
Appendix 6: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)



**DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME:
PROPOSED UPGRADE AND EXPANSION OF THE STORMWATER
SYSTEM AT NO.1 SOUTH BEACH ROAD, UMDLOTI, ETHEKWINI
MUNICIPALITY, KWAZULU-NATAL**

AUGUST 2017

JG Afrika (Pty) Ltd Reference No. 4413

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VERIFICATION PAGE	Form 4.3.1
	Rev 13

TITLE: DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME:
PROPOSED UPGRADE AND EXPANSION OF THE STORMWATER SYSTEM AT NO. 1 SOUTH BEACH ROAD,
UMDLOTI, ETHEKWINI MUNICIPALITY, KWAZULU-NATAL

JGA REF. NO.: 4413 **DATE:** AUGUST 2017 **REPORT STATUS:** Draft

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SYNOPSIS

Environmental Management Programme (EMPr) written in compliance with Appendix 4 of GNR 326, Environmental Impact Assessment (EIA) Regulations (2014) as amended for the proposed upgrade and expansion at of the stormwater system at No. 1 South Beach Road, Umdloti.

KEY WORDS:





EMPr, GNR 326, EIA Regulations (2014, as amended), eThekwini Municipality.

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QUALITY VERIFICATION

This report has been prepared under the controls established by a quality management system that meets the requirements of ISO9001: 2008 which has been independently certified by DEKRA Certification under certificate number 90906882



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**DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME:
PROPOSED UPGRADE AND EXPANSION OF THE STORMWATER SYSTEM AT NO. 1
SOUTH BEACH ROAD, UMDLOTI, ETHEKWINI MUNICIPALITY, KWAZULU-NATAL**

1. INTRODUCTION

JG Afrika (Pty) Ltd have been appointed by eThekwini Municipality to compile an Environmental Management Programme (EMPr) for the upgrade and expansion of the stormwater system at No.1 South Beach Road, Umdloti, eThekwini Municipality, KwaZulu-Natal.

This EMPr has been compiled in accordance with Government Notice (GNR) 326, Appendix 4 of the Environmental Impact Assessment (EIA) Regulations (2014, as amended). In this regard, the EMPr provides mitigation measures for impacts identified in the Basic Assessment (BA) Report by defining the relevant objectives, outcomes and actions.

In accordance with the Integrated Environmental Management Guidelines published by the Department of Environmental Affairs & Tourism (DEAT) in 1992, the purpose of an EMPr is “to describe how negative environmental impacts will be managed, rehabilitated or monitored and how positive impacts will be maximised”.

Section 28 of NEMA (National Environmental Management Act, Act 107 of 1998) which pertains to “Duty of care and remediation of Environmental Damage” states that: "(1) Every person who causes, has caused or may cause significant pollution or degradation of the environment, must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot be reasonably avoided or stopped, to minimise and rectify such pollution or degradation of the environment."

This EMPr must therefore form an integral part of the contract documents between eThekwini Municipality and the appointed contractor during the construction phase of the development, as it outlines the methodology & duties required such that construction can be achieved in an environmentally sustainable manner. The EMPr also provides particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. Such mitigation measures will have a financial impact on the projects costings. Furthermore, the EMPr and requirements thereof must form part of any sale / rental / lease agreement entered into, if applicable.

This EMPr is a dynamic document that may need to evolve during its implementation period, such that it recognises any new issues that may arise; or changes in the parameters of identified issues which can be addressed with the required / amended mitigation.

1.1. THE POLLUTER-PAYS PRINCIPLE

This principle provides for “the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage

or adverse health effects must be paid for by those responsible for harming the environment.” The Polluter Pays Principle must be rigorously applied throughout the construction phase of this project.

1.2. PROGRESSIVE REHABILITATION

Progressive rehabilitation must be undertaken throughout the construction phase of the project where areas have been impacted. Rehabilitation should commence as soon as construction is completed in the specific area and not at the end of the entire project.

2. ENVIRONMENTAL ASSESSMENT PRACTITIONER

The EMPr was prepared by JG Afrika (Pty) Ltd. The details of the representative Environmental Assessment Practitioners (EAPs) who prepared the report are detailed in Table 2-1. Further, Curriculum Vitae of the detailed EAPs are provided in Appendix 1.

TABLE 2-1: Details of EAP

COMPANY NAME: JG AFRIKA (PTY) LTD			
EAP	Qualifications & professional affiliations	Experience at environmental assessments	Contact details
Mr M. van Rooyen Executive Associate	MPhil (Environmental Management), Pr. Sci. Nat; IAIAAsa	14 years	JG Afrika (Pty) Ltd Tel: (033) 343 6700 Email: vanrooyenm@jgafrika.com
Ms Imke Summers Environmental Assessment Practitioner	BSc. Hons Environmental Science; IAIAAsa	6 years	JG Afrika (Pty) Ltd Tel: (033) 343 6700 Email: summersil@jgafrika.com
Ms Bongumusa Ndaba Environmental Assessment Practitioner	Adv. Diploma Nature Conservation; IAIAAsa	2 years	JG Afrika (Pty) Ltd Tel: (033) 343 6700 Email: ndabab@jgafrika.com

3. ACTIVITY INFORMATION

3.1. PROJECT DESCRIPTION

The existing stormwater outlets at No.1 South Beach Road, which discharge onto the beach, are continually being blocked by sand due to tidal activity. This results in the back flooding of the stormwater onto the car park and adjacent roads and the undermining of the car park and existing staircase leading from the car park onto the beach front. The proposed upgrade and expansion includes the construction of a subsurface stormwater culvert to be placed below the pedestrian walkway located adjacent to the parking lot in front of Umdloti Centre. The stormwater culvert will discharge onto the beach at a point to the north of the parking lot.

3.2. PROJECT LOCATION

The site is located at No.1 South Beach Road, Umdloti, Durban. The proposed infrastructure will be placed below the pedestrian walkway located adjacent to the parking lot in front of Umdloti Centre. The infrastructure extends approximately 115m to the north, to an existing drainage outlet which is to be upgraded. The surrounding land use is commercial. The site is bounded to the east by the Umdloti coastline, to the west by the Umdloti Centre, and to the north and south by apartment blocks and holiday homes.

The property description, 21-digit Surveyor General (SG) code and property co-ordinates are provided in Table 3-1 and 3-2. A Site Plan is provided in Figure 3-1

TABLE 3-1: Property description, Northern Property

NORTHERN PROPERTY DETAILS	
LANDOWNER	eThekwini Municipality
PROPERTY DESCRIPTION	Farm Cotton Lands, Portion 1191 of Farm Number 1575
21 DIGIT SG CODE	NOFU00000000157501191
CO-ORDINATES	Start: 29°40'15.70" S; 31°07'03.84" E End: 29°40'16.26" S; 31°07'03.25" E

TABLE 3-2: Property description, Southern Property

SOUTHERN PROPERTY DETAILS	
LANDOWNER	eThekwini Municipality
PROPERTY DESCRIPTION	Farm Cotton Lands, Portion 275 (Remaining Extent) of Farm Number 1575
21 DIGIT SG CODE	NOFU00000000157500275
CO-ORDINATES	Start: 29°40'16.26" S; 31°07'03.25" E End: 29°40'18.86" S; 31°07'01.67" E

3.3. PROJECT SPECIFICATIONS

The proposed activity entails the expansion and upgrade of an existing stormwater system at No.1 South Beach Road. The construction will entail the replacement of the existing stormwater infrastructure with an underground stormwater culvert consisting of a new 1.2 x 0.6m in situ box culvert. The stormwater culvert will be extended to be approximately 115m long, 1m wide and will be 2m deep. The upgraded stormwater culvert will be provided with manholes along its alignment to provide access for maintenance purposes.

The upgraded stormwater infrastructure will feed into an existing stormwater outlet. The existing stormwater outlet, located to the north of the parking area, will be upgraded through the construction of a 1.2m x 0.8m headwall. See Figure 3-2 for details thereof. The existing stormwater outlets will be blocked off and abandoned where they presently intersect with the existing stormwater pipeline (See Figure 3-3 for details thereof).

Design drawings are provided in Figures 3-2



Umdloti Stormwater Expansion

SITE PLAN

Locality Map

Sources: Esri, HERE, DeLorme, Intermap, increment.P Corp., GEBCO,

LEGEND

█ Proposed Stormwater Culvert Layout

Production Date: 28 July 2017
 Coordinate System: PCS (Transverse Mercator LO31; WGS84)

Meters

N

SCALE (A4)
1:2 500

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Designed and detailed under the controls established by our quality management system that meet the requirements of ISO 9001:2000 which has been independently certified by DEKRA Certification under certificate number 90908882.

FIGURE 3-1: Site Plan

3.4. SITE ACCESS

The site is accessible from the Umdloti South Beach Road. As the proposed development will entail the construction of an underground stormwater culvert proposed to be placed beneath the existing pedestrian walkway, certain portions of the pedestrian walkway along South Beach Road, and the car park in front of Umdloti Centre, will not be accessible during the construction phase.

3.5. CONSTRUCTION CAMP

Based on the limited availability of open land in close proximity to the site, and the tourism and recreational nature of the surrounding land uses, careful cognisance has been taken regarding the placement of the construction camp. The Applicant has proposed that the construction camp will be located on the existing traffic circle at the intersection of the M27 with North and South Beach Roads. The construction camp will be established adjacent to the eThekweni Metro Wastewater infrastructure. Refer to Figure 3-3.

The site construction camp will be comprised of one, lockable container for the storage of goods, as well as the stockpiling and storage of construction materials, including the ready-made box culverts, granular sand material, import fill material etc. The site construction camp will be appropriately fenced and sign-posted to prevent public access, as well as to provide adequate details of the construction project and contractor.

Construction is anticipated to take 16 weeks to complete.



FIGURE 3-3: Proposed location of construction camp.

3.5.1. CONSTRUCTION REQUIREMENTS

The following activities will be undertaken during construction of the stormwater culvert and the headwall:

- Excavation of trenches and preparation for the new stormwater culvert;
- Establishment of the site camp on the turning circle (municipal owned land);
- In-situ box culvert;
- Upgrading of the headwall at the discharge point; and
- Rehabilitation of the site on completion of the project.

Construction vehicles may need to access the beach during the construction of the headwall at the discharge point. Should any construction vehicle need to access the coastal zone (i.e. beach), the appointed contractor is to obtain a letter (prior to access) from the Municipality granting permission to do so. The letter will stipulate the duration of construction, as well as any specific requirements.

3.5.2. ACTIVITIES TO BE UNDERTAKEN POST-CONSTRUCTION

Once construction is complete, the underground stormwater culvert will be backfilled. The working area will be rehabilitated. Paving will be replaced along the pedestrian walkway and the road surface at the point of the parking lot access will be reinstated. The area occupied by the site camp will be re-grassed. Should any indigenous flora need to be removed during the construction of the headwall discharge point, then this will be replaced during the rehabilitation phase.

3.6. APPLICABILITY OF EIA REGULATIONS (2014)

In terms of the EIA Regulations (2014, as amended), promulgated under the National Environmental Management Act (Act No. 107 of 1998) (NEMA), certain Listed Activities are specified for which either a BA (GNR 327 and GNR 324) or a full Scoping and EIA (GNR 325) is required.

The following Listed Activities in GNR 327 (Listing Notice 1) and GNR 324 (Listing Notice 3) are applicable to the upgrade and expansion of the stormwater culvert.

TABLE 3-3: Applicable Listed Activities as per NEMA (Act 107 of 1998): EIA Regulations (2014, as amended)

LISTING NOTICE & ACTIVITY	LISTED ACTIVITY AND TRIGGER AS PER THE PROJECT DESCRIPTION
GNR 327 (Listing Notice 1): Activity 19A	<i>“The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from;</i> <i>(ii) the littoral active zone, an estuary or a distance of 100 metres inland of the higher water mark of the sea or an estuary, whichever distance is the greater.”</i> - <u>The expansion of the stormwater infrastructure will fall within 100m of the high-water mark and the construction process will result in the infilling or deposition of at least 5m³ or more of material within 100m inland of the high-water mark of the sea. As such this listed activity will be triggered.</u>
GNR 324 (Listing Notice 3): Activity 14	<i>“The development of vi) bulk storm water outlet structures exceeding 10 square metres in size; and (xii) infrastructure or structures with a physical footprint of 10 square metres or more; Where such development occurs –</i>

	<p><i>In front of a development setback</i></p> <p><i>In KwaZulu-Natal:</i></p> <p><i>xi. In urban areas:</i></p> <p><i>(cc) Areas seawards of the development setback line or within 100 metres from the high-water mark of the sea if no such development setback line is determined.”</i></p> <p>- <u>The expansion of the stormwater infrastructure will fall within an urban area, within 100m of the high-water mark and will exceed 10m² in size. As such this Listed Activity is triggered.</u></p>
<p>GNR 324 (Listing Notice 3): Activity 23</p>	<p><i>“The expansion of (ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more;</i></p> <p><i>Where such expansion occurs-</i></p> <p><i>(b) in front of a development setback adopted in the prescribed manner; or</i></p> <p><i>(d) KwaZulu-Natal</i></p> <p><i>xi. Inside urban areas;</i></p> <p><i>(cc) Areas seawards of the development setback line or within 100metres from the high water-mark of the sea if no such development setback line is determined.</i></p> <p>- <u>The expansion of the stormwater infrastructure will fall within an urban area, within 100m of the high-water mark and will exceed 10m² in size. As such this Listed Activity is triggered.</u></p>

4. MONITORING

4.1. METHOD AND FREQUENCY OF MONITORING

- An independent, external ECO must audit the construction site during the construction phase of the project on a bi-monthly basis, unless otherwise specified by the Competent Authority, namely the Department of Economic Development, Tourism and Environmental Affairs (EDTEA);
- A monthly construction Environmental Audit Report is to be drafted by the ECO and submitted to the Applicant / Employer for review and implementation prior to the following site audit; and
- The relevant party (be it the ECO / Applicant) has the responsibility to submit the site audit report to the EDTEA: Compliance and Monitoring Department for the duration of the construction period.

4.2. ROLES AND RESPONSIBILITIES

The implementation of this EMPr requires the involvement of several stakeholders, each fulfilling a different, but vital role to ensure sound environmental management during the construction phase. The stakeholders are discussed below.

4.2.1. EDTEA

EDTEA is the designated provincial authority responsible for authorising the environmental application EMPr related to the project. EDTEA has overall responsibility for ensuring that the Applicant complies with the Conditions of EA and EMPr.

4.2.2. APPLICANT: ETHEKWINI MUNICIPALITY

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. The eThekweni Municipality as the Applicant/Employer therefore has overall environmental responsibility to ensure that the implementation of this EMPr complies with the relevant legislation and the Conditions of the EA. The Employer has appointed the contractor to undertake the contract on a design and construct basis.

4.2.3. ENVIRONMENTAL CONTROL OFFICER (ECO)

The independent ECO appointed will monitor and review the on-site environmental management and implementation of this EMPr by the contractor throughout the project. This will be done by conducting site audits and issuing monthly audit reports to the Applicant and EDTEA's Compliance Monitoring and Enforcement Section.

The EDTEA requires that the ECO be at the forefront of all environmental management issues.

4.2.4. ENVIRONMENTAL MANAGER

The Environmental Manager, or his appointee, will conduct daily inspections of the site and plant, to identify potential non-compliances and potential negative impacts to the environment. The inspections will take the form of an inspection sheet and will be kept as a record. Findings thereof will be made available to the ECO and raised in construction meetings for mitigation or avoidance measures.

4.2.5. CONTRACTOR

This refers to the main contractor(s) appointed by the Employer for the construction of the project, or a portion of the project. The main contractor(s) will be responsible for complying with the EMPr commitments and any other legislative requirements, as applicable to the contractors' appointment for the proposed soakaway. The contractor/s will also be responsible for drafting method statements appropriate to activities under his direct control (see Section 4.3).

The contractor must ensure that all employees under their appointment receive appropriate training prior to the commencement of construction, taking cognisance of this EMPr and the Conditions of the EA.

4.2.6. ORGANISATIONAL STRUCTURE

Details of the organizational structure are presented in Figure 4-1. The structure illustrates the reporting procedures for all stakeholders responsible in the implementation of this EMPr.

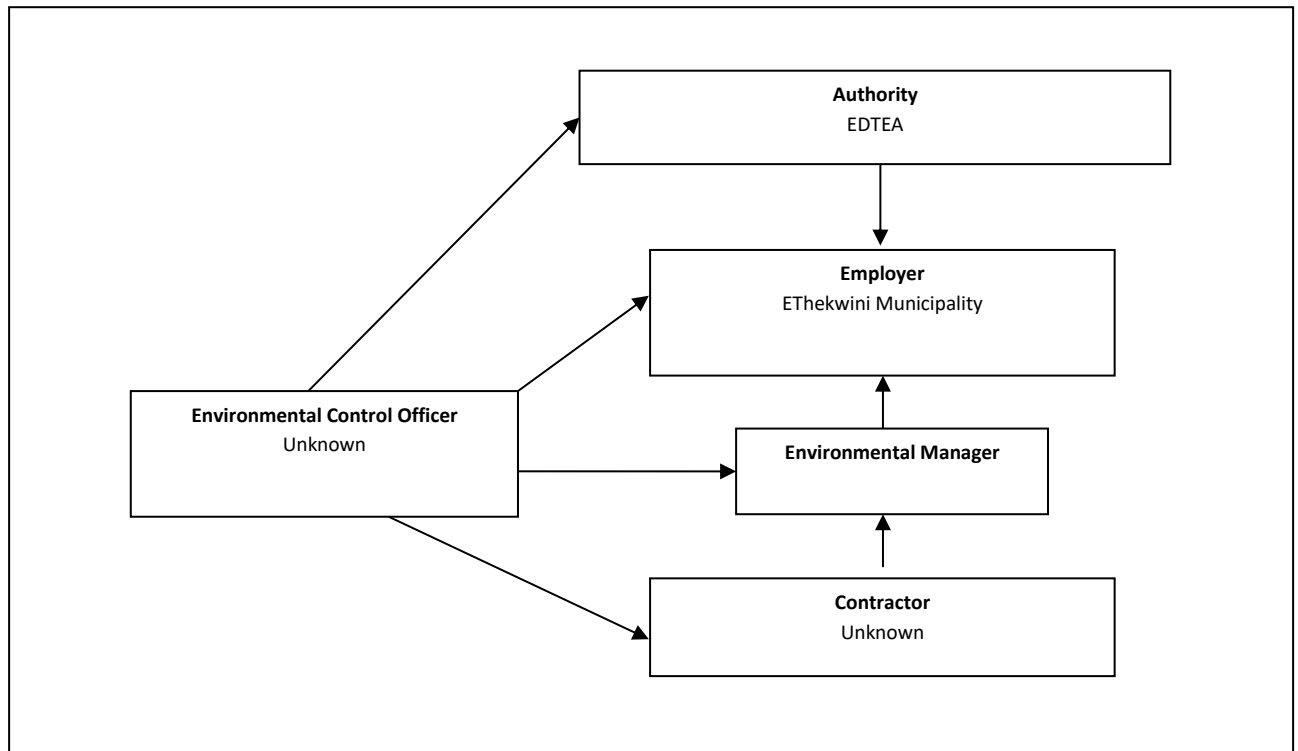


FIGURE 4-1: Organisational structure

4.3. METHOD STATEMENTS

Method Statements are written submissions by the contractor to the ECO in response to the requirements of this EMPr, or to a request by the ECO. 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 the ECO 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 ECO. The ECO 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 accepted 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 site;
- 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 specification and motivation if non-compliant.

4.3.1. REQUIRED METHOD STATEMENTS (MS)

Based on the specifications in this EMPr, the following Method Statements (MS) are required as a minimum:

MS1: Site layout and establishment

MS2: Hazardous substances

MS3: Traffic accommodation

MS4: Solid waste control system

MS5: Wastewater control system

MS6: Construction within the coastal zone (i.e. beach)

MS7: Stormwater Control

MS8: Fire control and emergency procedures

MS9: Cement / concrete batching

5. IMPACT MANAGEMENT OBJECTIVES, ACTIONS AND OUTCOMES

GNR 326, Appendix 4 of the Environmental Impact Assessment (EIA) Regulations (2014, as amended), notes that the identified impacts of development are to be presented with the management actions and outcomes. Table 4-1 presents the required information, together with the responsible person and the frequency to which the management objectives must be monitored. In this regard, the contractor, a designated on-site Environmental Manager (EM) / Health, Safety and Environmental Officer (HSE), an independent Environmental Control Officer (ECO) and the Employer are the custodians of this EMPr.

TABLE 5-1: Construction Management Actions and Outcomes

Impact management objectives of an EMPr	Impact management actions of an EMPr	Impact management outcomes of an EMPr	Monitoring	
	<i>The process of doing something, typically to achieve an aim</i>	<i>The way a thing turns out; a consequence</i>	<i>Responsibility</i>	<i>Frequency</i>
PRE-CONSTRUCTION - Actions to be completed prior to construction				
Compliance with environmental legislation and policy	<ul style="list-style-type: none"> All relevant legislation and policies must be consulted and the Applicant is to ensure that the project is compliant. <ul style="list-style-type: none"> Failure to comply with existing policies and / or legislation could lead to the project failure or delays and undue disturbance to the natural environment. The 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"> The boundaries of the site that encompass all construction related activities; Vehicle and pedestrian access points and routes; Laydown area/s, offices, stockpile areas, storage areas, etc.; and Environmental training must be held to ensure all construction personnel are aware of the provisions contained in the EMPr. 	<ul style="list-style-type: none"> Avoid conflict with local, provincial and national policies and legislation. Ensure environmental awareness amongst employees. 	Implementation: Contractor Inspection: EM / HSE Verification: ECO	Implementation: Ongoing and during rehabilitation Inspection: Ad hoc and weekly as a minimum. Verification: Bi-Monthly
Site establishment	<ul style="list-style-type: none"> The construction camp is to be demarcated prior to construction to ensure that the footprint of the impact is limited; Topsoil and grass is to be removed during the establishment of the construction camp and is to be stockpiled and demarcated; and Trees located within the footprint of the construction camp are to be demarcated. These trees are not to be removed / cut down. 	<ul style="list-style-type: none"> Limit impact on the receiving environment. Ensure materials are available for the rehabilitation of the construction camp. 	Implementation: Contractor Inspection: EM / HSE Verification: ECO	Implementation: Ongoing and during rehabilitation Inspection:

Impact management objectives of an EMPr	Impact management actions of an EMPr	Impact management outcomes of an EMPr	Monitoring	
<i>The process of doing something, typically to achieve an aim</i>		<i>The way a thing turns out; a consequence</i>	<i>Responsibility</i>	<i>Frequency</i>
				During site establishment Verification: Bi-monthly
CONSTRUCTION - Actions to be completed during construction				
Traffic management	<ul style="list-style-type: none"> • Timeous notification must be given to surrounding businesses and stakeholders regarding the nature and timeframes for any traffic impacts; • Employ flag personnel to regulate traffic; • Warning signs must be erected indicating the presence of construction vehicles along the envisaged routes; • Speed limits must be adhered to; • Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling time; • Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences; • Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery; and • The contractor must obtain a letter from the eThekweni Municipality which permits the uses of vehicles in a coastal zone / on the beach prior commencement of construction. 	<ul style="list-style-type: none"> – The prevention / mitigation of the impedance of traffic. – Ensuring public health and safety. 	Implementation: Contractor Inspection: EM / HSE & ECO Verification: ECO	Implementation: Daily and ad hoc Inspection: Ad hoc and weekly as a minimum Verification: Bi-Monthly
Soil / sand contamination	<ul style="list-style-type: none"> • Hazardous materials must be stored in a clearly marked, lockable, designated storage area; • Hazardous material must be stored within a 110% bunded area or on an impermeable surface; • When decanting hazardous substances, drip trays must be used; • Decanting is not to take place on the beach; 	<ul style="list-style-type: none"> – Avoidance of soil loss. – Re-use of viable soils in rehabilitation. – Avoidance of disposal of hazardous waste. 	Implementation: Contractor Inspection: EM / HSE Verification: ECO	Implementation: Ongoing Inspection: Ad hoc and weekly as a minimum.

Impact management objectives of an EMPr	Impact management actions of an EMPr	Impact management outcomes of an EMPr	Monitoring	
<i>The process of doing something, typically to achieve an aim</i>		<i>The way a thing turns out; a consequence</i>	<i>Responsibility</i>	<i>Frequency</i>
	<ul style="list-style-type: none"> Should a spillage occur, absorbent material should be spread on areas where oil spills have occurred. The contaminated soil must be lifted and stored within a high-density plastic bag; Should a spill occur on the beach, the contaminated sand is to be collected and removed from the beach immediately; Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility; and All disturbed areas must be rehabilitated, using the stockpiled soil/sand as required. A rehabilitation plan must be compiled towards the end of the construction period. 			Verification: Bi-Monthly
Biodiversity	<ul style="list-style-type: none"> All construction areas must be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse); and No animal, reptile or bird of any sort found on site may be killed. 	<ul style="list-style-type: none"> Prevention of the introduction and spread of alien invasive species in the area due to construction activities. 	Implementation: Contractor Inspection: EM / HSE Verification: ECO	Implementation: Ongoing and during rehabilitation Inspection: Ad hoc and weekly as a minimum. Verification: Bi-Monthly
Surface and groundwater	<ul style="list-style-type: none"> Provision must be made for stormwater management measures that will ensure effective run-off control, prevent the present backwater effect, and prevent ponding in the construction camp and beach zone; Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter the natural system; Suitable ablution facilities must be provided for workers. These facilities must be regularly serviced to reduce the risk of surface or groundwater pollution. Should the use of public restrooms located at 	<ul style="list-style-type: none"> Prevent ponding and backwater effect of stormwater. Any spills from construction are adequately remediated. Pollution prevention. 	Implementation: Contractor Inspection: EM / HSE Verification: ECO	Implementation: Ongoing Inspection: Ad hoc and weekly as a minimum Verification: Bi-Monthly

Impact management objectives of an EMPr	Impact management actions of an EMPr	Impact management outcomes of an EMPr	Monitoring	
	<i>The process of doing something, typically to achieve an aim</i>	<i>The way a thing turns out; a consequence</i>	<i>Responsibility</i>	<i>Frequency</i>
	<p>the Umdloti Centre be considered a viable option, this is to be discussed with Centre Management prior to the commencement of construction;</p> <ul style="list-style-type: none"> • Sound waste management practices (including hazard classification, separation, storage, handling, transport, recycling, reduction, clean-up and disposal) must be implemented during construction so as not to cause any surface water pollution or a health hazard. Waste must be disposed of to a licenced landfill site; • No maintenance or servicing of vehicles is to take place on site; • All construction vehicles must be inspected regularly for oil leaks. Such leaks are to be repaired before further use of the vehicle and under no circumstances will said vehicles be allowed on the beach until repairs are completed; • Drip trays must be placed underneath all stationery plant; • Drip trays must be used where fuel is transferred; • All spillages must be cleaned in accordance with contractor's spill contingency procedure; • Incidents related to the contamination of surface water must be communicated to eThekweni Municipality, EDTEA and the Department of Water and Sanitation; • On completion of the project, the appointed contractor must ensure that all structures, equipment, materials, waste, rubble used during construction are removed. All construction waste must be disposed off-site at an approved landfill site; • Cement and concrete batching, as per MS9, is to include details relating to the handling of concrete at the construction site and the spoiling of waste concrete and concrete washout. If the Contractor is not batching concrete but rather receiving ready mix, then the MS needs to address matters pertaining to the timing of deliveries, routing, and pedestrian safety; 			

Impact management objectives of an EMPr	Impact management actions of an EMPr	Impact management outcomes of an EMPr	Monitoring	
<i>The process of doing something, typically to achieve an aim</i>		<i>The way a thing turns out; a consequence</i>	<i>Responsibility</i>	<i>Frequency</i>
	<ul style="list-style-type: none"> All concrete mixing must take place on a designated, impermeable surface. No cement runoff is to enter any watercourses, drainage lines or the sea; No vehicles transporting concrete to the site may be washed on-site; and Runoff from concrete batching areas must be collected into a conservancy tank and disposed of by a registered service provider at the nearest hazardous landfill site or other landfill sites capable of dealing with waste of this nature. 			
Air quality	<ul style="list-style-type: none"> Heavy vehicles and machinery must be serviced regularly to minimise exhaust fume pollution; All machinery/plant must be serviced and lubricated regularly to ensure good working order; and Contractors' vehicles must be fitted with effective exhaust silencers and must comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road. 	<ul style="list-style-type: none"> No fugitive dust exceeding the South African National Standard (SANS) regulations or creating nuisance conditions. 	<p>Implementation: Contractor</p> <p>Inspection: EM /HSE & ECO</p> <p>Verification: ECO</p>	<p>Implementation: Monthly or at the prescribed vehicle/plant manufacturers specifications.</p> <p>Inspection: Ad hoc and weekly as a minimum.</p> <p>Verification: Bi-Monthly</p>
Noise	<ul style="list-style-type: none"> If possible, construction activities must be restricted to the hours of 08h00 to 17h00 to limit noise impacts to neighbouring communities; Any noise complaints received from the community/surrounding businesses must be documented in a dedicated register (maintained at the construction camp) and responded to by the eThekweni Municipality (i.e. employer) who will identify the noise source and implement appropriate noise reduction management techniques; and All of the contractor's equipment must be fitted with effective exhaust silencers and must comply with the South African Bureau of 	<ul style="list-style-type: none"> No ambient noise impacts relating to plant operations. Compliance to municipal by-laws. Limited nuisance conditions created. 	<p>Implementation: Contractor</p> <p>Inspection: EM / HSE & ECO</p> <p>Verification: ECO</p>	<p>Implementation: Monthly or at the prescribed vehicle/plant manufacturers specifications</p> <p>Inspection: Ad hoc and weekly as a minimum</p>

Impact management objectives of an EMPr	Impact management actions of an EMPr	Impact management outcomes of an EMPr	Monitoring	
<i>The process of doing something, typically to achieve an aim</i>		<i>The way a thing turns out; a consequence</i>	<i>Responsibility</i>	<i>Frequency</i>
	Standards recommended code of practice and the SANS Code 0103:1983, for construction plant noise generation.			Verification: Bi-Monthly
Visual	<ul style="list-style-type: none"> • During construction, litter control measures must be kept in place to ensure the site is maintained in a neat and tidy condition; • The erection of lighting must be undertaken in such a manner as to preclude the lighting from becoming intrusive; • Screening of highly reflective material must be undertaken; and • Housekeeping, particularly within the construction camp, must be continuously maintained. 	– The prevention or the mitigation of unsightliness.	Implementation: EM & Contractor Inspection: EM / HSE & ECO Verification: ECO	Implementation: Ad hoc and daily Inspection: Ad hoc and daily Verification: Bi-Monthly
Waste management	<ul style="list-style-type: none"> • Designated skips/litter bins must be provided for hazardous waste and must be kept in a bunded area in the construction camp; • Spill-sorb or a similar type of product must be used to absorb hydrocarbon spills in the event that such spills should occur; • Should a spill occur on the beach, the contaminated sand is to be collected and removed from the beach immediately; • Contaminated construction and maintenance waste must be removed to an appropriate registered waste disposal site; • Refuse and litter must be removed from the construction footprint continuously; and • The recycling of waste should be practiced, with separate drums provided for paper and cardboard, glass, plastics, metals etc. 	– The prevention or the mitigation of the spread of waste and/or contamination.	Implementation: Contractor Inspection: EM / HSE & ECO Verification: ECO	Implementation: Daily and ad hoc Inspection: Ad hoc and weekly as a minimum Verification: Bi-Monthly
Hazardous substances	<ul style="list-style-type: none"> • Hazardous substances and materials are those that are potentially poisonous, flammable, carcinogenic or toxic. Examples of these include: diesel, petroleum, oil, bitumen, solvent based paints and lubricants. Such substances must be managed appropriately; • A register of all hazardous substances relating to the project and stored at the construction camp site must be maintained; • All hazardous substances are to be stored in a covered, lockable bunded area and handled in accordance with the relevant MSDS; 	– Ensure all hazardous substances is handled in accordance with the material safety data sheets (MSDS)	Implementation: Contractor Inspection: EM / HSE & ECO Verification: ECO	Implementation: Daily and ad hoc Inspection: Ad hoc and weekly as a minimum Verification:

Impact management objectives of an EMPr	Impact management actions of an EMPr	Impact management outcomes of an EMPr	Monitoring	
<i>The process of doing something, typically to achieve an aim</i>		<i>The way a thing turns out; a consequence</i>	<i>Responsibility</i>	<i>Frequency</i>
	<ul style="list-style-type: none"> Significant spills must be reported to the eThekweni Municipality and DWS as per legal requirements. Contamination assessments must follow significant spillage events to determine specific risks, impacts and mitigation actions; and In the event of a fire, the appropriate fire management system, as per the MSDS and onsite emergency response plan, must be implemented. 			Bi-Monthly
Cultural environment	<p>Amafa aKwaZulu-Natali's standard conditions are applicable to the site:</p> <ul style="list-style-type: none"> Any items of archaeological interest that are found must be reported to Amafa aKwaZulu-Natali or a qualified archaeologist for comment; The Engineer is to be informed of the find immediately and work in the immediate vicinity must be stopped; and Work may only resume once clearance is given in writing by Amafa aKwaZulu-Natali. 	<ul style="list-style-type: none"> The prevention or the mitigation of the loss of heritage artefacts. 	<p>Implementation: Contractor</p> <p>Inspection: EM & ECO</p> <p>Verification: ECO</p>	<p>Implementation: Daily and ad hoc</p> <p>Inspection: Ad hoc and weekly as a minimum.</p> <p>Verification: Bi-Monthly.</p>
Health and safety	<ul style="list-style-type: none"> Provide warning signs, danger tape and shade cloth to delineate working area on the south beach road and the Umdlotti beach; The area is to be cordoned off from the public, including the site construction camp; Care must be taken to ensure any bulky or dangerous materials are secured when transporting them along the road / pedestrian walkways. No residents / pedestrians are to be in close proximity to the material when being transported, in the instance that materials are dislodged; The appropriate contractor's safety procedures and Personal Protective Equipment (PPE) must be used at all times by workers and visitors to the site; Ensure that a First Aid kit is available on site; and 	<ul style="list-style-type: none"> Provide a safe and efficient system for all vehicles, pedestrian and workmen. Proactive measure to prevent accidents. 	<p>Implementation: Contractor</p> <p>Inspection: EM / HSE & ECO</p> <p>Verification: ECO</p>	<p>Implementation: Daily and ad hoc</p> <p>Inspection: Ad hoc and weekly as a minimum.</p> <p>Verification: Bi-Monthly</p>

Impact management objectives of an EMPr	Impact management actions of an EMPr	Impact management outcomes of an EMPr	Monitoring	
<i>The process of doing something, typically to achieve an aim</i>		<i>The way a thing turns out; a consequence</i>	<i>Responsibility</i>	<i>Frequency</i>
	<ul style="list-style-type: none"> In the event of an emergency, the contractor's emergency procedure must be followed and the relevant emergency services must be contacted. 			
REHABILITATION - Actions to be completed post-construction				
Rehabilitation of the site	<ul style="list-style-type: none"> On completion of the project, the appointed contractor must ensure that all structures, equipment, materials, waste, rubble, notice boards and temporary fences used during construction are removed; All construction waste / debris must be removed from within the construction footprint and disposed off-site at an approved landfill site; All necessary infrastructure contained within the construction camp must be removed and traffic circle rehabilitated to its previous state; and Prior to any maintenance requirements of the stormwater system being implemented post-construction, a Maintenance Management Plan is to be developed by the Applicant and approved by the EDTEA 	– Rehabilitated construction camp	Implementation: Contractor Inspection: EM & ECO Verification: ECO	Implementation: Post-construction Inspection: Duration of rehabilitation period Verification: Bi-Monthly.

6. NON-COMPLIANCES

The contractor shall comply with the environmental specifications and requirements on an on-going basis and any failure on his part to do so will entitle the ECO to impose a penalty.

In the event of non-compliance, the following recommended process can be followed:

- The ECO shall issue a notice of non-compliance to the contractor, stating the nature and magnitude of the contravention.
- The contractor shall act to correct the non-conformance within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
- The contractor shall provide the ECO with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.
- In the event of a dispute or difference of opinion between any parties arising out of the interpretation of the conditions of the EMPr, or a disagreement regarding the implementation or method of implementation of conditions of the EMPr, any party shall be entitled to require that the issue be referred to specialists for arbitration.

The EM shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

6.1. INDICATIVE LIST OF TRANSGRESSIONS

Where the contractor and/or his/her sub-contractor(s) inflicts non-repairable damage upon the environment or fail to comply with any of the environmental specifications, he/she shall be liable to pay a penalty fine over and above any other contractual consequences.

The contractor is deemed not to have complied with this EMPr if:

- Environmental damage ensues due to negligence on the contractor's and/or his/her sub-contractor's part;
- The contractor and/or his/her sub-contractor fail to comply with the corrective or other instructions issued by the EM within a specific time;
- The contractor and/or his/her sub-contractor fail to respond adequately to complaints from the public.

Payment of any fines in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law.

6.2. ENVIRONMENTAL AWARENESS TRAINING

The contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the EMPr and Conditions of the EA.

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, and environmental risks presented by, construction activities;
- 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
- 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 ECO on request during his/her audits.

APPENDIX 1: CURRICULUM VITAE

MAGNUS VAN ROOYEN



Profession	<i>Environmental Scientist</i>
Position in Firm	<i>Executive Associate</i>
Area of Specialisation	<i>Environmental</i>
Qualifications	<i>MSc (Env Mngmt), Post Grad Dipl (Teaching), BSc (Hons)(Bot), BSc (Bot & Zoo)</i>
Years of Experience	<i>13 Years</i>
Years with Firm	<i>10 Years</i>

SUMMARY OF EXPERIENCE

Mr Van Rooyen is currently an Executive Associate and the Regional Head of the Environmental Division of a National Consulting Engineering Firm in South Africa. He is located in Pietermaritzburg, KwaZulu-Natal.

In addition to holding a Masters' degree in Environmental Management, he also holds a BSc degree in Botany and Zoology, an Honors Degree in Botany and a Post Graduate Certificate in Education. He has 13 years' experience in projects involving Environmental Impact Assessments in various developmental sectors (Mining and Agricultural Sector, National Roads, Pipelines, Dams, and Residential Developments), conducting of Specialist Biodiversity Assessments associated with Environmental Impact Assessments and Project Feasibility Studies. He has experience in the compilation of Resettlement Policy Framework Plans associated with infrastructure development projects. Mr van Rooyen has experience in working on various private and public sectors as well as rural and urban environments in various countries.

Mr Van Rooyen's expertise lies within the mining sector where he has gained extensive exposure to all the aspects of mining projects from the pre-feasibility, prospecting, environmental impact assessment and implementation and monitoring stages. In addition, he has conducted Due Diligence Assessments as well as Environmental Compliance Monitoring and Management of a variety of mining sites.

PROFESSIONAL REGISTRATION

- PrSciNat** - Registered with the South African Council for Natural Scientific Professionals (SACNASP) Registration No 400335/11
- AIAlsa** - Registered as a Member with the International Association of Impact Assessors – South Africa Suite, Membership No 1839

EDUCATION

- 1998** - BSc (Botany & Zoology) – University of Stellenbosch
- 1999** – Specialist Student (Dept of Agric) – University of Stellenbosch
- 2001** - BSc (Hons)(Botany) – University of Stellenbosch
- 2002** – Post Grad Dipl (Teaching) – University of Stellenbosch

2005 – Masters (Env Mngmt) – University of Stellenbosch

SPECIFIC EXPERIENCE

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

2007 – Date

Position – Project Manager, Senior Environmental Specialist

Project Management of an environmental contingent of 4 people and conducting Environmental Impact Assessments. Project experience included:

Biodiversity Assessment Projects

Mamatwan Tailings Facility - Biodiversity and Wetland Assessment for the site to be used for the establishment of the new tailings facility on the South32 Mamatwan Manganese Mine near Hotazel. Client: South32

Hillside Aluminum Desalination Plant - Biodiversity Screening Assessment for the infrastructure network associated with the South32 Hillside Aluminium Desalination Plant in Richards Bay. Client: South32

Lichtenburg Siding Expansion - Biodiversity Assessment for the proposed expansion of the Lichtenburg Cement Siding, North West Province.

Nacala Dam Project - Riparian Vegetation Study for the Ecological Reserve Determination Specialist Study for the Environmental Impact Assessment for the Nacala Dam Project in Mozambique.

National Route N8 - Vegetation Specialist Study for the Environmental Impact Assessment for the National Route N8.

National Route N2 uMgeni Interchange Improvements - Environmental Impact Assessment for proposed improvements to the uMgeni Road Interchange and the National Route N2. The project included an extensive public participation process within the city of Durban, KwaZulu-Natal during the process.

Qudeni Link Road - Vegetation Specialist Study for the Environmental Impact Assessment for the Qudeni Rural Link Road.

Municipal Landfill Site Identification - Negative mapping and ground truthing for the options analysis for the identification of a District Municipality Landfill Site.

Port Related Projects

Pier 1 Phase 2 expansion - Environmental Impact Assessment for proposed expansions to Pier 1 within the Durban Harbour.

Locomotive Turning Table in the Port of Richards Bay - Environmental Impact Assessment for proposed Locomotive Turn Table in within the Port of Richards Bay.

Rail line construction in the Port of Richards Bay - Environmental Impact Assessment for proposed additional rail line into the Richards Bay Coal Terminal in the Port of Richards Bay.

Environmental Monitoring

RME Projects Durban Harbour - Environmental Monitoring Duties for all the RME construction projects within the Durban harbour.

Ore Loading Facility at Kalia in Guinea - Environmental Impact Assessment for the proposed Ore Loading Facility in Kalia in Guinea, West Africa.

Roads Projects

National Route N2 uMgeni Interchange Improvements -Environmental Impact Assessment for proposed improvements to the uMgeni Road Interchange and the National Route N2. The project included an extensive public participation process with a range of public and private sector stakeholders.

National Route N11 upgrade - Environmental Impact Assessment for proposed upgrade of the National Route N11. The project included a public participation process with a range of public and private sector stakeholders as well as specialist studies associated with the river crossings.

National Route N2 improvement and upgrade - Environmental Impact Assessment for proposed upgrade of the National Route N2. The project included a public participation process with a range of public and private sector stakeholders as well as specialist studies associated with the river crossings.

National Route N3 Chota Motala Interchange Environmental Audits - Environmental Monitoring for the construction of the Chota Motala Interchange on the National Route N3.

National Route R30 Environmental Audits - Environmental Monitoring for the construction of the National Route R30.

Agricultural Projects

uMngano Community Dairy Development Project - Environmental and Social Impact Assessment for the Development of a 200ha dairy for the uMngano Community in KwaZulu-Natal, South Africa.

uMngano Community Vegetable Project - Environmental and Social Impact Assessment for the Development of a 180ha vegetable growing project for the uMngano Community in KwaZulu-Natal, South Africa.

Sundays River Citrus Project - Environmental and Social Impact Assessment for the Development of a 100ha citrus project in the Sundays River Valley in the Eastern Cape, South Africa.

Water Projects

Nacala Dam project in Mozambique - Environmental and Social Impact Assessment for the Nacala Dam project in Nacala, Mozambique. The study included the management of a range of specialist studies which included; biodiversity (fauna and flora) assessments, health impact assessments, social impact assessments, a hydrocensus, geotechnical investigation and an ecological flow requirement assessment. Client: Millennium Challenge Corporation.

Mpofana Bulk Water Supply Scheme - Environmental Impact Assessment for the Bulk Water Supply Scheme which included an extensive public facilitation process with affected landowners and other specialist studies.

KwaHloko Rural Water Supply Scheme - Environmental Impact Assessment for the Rural Water Supply Scheme which included an extensive public facilitation process with the rural landowners and tribal leaders.

Conservation Management Plans

Ndumo Game Reserve Management Plan - Compilation of the Management Plan for the KwaZulu-Natal Wildlife Ndumo Game Reserve in northern KwaZulu-Natal. The compilation was conducted in accordance to the National Environmental Management: Protected Areas Act (No 57 of 2003). Client: KwaZulu-Natal Wildlife

Mining Projects

Uithoek Colliery - Environmental Impact Assessment for the establishment of the Uithoek Colliery including the management of a range of specialist studies which included a hydrological and geohydrological assessment, a biodiversity assessment, a social and heritage assessment and a repatriation plan for residents on the site. Client: Miranda Mineral Holdings

Burnside Colliery - Environmental Impact Assessment for the establishment of the Burnside Colliery including the management of a range of specialist studies which included a hydrological and geohydrological assessment, a biodiversity assessment, a social and heritage assessment and a repatriation plan for residents on the site. Client: Miranda Mineral Holdings

Ultimate Goal Colliery - Environmental Impact Assessment for the establishment of the Ultimate Goal Colliery including the management of a range of specialist studies which included a hydrological and geohydrological assessment, a biodiversity assessment, a social and heritage assessment and a repatriation plan for residents on the site. Client: Corobrik (Pty) Ltd

Klipwaal Gold Mine - Environmental Due Diligence assessment on the Klipwaal Gold Mine which included an assessment of completed and required rehabilitation, a contaminated land liability assessment and an evaluation of the structure and the possible impact of the slurry dams. Client: Miranda Mineral Holdings

Afrimat Quarries Compliance Audits - Compliance audits and Due Diligence assessments of the Afrimat Quarry operations in South Africa. These audits are conducted on a two yearly basis. Client: Afrimat Quarries

Private and Public Sector Development Projects

Provincial Legislature Precinct Environmental and Social Impact Assessment for the proposed Provincial Legislature Precinct. This study consisted of a large public facilitation component and extensive engagement with private and public sector stakeholders.

Camps Drift Canal Mixed Use Development - Environmental Impact Assessment for proposed improvements to the uMgeni Road Interchange and the National Route N2. The project included an extensive public participation process within the city of Durban, KwaZulu-Natal during the process.

Tiger Lodge Development - Environmental Impact Assessment for the proposed Tiger Lodge Tourism Development.

Paradise Lodge Development - Environmental Impact Assessment for the proposed Paradise Lodge Tourism Development.

Jeffares & Green (Pty) Ltd

2006 - 2007

Position – Environmental Scientist

Conducted a wide range of infrastructure related Environmental Impact Assessments.

Department of Conservation Ecology (University of Stellenbosch)

2002 - 2005

Position – Biodiversity Researcher

Conducted field work, sampling, laboratory work and logistics associated with two projects within the Conservation Ecology Department

Department of Botany and Zoology (Stellenbosch University)

2002 - 2005

Position – Junior Lecturer in Botany

Lectured the Botany practical component of the first-year Natural Science Degree.

Paul Roos Gymnasium (Stellenbosch, Western Cape, South Africa)

2001 - 2002

Position – Biology Teacher

Teaching the South African Biology curriculum to high school pupils.

Gene's Citrus Ranch (Bradenton, Florida, USA)

2000

Position – Farm Manager

Management of the day to day operations of a export citrus farm.

Marden Bridge Middle School (Witley Bay, Northumberland, United Kingdom)

1999

Position – Physical Education Teacher

Physical Educator associated with the Marden Bridge Middle School Sports Centre.

CONTINUED PROFESSIONAL DEVELOPMENT

Courses

2009 - Accelerated Development Program – Jeffares & Green (Pty) Ltd

2014 - Wetland Delineation and Modelling Course – Rhodes University

2015 - Wetland Buffer Determination Course – Water Research Commission

PERSONAL DETAILS

Nationality – South African

Date of Birth – 1962-06-12

Domicile – Johannesburg, South Africa

Languages

English – Excellent

Afrikaans – Excellent

German – Fair

Dutch – Fair

Zulu - Poor

IMKE SUMMERS



Profession	Environmental Consultant
Position in Firm	Environmental Consultant
Area of Specialisation	Environmental
Qualifications	BSoc Sc (Geog & Env Mgnt), BSc (Hons) (Env Sc)
Years of Experience	7 Years
Years with Firm	6 Years

SUMMARY OF EXPERIENCE

Imke Summers is an Environmental Consultant at JG Afrika (Pty) Ltd with 7 years of experience within a wide variety of environmentally related spheres. These include Basic and Full Environmental Impact Assessments, the developing of Environmental Management Programmes, Compliance Auditing and the Public Participation Process. Project assortment includes infrastructure associated with housing developments, bridge construction and upgrades, linear developments including roads and water supply schemes, private sector development and agricultural development. Imke has worked throughout KwaZulu-Natal, including work on structures upgrades in Northern KwaZulu-Natal, water supply schemes in the uThukela and Impendle regions, environmental auditing of various sites including the Chota Motola Interchange in Pietermaritzburg, and several water supply schemes, road upgrades and facility expansions throughout KwaZulu-Natal.

Imke is a member of the KwaZulu-Natal Branch of the International Association of Impact Assessors and sits on the committee of the KwaZulu-Natal Branch of the organisation.

PROFESSIONAL REGISTRATIONS & INSTITUTE MEMBERSHIPS

IAIA SA KZN - International Association of Impact Assessors South Africa, KwaZulu-Natal Branch
(Membership No. 2930 Scientist (Reg No. 400119/16))

EDUCATION

2004 - IEB Matric - Hermannsburg School
2007 - BSoc Sci (Geog and Env Sc) - University of KwaZulu-Natal, Pietermaritzburg
2008 - BSc (Hons) (Env Sc) - University of KwaZulu-Natal, Pietermaritzburg
Current - Reading towards MSc Environmental Sciences

SPECIFIC EXPERIENCE

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

2016 – 2017

Position – Environmental Consultant

Bhekuzulu / Epangweni and Ennersdale Water Supply Scheme –Environmental Assessment Practitioner for the Screening Assessment. Client: Sukuma Consulting Engineers (Pty) Ltd on behalf of uThukela District Municipality

Bhekuzulu / Epangweni and Ennersdale Water Supply Scheme - Environmental Assessment Practitioner for the Basic Assessment, Environmental Management Programme and Water Use Licence Application. Client: Sukuma Consulting Engineers (Pty) Ltd on behalf of uThukela District Municipality

P700 Nodal Development - Environmental Assessment Practitioner for the Basic Assessment Report, Environmental Management Programme and Water Use Licence Application. Client: Afri-Infra Consulting Engineers (Pty) Ltd on behalf of the Zululand District Municipality

Umdloti Stormwater Expansion - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. Client: eThekwini Municipality

2015 – 2016

Position – Environmental Consultant

R22 Hluhluwe Town Bypass, Hluhluwe - Scoping and Environmental Impact Assessment, Environmental Management Programme and Water Use Licence Application. Environmental Assessment Practitioner. Client: Hatch Goba on behalf of the South African National Roads Agency Limited (SANRAL).

eThekwini Bridges Applications - Environmental Assessment Practitioner for the Basic Assessments and Environmental Management Programmes for eight bridge structures within the greater eThekwini Municipality, including;

- Epayipini to 34th Avenue Pedestrian Bridge
- Verulam Pedestrian Bridge
- Tottenham Road Pedestrian Bridge
- Emapheleni to Thulani Masango Pedestrian Bridge
- How Long Pedestrian Bridge
- GX11 Pedestrian Bridge
- Umgeni River Low Level Bridge
- Umqeku Low Level Bridge

Client: eThekwini Metropolitan Municipality.

Midlands Biogas Digester and Liquid Fertiliser Plant – Public Participation Specialist for the Basic Environmental Impact Assessment. Client: Midlands Biogas and Fertiliser.

2014 - 2015

Position – Environmental Consultant

Screening Assessment for a Portion of the P700 Nodal Development - Environmental Assessment 2014 - 2015

Position – Environmental Consultant

P700 Nodal Development - Environmental Assessment Practitioner for the Screening Assessment. Client: Afri-Infra Consulting Engineers (Pty) Ltd on behalf of the Zululand District Municipality.

R22 Road-Over-Rail Bridge and Approach Alignment, Hluhluwe - Environmental Assessment Practitioner for the Basic Assessment Report and Environmental Management Programme. Client: Hatch Goba on behalf of the South African National Roads Agency Limited (SANRAL).

Ndiza Poultry Facility Expansion, Kildaragh Farm, Dargle, KwaZulu-Natal - Environmental Assessment Practitioner for the Basic Assessment Report and Environmental Management Programme. Client: Ndiza Poultry Breeders.

Ideal Shavings Poultry Facility, Dargle, KwaZulu-Natal - Environmental Assessment Practitioner for the Basic Assessment Report and Environmental Management Programme. Client: Ideal Shavings.

Enguga, Entshayabantu and Macksam (Phase 5) Community Water Supply Scheme, Impendle - Environmental Assessment Practitioner for the amendment of the Authorised Environmental Management Programme. Client: Sukuma Consulting Engineers on behalf of Umgungundlovu District Municipality.

Resource Efficiency and Cleaner Productions Assessment for the DEFY Ezakheni Site, Ladysmith - Environmental Scientist. Client: The CSIR on behalf of DEFY Ezakheni.

2013 – 2014:

Position – Environmental Consultant

Environmental Impact Assessment and Waste Licence Application. Client: Altix Holdings (Pty) Ltd.

Van Zyl Pongola Housing Development - Environmental Assessment Practitioner for the Basic Assessment Report and Environmental Management Programme. Client: Private Applicant.

Upgrade and expansion of the Umhlanga Life Guard Facility - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. eThekweni Metropolitan Municipality.

Upgrade of the Qubukani to Ntabenkoni Road, Hlabisa - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. Client: Mzansi Africa Civils on behalf of Umkhanyakude District Municipality.

Construction of the Bhekuzulu/Epangweni Community Water Supply Scheme - Environmental Control Officer for monthly environmental compliance monitoring and reporting. Client: Hidratech Infra (Pty) Ltd on behalf of uThukela District Municipality.

Expansion of the Pongola Water Treatment Works – Environmental Control Officer monthly environmental compliance monitoring and reporting. Client: Afri-Infra Group (Pty) Ltd on behalf of Zululand District Municipality.

Construction of the KwaNovuka Community Water Supply Scheme, Impendle – Environmental Control Officer for weekly environmental compliance monitoring and reporting. Client: Aurecon Group on behalf of Impendle Local Municipality.

Borrow pit closure reports for four borrow pits along the R30 Glen Lyon to Brandfort – Environmental Assessment Practitioner. Client: Roadcrete (Pty) Ltd

Georgedale and Surrounds Bulk Sewer Infrastructure Development – Environmental Assessment Practitioner for the Basic Assessment Report, Environmental Management Programme and Water Use Licence. Client: Iliso Consulting Engineers on behalf of the eThekweni Metropolitan Municipality

KwaCele and Surrounds Bulk Sewer Infrastructure Development – Environmental Assessment Practitioner for the Basic Assessment Report, Environmental Management Programme and Water Use Licence. Client: Iliso Consulting Engineers on behalf of the eThekweni Metropolitan Municipality

AfroIndia Mini Steel Foundry – Environmental Assessment Practitioner for the Basic Assessment Report, Waste Licence Application and Air Emissions Licence. Client: AfroIndia Recyclers (Pty) Ltd

Slabber Fuel Station Development, Pongola – Environmental Assessment Practitioner for the Basic Assessment Report and Environmental Management Programme. Client: Private

Umhlanga Life Guard Facility Upgrade - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. Client: eThekweni Metropolitan Municipality

Hlabisa Roads; Qubukani to Ntabenkoni Upgrade - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. Client: Umkhanyakude District Municipality

Zamimpilo Clinic Waste Water Treatment Works - Environmental Assessment Practitioner for the Environmental Screening Report. Client: TJ Architects (Pty) Ltd on behalf of the Department of Health

2012 – 2013

Position – Environmental Consultant

Structures upgrades along the P451/470/475 - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. Client: SSI (Pty) Ltd on behalf of KZN Department of Transport.

Structures upgrades along the P735 - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. Client: SSI (Pty) Ltd on behalf of KZN Department of Transport.

Upgrade of the Cedara College Roads – Environmental Assessment Practitioner and Environmental Compliance Officer for the Environmental Management Programme and monthly compliance monitoring. Client: Cedara Agricultural College.

Expansion of the Pongola Water Treatment Works – Environmental Assessment Practitioner and Environmental Compliance Officer for the Basic Assessment and Environmental Management Programme. Client: Afri-Infra Group (Pty) Ltd on behalf of Zululand District Municipality.

Construction and expansion of the Chota Motala Interchange, Greytown Road - Environmental Compliance Officer for monthly environmental compliance monitoring and reporting. Client: South African National Roads Agency Limited (SANRAL).

Upgrade and construction of the Ndunge Access Road – Environmental Compliance Officer for the monthly environmental compliance monitoring and reporting. Client: SMEC (Pty) Ltd on behalf of Ugu District Municipality.

Mini Steel Foundry at Schroeders – Environmental Assessment Practitioner for the Environmental Screening Report. Client: AfroIndia Recyclers (Pty) Ltd.

2011 - 2012:

Position – Environmental Consultant

Upgrade of the Vulamehlo Access Road - Environmental Assessment Practitioner for the Environmental Management Programme. Client: Impande Engineers (Pty) Ltd

Construction of the Bhekuzulu / Epangweni Community Water Supply Scheme - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. Client: Sukuma Consulting Engineers (Pty) Ltd on behalf of uThukela District Municipality.

Swampu Phase 4 Community Water Supply Scheme, Impendle - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. Client: Sukuma Consulting Engineers on behalf of Umgungundlovu District Municipality.

Construction of the Enguga, Entshayabantu and Macksam (Phase 5) Community Water Supply Scheme, Impendle - Environmental Assessment Practitioner for the Basic Assessment and Environmental Management Programme. Client: Sukuma Consulting Engineers on behalf of Umgungundlovu District Municipality.

Dredging of Camps Drift – Environmental Compliance Officer for the monthly compliance monitoring and reporting. Client: Natal Canoe Club.

Alfred Nzo Borrow Pits – Environmental Assessment Practitioner for the Environmental Management Plan. Client: Controlab CC.

Mining Permit Applications for the farms Bethel 683 HU, Driefontein 42 HU and Weltevreden 540 HU – Environmental Assessment Practitioner. Client: Huntrex 292 (Pty) Ltd.

Green Door Environmental

2010 – 2011

Involved in various environmental application processes and report writing while under the employment of the company whilst fulfilling Masters studies responsibilities.

CONTINUED PROFESSIONAL DEVELOPMENT

Courses

2014 - Sharpening the Tool: New Techniques and Methods in Environmental Impact Assessment

2015 - Public Participation in Environmental Authorisation: Theory and Practice

2010 to Present - IAIA KZN Branch events

PERSONAL DETAILS

Nationality – South African

Date of Birth – 1987-06-01

Domicile- Pietermaritzburg, Kwa Zulu- Natal, South Africa

Languages

English – Excellent

Afrikaans – Fair

German – Fair

RIONA PATAK



Profession	<i>Environmental Scientist</i>
Position in Firm	<i>Environmental Scientist</i>
Area of Specialisation	<i>Environmental Impact Assessment, GIS</i>
Qualifications	<i>BSc Hons Environmental Science</i>
Years of Experience	<i>4 Years</i>
Years with Firm	<i>4 Years</i>

SUMMARY OF EXPERIENCE

Ms Patak graduated from the School of Agriculture, Earth and Environmental Science at the University of KwaZulu-Natal, Pietermaritzburg. After completing a BSc undergraduate degree in Life and Earth Sciences, and post-graduate BSc honours degree in Environmental Science, Ms Patak commenced with reading towards her Master of Science Degree in Environmental Science.

Ms Patak is an Environmental Scientist and Geographic Information's Systems (GIS) Analyst. Her experience within the environmental sector includes Environmental Impact Assessments, Environmental Screening, developing Environmental Management Programmes and extensive Environmental Compliance Monitoring. Project assortment within the GIS field includes 3D modelling, spatial analyses, management of GIS systems (including standards, databases, processes and operating procedures), execution of technical GIS related project work, including but not limited to capturing, acquisition, checking, digitising, and collation, conversion, projecting and processing of project data, mapping, database compilation, reporting and analysing.

Ms Patak is a member of the International Association for Impact Assessment South Africa, KwaZulu-Natal, Provincial Branch (IAIASa), and the Geo-Information Society of South Africa (GISSA) and subscribes to both organisations Code of Ethics. Ms Patak currently sits on the IAIAsa KZN Branch Committee as Secretary.

EDUCATION

- 2006 - Matric** – Raisethorpe Secondary School, Pietermaritzburg
- 2010 - BSc** (Life and Earth Sciences) – University of KwaZulu-Natal
- 2011 - BSc Hons** (Environmental Science) – University of KwaZulu-Natal

SPECIFIC EXPERIENCE

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

February 2013 – December 2013
Position – GIS Analyst

Gert Sibande District Municipality – Water Services Master Plan, GIS study. GIS analysis and support.

Micaune Port & Rail Project – Catchment delineation. GIS analysis and support.

Guinea – Guinea Haul Road ESIA- EIA- GIS mapping, GIS analysis and support.

Newcastle – Newcastle EMF- GIS support.

GIS Database – Assisting in the development of a GIS database within Jeffares & Green.

Ngwathe Local Municipality – GIS Services for Water and Sanitation Networks within the Municipality.

eThekwini Bridges – GIS Mapping as part of the EIA for 8 pedestrian bridges.

R22 Bridge, Hluhluwe – GIS mapping and support

Upgrading of the P125 – GIS Mapping and support.

Hilton Dairy – GIS Support

Various ESKOM specialist project – GIS Mapping and GIS Support

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

December 2013 -2017

Position – Environmental Scientist

Employed by JA Afrika - the various duties and projects are listed below:

Environmental Assessments include:

- Camps Drift Development – assistant Environmental Assessment Practitioner (EAP)
- Nungwane Pipeline EIA
- National Route 2 Section 27 EIA
- Lartsa Chicks – Environmental Assessment (Compliance Report).
- Pumula Farms – Environmental Assessment (Compliance Report).
- Ingwavuma EIA – Assistant EAP.
- Mt Verde Estate – Various Environmental Screening Assessments
- Richards Bay Port Pipeline Replacement – Richards Bay Environmental Component
- Mooi- Mpofana Bulk Water Supply Scheme – Amendment Application
- Upgrading of the P125 EIA
- Ashdown Stream Bank Stabilization EIA
- Verulam Pedestrian Bridges EIA
- How Long Pedestrian Bridge EIA
- Tottenham Road Pedestrian Bridge EIA
- Umlazi GX11 Pedestrian Bridge EIA
- Umango Tourism Venture EIA
- Umgano Dairy Venture Scoping and EIA
- Transnet Bridge Inspections – Environmental Component

Environmental Control Officer duties include:

- Hilton Life Hospital
- Hilton Health Medical Centre
- Merrivale Poultry Expansion

- Eden Gardens Hospital
- Hilton Gates Phase 2 Residential Development
- Madrassa An-Noor school for the blind facility
- Senekal Traffic Control Centre

CONTINUED PROFESSIONAL DEVELOPMENT

Courses

2015 - IAIAAsa Public Participation workshop.

2015 - Green Building Council South Africa (GBCSA) Existing Buildings Course

PERSONAL DETAILS

Nationality – South African

Date of Birth – 1989 – 02- 24

Domicile – Pietermaritzburg, South Africa

Languages

English – Very Good

BONGUMUSA (BONGI) NDABA



Profession	<i>Environmental Scientist</i>
Position in Firm	<i>Environmental Consultant</i>
Area of Specialisation	<i>Environmental</i>
Qualifications	<i>Dipl (Nature Conservation) Adv Dipl (Nature Conservation)</i>
Years of Experience	<i>2 Years</i>
Years with Firm	<i>2 Years</i>

SUMMARY OF EXPERIENCE

Ms Bongumusa Ndaba is an Environmental Consultant at JG Afrika (Pty) Ltd. Her experience in the environmental sector includes conducting Environmental Impact Assessment (EIA) processes; site investigation, Environmental screening, compilation and review of Basic Assessment reports and environmental Management Programme in accordance with environmental legislative requirements; Public Participation Process including liaison with the public via telephone, newspaper adverts, email, letters and coordinated response to inform EIA; Environmental compliance monitoring and Assisting in Water Use Licence Applications.

Ms Ndaba is a member of the International Association of Impact Assessment (South Africa), KwaZulu-Natal, Provincial branch (IAIAsa). In addition to holding an advanced Diploma in Nature Conservation, she also hold a Post Graduate Certificate in Education.

PROFESSIONAL REGISTRATIONS & INSTITUTE MEMBERSHIPS

IAIAsa - International Association of Impact Assessment South Africa, KwaZulu-Natal Branch – Membership No. 5145

EDUCATION

2008 – NSC– Tabhane Secondary School

2013 - **Dipl (Nature Conservation)** – Mangosuthu University of Technology

2015- **PGCE (Teaching)**- University of South Africa

2016 – **Adv Dipl (Nature Conservation)** – Mangosuthu University of Technology

SPECIFIC EXPERIENCE

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

June 2015 – Date

Position – Graduate Environmental consultant

Environmental Impact Assessments

- Proposed pedestrian bridge over the Umgeni River, eThekweni Municipality, KwaZulu-Natal. Client: eThekweni Municipality.
- Construction of the Lower Marine Parade Soakaway, Durban beachfront, KZN: Client EThekweni Municipality.
- Upgrade and expansion of Umdloti Stormwater system at 1South Beach, Umdloti, KZN. Client: eThekweni Municipality
- Construction of three footpaths, Ward 53: Zimbabwe Community, Amaoti area, KwaMashu, EThekweni Municipality, KZN. Client: EThekweni Municipality
- Proposed development of the Wembezi Water Conservation and Demand Bulk Water Scheme Upgrade, Inkosi Langalibalele Municipality, KZN. Client: UThukela District Municipality.
- Bhekuzulu/ Epangweni and Ennersdale Water Supply Scheme: Client: Sukuma Consulting Engineers on behalf of uThukela District Municipality.
- P700 Nodal Development. Client: Afri-Infra Consulting Engineers(Pty) Ltd on behalf of the Zululand District Municipality.
- R22 Hluhluwe Town Bypass, Hluhluwe. Client: Hatch Goba (Pty) Ltd on behalf of SANRAL.
- Development of a slime Handling and bulk storage facility at Mamatwan Mine, near Hotazel, Northern Cape: Client South 32 Hotazel Managenese Mines.

Water Use Licence Applications

- Khombe River Bridge, KZN. Client: Ibongo Consulting Engineers (Pty) Ltd.
- Upgrading of the D168, KZN. Client: Emzansi Engineers (Pty) Ltd.

Environmental Control Officer duties

- Improvement of the Umgeni Road Interchange on the N2, Section 25 in eThekweni Municipality, KZN. Client: GOBA (Pty) Ltd on behalf of SANRAL.
- Upgrading of the N2, Section 26 from the Mount Edgecombe Interchange to Tongaat Toll Plaza (km 2.0 - 21.0) eThekweni Municipality, KZN. Client: SMEC South Africa (Pty) Ltd on behalf of SANRAL.
- Construction of Senekal Traffic Control Centre, Free State. Client: Nathoo Mbeyane Engineers (Pty) Ltd on behalf of SANRAL.
- Permit compliance Audit report (October 2016) for the Goswell development aluminium Disposal site, Cato Ridge, KZN. Client: Goswell Development (Pty) Ltd
- Upgrading and construction of the Bhekuzulu Community Water Supply Scheme, KZN. Client: Sukuma Consulting Engineers on behalf of uThukela District Municipality.
- Construction of Eden Hospital, KZN. Client: Edenvision Medical Holdings (Pty) Ltd
- Construction of Bagging plants, KZN. Client: Gromor (Pty) Ltd.

Environmental Screening

- Upgrade and expansion of the Stormwater system at 1 Beach Road, Umdloti, KZN. Client: EThekweni Municipality.

CONTINUED PROFESSIONAL DEVELOPMENT

Courses

2015 - Training course in Environmental Impact Assessment Administration.

PERSONAL DETAILS

Nationality – South African

Date of Birth – 1990-09-12

Domicile – Pietermaritzburg, South Africa

Languages

English – Good

Zulu- Very Good