

APPENDIX F: IMPACTS ASSESSMENT FOR THE PROPOSED WATERCOURSE CROSSINGS ASSOCIATED WITH THE ACCESS ROADS TO THE AUTHORISED KLAWER WIND ENERGY FACILITY, WESTERN CAPE PROVINCE

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INTRODUCTION

Klawer Wind Power (Pty) Ltd received an environmental authorisation in terms of the National Environmental Management Act (NEMA) (Act 107 of 1998) for the Klawer Wind Energy Facility (WEF) on 27 September 2011 from the National Department of Environmental Affairs (DEA Ref: 12/12/20/1964). The project has undergone a number of Authorisation Amendments, with the last amendment resulting in the project's validity being extended to 26 September 2018, as well as changing the holder of the EA from Klawer Wind Power (Pty) Ltd to Vendiwell (Pty) Ltd (DEA Ref: 12/12/20/1964/AM3). The Project was awarded Preferred Bidder status under the Small Projects Independent Power Producer Procurement Programme (the "SPIPPPP") and it is intended to commence with construction in the second quarter of 2017.

The proposed existing access roads to the facility will be required to be upgraded to accommodate the construction vehicles associated with the facility. These activities will include the widening of the road by more than 4m and the upgrading of watercourse crossings (ephemeral drainage lines), including the use of concrete pipe culverts, and the infilling into and removal of material from the watercourse. These activities were not previously assessed or authorised as part of the proposed wind farm development. Therefore, Vendiwell (Pty) Ltd are applying to the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP), as Competent Authority for the project, for authorisation of the identified activities.

Number and date of relevant notice	Activity No (s) (in terms of the relevant notice	Description of each listed activity as per the project description
GN R. 983, 4 December 2014	19 (i)	<p>The infilling or depositing of any material of more than 5 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles, or rock of more than 5 cubic meters from -</p> <p>(i) a watercourse</p> <p><i>Upgrades intended for the existing Public and Private access road associated within the authorised Klawer WEF will require infilling and removal of material from the Groenkloof Gully.</i></p>
GN R. 985, 4 December 2014	18 (f) (i) (aa)	<p>The widening of a road by more than 4 meters, or the lengthening of a road by more than 1 kilometre</p> <p>(f) Western Cape</p> <p>(i) In all areas outside urban areas</p> <p>(aa) areas containing indigenous vegetation</p> <p><i>Both the Public and Private access road are to be upgraded. This includes flattening and</i></p>

Number and date of relevant notice	Activity No (s) (in terms of the relevant notice	Description of each listed activity as per the project description
		<i>hardening, as well as resurfacing with G5 and/or G6 gravel. The roads are to be widened by more than 4m, and less than 6m. No lengthening will take place.</i>

All other activities associated with the construction of the wind energy facility, including construction within 32m of a watercourse, have been authorised as part of the wind energy facility Environmental Authorisation.

Three proposed watercourse crossings are associated with the planned upgrades to the existing public roads DR2202 and OP09636 and the existing private farm access road to the wind energy facility. The need for the project (watercourse crossings and access road upgrades) is based on the requirement to have appropriate infrastructure installed (roads and watercourse crossings) in order to facilitate the effective transport of the project components during construction, and to optimise maintenance activities during operations

At present, the private access road to the wind facility is not structurally sound, and therefore cannot accommodate larger haulage vehicles traveling and carrying abnormal loads to the wind energy facility. Upgrading of the public roads OP09636 and DR2202 will contribute to the objectives of the West Coast District Municipality. These Strategic Objectives were translated into direction for transport planning by reducing the need for fossil fuels, improving access to jobs by extending the catchment area of potential candidates, improving community wellbeing through integrated communities, and providing bulk public transport and NMT infrastructure to facilitate mobility and accessibility (WCDM IDP 2012-2016). Upgrading of the public access road will contribute directly to Objective 5 - Ensure a well-maintained road network.

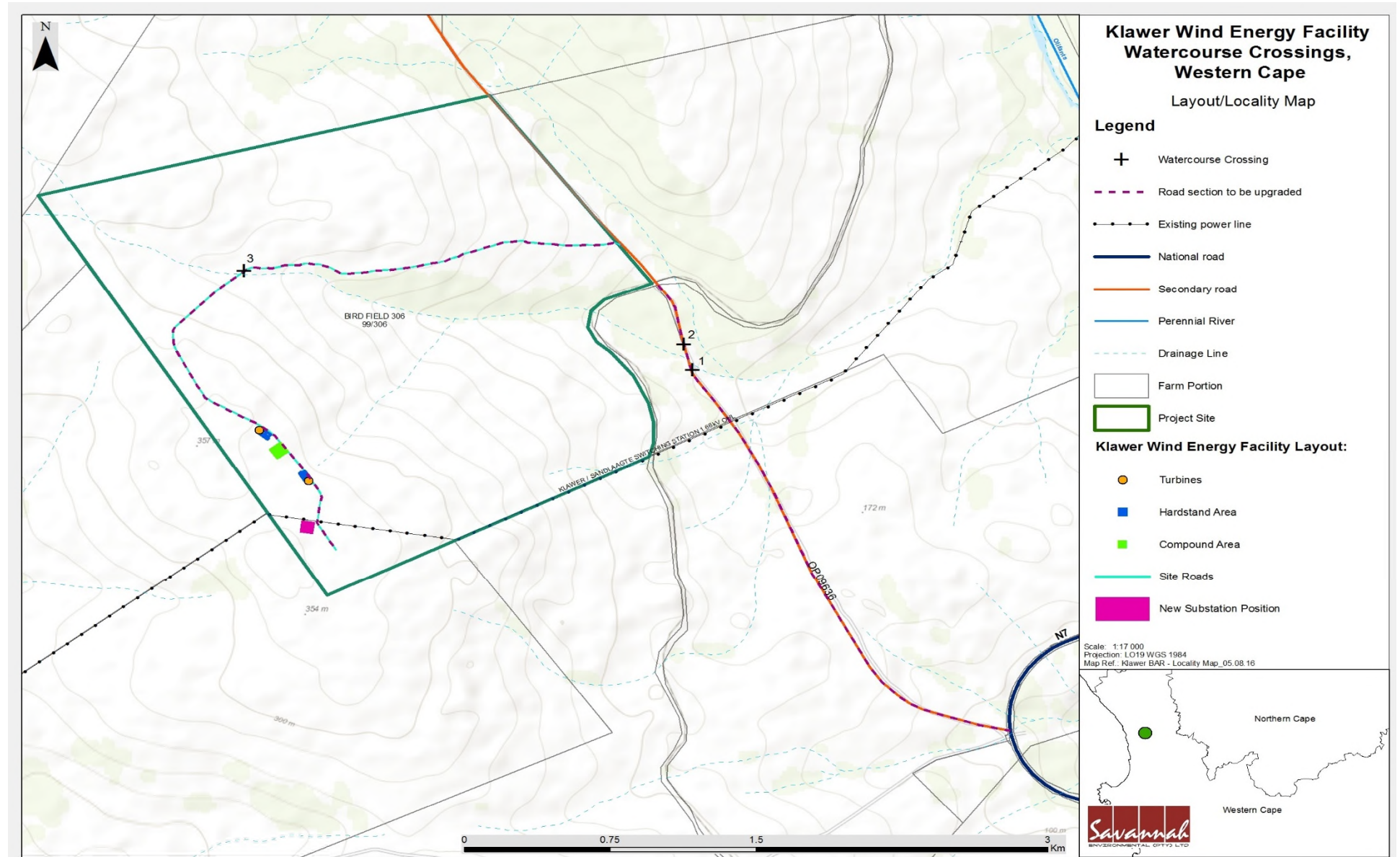


Figure 1: Layout map indicating the locality of the project, the position of the watercourse crossings and the intended roads to be upgrade

Potential impacts associated with the construction of the proposed project are discussed below. The following methodology was used in assessing impacts related to the proposed development. All impacts are assessed according to the following criteria:

- » The **nature**, a description of what causes the effect, what will be affected, and how it will be affected.
- » The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development), regional, national or international. A score of between 1 and 5 is assigned as appropriate (with a score of 1 being low and a score of 5 being high).
- » The **duration**, wherein it is indicated whether:
 - * The lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
 - * The lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
 - * Medium-term (5–15 years) – assigned a score of 3;
 - * Long term (> 15 years) - assigned a score of 4; or;
 - * Permanent - assigned a score of 5.
- » The **magnitude**, quantified on a scale from 0-10, where a score is assigned:
 - * 0 is small and will have no effect on the environment;
 - * 2 is minor and will not result in an impact on processes;
 - * 4 is low and will cause a slight impact on processes;
 - * 6 is moderate and will result in processes continuing but in a modified way;
 - * 8 is high (processes are altered to the extent that they temporarily cease); and
 - * 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability** of occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned:
 - * Assigned a score of 1–5, where 1 is very improbable (probably will not happen);
 - * Assigned a score of 2 is improbable (some possibility, but low likelihood);
 - * Assigned a score of 3 is probable (distinct possibility);
 - * Assigned a score of 4 is highly probable (most likely); and
 - * Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).
- » The **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high.
- » The **status**, which is described as positive, negative or neutral.
- » The degree to which the impact can be reversed.
- » The degree to which the impact may cause irreplaceable loss of resources.
- » The degree to which the impact can be mitigated.

The **significance** is determined by combining the criteria in the following formula:

$S = (E+D+M) P$; where

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance** weightings for each potential impact are as follows:

- » **< 30 points:** Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
- » **30-60 points:** Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- » **> 60 points:** High (i.e. where the impact must have an influence on the decision process to develop in the area)

SECTION A: ASSESSMENT OF POTENTIAL IMPACTS

This section provides an impact assessment of the proposed development as follows:

1. Impacts that may result during the planning and design phase
2. Impacts that may result during the construction phase
3. Impacts that may result during the operational phase
4. Impacts that may result from the decommissioning phase
5. Assessment of NO-GO Alternative

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE Alternative (preferred alternative)

No impacts are anticipated that may result from the planning and design phase of the proposed development. All impacts have been identified throughout the Basic Assessment, Specialist study and the Impact statement. Establishing effective communication structures during pre-construction will ensure the project is coordinated correctly, and in compliance with the EIA regulations of 2014.

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

Impacts during the construction phase of the project have been assessed below. All mitigation and management issues relating to these impacts have been discussed in Appendix G of the Environmental Management Programme.

There are three major impacts identified for the construction of the **watercourse crossing and road upgrades**. These have been assessed below, before and after mitigation as well as during the construction phase of the project.

A) WATERCOURSE CROSSING IMPACTS

Impact 1: Loss of general and sensitive vegetation communities

Natural plant communities are dynamic ecosystems that provide habitats that support all forms of life. Different types of plant communities (and habitats) exist in the study area, and these occur within and around the study area. The current condition of the vegetation communities of the study area can be described as transformed due to human induced activities and livestock grazing.

Nature: Construction activities could result in a negative direct impact on the natural vegetation of the drainage lines at the crossing sites.		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Long Term (4)	Long Term (4)
Magnitude	Low (4)	Low (2)

Probability	Probable (3)	Probable (3)
Significance	Low Impact (27)	Low Impact (21)
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	
Mitigation:	<ul style="list-style-type: none"> Vegetation clearing should be kept to a minimum at the crossings and vegetation immediately up- and down-stream of the crossing sites should be left intact as this binds the soil and also slows water flow, thereby minimising erosion risk 	
Cumulative impacts:		
None. However any further loss of habitat from other developments in the immediate area is likely to exacerbate this impact.		
Residual impacts:		
None as the site is largely transformed, thus even though the rehabilitation of the site will re-introduce biodiversity to the site, it will most likely match what was already there previously.		

Impact 2: Impacts on Fauna

Faunal disturbance during the construction phase is inevitable and cannot be fully mitigated. The impact is however restricted to the construction phase and of a local nature. Fauna are likely to return to the area during the operational phase of the project.

Nature: Construction activities would result in a negative direct impact on fauna such as reptiles, amphibians and mammals present in the drainage areas. Construction phase disturbance will be transient, but some limited habitat loss would be long term.		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short Term (2)	Short Term (2)
Magnitude	Low (4)	Low (3)
Probability	Improbable (3)	Improbable (2)
Significance	Low (21)	Low (12)
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	
Mitigation:	<ul style="list-style-type: none"> The illegal collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the construction site. All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the 	

	<p>appropriate manner as related to the nature of the spill.</p> <ul style="list-style-type: none"> • No fires should be allowed within the site. • No fuelwood collection should be allowed on-site. • All construction vehicles should adhere to a low speed limit (40km/h for cars and 30km/h for trucks) to avoid collisions with susceptible species such as snakes and tortoises. • All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises
<p>Cumulative impacts: The further loss of habitat from other developments such will not exacerbate this impact. The increased noise and dust levels in the immediate area however could possibly exacerbate the current impacts.</p>	
<p>Residual impacts: Residual impacts to population numbers will occur if the impact is not effectively mitigated, and this is not likely.</p>	

Impact 3: Eco-Hydrological Impact on drainage system

There are three drainage lines, all which are very small and represent a small wash, rather than a defined watercourse. These systems do not have any typical tall riparian vegetation stands. Given the small size of the drainage lines at the crossings, it is clear that they do not experience high flow volumes. The flow mitigation features (concrete pipe culverts) should be added immediately downstream of the crossing to ensure that the bed is not compromised by faster flows should these be experienced.

<p>Nature: Disturbance within the drainage channels could lead to erosion and degradation of the drainage systems which would have ecological and hydrological consequences. Riparian areas also provide key ecosystem services, such as flood retention, water infiltration, wildlife movement corridors and a refuge for plant and animal species during drought.</p>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Long Term (4)	Short Term (2)
Magnitude	Moderate (4)	Low (3)
Probability	Probable (4)	Improbable (3)
Significance	Medium Impact (36)	Low Impact (18)
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources	Yes	No
Can impacts be mitigated?	Yes	
Mitigation:	<ul style="list-style-type: none"> • The natural flow direction of the channel should not be changed as this can lead to bank destabilisation and erosion damage. 	

	<ul style="list-style-type: none"> • It would be preferable if the crossings were constructed as drifts. However, this may not always be technically and practically feasible for the project as the gradient would prevent trucks carrying heavy components such as turbine blades would not be able to cross on drifts. A pipe culvert along the public road would also be acceptable. • Immediately downstream of the drift/culvert there should be flow dampening structures in the bed such as rock gabions to ensure that the faster flow coming off the drift/culvert does not initiate erosion in the disturbed area downstream of the crossing. • Each crossing should be monitored for a year after construction to ensure that the banks of the drainage line has remained stable and any erosion in the bed or bank can be addressed if required • Any alien plant species establishing near the crossings should be strictly controlled and removed.
<p>Cumulative impacts: The limited nature of the current development and the proximity to existing infrastructure and human disturbance suggests that the contribution of the current development to cumulative hydrological impacts would be low</p>	
<p>Residual impacts: None</p>	

B) PUBLIC AND PRIVATE ACCESS ROAD UPGRADES

Impact 1: Loss of general and sensitive vegetation communities

As per the above. Natural plant communities are dynamic ecosystems that provide habitats that support all forms of life. Different types of plant communities (and habitats) exist in the study area, and these occur within and around the study area. The current condition of the vegetation communities of the study area can be described as transformed due to human induced activities and livestock grazing.

Nature: Construction activities to widen the access road would result in a negative direct impact on the natural vegetation along the sides of the road.		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Long Term (4)	Long Term (4)
Magnitude	Medium (5)	Low (3)
Probability	Probable (3)	Probable (3)
Significance	Low Impact (30)	Low Impact (24)
Status	Negative	Negative
Reversibility	Reversible	Reversible

Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	
Mitigation:	<ul style="list-style-type: none"> Vegetation clearing should be kept to a minimum, especially along the final 1km towards the junction with the entrance to the wind farm site. There should be a preconstruction walk-through of the affected intact vegetation areas along the road to identify species of concern that can be translocated, as well as comply with CapeNature permit conditions. Soil disturbance should be kept to a minimum and erosion controlled. There should be diversion structures present to prevent water from running down the road on slopes, as well as rock packs or similar in areas likely to receive large amounts of runoff from the road. The road should be monitored for the entire project lifecycle to ensure that the disturbed areas along the sides of the road have stabilised and the road is not eroding or causing hydrological impacts. The Environmental Officer will be required to keep a photographic record of the environment at the crossings pre, during and post construction 	
Cumulative impacts:	None. However any further loss of habitat from other developments in the immediate area is likely to exacerbate this impact.	
Residual impacts:	None as the site is largely transformed, thus even though the rehabilitation of the site will re-introduce biodiversity to the site, it will most likely match what was already there previously.	

Impact 2: Impacts on Fauna

As per above. Faunal disturbance during the construction phase is inevitable and cannot be fully mitigated. The impact is however restricted to the construction phase and of a local nature. Fauna are likely to return to the area during the operational phase of the project.

Nature: Construction activities would result in a negative direct impact on fauna such as reptiles, amphibians and mammals present in the intact vegetation along the road. Construction phase disturbance will be transient, but some limited habitat loss would be long term.		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short Term (2)	Short Term (2)
Magnitude	Medium (5)	Low (3)
Probability	Probable (4)	Improbable (3)
Significance	Medium (32)	Low (18)
Status	Negative	Negative
Reversibility	Reversible	Reversible

Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	
Mitigation:	<ul style="list-style-type: none"> • The illegal collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the construction site. • All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. • No fires should be allowed within the site. • No fuelwood collection should be allowed on-site. • All construction vehicles should adhere to a low speed limit (40km/h for cars and 30km/h for trucks) to avoid collisions with susceptible species such as snakes and tortoises. • All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises 	
Cumulative impacts:	The further loss of habitat from other developments such will not exacerbate this impact. The increased noise and dust levels in the immediate area however could possibly exacerbate the current impacts.	
Residual impacts:	Residual impacts to population numbers will occur if the impact is not effectively mitigated, and this is not likely.	

Cumulative impacts:	The limited nature of the current development and the proximity to existing infrastructure and human disturbance suggests that the contribution of the current development to cumulative hydrological impacts would be low
Residual impacts:	None

C) FOR BOTH THE WATERCOURSE CROSSINGS AND ACCESS ROAD UPGRADES

Impact 1: Impacts on Air Quality

The movement of vehicles along the gravel access roads could cause some degree of dust disturbance as well as some exhaust emissions as components are transported to site. Since the roads are to be upgraded, the impacts of this is to be minimal.

Nature: Dust emissions along the access roads due to the gravel nature of these roads. The movement of vehicles creating dust at the crossings and as they travel along the access roads. Minimal exhaust emissions are anticipated from haulage vehicles.		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short Term (3)	Short Term (2)
Magnitude	Minor (3)	Low (2)
Probability	Probable (3)	Improbable (2)
Significance	Low Impact (21)	Low Impact (10)
Status	Negative	Negative
Reversibility	N/A	N/A
Irreplaceable loss of resources	N/A	N/A
Can impacts be mitigated?	Yes	
Mitigation:	<ul style="list-style-type: none"> • A practical speed limit of (40km/h for cars and 30km/h for trucks) must be implemented • If possible the ground grass layer should be left intact and only the larger woody plants cleared. • An appropriate dust suppressant must be applied on all exposed areas as required to minimise/control airborne dust • Vehicles traveling to and from site must be in good order. Vehicles which are emitting volumes of smoke should be taken for maintenance immediately. 	
Cumulative impacts: Due to the close proximity of the access roads to other divisional roads as well as the National N7 would mean that the overall cumulative impacts would be negative in terms of exhaust emissions and dust into the air		
Residual impacts: N/A		

Impact 2: Potential Impacts on Heritage Resources

The widening of the access road to allow heavy machinery onto site, may impact on 2 heritage sites (site 40 and 41) identified in the Heritage Impact Assessment.

Nature: The potential impact of activities the construction and associated infrastructure on Heritage objects or artefacts if they are found on site and are inappropriately managed or destroyed		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Minor (1)	Minor (1)
Probability	Unlikely (2)	Unlikely (2)
Significance	Low Impact (14)	Low Impact (14)
Status	Negative	Negative
Reversibility	N/A	N/A

Irreplaceable loss of resources	N/A	N/A
Can impacts be mitigated?	Yes	
Mitigation:	<ul style="list-style-type: none"> • Areas required to be cleared during construction must be clearly marked in the field to avoid unnecessary disturbance of adjacent areas (which will not be surveyed in detail by a heritage specialist). • Contractors must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. • All staff should also be familiarised with procedures for dealing with heritage objects/sites. • Despite falling outside of the site area, the Hottentotskop must be avoided during construction activities. The SHE Officer should be made aware of the presence of archaeological resources there so that their safeguarding during construction can be ensured. The presence of a grave to the north of the wind energy facility development area should be demarcated as a NO-GO area. The easily recognisable quartz scatters present near the Koppies must be avoided during the period of construction, so as to prevent any destruction of the sites. • Familiarise all staff and contractors with procedures for dealing with heritage objects/sites. • Project employees and any contract staff must maintain, at all times, a high level of awareness of the possibility of discovering heritage sites. • If a heritage object is found, work in that area must be stopped immediately, and appropriate specialists brought in to assess to site, notify the administering authority (SAHRA) of the item/site, and undertake due/required processes. • In the event that fossils resources are discovered during excavations, immediately stop excavation in the vicinity of the potential material. Mark (flag) the position and also spoil that may contain fossils. Inform the site foreman and the SHE Officer. SHE Officer to inform the developer; the developer contacts the standby archaeologist and/or palaeontologist. SHE Officer to describe the occurrence and provide images by email. • Should any heritage remains be exposed during excavations, these must be immediately reported to the Provincial Heritage Resource Authority of the Western Cape, in terms of the national Heritage Resources Act (Act No. 25 of 1999). Heritage remains uncovered or disturbed during earthworks may not be disturbed further until the necessary guidance and approval have been obtained from the relevant Heritage Authority. 	

Impact 3: Waste generated on-site

Waste will be generated along access roads and at the watercourse crossings during construction activities as a result of inappropriate handling and other waste generated (domestic waste and minimal hazardous waste) on site.

Nature: Environmental pollution due to inappropriate handling of waste (domestic and minimal hazardous waste) on site		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short Term (3)	Short Term (2)
Magnitude	Low (1)	Low (1)
Probability	Highly Probable (4)	Probable (3)
Significance	Low Impact (20)	Low Impact (12)
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources	Yes	No
Can impacts be mitigated?	Yes	
Mitigation:	<ul style="list-style-type: none"> • Storage areas, should any be necessary, should be located at least 50m away from the watercourse • The storage of flammable and combustible liquids such as oils, should any exist, must be in designated areas which are appropriately bunded, and stored in compliance with MSDS files, as defined by the SHE Representative • Any spills must receive the necessary clean-up action. If required, bioremediation kits are to be kept on-site and used to remediate any spills that may occur. • Any storage and disposal permits/approvals which may be required will be obtained, and the conditions attached to such permits and approvals must be complied with. • Routine servicing and maintenance of vehicles is not to take place on-site (except for emergency situations or large cranes which cannot be moved off-site). If repairs of vehicles must take place on site, an appropriate drip tray must be used to contain any fuel or oils. • Construction contractor must provide specific detailed waste management plans to deal with all waste streams. • Specific areas must be designated on-site for the temporary management of various waste streams, i.e. general refuse, construction waste (wood and metal scrap) and contaminated waste. Location of such areas must seek to minimise the potential for impact on the surrounding environment, including prevention of contaminated runoff, seepage and vermin control. • Where possible, construction and general wastes on-site must be reused or recycled. Bins and skips must be available 	

	<p>on-site for collection, separation and storage of waste streams (such as wood, metals, general refuse etc.).</p> <ul style="list-style-type: none"> • Disposal of waste must be in accordance with relevant legislative requirements, including the use of licensed contractors. • Waste and surplus dangerous goods must be kept to a minimum and must be transported by approved waste transporters to sites designated for their disposal. • Documentation (waste manifest) must be maintained detailing the quantity, nature and fate of any hazardous waste. • Hazardous and non-hazardous waste must be separated at source. Separate waste collection bins must be provided for this purpose. These bins must be clearly marked and appropriately covered. • All solid waste collected must be disposed of at a registered waste disposal site. A certificate of disposal must be obtained and kept on file. The disposal of waste must be in accordance with all relevant legislation. Under no circumstances may solid waste be burnt or buried on site. • Construction equipment (haulage vehicles and machinery) must be refuelled within designated refuelling locations, or where remote refuelling is required, appropriate drip trays must be utilised. • Construction machinery must be stored in an appropriately sealed area. • Although no concrete batching is to take place at the water crossings, any spilled cement or concrete must be cleaned up as soon as possible and disposed of at a suitably licensed waste disposal site. • In the event of a major spill or leak of contaminants, the relevant administering authority must be immediately notified as per the notification of emergencies/incidents. • Any contaminated/polluted soil removed from the site must be disposed of at a licensed hazardous waste disposal facility. • Upon the completion of construction, the area must be cleared of potentially polluting materials.
<p>Cumulative impacts: Any possible waste generated on site will add to the waste generated for the area.</p>	

3. IMPACTS RESULTING FROM THE OPERATIONAL PHASE

The environmental impacts associated with the operation phase of the proposed watercourse crossings and road upgrades are anticipated with regard to the following:

Impact 1: Increased erosion and water quality risk

This is as a result of soil disturbance and loss of plant cover, which is particularly a risk on steeper slopes and within areas which receive or channel runoff.

Nature: Soil degradation and erosion as well as increased deposition of soil into drainage systems and run-off over the site		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Long Term (4)	Long Term (4)
Magnitude	Low (4)	Low (2)
Probability	Probable (3)	Probable (3)
Significance	Low Impact (27)	Low Impact (21)
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	
Mitigation:	<ul style="list-style-type: none"> • Implement stormwater management and erosion control plan, as well as a rehabilitation plan • The culvert crossings should not trap any run-off, thereby creating inundated areas, but allow for free flowing systems • Erosion control measures installed on both roads during construction should be maintained for the duration of the operation phase 	
Cumulative impacts: No cumulative impacts are expected for this due to the already transformed and somewhat degraded environment		
Residual impacts: Rehabilitation of the site will re-introduce biodiversity to the site and can have the potential to even increase the biodiversity of the site as well as stabilise the soils that are more prone to erosion.		

4. IMPACTS RESULTING FROM THE DECOMMISSIONING PHASE

The watercourse crossings would only be decommissioned in the event that the infrastructure is no longer required. The project is expected to have a life span of more than 30 years. At the time where decommissioning would be applicable, all activities would need to comply with the legislation relevant at the time. Should the activity ever cease or become redundant, the applicant shall undertake the required actions as

5. IMPACTS RESULTING FROM THE NO-GO ALTERNATIVE

The No-Go Option would result in a continued deterioration of the public and private access roads. At present, these roads no longer have a top gravel wearing course layer, as this has been worn away over time from continued use. Adequate drainage has not been included in certain sections and, as a result, pooling of water occurs in the low points as well as across the roads, making the transport of heavy project components to the wind energy facility site unsafe. The present condition would thus remain and get worse, with the likelihood of potholes developing and further loss of surface material, resulting in reduced safety for road users and increased wear and tear on vehicles. The roads would eventually need to be repaired and at much greater cost to District Roads and Public Transport Authority.

Nature: The No-Go alternative is the option of not proceeding with the proposed road upgrades and culvert installations, which would result in the Public and Private Roads remaining in their current condition. This would result in a situation where the Klawer Wind Farm site would not be accessible to the heavy vehicles transporting project components to this site, which would result in a situation where the project would not be constructed. This would result in a lost opportunity in terms of employment opportunities and the development of a renewable energy facility feeding power into the national grid.

	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very High (6)	Very High (6)
Probability	Definite (5)	Definite (5)
Significance	High Impact (60)	High Impact (60)
Status	Negative	Negative
Reversibility	Irreversible	Irreversible
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	N/A	
Mitigation:	Implementation of the road upgrades and watercourse crossings would negate the negative impacts.	

SECTION B: ASSESSMENT OF CUMULATIVE IMPACTS

A cumulative impact, in relation to an activity, refers to the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse undertaking in the area¹. The cumulative impacts are discussed below:

As required by DEA&DP, an assessment into the cumulative impacts of the intended road upgrades and installations of watercourse crossings associated with the Klawer Wind Energy Facility was undertaken. The assessment concluded that no moderate or even Highly significant impacts are to be expected for the siting of this project.

The potential *cumulative impacts* as a result of the proposed project are expected to be associated predominantly with:

Nature: The nature of the development might result in negative cumulative impacts on ecological processes at a landscape level.		
	Without mitigation	With mitigation
Extent	Local (2)	Local (1)
Duration	Long Term (4)	Long Term (4)
Magnitude	Minor (4)	Low (3)
Probability	Probable (3)	Probable (3)
Significance	Low Impact (30)	Low Impact (21)
Status	Negative	Negative
Reversibility	Irreversible	Irreversible
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	N/A	Yes, to an extent
Mitigation:	<ul style="list-style-type: none"> • Adhere to all mitigation measures • Minimize vegetation clearing 	

¹ Definition as provided by the Department of Environmental Affairs in the EIA Regulations of 2014

SECTION C: OVERALL CONCLUDING STATEMENT

Based on the findings of the Basic Assessment process, no impacts of medium or high significance, including environmental fatal flaws will result from the granting of the Environmental Authorisation for the proposed watercourse crossings associated with the access road upgrades to the authorised Klawer Wind Energy Facility. All the identified impacts are of LOW Significance once mitigated through the implementation of the practical and appropriate mitigation measures detailed in this report and contained in the Environmental Management Programme in **Appendix G**.