardous substances

MS 4: Wastewater management

MS 5: Flora management and vegetation clearance

MS 6: Solid waste management

MS 7: Removal and stockpiling of topsoil and other excavated material

MS 8: Dust control

MS 9: Traffic Control

MS 10: Watercourse Management

MS 11: Demarcation of Sensitive Areas

MS 12: Site Clearing

MS 13: Soil Erosion and Control

MS 14: Heritage Resource Management

MS 15: Cement batching location and method

3.16 Audits

- The Audit of the environmental monitoring checklists in terms of the EMPr for each project must be completed by the Environmental Planner together with the relevant Ecologist or an independent auditor if required.



- Hardcopy versions of all ad hoc written or photographic records of significant environmental incidents should be filed by date with completed Audit Checklists. Significant impacts must be recorded photographically with enough supporting information to locate the image on the site, preferably a GPS coordinate accurate to 10m or better.
- The frequency of Audits should be discussed and agreed upon prior to commencing of projects.

4. DESCRIPTION OF MITIGATION MEASURES

This chapter of the EMPr serves to prescribe mitigation measures to reduce or avoid impacts to acceptable levels. Note the practical implications must be taken into account when implementing the measures. With early planning both the cost and the impacts can be minimized.

5. PLANNING AND DESIGN PHASE

The proponent of the project should ensure that the project is in line with the objectives of the Management Plan (including the zonation map) of the relevant ECPTA PA. Design and layout should be done in consideration of the sensitivity of the environment and the relevant legislation and regulations (including the National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)).

If required, all Structural Building Plans are to be submitted to the Local/ District Authority for approval and no building construction activities will be undertaken inside the protected area without an approved plan.

6. PRE-PROJECT COMMENCEMENT PHASE

Activities relating to this phase are those relating to the preparation of the site prior to commencement of works.



6.1 EMPr Training

- EMPr Training should be provided to the staff on site to familiarize the staff with the contents of this EMPr. The ECO or the ECPTA official delegated to carry out the duties of the ECO may provide EMPr training.
- Proof must be obtained to show that the training has been conducted.

6.2 Site Establishment

- If necessary, camps and staff accommodation facilities on the site will be required to be established in appropriate locations prior to the commencement of construction, preferably within already disturbed areas.
- The location for the establishment of site/s for the storage of materials, site office, containers and ablution facilities must be clearly indicated on site and remain constant for the duration of the development activities. The footprint of the agreed work areas should be maintained at a bare minimum to minimise the potential ecological impacts.
- After completion of the contract, the areas will be required to be rehabilitated.
- Refer to approved management plans (such as Conservation Development Plan/Zonation plan) for guidance.
- Site establishment needs to be approved by ECO supported by the Environmental Planner, Ecologist and Reserve Manager.

6.3 Sensitive Areas

- Due to the high number of endemic species on ECPTA PAs and to avoid injury or disturbance of any animal, sites to be cleared need to be inspected by the relevant Ecologist (where necessary) prior to any work activities taking place and transferable animals and plants moved from the site to a new suitable location prior to commencement of works. The contractor must also take care when work occurs around breeding areas to avoid any negative impacts. Nests must also be carefully moved, to the satisfaction of the Ecologist, ECO and/ or Nature Reserve Manager, if found on work sites.



- The clearing of vegetation and excavation activities near sensitive areas needs to be environmentally sound at all times. It is important to note that the removal of soil and vegetation near wetlands or rivers might lead to the formation of dongas.
- Protect all areas susceptible to erosion and take necessary measures, to the approval of the ECO. The Contractor shall not allow erosion to develop on a large scale before effecting repairs and all erosion damage shall be repaired as soon as possible.

6.4 No-go Areas

- All rivers and wetland areas must be considered 'NO-GO' areas; no vehicles shall be allowed to drive through rivers, streams and wetlands.
- No person, machinery or equipment may enter the 'NO-GO' areas at any time during the contract period.
- In the event that sensitive features are threatened by the construction, maintenance or demolition activities, temporary fencing off of the areas (for individual areas such as wetlands, trees or rocks) or the work area (when working in a mainly natural environment) is recommended.
- This demarcation must be done by the ECO, Ecologist and/ or Nature Reserve Manager.
- **Procedure to follow:** The ECPTA must determine and delineate the construction, demolition, maintenance, storage and "NO-GO" areas on site. The working areas and 'NO-GO' areas must be shown on a site map of at least A1 size posted in the site office, and be demarcated by danger tape and/or fencing on site. To avoid damage to the 'NO-GO' areas, the site map should also include:
 - ✓ areas where construction, maintenance, or demolition work may be carried out;
 - ✓ areas where any material or waste may be stored; and
 - ✓ allowed access routes, parking and turning areas for construction or construction related vehicles.

6.5 Heritage

- In known archaeological sensitive areas the South African Heritage Resources Agency (SAHRA) should be consulted, in order to:



- ✓ Confirm the absence of archaeological sites and/or artefacts;
- ✓ Relocate, demarcate or recommend further conservation / preservation actions and measures for any identified archaeologically “sensitive” area and/or artefacts prior to the commencing of any work at the sites, and
- ✓ Point out and/or demarcate all archaeologically “sensitive” areas to the contractors.

6.7 Access Roads

- Access routes and internal camp roads shall be planned in conjunction with the Nature Reserve Manager, Ecologist, Section Ranger and ECO and once finalised only the agreed roads must be used.
- Roads must be planned to deviate around significant trees and Red Data Species marked out in an approved manner by the ECO and Ecologist.

6.8 Water Supply

- Note all water use/s should be in accordance with the National Water Act (Act 36 of 1998).
- Reserve Manager must point out to contractors where they can obtain water (e.g. water for mixing of cement as well as for drinking). Contractors shall not make use of/collect water from any source other than those pointed out to them as suitable for use by them.

7. PROJECT COMMENCEMENT PHASE

7.1 Project Site

If any site has to be relocated due to unforeseen circumstances, an alternative site must be identified and agreed upon by the ECO, Environmental Planner, Ecologist and/or Reserve Manager (if not the ECO).



7.2 Movement of Personnel and Equipment

All staff and equipment must remain within the demarcated work areas at all times. This should be monitored by the Contractor if appointed or by the Reserve Manager. Permission should be obtained from the Nature Reserve Manager prior to the movement of staff and/ or equipment outside the boundaries of the agreed work areas.

7.3 Staff management, Ablution and Eating Facilities

- External workers are to make use of the chemical toilets to be provided by the Contractor. Maintenance of the chemical toilets should be done on a regular basis to prevent any leakages. Under no circumstances may neighbouring open areas or the surrounding bush be used as a toilet facility.
- At least one chemical toilet must be made available for every 15 persons at each working station or as stipulated by appropriate legislation.
- To prevent toilets from blowing over, they must properly be secured, containing a functioning door and lock.
- No food may be left outside unattended and no foodstuff is to be left overnight. No food may be disposed of in the surrounding areas.
- Washing facilities shall be provided with flow reduction devices and adequate catchment to contain wash water. Only biodegradable soap shall be allowed (as provided by the Contractor).
- Water from wash basins shall be re-used wherever possible.
- No toilet shall be located in sensitive environments (i.e. in or near watercourses).
- Fires of any sort (e.g. for cooking by workers or burning of waste) are forbidden on site.

7.4 Access and movement

- Access shall only be granted to the site during normal working hours (08:00 – 17:00) Mondays – Fridays, unless specified.
- All personnel shall be off site by gate closing time unless permission was granted by the Reserve Manager to stay on site and provided for as part of the contract.



- Work areas and access routes must be demarcated by danger tape on site posts or temporary fencing to minimise environmental impact.
- All vehicles must remain within demarcated access routes and working areas on site.
- To ensure no disturbance to ECPTA management activities, especially for compliance monitoring, all existing roads should not be blocked during the project.
- The proclaimed speed limit of 40 km/h, unless specified in the Nature Reserve must be strictly adhered to.
- The ECO should monitor the conduct of drivers and report any negative impact to the contractor immediately.
- Upon completion of the project, the Contractor (if appointed) or Reserve Manager must ensure that the access roads are returned to a state no worse than prior to commencement of works. A photographic record should be documented of the construction camp (if required), all access roads and proposed development sites.
- If two-way traffic movement is to take place, passing bays are to be used where specified by the ECO to prevent access / detours into the surrounding areas. The drivers delivering project materials to site are to be made aware of this. They may not drive off the road in order to allow another vehicle to pass.
- Continual use of dirt access roads by heavy machinery and increased transport loads means they will have to be carefully monitored and regularly graded as soon as potholes or rutting occurs.
- All Contractors, subcontractors and staff shall be identified by clothing with company logos and be in possession of valid SA identity documents.
- All drivers of company vehicles must be in possession of valid drivers' licenses while driving within the reserve.
- Deliveries, removals etc. are to be completed during gate open times only.

7.5 Fauna and Flora

- Care shall be taken to preserve all vegetation in the immediate area of temporary stockpiles.
- Construction and/or maintenance activities shall be confined to the demarcated areas to avoid accidental injury of animals.



- No animals, including mammals, birds, snakes and invertebrates may be harmed or killed.
- Trapping, poisoning and/or shooting of animals is strictly forbidden.
- No domestic pets or livestock are permitted on site.
- Advise neighbouring landowners to keep all animals away from construction/ maintenance site.
- Restrict access to site for any animal through assembly of gates, fences etc. to avoid injury to animals.
- Reduce speed on roads (max 40km/h, unless specified) to avoid injury of animals present in the vicinity.
- Stealing of animals is a criminal offence and is forbidden.
- To avoid injury of any animal and breeding habitats, sites to be cleared need to be inspected and transferable animals moved from the site to a new and benign location. Care must be taken when projects occur around breeding areas to avoid any negative impacts. Nests must also be carefully moved if found on demarcated project sites.
- Activities must also take into consideration the breeding periods of surrounding bird species, limiting construction/maintenance work during that time period and also reducing any negative impacts which may be caused on surrounding species.
- No plants outside of the demarcated work areas may be damaged.
- No firewood may be collected.
- All incidents of harm to any animal or natural vegetation (apart from the agreed upon areas) must be reported to the ECO.
- No natural features should be defaced, painted, damaged or marked, if these should occur (e.g. trees, rock formations, buildings, etc.) situated in or around the Site the ECO must be informed at once.
- The areas of vegetation that are to be protected during construction/maintenance project must be demarcated and indicated on a site plan. A Method Statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas.



7.6 Soil

- Topsoil must be treated with care, must not be buried or in any other way be rendered unsuitable for further use (e.g. by mixing with spoil) and precautions must be taken to prevent unnecessary handling and compaction.
- No soil (for construction purposes) will be sourced from the watercourse.
- Stockpiles should ideally be located to create the least visual impact and must be maintained to avoid erosion of the material and contamination of surrounding environment.
- Ideally, topsoil stockpiles are not to exceed 1.5 m in height.
- Any topsoil removed during the planting process must be backfilled or levelled on site; and ensure that the topsoil is replaced on the surface and not below the ground.
- Stockpiles and storage yards should be demarcated in areas already disturbed or where disturbance will be minimal.
- The location of spoil stockpile sites shall be agreed upon by the ECO prior to the onset of any operations that will generate spoil materials. No spoil material shall be dumped outside the Nature Reserve. All waste should be disposed a registered landfill site. Proof of disposal should be provided to the Reserve Manager for record purposes.
- Where at all possible, excavations must not stand open longer than 2 days, and should preferably be opened and closed on the same day. They should not be permitted to stand open longer than a week under any circumstances. Excavations must be marked with tape to clearly demarcate the area and warn against access.
- Excess topsoil is to be spread evenly over the area in a manner that blends in with the natural topography.

7.7 Management and Storage of Materials (including equipment)

- Materials to be used during construction/ demolition/ maintenance shall only be stored on demarcated sites.
- Contractors will not be allowed to store new material outside demarcated areas (e.g. on the sides of the access road or among the natural vegetation or next to the existing access road).



- All vehicles and equipment must be maintained in a good condition in order to minimise the risk of leakage and possible contamination of the soil or storm water by fuels, oils and hydraulic fluids.
- Earthmoving equipment and vehicles should be inspected and serviced regularly to allow for timeous identification of fluid leaks.
- If relevant, a method statement should be provided for activities related to the scope of work:
 - ✓ Type and quantity of material to be stored;
 - ✓ Whether any oil contaminated/ containing equipment will be stored;
 - ✓ How (including what type of vehicles will be required) the material will be delivered on site at the necessary storage area; and
 - ✓ Whether there is any risk of spill or runoff of any materials or chemicals and how the risk/spill will be mitigated.

7.8 Management of Hazardous Material

- Concrete and cement preparation activities shall not be permitted in any sensitive environments and no mixing shall be allowed on bare soil / permeable ground surfaces.
- Mixing activities must take place on an impermeable surface and the mixing area should be bunded to contain any liquids to prevent contamination of soil and storm water.
- Used cement bags shall be collected and stored in containers to prevent wind-blown cement dust and water contamination.
- The re-use of discarded cement bags on site is forbidden.
- Water from concrete washing must either be re-used in concrete mixes or must be stored in drums, then removed from the site and disposed of at a licensed municipal dump site.

7.9 Waste Management

- A method statement to the approval of the ECO and/or Reserve Manager (if not ECO) should be provided prior to commencement of project.
- Ensure that all litter is collected daily from the work area. Similarly, all bins shall be emptied daily.



- All waste should be discarded at a registered waste management facility/ landfill site, particularly those waste or materials that could have an impact on surface or groundwater quality when coming into contact with water.
- Waste bins and skips must be used.
- Waste bins must contain lids to prevent content from blowing away or accumulating rain water or being accessible to animals.
- Working sites and eating areas should be maintained in a clean, hygienic and orderly state.
- Separate bins should be provided for various materials to facilitate recycling. The bins should have liner bags for easy control and safe disposal of waste.
- The excavation and use of rubbish pits on site is forbidden.
- The burning of waste is forbidden.
- Contaminated soil (resulting from oil spills, etc.), unwanted cement bags and water used for washing concrete equipment are regarded as hazardous waste and should be disposed of at a permitted hazardous waste landfill site. Written proof of disposal at the permitted waste landfill site should be obtained and provided to the ECO.

7.10 Dust

- Precautions should be taken to the satisfaction of the ECO to limit the production of dust and damage caused by dust.
- All dust control measures should be in accordance with the National Dust Control Regulations in terms of the National Environmental Management: Air Quality Act (Act 39 of 2004).
- Generation of dust shall be minimised and dust nuisance shall be kept to a minimum wherever possible.
- Dust from exposed soil surfaces shall be minimised at all times, only using water spray during very windy conditions.
- Reasonable measures must be undertaken to ensure that any exposed areas and material stockpiles are adequately protected against the wind.
- Dust screens of a suitable height should be erected wherever required and possible.



- All exposed surfaces should be minimised in terms of duration of exposure to wind and storm water.

7.11 Occupational Health and Safety

- The application of all Occupational Health and Safety Regulations must be ensured. This includes the distribution and use of protective clothing and equipment to at least include safety shoes, overalls, gloves, dust masks, and where appropriate ear muffs and eye/face protection shields.
- A health and safety plan needs to be submitted before commencement of the project (especially construction work).
- Health and safety file needs to be on site and available at all times.
- All employees working on site should be inducted on health and safety before starting any work.
- Personal Protective Equipment (PPE) (safety vests and helmets) should also be provided for visitors.
- Hand out and use of safety and protective equipment must be recorded. Staff who fails to use the protective equipment provided by site staff must not be allowed to work at the facility.
- Emergency procedures for fire, adverse conditions due to inclement weather, spillages, stoppage of operations due to refusal to work by employees, etc. must be included in the emergency procedures.
- All relevant firefighting equipment should be kept on site.

7.12 Watercourses

- All activities should be conducted at least 32 m away from all watercourses unless directed to do so through the relevant permits.
- No vehicles allowed in watercourse areas.
- No destruction of watercourses is allowed unless permitted to do so by the relevant permit/s.
- The project area footprint should be maintained at a bare minimum to minimise the potential ecological impacts.



- No dumping of any excess building material or other wastes or litter should be allowed within any watercourse.
- No soil (for any purposes) will be sourced from the watercourse.
- Earthmoving equipment and vehicles should be inspected and serviced regularly to allow for timeous identification of fluid leaks.
- No littering, waste disposal or other pollution of watercourses.
- Subsistence hunting or harvesting of fauna or flora within the watercourse is prohibited.
- No fishing or bathing in watercourse/s.

7.13 Soil Erosion

- Stormwater management procedures to the satisfaction of the ECO should be put in place to control runoff and prevent erosion.
- Measures to the approval of the ECO shall be taken to prevent all areas susceptible to erosion. No erosion should be allowed to develop on a large scale before effecting repairs and all erosion damage shall be repaired as soon as possible.
- Note that specifics of erosion protection work will vary from situation to situation. Specifics should be cleared with the Reserve Manager and/or ECO and comply with the contract specifications.
- Where required, cut-off trenches can be installed to divert substantial run-off and prevent erosion.

7.14 Fire Management

- No fires are permitted in areas that are not dedicated for such purposes.
- All relevant firefighting equipment should be kept on site.
- Due to the threat fire poses to the PA no smoking is allowed. If required, a designated smoking area should be provided and clearly demarcated and signposted with a facility for safe containment and disposal of cigarette butts.
- Firebreak should be maintained around offices (including temporary construction offices).
- All fire management should be done in compliance with the Fire Management Plan of the PA.



7.15 Noise Control

- Noise levels must be kept within acceptable limits for a PA, and must not be of such a nature as to detract from the natural experience of visitors.
- The contractor shall take into consideration that the project areas are located within a natural environment and that noise could be a major disturbance/nuisance for the fauna and visitors.
- No music shall be allowed on site.
- Maintenance, construction and demolition activities shall be limited to normal working hours and not allowed during weekends.

7.16 Heritage

- If any human remains or archaeological remains (e.g. fossils, bones, artefacts etc.) are disturbed, exposed or uncovered during excavations, all work shall stop immediately, the ECO must be informed and must contact the South African Heritage Resources Agency (SAHRA) or Eastern Cape Heritage Resources Agency (ECHRA) for information on the appropriate course of action to be taken.
- The ECO shall inform the SAHRA or ECHRA and arrange for a paleontologist/ archaeologist to inspect, and if necessary excavate, the material, subject to acquiring the requisite approval from the SAHRA / ECHRA.
- Should any findings be made by SAHRA / ECHRA, then no work shall recommence until written permission has received from the ECO.
- Note that without a permit issued by the responsible heritage resource authority; it is illegal to destroy, damage, excavate, alter, deface or otherwise disturb any archaeological site or archaeological material. The latter is a criminal offence under the National Heritage Resources Act.



7.17 Slope Protection

- Excavation, backfilling and trenching shall be shaped and trimmed to approximately the natural condition and contours as close as possible.
- Slopes that require protection shall be identified by the Ecologist and ECO.
- All specifications regarding slope protection should be adhered.

7.18 Visual

- Security lighting must be placed such that it is not a nuisance to residents and visitors to the area.
- Shields may be required to prevent lights from being visible from other parts of the PA.
- Care will be taken when positioning the lights to ensure the least visual impact, while still providing a safe work environment for employees.
- Type of lights to be determined. Should any project activities take place where tourists can see the the activities, then clear signboards must be erected to inform the tourists of the activity taking place. Contractor to erect boards as required.
- No painting or marking of natural features shall take place. Marking for surveying and other purposes shall only be done with pegs and beacons.
- Materials (including paint) should fit into the natural environment.

7.19 Borrow Pits/ Quarries

Not permitted.

7.20 Use of Herbicides and/ Pesticides

- Comply with Conservation of Agricultural Resources Act (CARA) and OHS Regulations.
- Written approval should be obtained by the ECO, Reserve Manager (if not the ECO), Environmental Planner and Ecologist before the use of chemicals to control weeds and pests.



- A register shall be kept of all herbicides and pesticides that are administered. Should a specific chemical be used then it should be done by the approval from a qualified expert.

7.21 Existing infrastructure

- If not involved in the project the integrity of existing infrastructure should be protected during the duration of the project.
- Damage to any infrastructure shall be rectified (to the satisfaction of the ECO and Reserve Manager) by the party responsible for the damage. Once the rehabilitation of the damage has been done written approval must be obtained from the Nature Reserve Manager and/or ECO.

7.22 Site Clean-Up and Rehabilitation

- Ensure that all temporary structures, materials and waste (including areas contaminated during the project e.g. oil spillages on soil) should be removed from the PA.
- All disturbed areas should be fully rehabilitated.
- When landscaping and rehabilitating only consider indigenous plants from the area where the PA is located.
- The final list of indigenous plants should be approved by the relevant Ecologist and Reserve Manager.
- Monitoring phase to be determined on a case by case basis.

7.23 Project close out meeting

- Final meeting to determine the outputs of the project.



8. POST PROJECT (OPERATIONAL) PHASE AND DECOMMISSIONING (IF REQUIRED) PHASE

The mitigation measures recommended for the project (e.g. construction) phase should be adhered to during operational and demolition (if required). Factors to consider and note are socio-economic, waste management and air quality.



APPENDIX 1

ENVIRONMENTAL MANAGEMENT PROGRAMME MONITORING CHECKLIST

Note: This form is designed for general use and may not be exhaustive. Modifications and additions may be necessary to suit individual projects and to address specific environmental issues and associated mitigation measures.

Project:

Nature Reserve:

Construction stage / status during inspection:

Inspection date:

Inspection time:

Inspected by:

Weather:

Inspection Items	Implemented?		N/A	Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*		
1. i.e. EMP Training				



APPENDIX 2

METHOD STATEMENT

Project:

CONTRACT NO (IF APPLICABLE): _____

This method statement is to be completed by the Contractor (in consultation with the Principle Agent and ECO) at least 5 working days prior to the proposed commencement date of the said work and represents a binding agreement to the method statement by all site contractors and sub-contractors involved in the work for which the method statement is submitted.

METHOD STATEMENT NO. :	
PROPOSED WORKS:	
DATE OF SUBMISSION:	
CONTRACTOR:	
DATE OF REQUIRED RESPONSE FROM PRINCIPLE AGENT:	
DATE OF REQUIRED WORK TO COMMENCE:	

Work to be undertaken:

Works Location (to provide map/geographical reference):



Remarks:

State potential environmental impacts (refer to EMPr) and proposed mitigation measures:

DECLARATION BY PARTIES

Contractor/ECPTA Official responsible for implementing the project:

I understand the contents of the method statement and the scope of the works required of me. I further understand that the method statement may be amended on application to the above signatories and that the Environmental Control Officer will audit my compliance with the contents of this method statement.

Print Name

Signature

Date



Environmental Control Officer (ECO):

The work described in this method statement, if carried out according to the methodology described, is satisfactory mitigation to prevent avoidable environmental harm.

Print Name

Signature

Date

Principal Agent:

The work described in this method statement, if carried out according to the methodology described, is satisfactory mitigation to prevent avoidable environmental harm.

Print Name

Signature

Date



Appendix D: Complaints Register

Appendix E: Incident Reporting and Recording

Incident Recording

The Bank will be duly notified of any EHS related incidents associated with the project, after which the necessary documentation and evidence will be prepared with guidance from the Bank.

Where incidents related to Gender Based Violence, Sexual Abuse or Harassment, specialist formats are provided in the ESIRT guidance from the World Bank.

Where required Incidents will be recorded and reported to the applicable authorities in accordance with the process set out in NEMA.

To be completed and submitted to the World Bank within 24 hours

B1: Incident Details			
Date of Incident:	Time:	Date Reported to PIU:	Date Reported to WB:
Reported to PIU by:	Reported to WB by:	Notification Type: Email/'phone call/media notice/other	
Full Name of Main Contractor:		Full Name of Subcontractor:	

B2: Type of incident (please check all that apply, see definitions)
Fatality <input type="checkbox"/> Lost Time Injury <input type="checkbox"/> Displacement Without Due Process <input type="checkbox"/> Child Labor <input type="checkbox"/> Acts of Violence/Protest <input type="checkbox"/> Disease Outbreaks <input type="checkbox"/> Forced Labor <input type="checkbox"/> Unexpected Impacts on heritage resources <input type="checkbox"/> Unexpected impacts on biodiversity resources <input type="checkbox"/> Environmental pollution incident <input type="checkbox"/> Dam failure <input type="checkbox"/> Other <input type="checkbox"/>

B3: Description/Narrative of Incident
<p><i>Please replace text in italics with brief description, noting for example:</i></p> <ol style="list-style-type: none"> <i>I. What is the incident?</i> <i>II. What were the conditions or circumstances under which the incident occurred (if known)?</i> <i>III. Are the basic facts of the incident clear and uncontested, or are there conflicting versions? What are those versions?</i> <i>IV. Is the incident still ongoing or is it contained?</i> <i>V. Have any relevant authorities been informed?</i>

B4: Actions taken to contain the incident			
Short Description of Action	Responsible Party	Expected Date	Status

For incidents involving a contractor:

Have the works been suspended (for example, under GCC8.9 of Works Contract)? Yes ; No ;
Trading name of Contractor (if different from B1):
Please attach a copy of the instruction suspending the works.

B5: What support has been provided to affected people

Definitions:

The following are incident types to be reported using the environmental and social incident response process:

Fatality: Death of a person(s) that occurs within one year of an accident/incident, including from occupational disease/illness (e.g., from exposure to chemicals/toxins).

Lost Time Injury: Injury or occupational disease/illness (e.g., from exposure to chemicals/toxins) that results in a worker requiring 3 or more days off work, or an injury or release of substance (e.g., chemicals/toxins) that results in a member of the community needing medical treatment.

Acts of Violence/Protest: Any intentional use of physical force, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, deprivation to workers or project beneficiaries, or negatively affects the safe operation of a project worksite.

Disease Outbreaks: The occurrence of a disease in excess of normal expectancy of number of cases. Disease may be communicable or may be the result of unknown etiology.

Displacement Without Due Process: The permanent or temporary displacement against the will of individuals, families, and/or communities from the homes and/or land which they occupy without the provision of, and access to, appropriate forms of legal and other protection and/or in a manner that does not comply with an approved resettlement action plan.

Child Labor: An incident of child labor occurs: (i) when a child under the age of 14 (or a higher age for employment specified by national law) is employed or engaged in connection with a project, and/or (ii) when a child over the minimum age specified in (i) and under the age of 18 is employed or engaged in connection with a project in a manner that is likely to be hazardous or interfere with the child's education or be harmful to the child's health or physical, mental, spiritual, moral or social development.

Forced Labor: An incident of forced labor occurs when any work or service not voluntarily performed is exacted from an individual under threat of force or penalty in connection with a project, including any kind of involuntary or compulsory labor, such as indentured labor, bonded labor, or similar labor-contracting arrangements. This also includes incidents when trafficked persons are employed in connection with a project.

Unexpected Impacts on heritage resources: An impact that occurs to a legally protected and/or internationally recognized area of cultural heritage or archaeological value, including world heritage sites or nationally protected areas not foreseen or predicted as part of project design or the environmental or social assessment.

Unexpected impacts on biodiversity resources: An impact that occurs to a legally protected and/or internationally recognized area of high biodiversity value, to a Critical Habitat, or to a Critically Endangered or Endangered species

(as listed in IUCN Red List of threatened species or equivalent national approaches) that was not foreseen or predicted as part of the project design or the environmental and social assessment. This includes poaching or trafficking of Critically Endangered or Endangered species.

Environmental pollution incident: Exceedances of emission standards to land, water, or air (e.g., from chemicals/toxins) that have persisted for more than 24 hrs or have resulted in harm to the environment.

Dam failure: A sudden, rapid, and uncontrolled release of impounded water or material through overtopping or breakthrough of dam structures.

Other: Any other incident or accident that may have a significant adverse effect on the environment, the affected communities, the public, or the workers, irrespective of whether harm had occurred on that occasion. Any repeated non-compliance or recurrent minor incidents which suggest systematic failures that the task team deems needing the attention of Bank management.

Following investigation, where required, fill in and submit to the World Bank

C1: Investigation Findings

Please replace text in italics with findings, noting for example:

- I. where and when the incident took place,*
- II. who was involved, and how many people/households were affected,*
- III. what happened and what conditions and actions influenced the incident,*
- IV. what were the expected working procedures and were they followed,*
- V. did the organization or arrangement of the work influence the incident,*
- VI. were there adequate training/competent persons for the job, and was necessary and suitable equipment available,*
- VII. what were the underlying causes; where there any absent risk control measures or any system failures,*

C2: Corrective Actions from the investigation to be implemented (To be fully described in Corrective Action Plan)

Action	Responsible Party	Expected Date

C3a: Fatality/Lost time Injury information

Immediate cause of fatality/injury for worker or member of the public (please check all that apply, see definitions):

1. Caught in or between objects 2. Struck by falling objects 3. Stepping on, striking against, or struck by objects
 4. Drowning 5. Chemical, biochemical, material exposure 6. Falls, trips, slips 7. Fire & explosion
 8. Electrocutation 9. Homicide 10. Medical Issue 11. Suicide 12. Others
Vehicle Traffic: 13. Project Vehicle Work Travel 14. Non-project Vehicle Work Travel
 15. Project Vehicle Commuting 16. Non-project Vehicle Commuting 17. Vehicle Traffic Accident (Members of Public Only)

Name	Age/DOB	Date of Death/Injury	Gender	Nationality	Cause of Fatality/Injury	Worker (Employer)/Public

C3b: Financial Support/Compensation Types (To be fully described in Corrective Action Plan template)

1. Contractor Direct 2. Contractor Insurance 3. Workman's Compensation/National Insurance
 4. Court Determined Judicial Process 5. Other 6. No Compensation Required

Name	Compensation Type	Amount (US\$)	Responsible Party

C4: Supplementary Narrative

Definition of fatality/injury immediate causes

1. **Caught in or between objects:** caught in an object; caught between a stationary object and moving object; caught between moving objects (except flying or falling objects).
2. **Struck by falling objects:** slides and cave-ins (earth, rocks, stones, snow, etc.); collapse (buildings, walls, scaffolds, ladders, etc.); struck by falling objects during handling; struck by falling objects.
3. **Stepping on, striking against, or struck by objects:** stepping on objects; striking against stationary objects (except impacts due to a previous fall); Striking against moving objects; Struck by moving objects (including flying fragments and particles) excluding falling objects.
4. **Drowning:** respiratory impairment from submersion/emersion in liquid.
5. **Chemical, biochemical, material exposure:** exposure to or contact with harmful substances or radiations.
6. **Falls, trips, slips:** falls of persons from heights (e.g., trees, buildings, scaffolds, ladders, etc.) and into depths (e.g., wells, ditches, excavations, holes, etc.) or falls of persons on the same level.
7. **Fire & explosion:** exposure to or contact with fires or explosions.
8. **Electrocution:** exposure to or contact with electric current.
9. **Homicide:** a killing of one human being by another.
10. **Medical Issue:** a bodily disorder or chronic disease.
11. **Suicide:** the act or an instance of taking, or attempting to take, one's own life voluntarily and intentionally.
12. **Others:** any other cause that resulted in a fatality or injury to workers or members of the public.

Vehicle Traffic

13. **Project Vehicle Work Travel:** traffic accidents in which project workers, using project vehicles, are involved during working hours and which occur in the course of paid work.
14. **Non-project Vehicle Work Travel:** traffic accidents in which project workers, using non-project vehicles, are involved during working hours and which occur in the course of paid work.
15. **Project Vehicle Commuting:** traffic accidents in which project workers, using project vehicles, are involved while travelling to (i) the worker's principal or secondary residence; (ii) the place where the worker usually takes his or her meals; or (iii) the place where he or she usually receives his or her remuneration.
16. **Non-project Vehicle Commuting:** traffic accidents in which project workers, using non-project vehicles, are involved while travelling to (i) the worker's principal or secondary residence; (ii) the place where the worker usually takes his or her meals; or (iii) the place where he or she usually receives his or her remuneration.
17. **Vehicle Traffic Accident (Members of Public Only):** traffic accidents in which non-project workers/members of the public are involved in an accident while travelling for any purpose.