
PROPOSED ACCESS ROADS AND WATERCOURSE CROSSINGS WITHIN THE AUTHORISED IZIDULI EMOYENI WIND ENERGY FACILITY, EASTERN CAPE PROVINCE

CONSTRUCTION & OPERATION ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

Submitted as part of the Final Basic Assessment

May 2015

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PROJECT DETAILS

DEDEAT REF NO: : DEDEAT REF NO: EC02/C/LN1&3/M/75-2014

Title : Environmental Impact Assessment Process:
Final Basic Assessment Report for the Proposed
Access roads and Watercourse Crossings within the
authorised Iziduli Emoyeni Wind Energy Facility,
Eastern Cape Province

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Report Status : Draft EMPr submitted as part of the Final Basic
Assessment Report

Date : May 2015

When used as a reference this report should be cited as: Savannah Environmental (2015) Draft Environmental Management Programme: Proposed Access roads and Watercourse Crossings within the authorised Iziduli Emoyeni Wind Energy Facility, Eastern Cape Province

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DEFINITIONS AND TERMINOLOGY

Alien species: A species that is not indigenous to the area or out of its natural distribution range.

Alternatives: Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

Assessment: The process of collecting, organising, analysing, interpreting and communicating information which is relevant.

Biological diversity: The variables among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes they belong to.

Commence: The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

Cumulative impacts: Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

Direct impacts: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

'Do nothing' alternative: The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Drainage line: A drainage line is a lower category or order of watercourse that does not have a clearly defined bed or bank. It carries water only during or immediately after periods of heavy rainfall i.e. non-perennial and riparian vegetation may or may not be present.

Ecosystem: A dynamic system of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Endangered species: Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Endemic: An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

Environment: the surroundings within which humans exist and that are made up of:

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

Environmental Impact: An action or series of actions that have an effect on the environment.

Environmental impact assessment: Environmental Impact Assessment (EIA), as defined in the NEMA EIA Regulations and in relation to an application to which scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application.

Environmental management: Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental management programme: An operational plan that organises and co-ordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of a proposal and its on-going maintenance after implementation.

Environmental assessment practitioner: An individual responsible for the planning, management and coordinating of environmental management plan or any other appropriate environmental instruments introduced by legislation.

Habitat: The place in which a species or ecological community occurs naturally.

Hazardous waste: Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment (Van der Linde and Feris, 2010; pg 185).

Indigenous: All biological organisms that occurred naturally within the study area prior to 1800

Indirect impacts: Indirect or induced changes that may occur as a result of the activity (e.g. the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

Interested and Affected Party: Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public.

Perennial and non-perennial: Perennial systems contain flowing or standing water for all or a large proportion of any given year, while non-perennial systems are episodic or ephemeral and thus contain flows for short periods, such as a few hours or days in the case of drainage lines

Pollution: A change in the environment caused by substances (radio-active or other waves, noise, odours, dust or heat emitted from any activity, including the storage or treatment or waste or substances).

Rare species: Taxa with small world populations that are not at present Endangered or Vulnerable, but are at risk as some unexpected threat could easily cause a critical decline. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range. This category was termed Critically Rare by Hall and Veldhuis (1985) to distinguish it from the more generally used word "rare".

Red data species: Species listed in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, and/or in terms of the South African Red Data list. In terms of the South African Red Data list, species are

classified as being extinct, endangered, vulnerable, rare, indeterminate, insufficiently known or not threatened (see other definitions within this glossary).

Riparian: the area of land adjacent to a stream or river that is influenced by stream-induced or related processes. Riparian areas which are saturated or flooded for prolonged periods would be considered wetlands and could be described as riparian wetlands. However, some riparian areas are not wetlands (e.g. an area where alluvium is periodically deposited by a stream during floods but which is well drained).

Significant impact: An impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

Waste: Any substance, whether or not that substance can be reduced re-used, recycled and recovered; that is surplus, unwanted, rejected, discarded, abandoned or disposed of which the generator has no further use for the purposes of production. Any product which must be treated and disposed of, that is identified as waste by the minister of Environmental affairs (by notice in the Gazette) and includes waste generated by the mining, medical or other sectors, but: A by-product is not considered waste, and portion of waste, once re-used, recycled and recovered, ceases to be waste (Van der Linde and Feris, 2010; pg 186).

Wetland: land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which under normal circumstances supports or would support vegetation typically adapted to life in saturated soil (Water Act 36 of 1998); land where an excess of water is the dominant factor determining the nature of the soil development and the types of plants and animals living at the soil surface (Cowardin *et al.*, 1979).

Watercourse: as per the National Water Act means -

- (a) a river or spring;
- (b) a natural channel in which water flows regularly or intermittently;
- (c) a wetland, lake or dam into which, or from which, water flows; and
- (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks

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PROJECT DETAILS

CHAPTER 1

Windlab Developments South Africa Pty Ltd (Windlab) received an environmental authorisation for the proposed Iziduli Emoyeni Wind Energy Facility (previously known as Amakhala Emoyeni Phase 4) on 28 August 2012 from the National Department of Environmental Affairs (DEA Ref: 12/12/20/1754/4). The proposed Wind Energy Facility (WEF) was previously part of the greater project concept known as the Amakhala Emoyeni Wind Energy Facility. The project was split into four phases (in order to align with the Renewable Energy Independent Power Producer Procurement Programme requirements restricting a project size to 140MW).

Emoyeni Wind Farm Renewable Energy (Pty) Ltd, the Special Purpose Vehicle (SPV) set up by Windlab for the Iziduli Emoyeni Wind Energy Facility and applicant of this Basic Assessment. Based on the final design, Emoyeni Wind Farm Renewable Energy (Pty) Ltd is now applying for authorisation for identified Listed Activities within the 2010 EIA Regulations¹, for which no application was previously made but which may be triggered by the construction and operation of the Iziduli Emoyeni Wind Energy Facility. Emoyeni Wind Farm is now applying for the construction of access roads and widening of the existing on-site access roads within the authorised Iziduli Emoyeni Wind Energy Facility project site from the authorised width of 6m to 9 m in width. On the existing access roads, four existing watercourse crossings are required to be widened². Therefore, Emoyeni Wind Farm Renewable Energy (Pty) Ltd is applying for authorisation for those Listed Activities which may be triggered during the construction of the Iziduli Emoyeni Wind Energy Facility, but not covered under the Environmental Authorisation issued under the 2006 EIA Regulations. These activities include:

- » Construction of roads within the Iziduli Emoyeni Wind Energy Facility
- » The excavation, infilling and/or deposition of material exceeding 5m³ within a watercourse
- » The widening or lengthening of roads within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse
- » The construction of infrastructure within a watercourse

The proposed access roads and the four (4) watercourse crossings (refer to Figure 1) for the authorised Iziduli Emoyeni Wind Farm are proposed on the following properties:

¹ An application form was submitted in December 2014 under the 2010 regulations prior the promulgation of the 2014 regulations.

² Listed Activity 18 of GN R544 of the 2010 EIA Regulations is applied for to allow for excavation and/or infill of material exceeding 5m³ for the construction of watercourse crossings.

- » Remainder of the Farm Brakke Fontein No 218
- » Remainder of Portion 1 of the Farm Brakke Fonteyn No 218
- » Portion 2 (a Portion of Portion 1) of the Farm Brakke Fonteyn No 218
- » The Farm Vogel Fonteyn No 219
- » Remainder of the Farm Brakfontein No 220

All properties form part of the authorised Iziduli Emoyeni Wind Farm, and are situated in the Division of Bedford, Blue Crane Route Municipality, Eastern Cape Province.

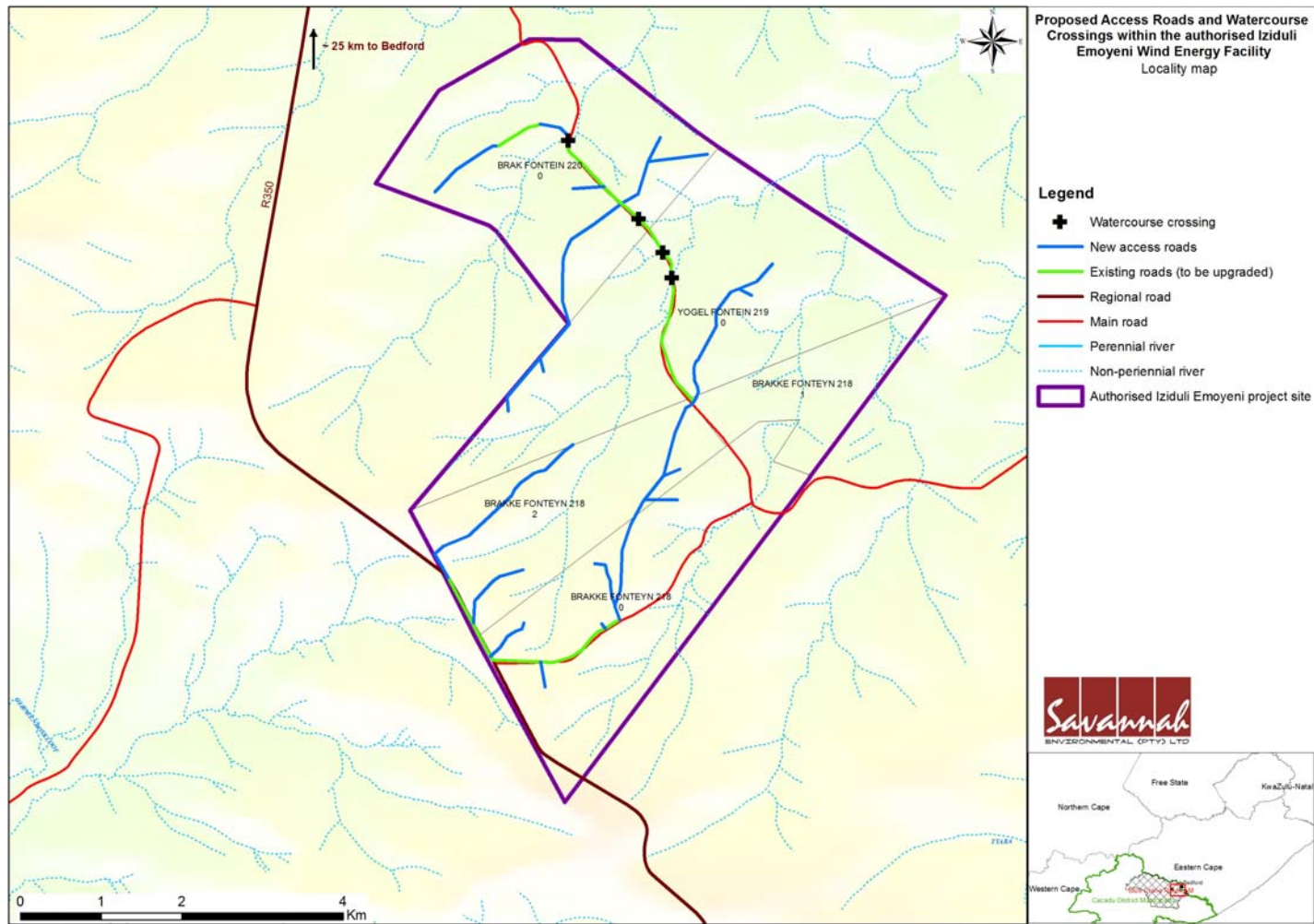


Figure 1: Layout map showing the proposed access roads and watercourse crossing within the authorised Iziduli Emoyeni Wind Farm

LEGISLATIVE REQUIREMENTS

CHAPTER 2

Table 2.1 provides an outline of the relevant environmental legislation and permitting requirements associated with the proposed project. This list of legislation is applicable at this time and should be updated on a continuous basis as the environmental legislation within South Africa changes.

Table 2.1: List all legislation, policies and/or guidelines for the proposed access roads and watercourse crossings for the authorised Iziduli Emoyeni Wind Energy Facility

<i>Legislation</i>	<i>Applicable Requirements</i>	<i>Relevant Authority</i>	<i>Compliance requirements</i>
National Legislation			
National Environmental Management Act (Act No. 107 of 1998)	<ul style="list-style-type: none"> » NEMA requires, inter alia, that: <ul style="list-style-type: none"> * Development must be socially, environmentally, and economically sustainable. * Disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied. * A risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions. » EIA Regulations have been promulgated in terms of Chapter 5. Activities which may not commence without an environmental authorisation are identified within these Regulations. » In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority charged by NEMA 	<ul style="list-style-type: none"> » Eastern Cape DEDEAT 	<ul style="list-style-type: none"> » The Final BA Report is to be submitted to the DEDEAT for review and decision making.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>with granting of the relevant environmental authorisation.</p> <ul style="list-style-type: none"> » In terms of GNR 543 of 18 June 2010, a Basic Assessment Process is required to be undertaken for the proposed project. 		
National Environmental Management Act (Act No. 107 of 1998)	<ul style="list-style-type: none"> » A project proponent is required to consider a project holistically and to consider the cumulative effect of potential impacts. » In terms of the Duty of Care provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with a project is avoided, stopped or minimised. 	<ul style="list-style-type: none"> » Eastern Cape DEDEAT 	<ul style="list-style-type: none"> » While no permitting or licensing requirements arise directly, the holistic consideration of the potential impacts of the proposed project has found application in the BA process. » The implementation of mitigation measures are included as part of the Draft EMP and will continue to apply throughout the life cycle of the project.
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	<ul style="list-style-type: none"> » In terms of the Biodiversity Act, the developer has a responsibility for: <ul style="list-style-type: none"> * The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations). * The application of appropriate environmental management tools to ensure integrated environmental management of 	<ul style="list-style-type: none"> » Eastern Cape DEDEAT 	<ul style="list-style-type: none"> » As the applicant will not carry on any restricted activity in terms of S57, no permit is required to be obtained in this regard. » A permit would be required for the protected plant species found on site to be disturbed or destroyed by the proposed development.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>activities.</p> <ul style="list-style-type: none"> * Limit further loss of biodiversity and conserve endangered ecosystems. » In terms of S57, a person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 4. In this regard the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007. » In terms of S75, (1). The control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs. (2) Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment. (3) The methods employed to control and 		

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating, or re-establishing itself in any manner.</p> <ul style="list-style-type: none"> » In terms of GNR 152 of 23 February 2007: regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements. » In terms of GNR 1477 of 2009: Draft National List of Threatened Ecosystems published under S52(1)(a) of the Act provides for the listing of threatened or protected ecosystems based on national criteria. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the National Spatial Biodiversity Assessment (2004). » GNR1187 Amendment of Critically 		

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	Endangered, Endangered, Vulnerable and Protected Species List published under S56(1) of the Act.		
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	<ul style="list-style-type: none"> » The Minister may by notice in the Gazette publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. » In terms of the regulations published in terms of this Act (GN 922, 29 November 2013), a Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities. » Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that <ul style="list-style-type: none"> (a) The containers in which any waste is stored, are intact and not corroded or in any other way rendered unfit for the safe storage of waste; (b) Adequate measures are taken to prevent accidental spillage or leaking; (c) The waste cannot be blown away; (d) Nuisances such as odour, visual impacts and breeding of vectors do not arise; and (e) Pollution of the environment and harm to health are prevented. 	<ul style="list-style-type: none"> » Eastern Cape DEDEAT – general waste » DEA – hazardous waste 	<ul style="list-style-type: none"> » As no waste disposal site is to be associated with the proposed project, no permit is required in this regard. » Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of this Act, as detailed in the EMP. » The volumes of waste to be generated and stored on the site during construction and operation of the power line will not require a waste license (provided these remain below the prescribed thresholds).
National Environmental Management: Air Quality	<ul style="list-style-type: none"> » S18, S19 and S20 of the Act allow certain areas to be declared and 	<ul style="list-style-type: none"> » Eastern Cape DEDEAT 	<ul style="list-style-type: none"> » While no permitting or licensing requirements arise from this legislation,

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
Act (Act No. 39 of 2004)	<p>managed as “priority areas”</p> <ul style="list-style-type: none"> » Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards » The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has failed to comply with the Act. 		<p>this Act will find application during the construction phase of the project.</p>
National Water Act (Act No. 36 of 1998)	<ul style="list-style-type: none"> » Under S21 of the act, water uses must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation. » In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring. 	<ul style="list-style-type: none"> » Eastern Cape Department of Water Affairs 	<ul style="list-style-type: none"> » A general permitting or licensing is a requirements from this legislation for river and wetland crossings.
Environment Conservation Act (Act No. 73 of 1989)	<ul style="list-style-type: none"> » National Noise Control Regulations (GN R154 dated 10 January 1992) 	<ul style="list-style-type: none"> » Eastern Cape DEDEAT » Blue Crane Route Local Municipality 	<ul style="list-style-type: none"> » There is no requirement for a noise permit in terms of the legislation. » Any noisy activities carried out during the construction phase that could present an intrusion impact to the local community should be limited to 6:00am to 6:00pm Monday – Saturday (excluding public holidays).

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
			» Should these specific activities need to be undertaken outside of these times, the surrounding communities will need to be notified as well as the DEDEAT and the Local Municipality.
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	<ul style="list-style-type: none"> » A mining permit or mining right may be required where a mineral in question is to be mined (i.e. materials from a borrow pit) in accordance with the provisions of the Act. » Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act. » Section 53 Use of land surface rights contrary to objects of Act (1) Subject to subsection (2), any person who intends to use the surface of any land in any way which may be contrary to any object of this Act or which is likely to impede any such object must apply to the Minister for approval in the prescribed manner. 	» Department of mineral Resources	» Infilling material will be obtained from an authorised borrow pit in the surrounding areas.
National Heritage Resources Act (Act No. 25 of 1999)	<ul style="list-style-type: none"> » S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including » The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length; » Any development or other activity 	» South African Heritage Resources Agency	» A permit may be required should heritage sites be unearthed on site during the construction phase.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>which will change the character of a site exceeding 5 000 m² in extent</p> <ul style="list-style-type: none"> » The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m²; or the re-zoning of a site exceeding 10 000 m² in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided. » Stand alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component. 		
<p>National Forests Act (Act No. 84 of 1998)</p>	<ul style="list-style-type: none"> » In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived 	<ul style="list-style-type: none"> » Department of Agriculture, Forestry and Fisheries 	<ul style="list-style-type: none"> » A permit would need to be obtained for any protected trees that are affected, although none are likely to occur on site.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>from a protected tree, except under a license granted by the Minister to an (applicant and subject to such period and conditions as may be stipulated".</p> <ul style="list-style-type: none"> » GN 1042 provides a list of protected tree species. 		
National Veld and Forest Fire Act (Act 101 of 1998)	<p>In terms of Section 12 the applicant would be obliged to prepare and maintain firebreaks to ensure that should a veld fire occur on the property, that it does not spread to adjoining land.</p> <p>In terms of section 13 the applicant must ensure that the firebreak is wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is reasonably free of inflammable material.</p> <ul style="list-style-type: none"> » In terms of section 17, the applicant must have such equipment, protective clothing and trained personnel for extinguishing fires. 	<ul style="list-style-type: none"> » Department of Agriculture, Forestry and Fisheries 	<ul style="list-style-type: none"> » While no permitting or licensing requirements arise from this legislation, this act will find application during the operational phase of the project in terms of fire prevention and management.
Hazardous Substances Act (Act No. 15 of 1973)	<ul style="list-style-type: none"> » This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising, or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To 	<ul style="list-style-type: none"> » Department of Health 	<ul style="list-style-type: none"> » It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products.</p> <ul style="list-style-type: none"> » Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance; » Group IV: any electronic product; » Group V: any radioactive material. » The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force. 		
Provincial Legislation			
Nature Conservation Ordinance (Act No. 19 of 1974)	<ul style="list-style-type: none"> » Article 63 prohibits the picking of certain fauna (including cutting, chopping, taking, and gathering, uprooting, damaging, or destroying). » Schedule 3 lists endangered flora and Schedule 4 lists protected flora. » Articles 26 to 47 regulate the use of 	<ul style="list-style-type: none"> » Eastern Cape DEDEAT 	<ul style="list-style-type: none"> » Permitting or licensing requirements may arise from this legislation for the proposed activities to be undertaken for the proposed project.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	wild animals.		

PURPOSE & OBJECTIVES OF THE EMPr

CHAPTER 3

An Environmental Management Programme (EMPr) is defined as “an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented or mitigated, and that the positive benefits of the projects are enhanced”³. The objective of this Environmental Management Plan is to provide consistent information and guidance for implementing the management and monitoring measures established in the permitting process and help achieve environmental policy goals. The purpose of an EMP is to help ensure compliance with recommendations and conditions specified through an EIA process, as well as to ensure continuous improvement of environmental performance, reducing negative impacts and enhancing positive effects during the construction and operation of the facility. An effective EMPr is concerned with both the immediate outcome as well as the long-term impacts of the project.

The EMPr provides specific environmental guidance for the construction and operation phases of a project, and is intended to manage and mitigate construction and operation activities so that unnecessary or preventable environmental impacts do not result. These impacts range from those incurred during start up (site clearing and site establishment) through those incurred during the construction activities themselves (erosion, noise, dust) to those incurred during site rehabilitation (soil stabilisation, re-vegetation) and operation. The EMPr also defines monitoring requirements in order to ensure that the specified objectives are met.

The EMPr has been developed as a set of environmental specifications (i.e. principles of environmental management for the proposed access road and watercourse crossings within the Iziduli Emoyeni Wind Farm), which are appropriately contextualised to provide clear guidance in terms of the on-site implementation of these specifications (i.e. on-site contextualisation is provided through the inclusion of various monitoring and implementation tools).

The EMPr has the following objectives:

- » To outline mitigation measures and environmental specifications which are required to be implemented for the planning, construction, rehabilitation and operation

³ Provincial Government Western Cape, Department of Environmental Affairs and Development Planning: *Guideline for Environmental Management Plans*, 2005

- phases of the project in order to minimise the extent of environmental impacts, and to manage environmental impacts associated with the watercourse crossings.
- » To ensure that the construction and operation phases do not result in undue or reasonably avoidable adverse environmental impacts, and ensure that any potential environmental benefits are enhanced.
 - » To identify entities who will be responsible for the implementation of the measures and outline functions and responsibilities.
 - » To propose mechanisms for monitoring compliance, and preventing long-term or permanent environmental degradation.
 - » To facilitate appropriate and proactive responses to unforeseen events or changes in project implementation that was not considered in the EIA process.

The mitigation measures identified within the Environmental Impact Assessment process are systematically addressed in the EMP, ensuring the minimisation of adverse environmental impacts to an acceptable level.

Emoyeni Wind Farm Renewable Energy (Pty) Ltd must ensure that the implementation of the project complies with the requirements of any and all environmental authorisations and any other permits (once issued), and obligations emanating from other relevant environmental legislation. This obligation is partly met through the development of the EMPr, and the implementation of the EMPr through its integration into the contract documentation for activities associated with both construction and operation. Since this EMPr is part of the EIA process undertaken for the proposed watercourse crossings, it is important that this guideline document be read in conjunction with the draft Basic Assessment Report. Furthermore, this EMPr must be read together with the EMPr for the Iziduli Emoyeni Wind Farm and generic specifications in the WEF EMPr should also be considered relevant to this activity. This will contextualise the EMPr and enable a thorough understanding of its role and purpose in the integrated environmental process.

This EMPr for construction and operation activities has been compiled in accordance with the EIA Regulations of June 2010 and will be further developed in terms of specific requirements listed in any authorisations issued for the proposed project. This EMPr should be considered a dynamic document, requiring regular review and updating as new information becomes available in order for it to remain relevant to the requirements of the site and the environment.

To achieve effective environmental management, it is important that Contractors are aware of their responsibilities in terms of the relevant environmental legislation and the contents of this EMPr. The Contractor is responsible for informing employees and sub-contractors of their environmental obligations in terms of the environmental specifications, and for ensuring that employees are adequately experienced and properly

trained in order to execute the works in a manner that will minimise environmental impacts. The Contractors obligations in this regard include the following:

- » Ensuring that employees have a basic understanding of the key environmental features of the construction site and the surrounding environment.
- » Ensuring that a copy of the EMPr is readily available on-site and that all site staff is aware of the location and has access to the document. Employees must be familiar with the requirements of the EMPr and the environmental specifications as they apply to the construction of the facility.
- » Ensuring that, prior to commencing any site works, all employees and sub-contractors have attended an appropriate Environmental Awareness Training course. The course must provide the site staff with an appreciation of the project's environmental requirements, the EMPr specifications, and how they are to be implemented.
- » Basic training in the identification of archaeological sites/objects, and protected or Red List flora and fauna that may be encountered on the site.
- » Awareness of any other environmental matters, which are deemed to be necessary by the ECO.

STRUCTURE OF THIS EMPr

CHAPTER 4

The first two chapters provide background to the EMPr and the proposed project or activity, and the relevant legislative context for the project. The chapters which follow consider the:

- » Pre-construction (planning and design) activities
- » Construction activities
- » Operation activities
- » Decommissioning activities

These chapters set out the procedures necessary for watercourse crossings within the Iziduli Emoyeni Wind Farm to achieve environmental compliance. For each aspect of the activity, an over-arching environmental **goal** is stated. In order to meet this goal, a number of **objectives** are listed. The management plan has been structured in table format in order to show the links between the goals for each phase and their associated objectives, activities/risk sources, mitigation actions monitoring requirements and performance indicators. A specific environmental management plan table has been established for each environmental objective. The information provided within the EMPr table for each objective is illustrated below:

OBJECTIVE: Description of the objective, which is necessary in order to meet the overall goals; these take into account the findings of the environmental impact assessment specialist studies.

Project component/s	List of project components affecting the objective
Potential Impact	Brief description of potential environmental impact if objective is not met
Activity/risk source	Description of activities which could impact on achieving objective
Mitigation: Target/Objective	Description of the target; include quantitative measures and/or dates of completion

Mitigation: Action/control	Responsibility	Timeframe
List specific action(s) required to meet the mitigation target/objective described above.	Who is responsible for the measures	Time periods for implementation of measures

Performance Indicator	Description of key indicator(s) that track progress/indicate the effectiveness of the management plan.
Monitoring	Mechanisms for monitoring compliance; the key monitoring actions required to check whether the objectives are being achieved, taking into consideration responsibility, frequency, methods and reporting

The objectives and EMPr tables are required to be reviewed and possibly modified whenever changes, such as the following, occur:

- » Planned activities change (i.e. in terms of the components of the facility).
- » Modification to or addition to environmental objectives and targets.
- » Additional or unforeseen environmental impacts are identified.
- » Relevant legal or other requirements are changed or introduced.
- » Significant progress has been made on achieving an objective or target such that it should be re-examined to determine if it is still relevant, should be modified, etc.

4.1. Project Team

This draft EMPr was compiled by:

EMPr Compilers	
Sheila Muniongo	Savannah Environmental
Karen Jodas	Savannah Environmental

The Savannah Environmental team has extensive knowledge and experience in environmental impact assessment and environmental management, having being involved in EIA processes over the past ten (10) years. They have managed and drafted environmental management plans for other wind and solar energy facility projects throughout South Africa. In addition, they have been involved in compliance monitoring of major construction projects in South Africa.

MANAGEMENT PLAN FOR PRE-CONSTRUCTION

CHAPTER 5

Overall Goal: undertake pre-construction activities (planning and design phase) in a way that:

- » Ensures that the design of the watercourse crossings responds to the identified environmental constraints and opportunities.
- » Ensures that pre-construction activities are undertaken in accordance with all relevant legislative requirements.
- » Ensures that adequate regard has been taken of any landowner and community concerns and that these are appropriately addressed through design and planning (where appropriate).
- » Enables the construction activities to be undertaken without significant disruption to other land uses and activities in the area.

In order to meet this goal, the following objectives have been identified, together with necessary actions and monitoring requirements. As previously stated, this EMPr should be read together with the EMPr prepared for the Iziduli Emoyeni Wind farm. **Specifications not specific to the watercourse crossings structures are not repeated within this document.**

5.1. Objectives

(PC1) OBJECTIVE: To ensure that the planning and design of the watercourse crossings responds to the identified environmental constraints and opportunities

Project component/s	<ul style="list-style-type: none"> » watercourse crossing, i.e. access roads and culverts » All other infrastructure
Potential Impact	<ul style="list-style-type: none"> » Design fails to respond optimally to the environmental consideration
Activities/risk sources	<ul style="list-style-type: none"> » Construction of watercourse crossings
Mitigation: Target/Objective	<ul style="list-style-type: none"> » To ensure that the design of the watercourse crossings responds to the identified environmental constraints and opportunities. » To ensure selection of best environmental option for design of infrastructure. » To undertake pre-construction activities in accordance with all relevant legislative requirements.

Mitigation: Action/control	Responsibility	Timeframe
Plan and conduct pre-construction activities in an environmentally acceptable manner	Project Company (Emoyeni Wind Farm Renewable Energy (Pty) Ltd) and Contractor	Design phase
The watercourse crossings should be designed such that they do not trap any run-off, thereby creating inundated areas, but allow for free flowing systems	Contractor	Design phase
A detailed geotechnical investigation is required for the design phase.	Contractor	Design phase
A permit must be obtained for removal or cutting of any protected plants found on site prior to the commencement of construction.	Project Company	Design phase

Performance Indicator	<ul style="list-style-type: none"> » Design meets objectives and does not degrade the environment and respond to the mitigation measures and recommendations in the Basic Assessment report. » Ecosystem fragmentation is kept to a minimum.
Monitoring	<ul style="list-style-type: none"> » Ensure that the design implemented meets the objectives and mitigation measures in the Basic Assessment report through review of the design by the Project Manager and Environmental Control Officer (ECO) prior to the commencement of construction.

(PC2) OBJECTIVE: To ensure effective communication mechanisms

On-going communication with affected and surrounding landowners is important to maintain during the construction and operational phases of the activity. Any issues and concerns raised should be addressed as far as possible in as short a timeframe as possible.

Project component/s	<ul style="list-style-type: none"> » watercourse crossing, i.e. access roads and culverts » All other infrastructure
Potential Impact	<ul style="list-style-type: none"> » Impacts on affected and surrounding landowners and land uses
Activity/risk source	<ul style="list-style-type: none"> » Activities associated with construction of watercourse crossings
Mitigation: Target/Objective	<ul style="list-style-type: none"> » Effective communication with affected and surrounding landowners » Addressing of any issues and concerns raised as far as possible in as short a timeframe as possible

Mitigation: Action/control	Responsibility	Timeframe
Compile and implement a grievance mechanism procedure for the public (as outlined in Appendix A) to be implemented during both the construction and operational phases of the facility. This procedure should include details of the contact person who will be receiving issues raised by interested and affected parties, and the process that will be followed to address issues. This procedure should be in line with the South African Labour Law.	Project Company and Contractor	Pre-construction
Liaison with landowners is to be undertaken prior to the commencement of construction in order to provide sufficient time for them to plan land use activities accordingly.	Contractor	Pre-construction

Performance Indicator	<ul style="list-style-type: none"> » Effective communication procedures in place.
Monitoring	<ul style="list-style-type: none"> » An incident reporting system should be used to record non-conformances to the EMPr. » Public complaints register must be developed and maintained.

MANAGEMENT PLAN FOR CONSTRUCTION

CHAPTER 6

Overall Goal: Undertake the construction phase in a way that:

- » Ensures that construction activities are properly managed in respect of environmental aspects and impacts.
- » Enables construction activities to be undertaken without significant disruption to other land uses and activities in the area, in particular concerning farming practices and effects on local residents.
- » Minimises the impact on any remaining indigenous natural vegetation and habitats of ecological value.
- » Minimises the impact on heritage site should they be uncovered.

6.1. Institutional Arrangements: Roles and Responsibilities for Construction

As the Proponent, Emoyeni Wind Farm Renewable Energy (Pty) Ltd must ensure that the implementation of the Iziduli Emoyeni Wind Farm complies with the requirements of any and all environmental authorisations and permits, and obligations emanating from other relevant environmental legislation. While the proponent has a duty of care in this regard, the Contractor will be held directly responsible for all of these permits. This obligation is partly met through the development of the EMPr, and the implementation of the EMPr through its integration into the contract documentation. Emoyeni Wind Farm Renewable Energy (Pty) Ltd will retain various key roles and responsibilities during construction. These are outlined within the EMPr compiled for the Iziduli Emoyeni Wind Farm and are also applicable for the watercourse crossing.

6.2. Objectives

In order to meet this goal, the following objectives have been identified, together with the necessary actions and monitoring requirements.

(C 1) OBJECTIVE: Soil erosion control, water quality management

The natural soil on the site needs to be preserved as far as possible in order to minimise impacts on the environment. Soil degradation including erosion (by wind and water) and subsequent deposition elsewhere is of a concern in areas underlain by fine grained soil which can be mobilised when disturbed, even on relatively low slope gradients (accelerated erosion). Uncontrolled run-off relating to construction activity will also lead

to accelerated erosion. Degradation of the natural soil profile due to excavation, stockpiling, compaction, pollution and other construction activities will affect soil forming processes and associated ecosystems. A set of strictly adhered to mitigation measures are required to be implemented in order to effectively limit the impact on the environment as outline below.

Project component/s	» watercourse crossing, i.e. access roads and culverts
Potential Impact	<ul style="list-style-type: none"> » Erosion and soil loss into watercourse » Disturbance of watercourse » Sedimentation of watercourse area » A loss of indigenous vegetation cover, particularly in watercourse area
Activities/risk sources	<ul style="list-style-type: none"> » Water and wind erosion of disturbed areas » Excavation, stockpiling and compaction of soil » Concentrated discharge of water from construction activity » Storm water run-off from sealed surfaces » Mobile construction equipment movement on site » Drainage line road crossings » Roadside drainage ditches
Mitigation: Target/Objective	<ul style="list-style-type: none"> » To minimise erosion of soil from site during construction » To minimise deposition of soil into drainage lines » To minimise damage to aquatic system by erosion or deposition » To minimise damage to soil and aquatic system by construction activity » No accelerated overland flow related surface erosion as a result of a loss of vegetation cover » No reduction in the surface area of drainage lines as a result of the establishment of infrastructure » Minimal loss of vegetation cover due to construction related activities

Mitigation: Action/control	Responsibility	Timeframe
Identify and demarcate construction areas for general construction work and restrict construction activity to these areas. Prevent unnecessary destructive activity within construction areas (prevent over-excavations and double handling)	Contractor	Before and during construction
Stockpile topsoil for re-use in rehabilitation phase. Maintain stockpile shape and protect from erosion. All stockpiles must be positioned at least 50 m away from wetlands and drainage lines. Limit the height of stockpiles as far as possible in order to reduce compaction.	Contractor	During site establishment and any activity related to earthworks as well as the duration of construction
Disturbance of vegetation and topsoil must be kept to a practical minimum.	Contractor	Duration of contract
Rehabilitate disturbance areas as soon as construction in an area is completed.	Contractor	During and after construction

Mitigation: Action/control	Responsibility	Timeframe
Control depth of excavations and stability of cut faces/sidewalls.	Contractor	maintenance over duration of contract
Compile a comprehensive storm water management plan as part of the final design of the project and implement during construction and operation.	Contractor	Construction & operation

Performance Indicator	<ul style="list-style-type: none"> » Limited soil erosion around site » Limited increased siltation in drainage lines Limited soil degradation
Monitoring	<ul style="list-style-type: none"> » Regular inspections of the site by ECO » inspections of sediment control devices by ECO » Regular inspections of surroundings, including drainage lines by ECO » Immediate reporting of ineffective sediment control systems by ECO » An incident reporting system must record non-conformances. » Public complaints register must be developed and maintained on site.

(C 2) OBJECTIVE: Limit Damage to watercourse

Construction of the proposed infrastructure will impact upon non-perennial drainage lines only; these crossings are high in the catchment areas and are not located within in any major water courses or riverine channels. Where impacts are unavoidable, mitigation measures are required to minimise impacts on these systems.

Project component/s	» watercourse crossing, i.e. access roads and culverts
Potential Impact	» Damage to watercourse area by any means that will result in hydrological changes (includes erosion, siltation, dust, direct removal of soil of vegetation, dumping of material).
Activity/risk source	» Construction of watercourse crossing
Mitigation: Target/Objective	Minimise damage to watercourse areas where crossing will be built.

Mitigation: Action/control	Responsibility	Timeframe
Where water course crossings are required, the engineering team must provide an effective means to minimise the potential upstream and downstream effects of sedimentation and erosion (erosion protection) as well as minimise the loss of riparian vegetation (small footprint). This has been proposed by	Contractor, ECO	Construction & Operation

Mitigation: Action/control	Responsibility	Timeframe
the design team in the prepared design crossings and includes energy dissipation structures such as gabions and reno mattresses. » No vehicles to refuel within drainage lines/ riparian vegetation. » During the operational phase, monitor culverts to see if erosion issues arise and if any erosion control if required.		
Where possible culvert bases must be placed as close as possible with natural levels in mind so that these don't form additional steps / barriers.	Contractor, ECO	Construction & Operation
Control storm water and runoff water through the implementation of a storm water management plan for the site.	Contractor, ECO	Construction & Operation

Performance Indicator	» No impacts on water quality, water quantity, natural status of watercourse.
Monitoring	» Habitat loss in watercourse should be monitored before and after construction. » The presence and development of erosion features downstream of any construction must be monitored. » The ECO should be responsible for driving this process with the contractor as needed. » An incident reporting system must be used to record non-conformances to the EMP/IWWMP. » Public complaints register must be developed and maintained on site.

6.3. Detailing Method Statements

(C 3) OBJECTIVE: Ensure all construction activities are undertaken with the appropriate level of environmental awareness to minimise environmental risk

The environmental specifications are required to be underpinned by a series of Method Statements, within which the Contractors and Service Providers are required to outline how any identified environmental risks will practically be mitigated and managed for the duration of the contract, and how specifications within this EMP will be met. That is, the Contractor will be required to describe how specified requirements will be achieved through the submission of written Method Statements to the Site Manager and ECO.

A Method Statement is defined as “a written submission by the Contractor in response to the environmental specification or a request by the Site Manager, setting out the plant, materials, labour and method the Contractor proposes using to conduct an activity, in such detail that the Site Manager is able to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications”. The Method Statement must cover applicable details with regard to:

- » Details of the responsible person/s
- » Construction procedures
- » Materials and equipment to be used
- » Getting the equipment to and from site
- » How the equipment/material will be moved while on-site
- » How and where material will be stored
- » The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur
- » Timing and location of activities
- » Compliance/non-compliance with the Specifications, and
- » Any other information deemed necessary by the Site Manager.

Method Statements must be compiled for all activities which affect any aspect of the environment and should be applied consistently to all activities. The Contractor may not commence the activity covered by the Method Statement until it has been submitted to the Site Manager for review, except in the case of emergency activities and then only with the consent of the Site Manager. Review of the Method Statement will not absolve the Contractor from their obligations or responsibilities in terms of their contract.

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 reviewed. The ECO should monitor the construction activities to ensure that these are undertaken in accordance with the approved Method Statement.

6.4. Awareness and Competence

(C 4) OBJECTIVE: To ensure all construction personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and on-going minimisation of environmental harm

To achieve effective environmental management, it is important that Contractors are aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMPr. The Contractor is responsible for informing employees and sub-

contractors of their environmental obligations in terms of the environmental specifications, and for ensuring that employees are adequately experienced and properly trained in order to execute the works in a manner that will minimise environmental impacts. The Contractors obligations in this regard include the following:

- » Employees must have a basic understanding of the key environmental features of the construction site and the surrounding environment.
- » Ensuring that a copy of the EMPr is readily available on-site and that all site staff is aware of the location and has access to the document.
- » Employees will be familiar with the requirements of the EMPr and the environmental specifications as they apply to the construction of the facility.
- » Employees must undergo training for the operation and maintenance activities associated with a wind energy facility and have a basic knowledge of the potential environmental impacts that could occur and how they can be minimised and mitigated.
- » Ensuring that, prior to commencing any site works, all employees and sub-contractors have attended an Environmental Awareness Training course.
- » The course should be sufficient to provide the site staff with an appreciation of the project's environmental requirements, and how they are to be implemented.
- » Awareness of any other environmental matters, which are deemed to be necessary by the ECO.
- » Ensuring that employee information posters, outlining the environmental “do’s” and “don’ts” (as per the environmental awareness training course) are erected at prominent locations throughout the site.
- » Ensure that construction workers have received basic training in environmental management, including the storage and handling of hazardous substances, minimisation of disturbance to sensitive areas, management of waste, and prevention of water pollution.
- » Records must be kept of those that have completed the relevant training.
- » Training should be done either in a written or verbal format but must be in an appropriate format for the receiving audience.
- » Refresher sessions must be held to ensure the contractor staffs is aware of its environmental obligations as practically possible.

Therefore, prior to the commencement of construction activities on site and before any person commences with work on site thereafter, adequate environmental awareness and responsibility are to be appropriately presented to all staff present onsite, clearly describing their obligations towards environmental controls and methodologies in terms of this EMPr. This training and awareness will be achieved in the following ways:

6.4.1. Environmental Awareness Training

Environmental Awareness Training must take the form of an on-site talk and demonstration by the ECO before the commencement of site establishment and construction on site. The education/awareness programme should be aimed at all levels of management and construction workers within the contractor team. Included in the training programme should be any protected resources found on site and consequences of non-compliance with the relevant authorities. A record of attendance of this training must be maintained by the ECO on site.

6.4.2. Induction Training

Environmental induction training must be presented to all persons who are to work on the site – be it for short or long durations; Contractor's or Engineer's staff; administrative or site staff; sub-contractors or visitors to site.

This induction training should include discussing the developer's environmental policy and values, the function of the EMPr and Contract Specifications and the importance and reasons for compliance to these. The induction training must highlight overall do's and don'ts on site and clarify the repercussions of not complying with these. The non-conformance reporting system must be explained during the induction as well. Opportunity for questions and clarifications must form part of this training. A record of attendance of this training must be maintained by the SHE Officer on site.

6.4.3. Toolbox Talks

Toolbox talks should be held on a scheduled and regular basis (at least twice a month) where foremen, environmental and safety representatives of different components of the Works and sub-consultants hold talks relating to environmental practices and safety awareness on site. These talks should also include discussions on possible common incidents occurring on site and the prevention of reoccurrence thereof. Records of attendance and the awareness talk subject must be kept on file.

6.5. Monitoring Programme

(C 5) OBJECTIVE: To monitor the performance of the control strategies employed against environmental objectives and standards

A monitoring programme should be in place not only to ensure conformance with the EMPr, but also to monitor any environmental issues and impacts which have not been accounted for in the EMPr that are, or could result in significant environmental impacts for which corrective action is required. The period and frequency of monitoring will most likely be stipulated by the Environmental Authorisation. Where this is not clearly dictated, Emoyeni Wind Farm Renewable Energy (Pty) Ltd will determine and stipulate the period and frequency of monitoring required in consultation with relevant

stakeholders and authorities. The Contractor Project Manager of the Project Company will work with the site manager of the Contractor will ensure that the monitoring is conducted and reported.

The aim of the monitoring and auditing process would be to routinely monitor the implementation of the specified environmental specifications, in order to:

- » Monitor and audit compliance with the prescriptive and procedural terms of the environmental specifications
- » Ensure adequate and appropriate interventions to address non-compliance
- » Ensure adequate and appropriate interventions to address environmental degradation
- » Provide a mechanism for the lodging and resolution of public complaints
- » Ensure appropriate and adequate record keeping related to environmental compliance
- » Determine the effectiveness of the environmental specifications and recommend the requisite changes and updates based on audit outcomes, in order to enhance the efficacy of environmental management on site
- » Aid communication and feedback to authorities and stakeholders.

6.5.1. Non-Conformance Reports

All supervisory staff and the ECO must be provided the means to be able to submit non-conformance reports to the Site Manager. Non-conformance reports will describe, in detail, the cause, nature and effects of any environmental non-conformance by the Contractor. Records of penalties imposed may be required by the relevant authority within 48 (forty eight) hours.

The non-conformance report will be updated on completion of the corrective measures indicated on the finding sheet. The report must indicate that the remediation measures have been implemented timeously and that the non-conformance can be closed-out to the satisfaction of the Site Manager and ECO.

6.5.2. Monitoring Reports

A monitoring report will be compiled by the ECO on a monthly basis and must be submitted to DEA for their records as deemed practical or with the Final Audit Report. This report should include details of the activities undertaken in the reporting period, any non-conformances or incidents recorded, corrective action required, and details of those non-conformances or incidents which have been closed out.

6.5.3. Final Audit Report

A final environmental audit report must be compiled by an independent auditor and be submitted to DEA upon completion of the construction and rehabilitation activities (within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and within 30 days of completion of rehabilitation activities). This report must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions (once issued) and the requirements of the EMPr.

MANAGEMENT PLAN FOR REHABILITATION OF DISTURBED AREAS

CHAPTER 7

Overall Goal for the Rehabilitation of Disturbed Areas: Undertake the rehabilitation measures in a way that:

- » Ensures rehabilitation of disturbed areas following the execution of the works, such that residual environmental impacts are remediated or curtailed

In order to meet this goal, the following objective, actions and monitoring requirements are relevant:

(R 1) OBJECTIVE: To ensure rehabilitation of disturbed areas

Areas requiring rehabilitation will include all areas disturbed during the construction phase and that are not required for regular maintenance operations.

Project component/s	» watercourse crossing, i.e. access roads and culverts
Potential Impact	» Environmental integrity of site undermined resulting in erosion, compromised land capability and the requirement for on-going management intervention
Activity/risk source	» Disturbed areas/footprints
Mitigation: Target/Objective	<ul style="list-style-type: none"> » To ensure and encourage site rehabilitation of disturbed areas » To ensure that the site is appropriately rehabilitated following the execution of the works, such that residual environmental impacts (including erosion) are remediated or curtailed

Mitigation: Action/control	Responsibility	Timeframe
All temporary facilities, equipment and waste materials must be removed from site and appropriately disposed of.	Contractor	Post-construction
Necessary drainage works and anti-erosion measures must be installed, where required, to minimise loss of topsoil and control erosion.	Contractor	Post-construction
Disturbed areas must be rehabilitated/re-vegetated with appropriate natural vegetation and/or local seed mix.	Contractor in consultation with rehabilitation specialist	Following completion of construction activities in an

Mitigation: Action/control	Responsibility	Timeframe
		area
Re-vegetated areas may have to be protected from wind erosion and maintained until an acceptable plant cover has been achieved.	Contractor and Project Company in consultation with rehabilitation specialist	Post-rehabilitation
On-going alien plant monitoring and removal should be undertaken on all areas of natural vegetation on an annual basis.	Contractor and Project Company in consultation with rehabilitation specialist	Post-rehabilitation

Performance Indicator	<ul style="list-style-type: none"> » All areas of the site cleared of equipment and temporary facilities » Topsoil replaced on all areas and stabilised » Disturbed areas rehabilitated and acceptable plant cover achieved on rehabilitated sites » Closed site free of erosion and alien invasive plants
Monitoring	<ul style="list-style-type: none"> » On-going inspection of rehabilitated areas in order to determine effectiveness of rehabilitation measures implemented » On-going alien plant monitoring and removal should be undertaken on an annual basis » An incident reporting system must be used to record non-conformances to the EMPr.

MANAGEMENT PLAN FOR OPERATION

CHAPTER 8

Overall Goal: To ensure that the operation of the watercourse crossing within the Iziduli Emoyeni Wind Farm does not have unforeseen impacts on the environment and to ensure that all impacts are monitored and the necessary corrective action taken in all cases. In order to address this goal, it is necessary to operate the facility in a way that:

- » Ensures that operation activities are properly managed in respect of environmental aspects and impacts.
- » Enables the operation activities to be undertaken without significant disruption to other land uses in the area, in particular with regard to farming practices and effects on local residents.

An environmental manager must be appointed during operation whose duty it will be to ensure the implementation of the operational EMPr.

8.2. Objectives

In order to meet this goal, the following objectives have been identified, together with necessary actions and monitoring requirements.

(O 1) OBJECTIVE: Minimise soil degradation and erosion

Project component/s	» watercourse crossing, i.e. access roads and culverts
Potential Impact	» Soil degradation and erosion. » Increased deposition of soil into drainage systems. » Increased run-off over the site.
Activity/Risk Source	» Poor rehabilitation and/or revegetation of cleared areas. » Rainfall - water erosion of disturbed areas. » Wind erosion of disturbed areas. » Concentrated discharge of water from construction activity.
Mitigation: Target/Objective	» Ensure rehabilitation of disturbed areas is maintained. » Minimise soil degradation (i.e. wetting). » Minimise soil erosion and deposition of soil into drainage lines. » Ensure continued stability of embankments/excavations.

Mitigation: Action/Control	Responsibility	Timeframe
Implement stormwater management and erosion control plan.	Contractor	Operation
The watercourse crossings should not trap any run-off, thereby creating inundated areas, but allow for free flowing systems	Contractor	Operation

Performance Indicator	» Minimal levels of soil erosion around site. » Minimal levels of increased siltation in drainage lines.
Monitoring	» Inspections of site on a bi-annual basis.

(O 2) OBJECTIVE: Limit Damage to the watercourse

Project component/s	» watercourse crossing, i.e. access roads and culverts
Potential Impact	» Damage to water course areas by any means that will result in hydrological changes (includes erosion, siltation, dust, direct removal of soil of vegetation, dumping of material).
Activity/risk source	» Operation of facility and maintenance of watercourse crossings
Mitigation: Target/Objective	» Minimise damage to watercourse areas where crossings are built or upgraded.

Mitigation: Action/control	Responsibility	Timeframe
Rehabilitate any disturbed areas as soon as possible once construction is completed in an area.	Contractor	Operation
Control storm water and runoff water through the implementation of a storm water management plan for the site. Any stormwater within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities.	Contractor	Operation
Monitor and maintain culvert areas to minimise blockages and erosion potential.	Contractor	Operation

Performance Indicator	» Minimal impacts on water quality, water quantity, natural status of watercourses.
Monitoring	<ul style="list-style-type: none"> » Habitat loss in watercourses should be monitored before and after construction. » The presence and development of erosion features downstream of any construction must be monitored. » An incident reporting system must be used to record non-conformances to the EMP/WUL. » Public complaints register must be developed and maintained on site

(O 3) OBJECTIVE: Protection of vegetation

Indirect impacts on vegetation during operation could result from maintenance activities and the movement of people and vehicles on site. No direct impacts are anticipated on wetland habitat as there are no direct impacts associated with the development within the wetlands observed. However any infrastructure within the wetland catchments should have effective stormwater management in place and no discharges directly into these systems will be allowed.

Project component/s	» Watercourse crossing
Potential Impact	» Disturbance to or loss of vegetation and/or habitat
Activity/risk source	<ul style="list-style-type: none"> » Movement of employee vehicles within and around site » Disturbed areas
Mitigation: Target/Objective	<ul style="list-style-type: none"> » To maintain minimised footprints of disturbance of vegetation/habitats on-site » To ensure and encourage plant regrowth in areas of post-construction rehabilitation

Mitigation: Action/control	Responsibility	Timeframe
Vehicle movements must be restricted to designated roadways	Contractor and Project Company	Operation
An on-going alien plant monitoring and eradication programme must be implemented, where necessary.	Contractor and Project Company	Operation
An independent environmental manager should be appointed during operation whose duty it will be to minimise impacts on surrounding sensitive habitats	Contractor and Project Company	Operation
A botanist familiar with the vegetation of the area should monitor the rehabilitation success and alien	Contractor and Project Company and	Annual monitoring

<p>plant removal on an annual basis, for the first 5 years of the operational phase, or until deemed unnecessary by the botanist,</p>	<p>Specialist</p>	<p>until successful re-establishment of vegetation in an area</p>
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<p>Performance Indicator</p>	<ul style="list-style-type: none"> » No further disturbance to vegetation » Continued improvement of rehabilitation efforts » No colonisation of the site by alien vegetation
<p>Monitoring</p>	<ul style="list-style-type: none"> » Observation of vegetation on-site by environmental manager » Regular inspections by the environmental manager to monitor plant regrowth/performance of rehabilitation efforts and weed infestation compared to natural/undisturbed areas » If necessary, an on-going alien plant monitoring and removal should be undertaken on an annual basis , for the first 5 years of the operational phase, or until deemed unnecessary by a suitably qualified botanist

MANAGEMENT PLAN FOR DECOMMISSIONING

CHAPTER 9

It is considered unlikely that the proposed activities (roads and culverts) would be decommissioned after the economic life of the wind farm, as the existing farming activities will continue and these may be utilised. However, should the activity ever cease or become redundant, the applicant shall be required to undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered at any relevant and competent authority at that time.

FINALISATION OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

CHAPTER 10

The EMPr is a dynamic document, which must be updated when required. It is considered critical that this draft EMPr be updated to include site-specific information and specifications following the final walk-through survey by specialists. This will ensure that the construction and operation activities are planned and implemented taking sensitive environmental features into account as far as possible.

**APPENDIX A:
GRIEVANCE MECHANISM FOR PUBLIC COMPLAINTS
AND ISSUES**

GRIEVANCE MECHANISM / PROCESS

AIM

The aim of the grievance mechanism is to ensure that grievances / concerns raised by local landowners and or communities are addressed in a manner that is:

- » Fair and equitable;
- » Open and transparent;
- » Accountable and efficient.

It should be noted that the grievance mechanism does not replace the right of an individual, community, group or organization to take legal action should they so wish. However, the aim should be to address grievances in a manner that does not require a potentially costly and time consuming legal process.

Proposed generic grievance process

- » Local landowners, communities and authorities will be informed in writing by the proponent (Emoyeni Wind Farm Renewable Energy (Pty) Ltd) of the grievance mechanism and the process by which grievances can be brought to the attention of the proponent.
- » A company representative will be appointed as the contact person for grievances to be addressed to. The name and contact details of the contact person will be provided to local landowners, communities and authorities.
- » Project related grievances relating to the construction, operational and or decommissioning phase must be addressed in writing to the contact person. The contact person should assist local landowners and or communities who may lack resources to submit/prepare written grievances.
- » The grievance will be registered with the contact person who, within 2 working days of receipt of the grievance, will contact the Complainant to discuss the grievance and agree on suitable date and venue for a meeting. Unless otherwise agreed, the meeting will be held within 2 weeks of receipt of the grievance.
- » The contact person will draft a letter to be sent to the Complainant acknowledging receipt of the grievance, the name and contact details of Complainant, the nature of the grievance, the date that the grievance was raised, and the date and venue for the meeting.
- » Prior to the meeting being held the contact person will contact the Complainant to discuss and agree on who should attend the meeting. The people who will be required to attend the meeting will depend on the nature of the grievance. While the Complainant and or proponent are entitled to invite their legal representatives to attend the meeting/s, it should be made clear that to all the parties involved in the process that the grievance mechanism process is not a legal process. It is therefore recommended that the involvement of legal representatives be limited.

- » The meeting will be chaired by the company representative appointed to address grievances. The proponent will provide a person to take minutes of and record the meeting/s. The costs associated with hiring venues will be covered by the proponent. The proponent will also cover travel costs incurred by the Complainant, specifically in the case of local, resource poor communities.
- » Draft copies of the minutes will be made available to the Complainant and the proponent within 4 working days of the meeting being held. Unless otherwise agreed, comments on the Draft Minutes must be forwarded to the company representative appointed to manage the grievance mechanism within 4 working days of receipt of the draft minutes.
- » In the event of the grievance being resolved to the satisfaction of all the parties concerned, the outcome will be recorded and signed off by the relevant parties. The record should provide details of the date of the meeting/s, the names of the people that attended the meeting/s, the outcome of the meeting/s, and where relevant, the measures identified to address the grievance, the party responsible for implementing the required measures, and the agreed upon timeframes for the measures to be implemented.
- » In the event of a dispute between the Complainant and the proponent regarding the grievance, the option of appointing an independent mediator to assist with resolving the issue should be discussed. The record of the meeting/s will note that a dispute has arisen and that the grievance has not been resolved to the satisfaction of all the parties concerned;
- » In the event that the parties agree to appoint a mediator, the proponent will be required to identify three (3) mediators and forward the names and CVs to the Complainant within 2 weeks of the dispute being declared. The Complainant, in consultation with the proponent, will identify the preferred mediator and agree on a date for the next meeting. The cost of the mediator will be borne by the proponent. The proponent will provide a person to take minutes of and record the meeting/s.
- » In the event of the grievance, with the assistance of the mediator, being resolved to the satisfaction of all the parties concerned, the outcome will be recorded and signed off by the relevant parties, including the mediator. The record should provide details on the date of the meeting/s, the names of the people that attended the meeting/s, the outcome of the meeting/s, and where relevant, the measures identified to address the grievance, the party responsible for implementing the required measures, and the agreed upon timeframes for the measures to be implemented.
- » In the event of the dispute not being resolved, the mediator will prepare a draft report that summarises the nature of the grievance and the dispute. The report should include a recommendation by the mediator on the proposed way forward with regard to addressing the grievance.
- » The draft report will be made available to the Complainant and the proponent for comment before being finalised and signed by all parties. Unless otherwise agreed, comments on the draft report must be forwarded to the company representative appointed to manage the grievance mechanism within 4 working days.

The way forward will be informed by the recommendations of the mediator and the nature of the grievance. As indicated above, the grievance mechanism does not replace the right of an individual, community, group or organization to take legal action should they so wish. In the event of the grievance not being resolved to the satisfaction of Complainant and or the proponent, either party may be of the opinion that legal action may be the most appropriate option.