



## **DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME**

**FOR THE PROPOSED ROUTINE MAINTENANCE OF THE MOST SOUTHERN SECTION OF THE DR02091 ALONG THE RIET RIVER ESTUARY, NDLAMBE LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE**

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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 EMP.

**Environmental Impact** is a change to the environment, whether adverse or beneficial, wholly or partially, resulting from an organisation's activities, products or services.

**Environmental 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 EMP focuses on the Construction, Post Construction Rehabilitation and Operation / Maintenance Phases of the proposed project.

**Environmental Impact** refers to any change to the environment, whether desirable or undesirable, that would result directly or indirectly from any construction activity.

**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

<b>AVCP</b>	Alien Vegetation Clearing Programme
<b>BA</b>	Basic Assessment
<b>BAR</b>	Basic Assessment Report
<b>DEDEAT</b>	Department of Economic Development, Environmental Affairs and Tourism
<b>DWS</b>	Department of Water and Sanitation
<b>EA</b>	Environmental Authorisation
<b>ECO</b>	Environmental Control Officer
<b>EIA</b>	Environmental Impact Assessment
<b>ELO</b>	Environmental Liaison Officer
<b>EMP</b>	Environmental Management Programme
<b>ER</b>	Employers Representative
<b>IAP</b>	Interested and Affected Party
<b>IDP</b>	Integrated Development Plan
<b>MS</b>	Method Statement
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)

# CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME

## PROPOSED ROUTINE MAINTENANCE OF THE MOST SOUTHERN SECTION OF THE DR02091 ALONG THE RIET RIVER ESTUARY

### 1. INTRODUCTION AND PROJECT DESCRIPTION

The DR02091, runs between the R72 and the mouth of the Riet River Estuary, approximately 10 km east of Port Alfred in the Eastern Cape. This road provides the only access to the Riet River residential and holiday settlement. The section of road under consideration measures approximately 120 m in length and is approximately 4 m wide. Due to its close proximity to the river and river mouth, this section of road has, over the last few years, come under significant threat from erosion. This section of road has, therefore, been identified as requiring routine maintenance, predominantly in the form of erosion protection.

It is the intention of the Eastern Cape Department of Transport (DoT) to re-establish the embankment which has been lost to erosion, as well as to widen the existing road, to a total width of 5.5m. The proposed erosion protection measures will prevent future erosion and cutback of the road embankment and surface.

Two options, namely Alternative A and Alternative B, have been developed by the Project Engineers for implementing the required erosion protection measures. Alternative A is the preferred option as motivated in the Basic Assessment Report (BAR).

The scope of the erosion protection includes:

- The establishment of erosion protection measures on the eastern bank of the most southern section of the DR02091;
- Such erosion protection measures will comprise of a combination of dump or crushed rock, to be placed in the riverbed, over a length of approximately 120m, to form a base on which to re-establish / widen and protect the road embankment, which has been lost to erosion. This will require the importation of G5 and G4 material or geo-textile sandbags upon which indigenous vegetation will be established; and,
- In addition to this, a gabion protection wall, of approximately 25m in length and 2m wide, is proposed on the southern side of the above-mentioned protection works, as an extension to the protection works, to protect the end of the road from possible erosion in future.

Road surface drainage is extremely limited and will purely be by means of allowing the run-off stormwater to drain into the river directly by means of a crossfall of 2% to the gravel road.

A map indicating the location of the proposed development site, is included in Appendix A.

### 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.

In terms of the National Environmental Management Act No. 107 of 1998 (NEMA) Environmental Impact Assessment (EIA) Regulations published in Government Notice No. R.982 of December 2014, the activities associated with the proposed project constitutes listed activities that require Environmental Authorisation (EA) prior to commencement. The proposed activities are subject to a Basic Assessment (BA) in terms of the NEMA. The applicant, the DoT, must therefore apply to the Competent Authority, the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), for EA to proceed with the project.

JG Afrika (Pty) Ltd was appointed by Madan Singh Bester & Associates CC, on behalf of the DoT, as the independent Environmental Assessment Practitioner (EAP), to undertake the BA process required for the proposed project. In terms of Section 19 of the EIA Regulations, an EMPr is required to accompany the BA Report. This document constitutes such management programme.

Appendix 4 of the NEMA EIA Regulations sets out the required content of an EMPr. This EMPr has been developed in fulfilment of these requirements. Refer to Table 1 below which references applicable sections in this document to the information required.

### 2.1. Listed Activities

As per the current application, the following Listed Activities in terms of the NEMA: EIA Regulations, as indicated in Table 1 below, are being applied for and will be undertaken if approved:

**Table 1: Listed Activities triggered by the proposed development.**

NOTICE	NUMBER	LISTED ACTIVITY
GN R. 327 (983) (Listing Notice 1)	18	<b><i>The planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square meters, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion...</i></b>  The proposed maintenance work is intended to prevent erosion of the road, and will occur within the littoral active zone, defined as "...any land forming part of, or adjacent to, the seashore, that is unstable and dynamic as a result of natural processes, and [which is] characterised by dunes, beaches, sand bars and other landforms composed of unconsolidated sand, pebbles or other such material which is either unvegetated or only partially vegetated."
GN R. 327 (983) (Listing Notice 1)	19A	<b><i>The infilling or depositing of any material of more than 5 cubic meters into... (ii) ...an estuary...</i></b>  The proposed road maintenance / rehabilitation works will require the deposition of in excess of 5m <sup>3</sup> of material into the Riet River Estuary.
GN R. 327 (983) (Listing Notice 1)	48	<b><i>The expansion of – (i) Infrastructure or structures where the physical footprint is expanded by 100 square meters or more... Where such expansion occurs – (a) Within a watercourse; or ...within 32 meters of a watercourse, measured from the edge of a watercourse...</i></b>  The interventions proposed for the maintenance / rehabilitation of the section of road identified, will result in the expansion of the physical footprint of the existing road by more than 100 m <sup>2</sup> .

		The proposed interventions will require works both within and in proximity to the Riet River and its associated estuary.
GN R. 324 (985) Listing Notice 3 Listed Activity no. 23	23	<p><b>The expansion of –</b>  <b>(ii) Infrastructure or structures where the physical footprint is expanded by 10 square meters or more</b>  <b>Where such development occurs –</b>  <b>(a) Within a watercourse; ...or</b>  <b>(c) ...within 32 meters of a watercourse, measured from the edge of the watercourse...</b></p> <p><b>a. Eastern Cape</b>  <b>(i) Outside urban areas:</b>  <b>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</b>  <b>(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;</b>  <b>(hh) Areas...within 1 kilometre from the high-water mark of the sea...; or</b>  <b>(ii) In an estuarine functional zone...</b></p> <p>The interventions proposed for the maintenance / rehabilitation of the section of road identified, will result in the expansion of the physical footprint of the existing road by more than 10 m<sup>2</sup>. The proposed interventions will require works both within and in proximity to the Riet River and its associated estuary. The proposed site is located outside an urban area within Critical Biodiversity Area (CBA) as identified by the ECBCP (2007), 3 km from the Waters Meeting Nature Reserve (a protected area in terms of NEMPAA), 1 km from the high-water mark of the sea and also within an estuarine functional zone (Rite River Estuary).</p>

## 2.2. Requirements of the EMPr

Appendix 4 of the NEMA: EIA Regulations sets out the required content of an EMPr. This EMPr has been developed in fulfilment of these requirements. Refer to Table 2 below which references applicable sections in this document to the information required.

**Table 2: Content of the EMPr**

Information required in terms of Appendix 4 of the 2014 EIA Regulations – Content of EMPr	Reference in the EMPr
(a) Details of – (i) The EAP who prepared the EMPr; and (ii) The expertise of that EAP to prepare an EMPr, including a curriculum vitae.	Section 4 – the author of the EMPr Appendix B – EAP’s CV
(b) A detailed description of the aspects of the activity that are covered by the EMPr as identified in the project description	Section 2.1 – 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 - 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	Section 8 – Impact Management Objectives and Outcomes



Information required in terms of Appendix 4 of the 2014 EIA Regulations – Content of EMPr	Reference in the EMPr
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.	
(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 manner in which 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 9 – 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
(k) The mechanism for monitoring compliance with the impact management actions contemplated 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 EMPr, which should form an integral part of all contract documents for the project, informs DoT, and all its appointed Agents, of their duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction and operational / maintenance activities associated with the project.

DoT and all appointed Agents should note that the obligations imposed by the EMPr are legally binding in terms of environmental statutory legislation. As such, failure to comply with the EMPr will constitute an offence and DoT 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 DoT 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 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;
- National Building Regulations and Building Standards Act, No 103 of 1977;
- The National Road Traffic Act, No. 93 of 1996;
- Relevant regulations as promulgated under the Standards Act, No 30 of 1982; and
- Relevant Ndlambe Local Municipality by-laws.

The National Water Act, 1998 (NWA) makes provision for the protection of surface water and groundwater resources and their sustainable management for the prevention and remediation of the effects of pollution, and for the control of emergency occurrences. The primary purpose of this Act is to manage and control South Africa's water resources by:

- Meeting the basic human needs of present and future generations.
- Promoting the efficient, sustainable and beneficial use of water in the public interest.
- Facilitating social and economic development.
- Providing for growing demands for water use.
- Protecting aquatic and associated ecosystems and their biological diversity.
- Reducing and preventing pollution and degradation of water resources; and meeting international obligations.
- Landowners and users have an obligation not to pollute water and prescribe certain measures to prevent pollution.
- When a bed, bank, course or characteristics of a watercourse is altered, or when the flow of water in a watercourse is impeded or diverted, the Act required that an application for authorisation / licence be made to the Department of Water and Sanitation (DWS).

### **3. APPLICABLE DOCUMENTATION**

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

- Draft Basic Assessment Report (JG Afrika (Pty) Ltd, November 2020); and,
- Environmental Authorisation (once issued).

#### 4. DETAILS OF THE AUTHOR

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 3 below provides information on the Environmental Assessment Practitioner who compiled this document.

**Table 3: Details of EAP**

EAP DETAILS	DETAILS
Name of EAP	Cherize Coetzee
Years of Experience	7 years
Tertiary Qualifications	BSc (Biological Science), NMU, 2008 BSc (Hons) (Zoology), NMU, 2009 MSc (Zoology), NMU, 2013
Short Biography	Cherize has 7 years of experience within a variety of environmentally related spheres. These include Basic Assessments (BA), the development of Environmental Management Programmes (EMPr), Compliance Auditing, applications for Waste Management Licences (WML), and Water Use Authorisations in terms of the Specific Environmental Management Acts, and the Public Participation Process, as well as the undertaking of pre-application Screening Assessments.  Projects undertaken include road upgrades, municipal infrastructure installations, such as wastewater and water treatment works powerlines and substation upgrades, augmentation of bulk water supply, bridge and causeway reconstructions, wind farm establishments, mixed-use developments, etc.
Company	JG Afrika (Pty) Ltd
Postal Address	PO Box 27308, Greenacres, 6057
Telephone Number (General)	041 390 8700
Fax Number (General)	041 363 1922

Refer to Appendix B for Mrs Coetzee's CV.

#### 5. SPECIALIST STUDIES

Specialist studies for the BA were limited to an Ecological Assessment due to the presence of the Riet River Estuary within the site locality. This study was undertaken to determine the potential impact of the project on these wetlands. It was also used to identify and rank impacts and to ascertain the mitigation measures / action items as detailed in Section 12 of this EMPr. Refer to the Final BA Report for the specialist information and copies of the 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.

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. By taking pro-active measures during the operation of the plant, potential environmental impacts emanating during the operational phase will be minimised.

## 7. GENERAL REQUIREMENTS OF THE EMPR

### 7.1. EMPr Administration

#### 7.1.1. Pre-site preparation / Pre-construction Phase

The following actions / tasks should be executed prior to any site preparation and construction occurring, and proof thereof kept in the Environmental File for the duration of the construction phase:

- An ECO to be appointed for the duration of the construction phase including rehabilitation.
- Fourteen days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.
- In the event that any species of conservation concern or protected species in terms of the relevant provincial and national legislation and or the National Forests Act (Act 84 of 1998) are to be removed the necessary permits / licences to be obtained from the DEDEAT and/or DAFF for the removal and/or translocation of such species.
- Demarcate all constructed areas to prevent work taking place outside of the designated footprint areas.
- Compilation of a Pre-commencement audit report.
- Environmental awareness training of senior site personnel.
- Compilation of an Environmental Audit Checklist by the ECO based on the specifications / conditions / requirements of the EA and EMPr (once authorised / approved). This checklist will facilitate the ECO's compliance monitoring during the construction phase against which construction activities will be audited. The ECO will also provide copies of the checklist to the appointed Contractor.
- Compilation of Method Statements by the Contractor and the review thereof by the ECO.
- Copy of the EA to be placed in the Environmental File.
- Environmental Complaints and Incident Registers to be compiled and placed in the Environmental File.
- 

#### 7.1.2. Construction Phase

During the Construction Phase, copies of this EMPr 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 ECO twice per month for the duration of the construction phase, and compile 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.

### 7.1.3. Post-construction / Rehabilitation Phase

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

### 7.1.4. Operational Phase

During the Operational Phase, a copy of this EMPr must be maintained by the DoT. All senior operational and maintenance staff, including those sub-contracted by the municipality, 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. Senior staff will be required to educate their operational staff as to the contents of this document and how to remain compliant.

## 7.2. ROLES AND RESPONSIBILITIES

The successful implementation of this EMPr requires co-operation between the DoT and the appointed Engineer, 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 EMPr. However, general roles and responsibilities have been outlined in Table 3 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 DoT 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 4: Roles and Responsibilities**

RESPONSIBLE AGENT	ROLE / RESPONSIBILITY
Applicant / Employer (DoT)	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Ensure that the implementation of this EMPr complies with the relevant legislation and the conditions of the EA.</li> <li>• 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.</li> </ul>
Engineer's Representative (ER) / Project Manager (PM)	<ul style="list-style-type: none"> <li>• Ensure compliance with the contract and legislative environmental requirements;</li> <li>• Maintain overall responsibility for ensuring that the functions defined in the EMPr are carried out effectively;</li> <li>• Ensure that a copy of the applicable EMPr, EA (when issued) and all agreed Method Statements and a layout plan are available on-site;</li> <li>• Ensure that all environmental protection procedures defined in this EMPr are being adhered to;</li> <li>• Ensure adherence to DEDEAT conditions of authorisation and any other laws</li> </ul>

	<p>and standards relevant to construction of the new facilities;</p> <ul style="list-style-type: none"> <li>• Appoint appropriately qualified contractors to co-ordinate, supervise and expedite different tasks;</li> <li>• Appoint an independent ECO to monitor implementation of the EMPr, during construction;</li> <li>• Ensure all staff, Sub-contractors, suppliers, etc. are familiar with and understand the EMPr (including revisions), EA and all agreed Method Statements; and</li> <li>• Liaise with DEDEAT and Interested and Affected Parties (IAPs), if required.</li> </ul>
Contractor	<ul style="list-style-type: none"> <li>• Ensure all personnel are fully aware of all environmental issues relating to construction activities being undertaken on site and the related precautions that need to be taken;</li> <li>• Ensure all mitigation measures outlined in this EMPr are properly and competently directed, guided and executed during construction;</li> <li>• Ensure adherence to environmental laws and standards relevant to construction of the proposed facility; and</li> <li>• Ensure that the construction activities comply with the final approved EMPr.</li> </ul>
Environmental Control Officer (ECO)	<ul style="list-style-type: none"> <li>• Ensure contractors have copies of the EMPr (including revisions), EA (when issued) and all agreed Method Statements;</li> <li>• Undertake fortnightly site visits and inspections / 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 EMPr and associated plans and procedures;</li> <li>• Record and provide monthly reports (written documentation) of non-conformances with the EMPr that require DoT or its Contractor/s to implement corrective action;</li> <li>• Review preventative and corrective actions to ensure implementation of recommendations made from audits and site inspections;</li> <li>• Via the Client's appointed Engineer, 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 EMPr or EA;</li> <li>• Advise the Project Manager on actions or issues impacting on the environment and provide appropriate recommendations to address and rectify these matters;</li> <li>• Identify possible areas of improvement in the execution of the contract from an environmental perspective;</li> <li>• Assess the suitability and/or effectiveness of the EMPr on an on-going basis, in liaison with the Contractor/s and the Project Manager. Make recommendations accordingly;</li> <li>• Submission of audit reports to the Project Team and the DEDEAT (or as per conditions of EA);</li> <li>• Monitor the processing of public complaints relating to the construction activities; and</li> <li>• Ensure that revisions to this EMPr (as necessary) are communicated to the engineers' representative and the contractor and that they understand the requirements.</li> </ul>

### 7.3. ENVIRONMENTAL AWARENESS TRAINING

Appendix 4 of the 2014 EIA Regulations requires the development of an Environmental Awareness Plan describing the manner in which the Contractor intends informing its employees of any environmental 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.

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 Final EMPr. During the construction phase, regular Health and Safety Toolbox Talks must be held to discuss how to address potential 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 emergency procedures as applicable and can perform these procedures in reasonable timeframes. The Contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction phase workers receive an induction on the importance and implications of the EMPr. The presentation shall be conducted, as far as possible, in the employees' language of choice.

As a minimum, training shall include:

- Explanation of the importance of complying with the EMPr;
- Discussion of the potential environmental 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 EMPr and its implementation; and
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

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. SENSITIVE AREA(S)

The ecologist noted several Milkwoods (*Sideroxylon inerme*) in the area, associated with the remaining areas of coastal forest which are protected under the National Forests Act (Act 84 of 1998). None were found within the study site, but some do occur along the access road closer to the entrance of the village. Should these be disturbed or need to be pruned when heavy machinery is moved onto site, then the requisite permits must be obtained from the Department of Agriculture Fisheries and Forestry (DAFF) prior to such disturbance occurring.

### 7.5. METHOD STATEMENTS

Method Statements (MS) are written submissions by the Contractor to the ER or PM in response to the requirements of this EMPr or to a request by the ER / 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 ER / 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 ER/ PM. The ER / 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 EMPr specifications and motivation if non-compliant.

**Method statements (MS) required:**

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

**MS1:** Work within the river / estuary

**MS2:** Site layout and establishment

**MS3:** Vegetation Clearing

**MS4:** Topsoil removal and stockpiling

**MS5:** Handling, storage and disposal of hazardous substances

**MS6:** Waste management

**MS7:** Soil erosion control

**MS8:** Stormwater management

**MS9:** Alien vegetation control

## 8. IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES

The intention of this EMPr 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 erosion protection measures of the most southern section of the DR02091, 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 EMPr is to:

- Outline DoT's environmental management commitments for construction of the proposed mixed-use minor node and associated service infrastructure;
- 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 5. Specific Impact Management Actions are detailed in Section 9 of this EMPr.

**Table 5: Impact Management Objectives & Outcomes**



IMPACT MANAGEMENT OBJECTIVES	IMPACT MANAGEMENT OUTCOMES	TIMEFRAME
Minimise the destruction of vegetation species of conservation concern	Species of conservation concern are not destroyed by development.  Obtain the requisite permits from the applicable authorities should this be necessary.	Progress on rectification of all EMPr non-conformances as identified by the ECO in the audit report, is to be reported in the subsequent audit report.  All construction phase outcomes to be achieved prior to final handover of the site.
Minimise the destruction of the aquatic habitat	Clearing of vegetation should be kept to a minimum.	
Loss of CBA and habitat fragmentation		
Control of alien invasive vegetation	Alien vegetation currently established on the site is completely cleared and appropriately disposed of.  Any new alien invasive vegetation establishing on site during construction is cleared and appropriately disposed of.	
Maintain the quality of surface water groundwater resources	Groundwater resources are not negatively impacted by construction of the mixed-use minor node.	
Minimise turbidity and siltation	Any bare soils exposed to surface water runoff should be managed to prevent or minimise sedimentation / turbidity / siltation.	
Minimise soil compaction and erosion	Appropriate erosion control measures must be implemented (e.g. silt traps) and a monitoring programme established to ensure that no erosion is taking place.	
Maintain existing air quality	Deterioration of local air quality arising as a result of dust and vehicle emissions is minimised and prevented.	
Reduce noise	Construction workers are sensitised to the need to minimise noise impacts.  Any noise complaints received will be responded to and noise reduction management will be implemented as practically possible.	
Manage traffic disruptions	Minimise/reduce significant traffic disruptions due to construction activities.  Road safety condition requirements are met.	
Minimise visual intrusion	Generation of dust will increase the visibility of the project, and it is therefore important to employ techniques to suppress dust generation during construction.  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.	
Manage waste	All waste material is handled and disposed of in line with a waste management procedure approved by the project manager in consultation with the ECO.  Waste generation is minimisation.  Licensed waste disposal facilities are utilised.  No waste to be buried on site	

IMPACT MANAGEMENT OBJECTIVES	IMPACT MANAGEMENT OUTCOMES	TIMEFRAME
Manage hazardous substances	All hazardous substances are handled in accordance with the material safety data sheet (MSDS).	
Employment creation	Employment & skills training of local labour is maximised.	

## 9. IMPACT MANAGEMENT ACTIONS

The Impact Management Actions required to meet the Impact Management Objectives and Outcomes are provided in Table 6 - 9 overleaf for the Pre-Construction, Construction, and Post-Construction / Rehabilitation and Operational Phases.

**Table 6: Impact Management Actions during the Pre-Construction**

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
Construction Site Development Plan	The Contractor should ensure that all areas associated with construction works comply with the Construction Site Development Plan for the duration of construction.	<ul style="list-style-type: none"> <li>• The appointed Contractor must prepare a Construction Site Development Plan to be approved by the ECO prior to establishing on site. This plan must indicate:               <ul style="list-style-type: none"> <li>○ The boundaries of the site that encompass all construction related activities.</li> <li>○ Vehicle and pedestrian access points and routes.</li> <li>○ Site camp inclusive of laydown area/s, offices, stockpile areas, storage areas, etc.</li> <li>○ Areas to be cleared of vegetation,</li> <li>○ No-Go areas.</li> </ul> </li> </ul>
Environmental Awareness Training	To make all employees aware of the environmental 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"> <li>• An upfront training session must be held to ensure all construction personnel are aware of the provisions contained in the EMPr.</li> <li>• The training session shall be conducted, as far as possible, in the employees' language of choice.</li> <li>• As a minimum, training shall include:               <ul style="list-style-type: none"> <li>○ Explanation of the importance of complying with the EMPr;</li> <li>○ Discussion of the potential environmental impacts of construction activities;</li> <li>○ The benefits of improvement personal performance;</li> <li>○ Employees' roles and responsibilities, including emergency preparedness;</li> <li>○ Explanation of the mitigation measures that must be implemented when carrying out their activities;</li> <li>○ Explanation of the specifics of this EMPr and its implementation; and</li> <li>○ Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.</li> </ul> </li> <li>• The contractor shall keep records of all environmental training sessions, including names, dates and the information presented. These records will be presented to the ECO on request during his/her audits.</li> </ul>

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
Translocation and protection of plant species of conservation concern	Requisite permits from the applicable authorities must be obtained should species of special concern be destroyed by the developemnt	<ul style="list-style-type: none"> <li>Application to the relevant authority/ies for the appropriate permits to allow the disturbance or pruning of Milkwoods (<i>Sideroxylon inerme</i>) occurring along the access road (not the study site in question) closer to the entrance of the village. Should these be disturbed or need to be pruned when heavy machinery is moved onto site, then the requisite permits must be obtained from the DAFF, prior to such disturbance occurring.</li> </ul>
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 ER/ PM. The ER / PM must in turn accept or reject the Method Statement within 10 working days of receipt.
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.

**Table 7: Impact Management Actions during the Construction Phase**

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
Site Establishment	The footprint of the construction site will be limited as far as possible.	<ul style="list-style-type: none"> <li>• The Contractor is to adhere to the following with regards to the Materials Storage Area and Contractors Camp:               <ul style="list-style-type: none"> <li>○ All servitudes and existing services must be verified prior to establishment.</li> <li>○ The camp site must be fenced before construction commences.</li> <li>○ The Contractor shall restrict all his activities, materials, equipment and personnel to within the area specified in the approved Construction Site Development Plan.</li> <li>○ The Contractor shall ensure that the approved construction area will be adequate to cover the project without further space adjustments being required at a later date.</li> <li>○ Adequate parking must be provided on site for site staff and visitors.</li> </ul> </li> </ul>
Ablutions	Ablution facilities will not negatively impact on the environment or human health.	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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 the Riet River Estuary. The developers should also appoint and enter into a contract with a qualified third-party service provider for the maintenance of the sanitation system.</li> <li>• The construction of long drop toilets is forbidden.</li> <li>• The Contractor shall be responsible for ensuring that all ablution facilities are maintained in a clean and sanitary condition to the satisfaction of the Project Engineer. Evidence of appropriate management (in the form of service receipts / waybills) must be maintained and presented to the ECO during audits.</li> <li>• Sanitation facilities should be well maintained and serviced, any breakages or leaks should be fixed immediately to prevent loss of containment.</li> </ul>
Water supply	A sustainable and lawful water supply will be utilised.	<ul style="list-style-type: none"> <li>• The Contractor shall make available safe drinking water fit for human consumption at the site offices and all other working areas.</li> </ul>

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
		<ul style="list-style-type: none"> <li>• All drinking water must be from a legal source and comply with recognised standards for potable use.</li> <li>• If water is stored on site, drinking water and multi-purposed water storage facilities shall be clearly distinguished and demarcated.</li> </ul>
Soil disturbances	Soil disturbances outside the development footprint are minimised.	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Topsoil stockpiles shall be convex in shape and no more than 2m high. Stockpiles shall be shaped so that no surface water ponding can take place.</li> <li>• Topsoil stockpiles shall be protected from erosion by wind and rain by providing suitable stormwater and cut-off drains (approved by the ER) and/or the establishment of temporary indigenous vegetation.</li> <li>• Topsoil stockpiles shall not be subject to compaction greater than 1 500 kg/m<sup>2</sup> and shall not be pushed by a bulldozer for more than 50m.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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 EMPr.</li> <li>• Soil must be stockpiled in such a way as to minimize erosion.</li> </ul>
Soil erosion	Soil erosion is prevented.	<ul style="list-style-type: none"> <li>• Clearing of vegetation should be kept to a minimum, keeping the width and length of</li> </ul>

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
		<p>the earth works to a minimum.</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Any bare soils exposed to surface water runoff should be managed.</li> <li>• 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.</li> <li>• The Contractor shall, as and when necessary, implement erosion control measures to the satisfaction of the Project Engineer.</li> <li>• 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.</li> <li>• 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 Project Engineer.</li> <li>• 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.</li> <li>• 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.</li> <li>• Plan for the worst case, that is, for heavy rainfall and runoff events, or high winds.</li> <li>• 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.</li> </ul>
Altered hydrological regime	Impacts associated with altered stormwater flows are controlled and minimised.	<ul style="list-style-type: none"> <li>• The Contractor shall submit a Method Statement to the Project Engineer for approval detailing the method of stormwater control measures for the entire project area.</li> <li>• Temporary stormwater control measures must be installed as and when necessary, to</li> </ul>

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
		<p>prevent and minimise the erosion of exposed soils.</p> <ul style="list-style-type: none"> <li>• 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 Engineer for approval.</li> <li>• Temporary cut off drains and berms may be required to capture stormwater and promote infiltration.</li> </ul>
Contamination of surface water and groundwater resources	Surface water and groundwater resources are not negatively impacted by the construction works	<ul style="list-style-type: none"> <li>• 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 Engineer 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"> <li>○ A list of all potentially hazardous materials used during the construction phase</li> <li>○ Provision for all potentially hazardous materials (including cement and solvents) to be housed under cover and within bunded areas.</li> <li>○ Reasonable measures to prevent potential spills of these substances.</li> <li>○ All potentially hazardous materials must be handled, stored and managed in line with the approved method statement.</li> <li>○ A Spill Contingency Procedure must be developed by the Contractor and approved by the Engineer 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.</li> </ul> </li> <li>• All spills must be cleared up, stored and disposed of in accordance with the approved spill contingency procedure.</li> <li>• Stormwater to be managed to avoid contaminated.</li> <li>• 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.</li> <li>• 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</li> </ul>



ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
		<p>proof.</p> <ul style="list-style-type: none"> <li>• No stockpiling should take place within a watercourse.</li> <li>• All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds.</li> <li>• 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 the Riet River Estuary. The developers should also appoint and enter into a contract with a qualified third-party service provider for the maintenance of the sanitation system.</li> <li>• 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.</li> <li>• 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.</li> <li>• At the end of each day, any leftover / unused cement is to be removed from the site for appropriate disposal by the concrete supplier.</li> <li>• Washing of the excess concrete into the ground is not allowed.</li> <li>• Establish a dedicated area for construction vehicles to refuel. Vehicle re-fuelling must only take place on impervious surfaces and/or drip trays.</li> <li>• Ensure all construction machinery is in sound working order to prevent oil leaks.</li> </ul>
Loss of indigenous vegetation	<p>Clearance of indigenous vegetation on the site is minimised.</p> <p>Minimise the loss of CBA and habitat fragmentation.</p> <p>Minimise the loss of the aquatic habitat.</p>	<ul style="list-style-type: none"> <li>• Clearing of vegetation must be kept to a minimum, keeping the width and length of the earth works to a minimum. More specifically, 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 dust management and rehabilitation.</li> </ul>

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
		<ul style="list-style-type: none"> <li>• Areas to be cleared of vegetation must be demarcated prior to the commencement of construction, in line with the approved Construction Site Development Plan. All areas falling outside of this demarcation must be designated as no-go areas. This will require the maintenance of the demarcation for the duration of the construction phase.</li> <li>• 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.</li> <li>• Where soils are slow to re-vegetate, these areas should be grubbed and planted with grass seed suitable for the region.</li> <li>• Landscaped garden areas should resemble the regional vegetation type, making use of local plant species.</li> <li>• Revegetating with suitable plants established as plugs from plants harvested within the estuary and could include:               <ul style="list-style-type: none"> <li>○ <i>Ficinia lateralis</i></li> <li>○ <i>Juncus kraussii</i></li> <li>○ <i>Sarcocornia perennis</i></li> <li>○ <i>Cynodon dactylon</i></li> <li>○ <i>Sporobolus virginicus</i></li> </ul> </li> </ul> <p>These species have the ability to rapidly establish themselves while binding the soils.</p>
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"> <li>• Clearing of vegetation should be kept to a minimum, keeping the width and length of the earth works to a minimum.</li> <li>• Alien plant regrowth should also be monitored, and any such species should be removed during the construction phase and be appropriately disposed of.</li> <li>• Where soils are slow to revegetate, these areas should be grubbed and planted with species suited to the region.</li> </ul>
Increased traffic and resultant delays	<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"> <li>• A detailed Traffic Management Procedure/Method Statement should be compiled by the Contractor to ensure that traffic on the local roads is disrupted as little as possible. This plan should, as a minimum, include:               <ul style="list-style-type: none"> <li>○ Provision and mechanisms for the timeous notification must be given to surrounding businesses, residents and stakeholders regarding the nature and timeframes for any traffic disruptions.</li> </ul> </li> </ul>

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
		<ul style="list-style-type: none"> <li>○ Construction deliveries to be restricted to low peak traffic hours, as far as practically possible. This is however highly dependent on the delivery schedules of various service providers and may not be possible to restrict.</li> <li>○ Measures for the optimization of the amount of travel on the local roads, thereby reducing impact.</li> <li>• Where obvious damage to the road infrastructure has occurred as a result of the project, repairs should be undertaken in accordance with the relevant authority's specifications and requirements.</li> <li>• Safety precautions must be taken, and appropriate signage must be placed to ensure that motorists are informed/warned of construction activities.</li> </ul>
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"> <li>• 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 Project Engineer, who shall contact the relevant Competent Authority who will take appropriate steps.</li> <li>• 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.</li> <li>• The Contractor may not, without a permit issued by the relevant heritage resources authority, destroy, damage, excavate, alter, deface or otherwise disturb archaeological material.</li> </ul>
Noise impacts on adjacent residential areas	<p>Construction workers are sensitised to the need to minimise noise impacts.</p> <p>Any noise complaints received will be responded to and noise reduction management will be implemented as practically possible.</p>	<ul style="list-style-type: none"> <li>• Construction activities will be limited to weekdays and Saturdays. No work should occur on Sundays or Public Holidays.</li> <li>• If complaints are received from the community / surrounding businesses regarding disturbing noise, DoT will ensure: <ul style="list-style-type: none"> <li>○ That the complaint is responded to,</li> <li>○ The source of the noise is identified, and</li> <li>○ Appropriate noise reduction management or technology is implemented. Such measures may include rescheduling of particularly noisy operations to a less disturbing time of day as much as DoT is able to within their abilities.</li> </ul> </li> <li>• All machinery and equipment to be utilised on the site should be fitted with mufflers and must be maintained in good working order to minimise noise levels.</li> </ul>

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
		<ul style="list-style-type: none"> <li>• The Contractor should encourage construction workers to minimise shouting and hooting on the site.</li> <li>• The Contractor shall warn any local communities and/or residents that could be disturbed by noise generating activities well in advance and shall keep such activities to a minimum.</li> <li>• The Contractor shall be responsible for compliance with the relevant legislation with the respect to noise. It must be ensured that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise.</li> <li>• Construction work should be completed in as short a time frame as possible in order to limit the longevity of these impacts.</li> <li>• The normal municipal by-laws with regards to noise control must apply.</li> <li>• Construction staff should not be housed on site.</li> </ul>
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"> <li>• Dust minimisation and control measures should be implemented on the construction site at regular intervals. This could include wetting down by water tankers.</li> <li>• 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.</li> <li>• Vegetation clearing shall take place in a phased manner in order to retain vegetation cover for as long as possible.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Limit spillages on paved roads and ensure that vehicle speeds are maintained as</li> </ul>

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
		<p>required on-site to reduce the possibility of the entrainment of dust on paved roads.</p> <ul style="list-style-type: none"> <li>• Limit vehicle idling and keep vehicles well maintained to minimise particulate and gaseous emissions.</li> <li>• If fine building materials/sands are to be transported at the back of trucks, they must be adequately covered.</li> <li>• Provide dust masks for the workers where necessary.</li> <li>• If possible, bulk earth work or work creating fugitive dust must be ceased during periods of strong winds.</li> </ul>
Visual Impacts	Minimise visual intrusions	<ul style="list-style-type: none"> <li>• Generation of dust will increase the visibility of the project, and it is therefore important to employ techniques to suppress dust generation during construction.</li> <li>• The contractor should maintain good housekeeping on site to prevent litter and minimise waste.</li> <li>• Erosion risks should be assessed and minimised as erosion scarring can create areas of strong visual contrast with the surrounding vegetation.</li> <li>• Equipment not being used should be removed from site.</li> </ul>
Waste Generation	<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"> <li>• 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"> <li>○ General solid wastes</li> <li>○ Hazardous solid wastes;</li> <li>○ Sewage and effluent;</li> <li>○ Hazardous liquid wastes;</li> <li>○ Cement bags;</li> <li>○ Scrap metal;</li> <li>○ Building rubble;</li> <li>○ Cleared vegetation.</li> </ul> </li> </ul>

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
		<ul style="list-style-type: none"> <li>• This plan must be approved by the Engineer (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.</li> <li>• 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).</li> <li>• 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.</li> <li>• 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.</li> <li>• Any hazardous materials that need to be stored on site must be done under lock and key.</li> <li>• General good housekeeping should be practiced on site.</li> </ul>
Administration	The administration of the construction phase has regard to environmental sensitivity	<ul style="list-style-type: none"> <li>• A copy of the EA (if issued), this EMP as well as any other environmental permits / licenses must be maintained on site in the Environmental File.</li> <li>• 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 C.</li> <li>• 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 D.</li> </ul>
Job creation	Employment & skills training of local labour is maximised.	Local labour shall be utilised wherever possible and skills training will be provided.

**Table 8: Impact Management Actions during the Post-Construction and Rehabilitation Phase**

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
Alien vegetation	Control the spread of alien vegetation	<ul style="list-style-type: none"> <li>• Eradicate alien plants from the impacted area for one year post-construction every three months.</li> </ul>
Soil disturbance	Reduction in erosion and siltation	<ul style="list-style-type: none"> <li>• Stripped topsoil stockpiled during construction to be used in rehabilitation.</li> <li>• 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.</li> <li>• Banks must be rehabilitated, including re-establishment of vegetation cover.</li> </ul>
Estuarine habitat and CBA	Recovery of the estuarine habitat and CBA	<ul style="list-style-type: none"> <li>• The embankment should be revegetated with suitable plants established as plugs from plants harvested within the estuary and could include:               <ul style="list-style-type: none"> <li>o <i>Ficinia lateralis</i></li> <li>o <i>Juncus kraussii</i></li> <li>o <i>Sarcocornia perennis</i></li> <li>o <i>Cynodon dactylon</i></li> <li>o <i>Sporobolus virginicus</i></li> </ul> </li> </ul> <p>These species have the ability to rapidly establish themselves while binding the soils.</p>

**Table 9: Impact Management Actions during the Operational Phase**

ASPECT	MANAGEMENT OUTCOMES	IMPACT MANAGEMENT ACTIONS
Alien vegetation	Control the spread of alien vegetation	<ul style="list-style-type: none"> <li>• Implement an Alien Management Plan.</li> <li>• Eradicate alien plants from the impacted area as they appear; and</li> <li>• Monitor the project area for any new growth of invasive plants.</li> </ul>
Erosion and siltation	Reduction in erosion and siltation	<ul style="list-style-type: none"> <li>• Continued maintenance of the section of road, i.e. repair of the embankment after period of heavy rainfall.</li> <li>• Vegetation removed during construction must be replanted to contribute towards the ecological state of the estuarine system.</li> </ul>
Road safety	Safety to road users	<ul style="list-style-type: none"> <li>• Road maintenance checks and any necessary maintenance work must be conducted on an annual basis especially in the period following heavy rains or flooding.</li> </ul>



## 10. MONITORING

The key to a successful EMPr is appropriate monitoring and review to ensure effective functioning of the EMPr 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.

DoT is to appoint an independent auditor who is suitably qualified and experienced (i.e. the ECO) 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 below.

**Table 10: Implementation of Compliance Monitoring**

TIMEFRAME	METHOD OF MONITORING	MONITORING FREQUENCY	REPORTING FREQUENCY
<b>External Monitoring by ECO</b>			
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 fortnightly site visits with an audit report generated and submitted to the Project Team and the competent authority monthly for the duration of construction.	Fortnightly, more often as required	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 DoT and its appointed Agents (including Engineers & Contractors).

External environmental audit reports are to be submitted to DEDEAT.

## 11. AMENDMENTS

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

*“Where an amendment is required to the impact management actions of an EMPr, 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 EMPr 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 EMPr 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 EMPr 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 EMPr in terms of Regulation 36(1) are to be discussed during site visits. Any amendments should then be agreed to by the Project Manager / Engineer, Contractor and ECO prior to being included in the audit reports.

## 12. EASTERN CAPE DEPARTMENT OF TRANSPORT

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. ENGINEERING REPRESENTATIVE'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.

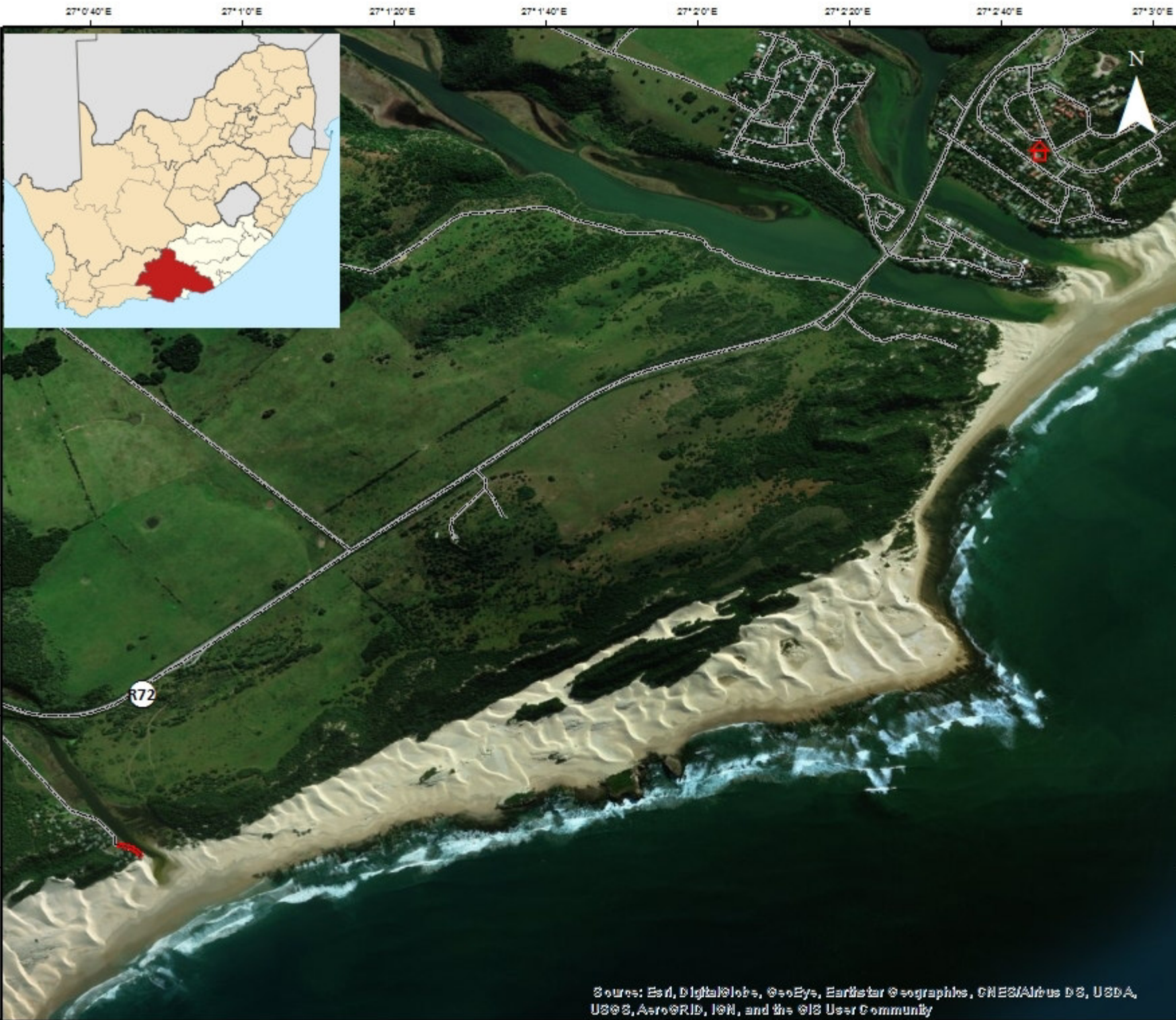
Signed: \_\_\_\_\_ Date: \_\_\_\_\_

## 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: \_\_\_\_\_

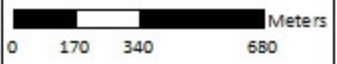
## *Appendix A: Layout*



**PROJECT DETAILS**

Riet River Access Road  
 Project code: 4797  
 Drawn by: Kim Brent

**SCALE**



**MAP TITLE**

Locality map

**MAP FEATURES**

- Section of road under investigation
- Riet River
- Eastern Cape Province
- Ndlambe Municipality
- Seafield

**DATUM**

WGS 84

**PREPARED FOR**



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

## *Appendix B: EAP's CV*

## CHERIZE COETZEE (née MATTHEUS)



<b>Profession</b>	Environmental Scientist
<b>Position in Firm</b>	Environmental Scientist
<b>Area of Specialisation</b>	Environmental Impact Assessments, Environmental Management Programmes, Environmental Monitoring & Compliance, Water Use Authorisations
<b>Qualifications</b>	MSc, BSc (Hons), BSc
<b>Years of Experience</b>	7 Years
<b>Years with Firm</b>	7 Years

### SUMMARY OF EXPERIENCE

Cherize is an Environmental Scientist with JG Afrika (Pty) Ltd with 7 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.

### PROFESSIONAL REGISTRATION

- IAIAsa** - Member of the International Association for Impact Assessors South Africa
- IWMSA** - Member of the Institute of Waste Management 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

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## SPECIFIC EXPERIENCE

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

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**2016 – Date**

**Position** – Environmental Scientist

**2013 – 2016**

**Position** – Graduate Environmental Scientist

**2020**

**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.

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

**Upgrading of Centerton Sewer Pump Station in Hankey Town, Kouga Local Municipality** - Water Use Authorisation Application. 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 Riebeeck 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**

**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.

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

**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)** – Assisted with Basic Assessment Report and Water Use Licence Application. 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.

**Wells Estate Phase 3 Bulk Stormwater Infrastructure Installation (NMBM): Part 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.

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

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**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'.

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## Nelson Mandela Metropolitan University

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**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

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**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, IAIA 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

**KIM BRENT**



<b>Profession</b>	Environmental Scientist
<b>Position in Firm</b>	Senior Environmental Scientist and Section Manager
<b>Area of Specialisation</b>	<ul style="list-style-type: none"> <li>• GIS Mapping</li> <li>• Environmental Auditing</li> <li>• Water Use License Applications and Plant permit applications</li> <li>• Public Participation Processes</li> <li>• Basic Assessments, Scoping and EIAs and EMPs</li> <li>• Ecological Assessments</li> <li>• Wetland Assessments</li> <li>• Prospecting and Mining applications</li> <li>• Quantum Calculations</li> <li>• NEMA Section 24 G applications</li> </ul>
<b>Qualifications</b>	Pr Sci Nat; BSc Hons (Botany Environmental management); BSc (Botany & Geography)
<b>Years of Experience</b>	9.5 years
<b>Years with Firm</b>	1 year 9 months

**SUMMARY OF EXPERIENCE**

Kim is a Senior Environmental Scientist with 9.5 years' experience and joined the JG Afrika (Pty) Ltd team in September 2018. Kim is registered with the South African Council for Natural Scientific Professional (SACNASP) and holds a BSc degree with majors in Botany and Geography as well as a BSc (Hons) degree in Botany focussing on Environmental Management and GIS systems; both from NMMU. Her honours year focussed on Environmental Impact Assessments, Environmental Management and Geographic Information Systems. Kim's interests include Environmental Auditing, Scoping and Environmental Impact Assessments, Geographic information systems and Ecological Assessments. Kim's is well versed in the environmental legislation such as NEMA, the EIA regulations, the National Water Act, the MPRDA etc., as well as the local and provincial biodiversity spatial and planning tools for the Eastern, Western and Northern Cape Provinces. Kim has conducted a number of Prospecting Right Applications (in accordance with the MPRDA and NEMA), Basic Assessments and EIAs (in accordance with NEMA) in South Africa, and has been involved in a number of local mining projects within South Africa. At Kim's previous position, she assisted on various international mining ESIA's and ESMPs.

Kim has good knowledge of the applicable Biodiversity legislation such as the CARA Regulations, the NEM Biodiversity Act and the NEM Protected Areas Act. Kim has recently completed the Rhodes University short course on Tools for Wetland Assessments as well as a training course on IWRM, the NWA, and Water Use Authorisations, focusing on WULAs and IWWMPs.

## PROFESSIONAL REGISTRATION

**Pr Sci Nat**- Registered with the South African Council of Natural Scientific Professions as a Professional Natural Scientist in the field of Environmental Science (Reg No. 116766)

**SAAB** - Member of the SA Association of Botanists (Member No. 565)

**IAIA Member**

## EDUCATION

**2005 - Matric**– Die Brandwag High, Uitenhage

**2009 - BSc** (Environmental Science – majoring in Botany and Geography) – Nelson Mandela University (previously NMMU)

**2010 - BSc Honours** (Environmental Science – Botany Environmental Management) – Nelson Mandela University (previously NMMU)

**2018 – Short Course** (Tools for Wetland Assessments) – Rhodes University

## SPECIFIC EXPERIENCE

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

#### September 2018 – Date

**Position** – Senior Environmental Scientist & Manager: Environmental Management and Sustainability

Proposed establishment of a mixed-use development on Erf 1792, Parsons Vlei, Port Elizabeth, Nelson Mandela Bay Municipality – Part 2 Amendment, ECO.

Installation of civil services for Erf 818-863, Ward 51, Uitenhage, NMBM – CEMPr and ECO.

Proposed upgrade and expansion of the existing Burgersdorp Correctional Facility, Burgersdorp – Basic Assessment Process and WUA.

Rietfontein Dam WULA – Plant removal permits, ECO.

R75 Interchange Upgrade – WUA.

Upgrade of the Nelson Mandela Museum – Basic Assessment Process and WUA.

Coega West Wind Farm Development – ECO.

OAC Church Development – Screening Assessment, Wetland Assessment and WUA.

Morgans Bay Sanitation upgrade – Basic Assessment Process and WUA.

Proposed Refurbishment of the Alicedale and Riebeeck East Water Treatment Works, Makanda – Screening Assessment and Construction EMPs, ECO Quality control.

Proposed upgrading of National route R335 between Motherwell (km 5.600) and Addo (km 37.600), within the NMBM and SRVLM – Vegetation Assessment and Borrow Pits Basic Assessment.

Environmental Screening Assessment to determine the extent of environmental authorisation requirements should the Department of Roads and Public Works (EC DRPW) decide to upgrade the remainder (upstream) of the Riet River access road.

The proposed Duine road extension, Jeffreys bay, Kouga Local municipality, Eastern Cape Province – Vegetation Assessment, PPP and Basic Assessment.

Proposed establishment of a Solar PV Facility on a portion of Erf 1, Parsonsvej, Port Elizabeth – Scoping, EIA, Vegetation Assessment and WUA.

Proposed establishment of a mixed-use development on erf 1792, Parsons Vlei, Port Elizabeth, Nelson Mandela Bay Municipality. – Part 1 Amendment.

Wells Estate Social Housing Development, Port Elizabeth, Eastern Cape – Part 1 Amendment.

Construction of the Kwanobuhle Integrated Estate on Portions of erven 39229 and 39231, Kwanobuhle, Eastern Cape – Updated Construction Phase Environmental Management Programme Report and Pre-Construction Audit report.

Proposed establishment of a Residential and mixed-use development on Erf 178 and Erf 2643 Glenroy Park, Port Elizabeth – Basic Assessment, Vegetation Assessment and EMPr.

Upgrade of the Centerton sewer Pump station, Hankey, Eastern Cape – Screening Assessment.

Investigate, plan, design and implement the Upgrading of the Sanitation System in Hankey, Eastern Cape – Basic Assessment.

Quality control of various ECO projects.

GIS mapping for various projects.

## **EOH Coastal & Environmental Services**

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**2014 - 2018**

**Position** – Senior Environmental Consultant

Almenar Prospecting Applications – Public Consultation and Environmental Management and Rehabilitation Plans.

Augmentation of the Lusikisiki Regional Water Supply Scheme, Eastern Cape Province, South Africa – Scoping and Environmental Impact Assessment.

Balama Graphite Mine in the Cabo Delgado Province in the District of Balama in Northern Mozambique - Environmental and Social Health Impact Assessment.

Calmag Limestone Prospecting Applications – Public Consultation and Environmental Management and Rehabilitation Plans.

Enterprise Deposit, North Western Province, Zambia – Environmental Impact Statement assistance  
Existing Innovative Mouldings Plastic Recycling Facility, Holland Park, Port Elizabeth - Application For A Waste Licence & Basic Assessment.

Gibson Bay Wind farm in the Kouga Local Municipality - Environmental Management Programme.

Glenhurd Road upgrade and Baakens River Bridge – Basic Assessment, Ecological Input and Water Use

Licence Application (Section 21 c & i).

Implications of a Proposed Residential Development on Portion 15 of the Farm Calenick, Banhoek, Stellenbosch in the Western Cape Province – Environmental Opinion Report.

Innowind Ukomeleza and Olifantskop Substations and Overhead Powerlines – Basic Assessment and Ecological Input.

K2014173205 (SOUTH AFRICA) (PTY) LTD Prospecting applications – Basic Assessment, EMPr and Rehabilitation plan (2014 Regulations).

Kenhardt Mineral Prospecting Applications – Public Consultation and Environmental Management and Rehabilitation Plans.

Khaymnandi extension node ECO services – Environmental Control Officer (Auditing) for various phases of the project.

Kouga Wind Farm in the Kouga Municipality – Environmental Auditing.

Kurlandbrik updated Mining EMPr and Rehabilitation plan and SLP.

Masakhane Housing Development in Kwazakhele, Port Elizabeth – Basic Assessment.

New Senior Primary School, Andrieskraal, Eastern Cape – Basic Assessment and Water Use Licence Application (Section 21 e and f).

TNPA sand removal maintenance – Environmental Monitoring and plant permit applications.

Renewable Energy Visitors Centre, Jeffery's Bay, Eastern Cape - Vegetation Survey.  
ENGIE Bayview WEF, Port Elizabeth – Lead author (Scoping and EIA), Ecological Specialist and Project manager.

NMU West End Student Residence Development & Associated Infrastructure, Summerstrand, Port Elizabeth – Project manager and Ecological and Wetland specialist.

GMSA VDC Section 24 (G) Application and Rectification Report – Lead Author and Project Manager.  
Transnet Boshhoek Railway Loop, North West Province – Wetland Assessment review.

CAPECO Fairview Housing Development Phase 2 Environmental Auditing, Port Elizabeth.

Fort Cox College WWTW upgrade – Aquatic / Wetland Assessment.

NMMU Private Nature Reserve Management plan.

PPC Hougham Park Mining EIA – Scoping and EIA and Section 102 amendment to DMR.

PPC Botanical Survey, alien vegetation and Rehabilitation management plan

Raymond Mhlaba Housing ECO.

Silikhaya Properties proposed subdivision and mixed use development on Erf 1 Parsons Vlei, Nelson

Mandela Bay Municipality, Eastern Cape – Scoping, EIA and Ecological Assessment,

SMEC MBDA Telkom Park Precinct Plan – Environmental status and land use planning report.

St Christopher’s private school, Walmer, Port Elizabeth – Environmental opinion and ground truthing.

The re-construction and upgrading of the Slang river low-level crossing near Oyster Bay, Kouga Local Municipality Eastern Cape – Basic Assessment, Ecological and Aquatic Assessment and Water Use Licence Application (Section 21 c and i).

Transnet Freight Rail New Brighton Swartkops Security Wall – Basic Assessment.

TNPA Vulindlela Site Remediation – Environmental Control Officer.

Wicklow Trust Citrus Packaging Warehouse, Sundays River Municipality, Eastern Cape – Basic Assessment and Alien Vegetation Management Plan.

Zirco Roode Heuwel, Kamiesberg Project, Northern Cape – Scoping and Environmental Impact Assessment.

Proposed improvement of National Route 2 Section 5 between Lizmore (km 29.00) and Heidelberg (km 54.00) and associated borrow pits, Western Cape Province: Mining Right Application Process (Scoping and EIA) and Ecological Impact Assessment.

The Kap River Bridge, Ndlambe Municipality, Easter Cape- Basic Assessment, Ecological and Wetland Assessment.

Imizi Social Housing Development, Wells Estate, port Elizabeth – Ecological Assessment.

Pofadder Prospecting Right and Basic Assessment process, Northern Cape – PPP, BAR, EMPr and Quantum Calculations.

Fig Tree Residential Development, Jeffreys Bay, Eastern Cape – S 24 (G) Rectification Basic Assessment.

St Christopher’s Walmer Private School, Port Elizabeth – Project manager and Lead Author (Basic Assessment and Plant permits).

Namaqualand Prospecting Right and Basic Assessment process, Northern Cape – PPP, BAR, EMPr and Quantum Calculations.

Thriftwood Residential Section 24 (G) Application and Rectification Report – Lead Author and Project Manager.

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#### **CEN IEM unit.**

**2010 - 2014**

**Position** – Environmental Consultant

Legal compliance review document for the Aggeneis-Oranjemond 400kV power line and substations upgrade, Northern Cape: Scoping Report.



Review document for the Aggeneis-Oranjemond 400kV power line and substations upgrade, Northern Cape: EIA Report.

Aston Bay Swanlake EMP.

Construction of a social housing project and associated infrastructure on Erf 3937, Fairview, Port Elizabeth: Environmental auditing process.

Kragga Kamma Road refuse transfer station: 24G application, Public participation and rectification assessment report.

Pearston solar farm – assisted in the Environmental Impact Assessment Report.

Pearston solar farm (Phase 2 & 3) – assisted in the Environmental impact assessment report.

Hemsley Family Trust: Subdivision and rezone of portion 176 (A and B) of the farm Goedgeloof nr 745, in St Francis Bay, Kouga district: Basic assessment.

Dondolo Family Trust: The construction of a Shopping centre on Erf 24296, KwaNobuhle: Basic assessment.

Dondolo Family Trust: The development of formalized parking on Erf 1, KwaNobuhle: Basic assessment and water use permit application.

Environmental Audits for the construction of a residential development and associated infrastructure on Erf 7023 (Ptn of 14935), Walmer: Environmental control officer.

Construction and upgrading of the new Glen Hurd Road as well as the construction of the Baakens River Bridge, Port Elizabeth, Eastern Cape: Water use Permit Applications.

Jefferey's Bay Wind farm –Environmental control officer – auditing process.

Ntshekisa - Ferguson- Sheya Kulati integrated public transport system (IPTs), Port Elizabeth, Eastern Cape: Environmental management plan.

Proposed rezoning and subdivision of Portion 12 (a portion of Portion 4) of the farm Vetmaak Vlakte No. 312, Uitenhage RD, in the Nelson Mandela Bay Municipality, Eastern Cape for a mixed use development: Scoping and EIA Report.

Proposed clearing of bush for the cultivation of Lucerne fields and the construction of a dam (approximately 30 000 m<sup>3</sup>) to irrigate the lands, in Addo, Sundays River Valley Municipality: Basic assessment.

Proposed construction and operation of a fuel filling station with rest and retail facilities, an agribusiness retail/wholesale facility and a farm store with tourism and related facilities on Remainder of

Portion 8 of the Farm Nanaga Hoogte No. 229 in the Sundays River Valley Municipality: Basic assessment.

Proposed construction of a cemetery on a portion of Erf 1814 in Graaff-Reinet, Eastern Cape: Basic assessment.

Proposed Establishment of a Low Density Leisure Estate and the redesign of the existing Skuitbaai golf course on Portions 12, 13 and 70 of the Farm Eerste Rivier 626: Basic assessment.

Upgrade of the Donkin Reserve, Port Elizabeth: Environmental auditing process.

Vegetation mapping for various projects.

## CONTINUED PROFESSIONAL DEVELOPMENT

### Courses

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**2018** - Rhodes University short course on Tools for Wetland Assessments

**2018** - Three (3) day training course training course on IWRM, the NWA, and Water Use Authorisations, focusing on WULAs and IWWMPs

**2016** - Department of Water and Sanitation: Water Use Authorisations Worksop

**2016** – IAIA SA

## PERSONAL DETAILS

Nationality – South African

Date of Birth – 1987 – 11 - 16

Domicile – Port Elizabeth, South Africa

### Languages

English – Excellent

Afrikaans – Excellent

## *Appendix C: Complaints Register*

## Complaints Register

This a register for recording all complaints received from neighbours i.e. Complaints about noise, odours, dust etc.

Date of Complaint	Complainant's Name	Contact Details	Nature of Complaint	Corrective Action Taken	Date Action Completed

## *Appendix D: Environmental Incident Register*

### Environmental Incident Register

This is record of incidents as defined in NEMA and the NWA. Incidents should be recorded and reported to the applicable authorities.

Date of Incident	Details of Incident	Party/ies Responsible	Corrective Action Taken	Date Action Completed