



**ENVIRONMENTAL IMPACT CONTROL REPORT  
FOR THE**

**CONSTRUCTION OF TWO (2) 10km 132 KV  
POWERLINES FROM NGWEDI MTS TO THE  
EXISTING BAKUBUNG SUBSTATION AND  
NGWEDI MTS TO EXISTING STYLDRIFT  
SUBSTATION IN BONAJALA DISTRICT OF  
NORTH WEST PROVINCE**

**DEA AUTHORISATION NUMBER:**

**14/12/16/3/1/856**

**MONTHLY REPORT: MONITORING  
COMPLIANCE & AUDIT 3**

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**Commissioned by:**

**Eskom Holdings SOC Limited (North West Operating  
Office)**

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## List of abbreviations

<b>Shumani SHE</b>	Shumani Safety Health & Environment Specialists
<b>DWA</b>	Department of Water and Environmental Affairs
<b>ECO</b>	Environmental Control Officer
<b>ECR</b>	Environmental Control Report
<b>EMPr</b>	Environmental Management Programme
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)
<b>EA</b>	Environmental Authorisation
<b>DEDECT</b>	Department of Economic Development, Environment, Conservation and Tourism
<b>DAFF</b>	Department of Agriculture, Forestry and Fisheries
<b>WULA</b>	Water Use Licence Application

# 1. Definitions

## **1.1. Auditing**

An environmental audit is a methodological examination including tests, checks, and confirmation of environmental procedures and practices with the view of verifying whether they comply with internal policies, accepted practices and legal requirements and the conditions of the EMPr and the EA.

## **1.2. Environment**

The surroundings in which humans exist and which comprise: The land, water and atmosphere of the earth, Micro-organisms, plant and animal life, Any part or combination of all the above said interrelationships among and between them, The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.

## **1.3. Environmental Aspect**

These are components of the company's activities, products and services that are likely to interact with the environment.

## **1.4. Environmental Authorisation**

Is a written document from the relevant environmental competent authority in terms of the National Environmental Management Act (Act 107 of 1998), with or without conditions, that is an approval of a planned activity and the implementation thereof and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

## **1.5. Environmental Feature**

These are elements and attributes of the biophysical, economic and social environment.

## **1.6. Environmental Impact**

These are changes to the environment resulting from an environmental aspect (an activity) on the environment, whether desirable or undesirable. An impact may be the direct or indirect consequence of an activity.

### **1.7. Environmental Management Programme (EMPr)**

A detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and or limiting or preventing negative environmental impacts are implemented during the life-cycle of a project.

### **1.8. Hazardous Waste**

Any waste that contains organic or inorganic elements or compounds that may cause impacts to the inherent physical, chemical or toxicological characteristics of that waste have a detrimental impact on health and the environment.

### **1.9. Monitoring**

Compliance monitoring is a continuous and systematic process to ensure that the conditions and the requirements in the Environmental Authorisation and Environmental Management Programme (EMPr) are being adhered to.

### **1.10. Pollution**

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

## 2. Introduction

**Shumani SHE Specialists** was appointed by **Eskom** as an independent Environmental Assessment Practitioner (EAP) to conduct an Environmental Impact Control, Monitoring Compliance and Audits so as to give environmental inputs and advices on the construction of two (2) 10km 132kV power lines from Ngwedi MTS to the existing Bakubung substation and from Ngwedi MTS to the existing Styldrift substation in Bojanala District North West province.

This Environmental Management Programme (EMPr) for the construction includes the principles, approaches, procedures and methods that will be used to control, monitor and minimize the environmental impacts of all construction and operational activities associated with the project. It is intended to complement the project's compliance so as to minimise all the social and adverse environmental impacts on site and adhered to the Environmental Authorisation/EMPr conditions.

This report serves as a report back on the contractor's compliance with the EMPr compiled for the construction of the infrastructure. This report constitutes the detailed Environmental Audit Report for the aforesaid development.

CONC is the contractor on site and is responsible for the construction of the two power lines Ngwedi MTS to Styldrift substation and Ngwedi MTS to Bakubung substation. The lines are being constructed simultaneously. The proposed construction period is four (4) months running from July to October 2016.

The activities associated with the project include: pegging of the lines, delivery of poles to position, assembly of poles, excavation of foundations, casting of foundations, planting of poles and stays, stringing and earthing. So far all the poles have been delivered on site and the team is busy with assembling the poles. Excavation of the pole holes has also started.

The inspections were conducted by the ECO, ***Nyasha Mapira for Shumani S.H.E Specialists on the 15<sup>th</sup> of August 2016 on site.***

### 3. Offences and penalties of non-compliance to EMPr, EA and WULA

Any avoidable non-compliance with the conditions of the EMPr is considered sufficient ground for the imposition of a penalty. Possible offence can be:

- Unauthorized damage to natural vegetation
- Hazardous material, negligence spills and leaks of deteriorative substances.
- Lack of sufficient ablution facilities, inappropriate maintenance of ablution facilities
- Inappropriate solid waste management (clean up, collection and separation)
- Excessive cement concrete and contamination of soil
- Insufficient fire control and unauthorized fire onsite

### 4. Environmental control measure

The scope of environmental monitoring audit for this project is limited to compliance to the conditions and requirements of the EMPr, EA and Water Use Licence Application (WULA). Verification of compliance included the following activities:

- Determining and verifying whether all conditions stipulated in the EMPr, Environmental Authorization (EA) and Water Use Licence Application (WULA) are being adhered to. A checklist based on the EMPr, EA and WULA was drawn and is being used for monitoring.
- Determining and verifying whether environmental targets prescribed in the three instruments are being adhered to.
- Determining and verifying whether the implementation of the mitigation has successfully prevented environmental pollution and damage.
- Determining and verifying the overall effectiveness and applicability of the environmental management practices.



## 5. Areas of inspections

- Camp site inspection
- Access to site (Site access and control)
- Ablution facilities (chemical toilets) both at the camp site and on the power line construction
- Plant on site
- Use of PPE
- Waste Management
- House keeping
- Air quality management
- Spills of oil, fuel and cement
- Soil and groundwater pollution
- Vegetation Management
- Fauna (killing and hunting or feeding of animals on site is strictly prohibited)
- Soil erosion Control (where the contractor or the resident engineer identify an area susceptible to erosions, rehabilitation must be employee
- Use of concrete and cement onsite

## 6. Environmental aspects

- Documentation of contractor especially SHE File on site
- Consent letter for the disposal of waste at the nearest registered landfill.
- Contract agreement with the service provider of mobile toilets.
- Proof of safe disposal of general waste and sewer waste. Records to be submitted to the ECO monthly and filed in the Environmental file on site.
- All contractors to establish environmental files which should contain copies of: EA, EMPr, WULA and waste management activities records (general waste, ablution).

## 7. Environmental Induction

Environmental induction of the team was conducted by Eskom and the contractor was handed the EMPr, EA and WULA documents at contract signing. The Site Manager and Safety officer must be familiar with the documents and follow the stipulation. The ECO will continue with monitoring compliance and educate the contractor on environmental protection and conservation during the entire construction period. Feasible mitigation measures of any arising environmental impact will be recommended.

## 8. Sites of inspection

### 8.1. Camp Site Assessment

**Findings:** One contractor Concor is responsible for the construction of the two lines. The site office is at Lodge's a caravan park. The site provides accommodation for the workers, offices, storage yard and parking space for the vehicles. Two containers are on site, one is used as the site office and the other for storage. The storage area is fenced, gated but not manned during the day.



**Accommodation and Storage Area**

**Recommendations:** Whilst the accommodation and office area is inside the Lodge premises and is not feasible to fence it, the storage area which is outside the Lodge perimeter fence must be fenced, gated and manned by a security personnel. **A visitor's register must be maintained by the security personnel.**

### 8.2. Ablution facilities

**Findings:** The camp site has sufficient ablution facilities including toilets and shower facilities. There are no separate facilities for male and female. The team composition is all male, but the workers are living in with female counterparts and they do have female toilet and bathing facilities. The ablution facilities' hygiene has greatly improved with addition of deodoriser to minimise the stench. Toilet roll and hand washing soap was available in the toilets. The team on the power line have a toilet on site. The toilet is hygienic but has no water and soap for hand washing nor toilet roll. One toilet is used by the two (2) teams. Because it is not mobile it is placed at a strategic central position and workers are driven to the toilet when need arise.

This is not the ideal situation but if it is carried at the back of the truck it will be splashed and not be useable.



#### **Ablution Facilities at the camp site & Toilet along the power line**

**Recommendation:** All toilets should be regularly cleaned to improve and maintain the hygiene condition. Toilet paper and hand washing soap must be available. The two teams working on the power line must have a clean mobile toilets and placed at a reasonable distance from the place of work. A contract agreement with the service provider for the toilets must be availed to the ECO and a copy filed and kept at the site offices. The toilets

must be serviced at least twice per week. **Sewer waste must be taken to the nearest municipal sewer works. Proof of such disposal must be sent to the ECO monthly and copies filed at the site office.**

### 8.3. Plant on site

**Findings:** Plant on site includes 2 TLBs, 2 trucks having a crane, 2 land cruises to ferry the workers, 2 bakkies, the caravans for staff accommodation and a fuel tank.



**Recommendation:** All plant should be investigated before used and in case of oil leakages drip trays must be provided for all standing plants.

### 8.4. Use of PPE

**Findings:** All workers were found to be wearing appropriate PPE at all times.



**Recommendation:** All PPE should be replaced when worn-out. No worker is to be allowed onsite without proper PPE.

## 8.5. House keeping

**Findings:** The site is kept in order. Material in the caravan park must be put in the storage yard. Storage areas must be barricaded and labelled accordingly.

**Recommendations:** Different storage areas must be assigned and demarcated. Material must be stored in designated areas to maintain order. Nets are neater than barricading tap. Hazardous material must be stored separately in a bunded area with impermeable floors to prevent seepage into the ground.

## 8.6. Waste Management

**Findings:** The camp site has bins in strategic points all over. No litter was seen on the powerline, the team is provided with a plastic bin to collect all waste including empty cement bags for safe disposal at the camp site bins. A consent letter to dispose effluent waste at Rustenburg sewer works has been acquired. General waste is being taken to Mogwase disposal site, but no consent letter is available for the arrangement.



**Waste bins at the camp site and waste in the field is collected for safe disposal**

**Recommendation:** Keep surrounds of the site office clean by keeping litter and placing in the bins place at strategic positions. The power line team must carry refuse bag to collect all waste and dispose at the camp site temporarily. Waste disposal licences and consent letters must be obtained from Municipality and submitted to the ECO. All records relating to waste management should be stored for verification. Hazardous was must be disposed at a hazardous waste facility.

### 8.7. Air quality management

**Findings:** Access to the camp site and the power line route is by gravel roads. Where spraying is not practical, vehicles must move at speeds as low as 20km/h to minimise dust emission. A dust emission complaint was lodged from Cheneng village and a request to spray the road to suppress dust was forwarded. Conco has resolved to use the Nwedi MTS road to access the site due to water shortages.

### 8.8. Spills of oil, fuel and cement

**Findings:** No evidence of oil nor cement spills was observed during inspection. Oil spill kit is available on site.



**Drip tray use by Conco and the bush clearing contractor**

**Recommendation:** An accidental spillage respond report should be prepared in case of spillages. The area need to be cleaned up. Oil spillage should be avoided at all costs as they degrade the soil. Service equipment, do daily checks, put drip trays under all standing equipment and clean-up any contamination. The principle is avoid, minimise, mitigate and clean-up in that order. Contractor should make use of accidental spillage respond kit to clean minor spillages onsite.

### 8.9. Soil and groundwater pollution

**Findings:** No soil and ground water pollution was observed on site.

**Recommendations:** As above.

### 8.10. Vegetation Management

**Findings:** Bush clearance was in progress on the day of inspection. On the Styldrit Ngwedi line very few big trees were cut. No protected trees were identified within the corridors hence no need for tree cutting licences.



**Recommendation:** Only clear vegetation within the project footprint and were it is necessary. No vegetation must be cleared at river crossings within the riparian zone. Avoid disturbing the Elands riparian zone as much as possible. Trim were necessary.

### 8.11. Soil Erosion control

No evidence of erosion due to the power line construction activity was noted. The team has improved on using 1 designated route. However it must be noted that the area has many stakeholders operating including villagers, mine related and a water pipe line construction activities.

**Recommendations:** However the area is erosion prone especially along water ways. Hence due care must be taken to prevent further erosion especially at poles at the edges of waterways and pans on both lines. Designated access roads must be followed by the construction team despite of other people operating in the area. Cross the waterways at designated crossing points. Avoid sensitive areas such as water ways when creating access roads as much as possible. Consultation and approval from the ECO and Eskom Environmental Officer must be sort before opening an access road.

## **8.12 Safety**

All workers must have Personal protective Equipment (PPE). PPE being used includes work suits, safety shoes, hard hats, gloves, dust mask, goggles and ear plugs. Workers have been observed using the appropriate PPE for tasks at hand.

Barricade all excavations with barricading net and maintain the barricade throughout the construction phase.

### **Barricade all excavations**

Firefighting equipment and first aid boxes must be on site. The team must have a First Aider and a Safety Representative. Risk assessment must be done with the team members daily.

The emergency information table must be available and displayed at camp site.



## 9. Compliance Summary

The Contractor shows substantial **compliance** of 86% to the conditions of the EA and the EMPr compiled for the project during inspections and the reporting stage. This level of compliance is acceptable. Some environmental compliance recommendations are being observed in the camp site and construction site. The EMPr, EA and WULA documents are present onsite and are used as a point of reference. The Site Manager and Safety Officer have an understanding of the development impact and the mitigation measures recommended in the EMPr, EA and WULA.

## 10. Recommendation

Environmental awareness induction was conducted for the construction teams. Environmental awareness should be included into tools box talks that safety representative conduct with the employees. This should be done regularly to remind the workers of environmental awareness issues that need to be adhered to during construction. All construction sites should be provided with chemical mobile toilets and clean drinking water. Service providers for the chemical mobile toilets should provide the contractor with disposal documentation from local authority.

General waste disposal should be done in a local authorised facilities and records of such actions stored in the environmental file for verification. Under no circumstances contractor will burn waste material accumulated onsite as this is strictly prohibited. **All noted environmental aspects should be resolved before the next site meeting failure to do so will entail stoppage of work.**

**Compliance rating checklist**

Score/Rating	Compliance rating	Definition
4	Full compliance	All activities, conditions and requirements 85> 100% have been addressed.
3	Substantial compliance	75> 85% met
2	Broad compliance	50>75% met
1	Partial compliance	25>50% met
0	Non compliance	0>25%None of the activities, conditions or requirements has been addressed.

***Table 1 indicating compliance rating used by ECO***

**ENVIRONMENTAL AUTHORISATION AND ENVIRONMENTAL MANAGEMENT CHECKLIST FOR COMPLIANCE**

	<b>EA CONDITIONS</b>	<b>Phase of Project</b>	<b>Responsibility</b>	<b>Compliance Rate</b>	<b>Comments</b>
	<b>Authorised Activity</b>				
	The construction of 2X10km 132kV power line from Ngwedi MTS to Styldrift and Ngwedi MTS to Bakubung substations.				
	<b>Scope of Authorisation</b>				
1.	The preferred alternative route for Ngwedi-Styldrift and Ngwedi-Bakubung located at the given coordinates is approved.	Pre-construction & construction	Eskom	5	Line pegged by the surveyor on the approved corridor.
2.	Authorisation of the activity is subject to the conditions contained in this authorisation, which form part of the environmental authorisation and are binding on the holder of the Authorisation.	All Phases	All relevant stakeholders	5	All stakeholders sticking to EA conditions
3	The holder of the authorisation is responsible for ensuring compliance with the conditions contained in this environmental authorisation .This includes any person acting on the holder's behalf, including but not limited to, an agent ,servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.	All phases	All relevant stakeholders/ECO	5	Environmental officer monitoring the project on a regular basis and checking ECO reports
4.	The activities authorised must only be carried out at the property as described above.	Pre-construction	Land & rights/Environmental	5	The approved route is as negotiated
		Construction	All relevant stakeholders	5	Activities carried out at the authorised area
5.	Any Changes to ,or deviation from ,the project description set out in this authorisation must be approved ,in writing ,by the Department before such changes or deviations may be effected in assessing	Pre-construction	EAP/Environmental Officer	5	EAP appointed and the relevant department notified
		Construction	All relevant stakeholders	5	No change in project scope and alignment

	whether to grant such approval or not ,the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.				
6.	The holder of an environmental authorisation must notify the competent authority of any alienation, transfer and change of ownership rights in the property on which the activity is to take place.	Pre-Construction	Environmental Officer/Land and Rights	N/A	No alienation, transfer & change of ownership rights
7.	This activity must commence within a period of five (05) years from the date of issue of this environmental authorisation. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.	Pre-construction	Environmental Officer	5	Authorization issues 18/04/2016 and project commenced 20/06/2016. The project commenced within the first year of the EA issue.
8.	Construction must be completed within 5 years of the commencement of the activity on site.	Pre-construction	Environmental Officer	5	Proposed completion date is October 2016
9.	Commencement with one activity listed in terms of this authorisation constitutes commencement of all authorised activities.	Pre-construction	Environmental Officer/ECO	5	Both lines Ngwedi-styltdrift, Ngwedi-Bakubung have commenced. Ngwedi MTS has also commenced
10.	In terms of section 43(7), an appeal under section 43 of the National Environmental Management Act, 1998 will suspend the environmental authorization or any provision or condition attached thereto. In the instance where an appeal is lodged you may not commence with the activity until such time that the appeal has been finalized	Pre-construction	Environmental Officer	5	I&APs notified of the granting of the EA. No appeal was lodged.
		Construction	Environmental Officer/ECO	5	No appeal has been lodged to date

	<b>Notification of authorization and right to appeal</b>				
11	The holder of the authorisation must notify every registered interested and affected party, in writing and within 14 (fourteen) calendar days of the date of this environmental authorisation, of the decision to authorise the activity.	Pre-construction	EAP/Environmental Officer	5	I&APs have been notified of the decision of granting the environmental authorisation (Environmental Officer has the copies)
12	The notification referred to must -	Pre-construction	EAP/Environmental Officer	5	Done as above
12.1	Specify the date on which the authorisation was issued;				
12.2	Inform the interested and affected party of the appeal procedure provided for in the National Appeal Regulations, 2014				
12.3	Advise the interested and affected party that a copy of the authorisation will be furnished on request; and				
12.4	Give the reasons of the competent authority for the decision.				
13	The holder of the authorization must publish a notice-	Pre-construction	EAP/Environmental Officer	5	Done as above
13.1	Informing interested and affected parties of the decision.				
13.2	Informing interested and affected parties to where the decision can be accessed; and				
13.3	Drawing the attention of interested and affected parties to the fact that an appeal may be lodged against this decision in terms of the National Appeal Regulations, 2014.				
	<b>Commencement of the activity</b>				
14	The authorised activity must not commence within twenty (20) days of the date of signature of the authorisation	Pre-construction	Environmental Officer	5	Construction started 2months from date of EA issue
	<b>Management of the Activity</b>				
15	The Environmental Management Programme (EMPr) submitted as part of	Pre-construction	EAP/Environmental Officer	5	The EMPr is approved and is being implemented

	the application for the EA is hereby approved. This EMPr must be implemented and adhered to.				
16-20	Frequency and process of updating the EMPr	Construction	ECO/Environmental Officer	N/A	So far no amendment required.
	<b>Monitoring</b>				
21.	The applicant must appoint a suitably qualified and experienced Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation/rehabilitation measures and recommendation referred to in this authorisation are implemented and to ensure compliance with the provisions of the EMPr.	Pre-construction	Environmental officer	5	Appointment done on 25 <sup>th</sup> May 2016
21.1	The ECO must be appointed before commencement of any authorised activity.			5	Appointment done on 25 <sup>th</sup> May 2016
21.2	Once appointed, the name and contact details of the ECO must be submitted to the Director: Compliance Monitoring of the Department	Construction	Environmental officer	5	Submitted to DEA
21.3	The ECO must keep record of all activities on site, problems identified, transgressions noted and a task schedule of tasks undertaken by the ECO.		ECO	5	Monitoring reports prepared monthly
21.4	The ECO must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.		Environmental officer	5	So far employed, task order still valid
	<b>Recording and Reporting to the Department</b>				
22	All documentation e.g. audit/monitoring/compliance reports and notification, required to be submitted to the Department in terms of this authorisation,	Construction	ECO/Environmental Officer	5	Documents on project reporting will be sent to DEA by the ECO. ECO is using the General Reporting template and the

	must be submitted to the <i>Director: Compliance Monitoring at the Department</i>				standard checklist developed from the EA, EMP & WULA
23	The holder of the environmental authorisation must, for the period during which the environmental authorisation and EMPr remain valid, ensure that project compliance with the conditions of the EA and the EMPr are audited, and that the audit reports are submitted to the <i>Director: Compliance Monitoring at the Department</i>	Construction	ECO/Environmental officer	5	ECO has been appointed form the full project term
24	The frequency of auditing and submission of the environmental audit reports must be as per the frequency indicated in the EMPr, taking into account the processes for such auditing as prescribed in Regulations 34 of GN. R. 982.	Construction	ECO/Environmental officer	5	Monitoring weekly in the first month and once monthly thereafter until completion
25	The holder of the authorisation must submit an environmental audit report to the Department within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and within 30 days of completion audit report activities.	Post-Construction	ECO/Environmental Officer	N/A	The ECO to compile & submit a final environmental audit report at reasonable time to allow Eskom to submit it to the Department within 30 days after project completion
26	The environmental audit 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 as well as the requirements of the EMPr.	Post-Construction	ECO/Environmental Officer	5	The ECO will comply with this condition throughout the project life span.
27	Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development	Construction	Contractor/ECO	5	Monitoring reports are kept on site
	<b>Notification to authorities</b>				
28	A written notification of commencement must be given to the Department no later than fourteen (14) days prior to the	Pre-Construction	Environmental Officer	5	Notification of commencement submitted to DEA by the Environmental Officer.

	commencement of the activity. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence, as well as a reference number.				
	<b>Operation of the activity</b>				
29	Fourteen (14) days written notice must be given to the Department that the activity operational phase will commence.	Post construction	Environmental Officer		The Environmental Officer will send the Notice to the Department
	<b>Site closure and decommissioning</b>				
30	Should the activity ever cease or become redundant, the applicant shall undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time.	Post Construction	Eskom/Environmental Officer	N/A	The project has not ceased.
	<b>Specific Conditions</b>				
31	Structures must be placed at least 50m from the outer edge of the riparian zone to limit any potential impacts on the Elands River and Spruits.	Construction	ECO/Environmental Officer	3	Structures outside the Elands River riparian zone but not out of all smaller drainage lines
32	A qualified and independent botanist must be appointed to ensure that all construction activities including access roads, working areas and tower assembly sites comply with the mitigation measures and/or management actions.	Pre-construction	ECO/Environmental Officer	5	A qualified botanist appointed and conducted a walk done after line pegging.
33.	Anti-collision devices such as bird flappers must be installed where powerlines cross avifaunal corridors, as recommended by the Avifaunal specialist.	Construction	ECO/Environmental Officer	N/A	These will be installed at stringing stage
34.	Poles must be fitted with bird perches on top of the poles to attract birds away from risky insulators.	Construction	ECO/Environmental Officer	5	Structures fitted with bird perches



35.	A botanist must be appointed to perform a final walkthrough of the alignment to identify sensitive plant species, and assist in identifying the areas that require protection.	Pre-construction	ECO/Environmental Officer	5	A botanist appointed & conducted a walk down of the area.
36	No exotic plants must be used for rehabilitation purposes. Only indigenous plants of the area must be utilised.	Post Construction	ECO/Environmental Officer	N/A	It will be observed during rehabilitation process
37	Any discovered artefacts shall not be removed under any circumstances. A permit must to obtain from the SAHRA before any destruction on site can occur.	Construction	ECO/Environmental Officer	5	So far no artefacts have been uncovered/discovered on site
38	All waste material must be collected at designated temporary waste disposal areas and transported to a licensed municipal site disposal site. Waste must not be stored on site.	Construction	ECO/Environmental Officer	5	All waste is being collected in bins at strategic points on site and in the field and it is being disposed at registered Rustenburg landfill site
39.	All existing large trees that fall outside the construction area must be retained.	Construction	ECO/Environmental Officer	5	No large trees outside the construction has been tempered with by the team. Minimal bush clearance done
40	An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste must be disposed of at a landfill licensed in terms of section 20 9b) of the National Environment Management Waste Act, 2008 (Act No. 59 of 2008)	Construction	ECO, Environmental Officer & contractor	2	Bins available. No waste sorting on site being done. <b>Recommendation: Separate waste on site by having different bins for different waste types</b>
	<b>General</b>				
41	A copy of the EA, the audit and compliance monitoring reports, and the approved EMPr, must be made available for inspection and copying-	All phases	ECO, Environmental Officer & Contractor	5	Copies of EA, EMPr, WULA and monthly audit reports on site, with ECO and Environmental Officer
41.1	At the site of the authorised activity	All phases			
41.2	To anyone on request; and	All phases	Environmental Officer	N/A	On request

41.3	Where the holder of the EA has a website, on such public accessible website.	All phases	Environmental Officer	N/A	Not yet posted
42	National government, provincial government, local authorities or committees appointed in terms of the conditions of this authorisation or any other public authority shall not be held responsible for any damages or losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of authorisation as set out in this document or any other subsequent document emanating from these conditions of authorisation.	All phases	Environmental Officer	N/A	No such appeal has been lodged
<b>EMPr CONDITIONS</b>					
<b>Construction Traffic and Access</b>					
Construction Traffic	<ol style="list-style-type: none"> <li>1. Construction routes must be clearly defined.</li> <li>2. Delivery of equipment must be undertaken with the minimum amount of trips.</li> <li>3. Access of all construction and material delivery vehicles should be strictly controlled, especially during wet weather to avoid compaction and damage to the topsoil structure.</li> <li>4. Planning of site delivery hours must be scheduled to avoid peak hour traffic, weekends and evenings.</li> <li>5. Wheel washing and damping down of un-surfaced roads must be implemented to reduce dust.</li> </ol>	Construct	Main contractor/ECO	5	Construction traffic controlled. Materials delivered to the camp site and contractor's transport ferry material to the construction site. Vehicles serviced and repaired off site

	<p>6. Vehicles and equipment shall be serviced regularly to avoid the contamination of soil from oil and hydraulic fluid leaks etc.</p> <p>7. Servicing must be done off-site.</p> <p>8. Soils compacted by construction shall be deep ripped to loosen compacted layers and re-graded to even running levels.</p>				
Access	<p>9. Temporary access roads that might be required must be rehabilitated prior to the contractor leaving the site. Should these roads trigger the threshold specified in the EIA Regulation, Environmental Authorisation must be obtained.</p> <p>10. Strategic positioning of entry and exit points to ensure as little impact/ effect as possible on the traffic flow.</p> <p>11. The main routes to the site must be clearly signposted.</p> <p>12. Planning of temporal access routes to the site for construction purposes shall be done in conjunction between the Contractor, Eskom and the Landowner. All agreements reached should be documented and no verbal agreements should be made. The Contractor shall clearly mark all access roads.</p> <p>13. Where new access roads are constructed, this must be done according to design and contract specifications. Drainage channels shall be suitably designed to ensure erosion does not occur, especially at the outflow points. The new access road shall be designed to allow for the natural flow of water where required. Crossing of dongas and eroded areas on access routes to new sites shall be</p>	Construction	Main contractor/ECO	3	Existing and new access roads are being used on site and the team has improved in sticking to these roads.

	thoroughly planned and installed according to design and contract specifications. All areas susceptible to erosion shall be protected with suitable erosion control measures from the onset of the project. Prevention is the ultimate aim, as restoration is normally very difficult and costly.				
Road Maintenance	14. Contractors should ensure that access roads are maintained in good condition by attending to potholes, corrugations and Storm water damage as soon as these develop. 15. If necessary, staff must be employed to clean surfaced roads adjacent to construction sites where materials have spilt.	Construction	Main contractor/ECO	5	The roads are in good condition and do not need any maintenance yet.
General	16. The Contractor shall meet safety requirements under all circumstances. All equipment transported shall be clearly labelled as to their potential hazards according required safety labelling on the containers and trucks used shall be in place. 17. The Contractor shall meet these safety requirements under all circumstances. All equipment transported shall be clearly labelled as to their potential hazards according to specifications. All the required safety labelling on the containers and trucks used shall be in place. 18. The Contractor shall ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of an accident	Construction	Main contractor/ECO	3	Safe working procedures are given to the workers, risk assessment conducted each day based on activities to be undertaken. Diesel container and the area must be labelled and a no smoking sign must be put in place.
	<b>Construction Camp</b>				

<p>Site of construction camp</p>	<ol style="list-style-type: none"> <li>1. Choice of site for the Contractor's camp requires the ECOs permission and must take into account location of local residents and / or ecologically sensitive areas, including flood zones and slip / unstable zones. A site plan must be submitted to the ECO and project manager for approval.</li> <li>2. The construction camp may not be situated within the 1:100 year flood line or on slopes greater than 1:3.</li> <li>3. If the Contractor chooses to locate the camp site on private land, he must get prior permission from both the project manager and the landowner</li> <li>4. The size of the construction camp should be minimized (especially where natural vegetation or grassland has had to be cleared for its construction).</li> <li>5. Adequate parking must be provided for site staff and visitors. This should not inconvenience or serve as a nuisance for neighbours.</li> <li>6. The Contractor must attend to drainage of the camp site to avoid standing water and / or sheet erosion.</li> <li>7. Suitable control measures over the Contractor's yard, plant and material storage to mitigate any visual impact of the construction activity must be implemented.</li> <li>8. No development, or activity of any sort associated with camp, is allowed below the 1:100 year flood line of any water system. Storage of materials (including hazardous materials)</li> <li>9. Choice of location for storage areas must take into account prevailing winds, distances to water bodies, general onsite</li> </ol>	<p>Construction</p>	<p>Main Contractor/ECO/Environmental Officer</p>	<p>3</p>	<p>The camp site is on private property, on a lodge where the contractor is renting the caravan area.</p> <p>Adequate parking space is provided.</p> <p>Storage area is demarcated, fenced, gated but not manned by the contractor's security guard.</p> <p>At night the whole premises is guarded by the lodge's security guard.</p> <p>Hazardous storage area is not banded to contain spillage, neither is it labelled.</p> <p>Firefighting equipment is present</p>
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	<p>topography and water erosion potential of the soil. Impervious surfaces must be provided where necessary.</p> <p>10. Storage areas must be designated, demarcated and fenced.</p> <p>11. Storage areas should be secure so as to minimize the risk of crime. They should also be safe from access by unauthorised persons.</p> <p>12. Fire prevention facilities must be present at all storage facilities.</p> <p>13. Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used must be provided to prevent the migration of spillage into the ground and groundwater regime around the temporary storage area(s). These pollution prevention measures for storage should include a bund wall high enough to contain at least 110% of any stored volume, and this should be sited away from drainage lines in a site with the approval of the ECO.</p> <p>14. These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of storm water from surrounding areas in order to ensure that accidental spillage does not pollute local soil or water resources.</p> <p>15. Clear signage must be placed at all storage areas containing hazardous substances / materials.</p> <p>16. Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures.</p>				
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	<p>17. A Waste Disposal Contractor must be employed to remove waste oil. These wastes should only be disposed of at DWAF licensed landfill sites designed to handle hazardous wastes. A disposal certificate must be obtained from the Waste Disposal Contractor.</p> <p>18. The contractor must ensure that its staff is made aware of the health risks associated with any hazardous substances used and has been provided with the appropriate protective clothing/equipment in case of spillages or accidents and have received the necessary training.</p> <p>19. All excess cement and concrete mixes are to be contained on the construction site prior to disposal off site.</p> <p>20. Any spillage, which may occur, shall be investigated and immediate action must be taken. This must also be reported to the ECO and DWAF, as well as local authorities if so required.</p>				
Drainage of construction camp	21. Run-off from the camp site must NOT discharge into neighbours' properties or into adjacent wetlands, rivers or streams.	Construction	Main contractor, ECO & Environmental Officer	5	No potential of runoff into neighbouring properties or water way
End of construction	<p>22. Once construction has been completed on site and all excess material has been removed, the storage area shall be rehabilitated. If the area was badly damaged, re-seeding shall be done.</p> <p>23. Such areas shall be rehabilitated to their natural state. Any spilled concrete shall be removed and soil compacted during construction shall be ripped, levelled and re-vegetated.</p>	Post Construction	Main contractor, ECO & Environmental Officer	N/A	<p>Not yet reached there.</p> <p><b>Recommendation:</b> Rehabilitation must be on going</p>

	24. Only designated areas must be used for storage of construction materials, soil stockpiles, machinery and other equipment.				
	<b>Environmental Education and Training</b>				
Environmental Training	<p>1. Ensure that all site personnel have a basic level of environmental awareness training. Topics covered should include;</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> What is meant by “Environment”</li> <li><input type="checkbox"/> Why the environment needs to be protected and conserved</li> <li><input type="checkbox"/> How construction activities can impact on the environment</li> <li><input type="checkbox"/> What can be done to mitigate against such impacts</li> <li><input type="checkbox"/> Awareness of emergency and spills response provisions</li> <li><input type="checkbox"/> Social responsibility during construction of the powerlines e.g. being considerate to local residents</li> </ul> <p>2. It is the Contractor’s responsibility to provide the site foreman with environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff.</p> <p>3. Training should be provided to the staff members in the use of the appropriate fire-fighting equipment. Translators are to be used where necessary.</p> <p>4. Use should be made of environmental awareness posters on site.</p> <p>5. The need for a “clean site” policy also needs to be explained to the workers.</p> <p>6. Staff operating equipment (such as excavators, loaders, etc.) shall be adequately trained and sensitised to any</p>	Pre-Construction & Construction	ECO & Environmental Officer	5	Induction conducted by the Environmental Officer. The project has a full time Safety Officer and a Safety Representative conducting tool box daily. The ECO also highlight issues at each visit.



	potential hazard associated with their tasks.				
Monitoring of Environmental Training	7. The Contractor must monitor the performance of construction workers to ensure that the points relayed during their introduction have been properly understood and are being followed.	Construction	Main contractor, ECO & Environmental Officer	4	Monitoring is on-going. Being conducted by the Safety officer, ECO & Environmental Officer
	<b>Soils Management</b>				
Top soil	1. The contractor should, prior to the commencement of earthworks determine the average depth of topsoil, and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2. Care must be taken not to mix topsoil and subsoil during stripping. 3. Removed polluted topsoil should be transported to a licensed landfill site.	Construction	Main contractor, ECO & Environmental Officer	4	Top soil stripped and separated. It will be used for rehabilitation
Soil Striping	4. No soil stripping must take place on areas within the site that the contractor does not require for construction works or areas of retained vegetation. 5. Subsoil and overburden should, in all construction and lay down areas, be stockpiled separately to be returned for backfilling in the correct soil horizon order. 6. Construction vehicles must only be allowed to utilise existing tracks or pre-planned access routes.	Construction	Main contractor, ECO & Environmental Officer	5	Only areas the contractor is excavating for structures have been stripped.
Stock piles	7. Stockpiles should not be situated such that they obstruct natural water pathways and drainage channels.	Construction	Main contractor, ECO & Environmental Officer	5	Stockpiles managed according to the recommendations

	<p>8. Stockpiles should not exceed 2m in height.</p> <p>9. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or cloth. Stockpiles may further be protected by the construction of berms or low brick walls around their bases.</p> <p>10. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding.</p> <p>11. Where contamination of soil is expected, analysis must be done prior to disposal of excess soil to determine the appropriate disposal route.</p>				
Fuel Storage	<p>12. Topsoil and subsoil to be protected from contamination.</p> <p>13. Fuel and material storage must be away from stockpiles.</p> <p>14. Cement, concrete and chemicals must be mixed on an impermeable surface and provisions should be made to contain spillages or overflows into the soil.</p> <p>15. Any storage tanks containing hazardous materials must be placed in banded containment areas with sealed surfaces. The bund walls must be high enough to contain 110% of the total volume of the stored hazardous material.</p> <p>16. Contaminated soil must be contained and disposed of offsite at an approved landfill site.</p>	Construction	Main contractor, ECO & Environmental Officer	3	Fuel storage is at the camp site and away from stock piles. The storage area for fuel is not banded to contain spills, however it is protected to prevent seepage.
Concrete Mixing	<p>17. Concrete mixing must be contained within a banded area.</p> <p>18. Concrete mixing must only take place within designated areas.</p>	Construction	Main contractor, ECO & Environmental Officer	4	Cement mixed with the soil that will be used for back filling. No concrete mixed on site so far.

	<p>19. Ready mixed concrete must be utilised where possible.</p> <p>20. No vehicles transporting concrete to the site may be washed on site.</p> <p>21. If a batching plant is necessary, run-off should be managed effectively to avoid contamination of other areas of the site. Untreated run-off from the batch plant must not be allowed to get into the storm water system or any rivers, streams, wetlands or existing erosion channels / dongas.</p>				
Earth works	<p>22. Soils compacted during the construction of the line should be deeply ripped to loosened compacted layers and re-graded to even running levels. Topsoil should be re-spread over landscaped areas. According to specifications by the Eskom's landscape architect the area should be re-vegetated upon completion of construction activities.</p>	Construction	Main contractor, ECO & Environmental Officer	N/A	Will be implemented during rehabilitation
<b>Erosion Control</b>					
	<p>1. Wind screening and stormwater control should be undertaken to prevent soil loss from the site.</p> <p>2. The use of silt fences and sand bags must be implemented in areas that are susceptible to erosion.</p> <p>3. Other erosion control measures that can be implemented are as follows:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Brush packing with cleared vegetation</li> <li><input type="checkbox"/> Mulch or chip packing</li> <li><input type="checkbox"/> Planting of vegetation</li> <li><input type="checkbox"/> Hydroseeding / hand sowing</li> </ul> <p>4. All erosion control mechanisms need to be regularly maintained.</p>	Construction	Main contractor, ECO & Environmental Officer	4	<p>No major soil disturbance was done.</p> <p>Only excavation for the structures</p> <p>Work proceeding fast such that excavation are not open for more than 2 months</p> <p>Structures outside the Elands and Spruit banks for both lines</p>

	<p>5. Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces.</p> <p>6. Retention of vegetation where possible to avoid soil erosion.</p> <p>7. Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time.</p> <p>8. Re-vegetation of disturbed surfaces should occur immediately after the construction activities are completed.</p> <p>9. No impediment to the natural water flow other than approved erosion control works is permitted.</p> <p>10. To prevent stormwater damage, the increase in stormwater runoff resulting from construction activities must be estimated and the drainage system assessed accordingly. A drainage plan must be submitted to the ECO for approval and must include the location and design criteria of any temporary stream crossings.</p> <p>11. Stockpiles not used in three (3) months after stripping must be seeded to prevent dust and erosion.</p> <p>12. The Elands River and Spruit are ecologically sensitive. Where these have to be crossed, the pylons should not be within the River or Spruit banks and not so close to the River or Spruit that it will cause erosion (observe 50m buffer).</p>				
	<b>Ground and Surface Water Pollution</b>				
Sanitation	1. Adequate sanitary facilities and ablutions must be provided for construction workers	Construction	Main contractor, ECO & Environmental Officer	4	Mobile chemical toilets provided for the workers.

	2. The facilities must be regularly serviced and emptied to reduce the risk of surface or groundwater pollution				Permission to dispose waste in Rustenburg Municipal sewage treatment works obtained <b>Recommendation:</b> Submit monthly disposal proof to the ECO
Hazardous materials	<p>3. Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled.</p> <p>4. All storage tanks containing hazardous materials must be placed in banded containment areas with sealed surfaces. The bund wall must be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential stormwater events.</p> <p>5. Any hazardous substances must be stored at least 20m from any of the water bodies on site.</p> <p>6. The Environmental Control Officer should be responsible for ensuring that potentially harmful materials are properly stored in a dry, secure, ventilated environment, with concrete or sealed flooring and a means of preventing unauthorised entry.</p> <p>7. Contaminated wastewater must be managed by the Contractor to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp shall be collected and removed from the site for appropriate disposal at a licensed commercial facility.</p>	Construction	Main contractor, ECO & Environmental Officer	3	<p>Diesel storage tank in outside banded area so spillages will not be contained.</p> <p>No leakages have been observed around the fuelling area</p>
Cement Mixing	8. Cement contaminated water must not enter the water system as this disturbs the	Construction	Main contractor, ECO & Environmental Officer	3	No cement spillage on the power line observed.

	natural acidity of the soil and affects plant growth.				<p>Cement spillage observed on camp site where a truck was washed.</p> <p>Recommendation: Cut out the soil and dispose appropriately as general waste.</p>
Public Areas	<p>9. Food preparation areas should be provided at the construction camp with adequate washing facilities and food refuse should be stored in sealed refuse bins which should be removed from site on a regular basis.</p> <p>10. The contractor should take steps to ensure that littering by construction workers does not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines.</p>	Construction	Main contractor, ECO & Environmental Officer	3	<p>Adequate accommodation is provided for all workers.</p> <p>Waste bins are strategically placed on the camp site.</p> <p>Litter observed on the power line from the bush clearing team</p>
Water Resources	<p>11. Site staff shall not be permitted to use any other open water body or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing or for any construction or related activities.</p> <p>12. Municipal water (or another source approved by the ECO) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting, etc.</p> <p>13. The Department of Water Affairs and Forestry and the ECO as well as other Emergency contact numbers provided by the Municipality should be contacted in order to deal with spillages and contamination of aquatic environments.</p>	Construction	Main contractor, ECO & Environmental Officer	5	<p>Portable water is provided for the workers.</p>

	<p>14. Proper compaction of backfilled material to attain low permeability.</p> <p>15. Ensure that surface/storm water is diverted away from excavation trenches.</p> <p>16. If necessary ensure that stream flow bypasses the construction area within drainage lines.</p> <p>17. Shape backfilling of trench in such a way that water ponding and erosion of backfilled trench are avoided.</p> <p>18. Ensure that contaminants are safely stored and away from the construction site.</p>				
	<b>Hydrology and Storm water</b>				
	<p>1. The site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids, silt or chemical pollutants.</p> <p>2. Silt fences should be used to prevent any soil entering the storm water drains.</p> <p>3. Temporary cut of drains and berms may be required to capture storm water and promote infiltration.</p> <p>4. Promote water saving mind set with construction workers in order to ensure less water wastage.</p> <p>5. New storm water infrastructure construction must be developed strictly according to specifications from ECO in order to ensure efficiency.</p> <p>6. Hazardous substances must be stored at least 20m away from the buffer area surrounding any water bodies on site to avoid pollution.</p> <p>7. The installation of the storm water system must take place as soon as</p>	Construction	Main contractor, ECO & Environmental Officer	5	No storm water related incidence observed so far

	<p>possible after commencement of the construction activities, to attenuate storm water from the construction as well as the operational phase.</p> <p>8. Earth, stone and rubble is to be properly disposed of so as not to obstruct natural water path ways over the site. (i.e. these materials must not be placed in storm water channels, drainage lines or rivers).</p> <p>9. There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed.</p> <p>10. If a batching plant is necessary, run-off should be managed effectively to avoid contamination of other areas of the site. Runoff from the batch plant must not be allowed to get into the storm water system or nearby streams, rivers or erosion channels or dongas.</p>				
	<b>Air Quality</b>				
Dust Control	<p>1. Wheel washing and damping down of un-surfaced and un-vegetated areas.</p> <p>2. Retention of vegetation where possible will reduce dust travel.</p> <p>3. Excavations and other clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas.</p> <p>4. Damping down of all exposed soil surfaces with water sprinklers when necessary to reduce dust.</p> <p>5. The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the Landowner or neighbouring Communities.</p>	Construction	Main contractor, ECO & Environmental Officer	3	<p>Dust pollution by vehicles as they passed through Cheneng village was observed and a complaint was lodged.</p> <p>Due to water shortage, a solution to use the main Ngwedi MTS access route was agreed on and the vehicles must travel at maximum 30km/h</p>



	<p>6. A speed limit of 30km/h must not be exceeded on dirty roads (if any).</p> <p>7. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor.</p> <p>8. Regular servicing of vehicles in order to limit gaseous emissions (to be done off-site).</p> <p>9. Regular servicing of onsite toilets to avoid potential odours.</p> <p>10. Allocated cooking areas must be provided.</p> <p>11. The contractor must make alternative arrangements (other than fires) for cooking and / or heating requirements. LP gas cookers may be used provided that all safety regulations are followed.</p>				
Rehabilitation	<p>12. The contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks.</p>	Construction	Main contractor, ECO & Environmental Officer	4	<p>Rehabilitation is ongoing as all excavation are back filled after pole planting.</p> <p><b>Recommendation: Remove excess ¾ stones in the area.</b></p>
Fire Prevention	<p>13. The contractor must ensure that any grass left in a natural state during the construction of a powerline should be cut in order to prevent veld fires, especially during the dry months.</p> <p>14. No open fires shall be allowed on site under any circumstance. All cooking shall be done in demarcated areas that are safe and cannot cause runaway fires.</p> <p>15. The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated thorough a typical risk assessment process. It may be required to</p>	Construction	Main contractor, ECO & Environmental Officer	5	<p>No fires at both the camp site and along the power line is observed. Cooking is by gas stoves</p> <p>Firefighting equipment is available in the cars, at the camp site and where the workers are working along the power line.</p>

	increase the level of protection, especially during the winter months.				
	<b>Noise</b>				
	<p>1. The construction phase must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of residential areas in close proximity to the development.</p> <p>2. Construction site yards, workshops, and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the contractor(s), the sites must be evaluated in detail and specific measures designed into the system.</p> <p>3. Truck traffic should be routed away from noise sensitive areas, where possible.</p> <p>4. Noisy operations should be combined so that they occur where possible at the same time.</p> <p>5. Blasting operations (if required) are to be strictly controlled with regard to the size of explosive charge in order to minimise noise and air blast, and timings of explosions. The number of blasts per day should be limited, blasting should be undertaken at the same times each day and no blasting should be allowed at night.</p> <p>6. Construction activities are to be contained to reasonable hours during the day and early evening. Night-time activities near noise sensitive areas should not be allowed.</p> <p>7. With regard to unavoidable very noisy construction activities in the vicinity of</p>	Construction	Main contractor, ECO & Environmental Officer	5	No noise incidence reported. Workers working with noisy equipment are provided and wear ear plugs

	<p>noise sensitive areas, the contractor and ECO should liaise with local residents on how best to minimise impact, and the local population should be kept informed of the nature and duration of intended activities.</p> <p>8. As construction workers operate in a very noisy environment, it must be ensured that their working conditions comply with the requirements of the Occupational Health and Safety Act (Act No 85 of 1993). Where necessary ear protection gear should be worn.</p> <p>9. Noisy activities to take place during allocated construction hours only as per section 25 of the Noise Control Regulations of the Environment Conservation Act, 1989 (Act No. 73 of 1989).</p> <p>10. Noise from labourers must be controlled.</p> <p>11. Noise suppression measures must be applied to all construction equipment. Construction equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Should the vehicles or equipment not be in good working order, the contractor may be instructed to remove the offending vehicle or machinery from site.</p> <p>12. The contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the contractor or his Sub-Contractors by the contractors own transport.</p>				
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	<b>Vegetation Disturbance</b>				
	<p>1. During all phases of the project; workers must be limited to areas under construction and access to neighbouring undeveloped areas adjacent to the sub-station and power line must be strictly regulated, preventing disturbances to the surrounding environment.</p> <p>2. Weeds and alien invasive vegetation should be removed and prevented from spreading into newly disturbed areas or areas recently cleared of vegetation.</p> <p>3. Exotic tree species should be replaced with suitable indigenous tree or shrub species.</p> <p>4. Materials should not be delivered to the site prematurely which could result in additional areas being cleared or affected.</p> <p>5. No vegetation to be used for firewood.</p> <p>6. All alien invasive species including species surrounding the site should be removed to prevent further invasion and replaced with indigenous tree, grass and plant species.</p> <p>7. Horticultural activities should be severely restricted and only allowed around certain predetermined areas.</p> <p>8. Gardens or landscaped areas around the proposed development (extremely limited), should be planted with indigenous preferably using endemic or local species from the area) grasses, forbs, shrubs and trees, which are water wise and require minimal horticultural practices.</p>	All phases	Main contractor, ECO & Environmental Officer	4	<p>Vegetation cleared only in the pegged servitude area.</p> <p>No alien vegetation has been noted on site.</p> <p>Firewood harvesting is being done by local village members and it was noted &amp; recorded during the walk down.</p> <p>No chemicals were used during bush clearing</p>
Rehabilitation	9. Re-vegetation and rehabilitation Manual should be prepared for use of contractors.	Post-construction	Main contractor, ECO & Environmental Officer	N/A	Not yet there

	<p>Where herbicides are used to clear vegetation, specimen specific chemicals should be applied to individual plants only. General spraying should be prohibited. All alien vegetation should be eradicated over five year period. Invasive species should be given the highest priority.</p> <p>10. Where the removal of alien species may leave soil exposed, alternative indigenous species should be established before eradication takes place. Individual property owners along the powerline should be encouraged to plant indigenous non-invasive plants.</p> <p>11. All damaged areas shall be rehabilitated upon completion of the contract in accordance with ECO satisfaction. Slopes in excess of 2% must be contoured and slopes in excess of 12% must be terraced. Extra seed shall be sown on disturbed areas as directed by the ECO (see below for specifications). Other methods of rehabilitating disturbed sites may also be used at the discretion of the Project Manager to comply with the conditions of the EMP, e.g. stone pitching, logging, etc. Contour banks shall be spaced according to the slopes. The type of soil shall also be taken into consideration.</p> <p>12. A mixture of vegetation seed can be used, provided the mixture is carefully selected to ensure the following:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Annual and perennial species are chosen.</li> <li><input type="checkbox"/> <input type="checkbox"/> Pioneer species are included.</li> <li><input type="checkbox"/> <input type="checkbox"/> All the species shall not be edible.</li> </ul>				
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	<p><input type="checkbox"/> <input type="checkbox"/> Species chosen will grow in the area under natural conditions.</p> <p><input type="checkbox"/> <input type="checkbox"/> Root systems must have a binding effect on the soil.</p> <p><input type="checkbox"/> <input type="checkbox"/> The final product should not cause an ecological imbalance in the area.</p> <p>13. All natural areas impacted during construction must be rehabilitated with locally indigenous grasses typical of the representative botanical unit.</p> <p>14. Fragmentation must be kept to a minimum.</p> <p>15. Rehabilitation must take place as soon as construction is complete to avoid the edge effect, the infiltration of alien species and soil erosion within the servitude.</p> <p>16. Rehabilitation process must make use of species indigenous to the area. Seeds from surrounding seed banks can be used for re-seeding.</p>				
Demarcation of construction area	<p>17. The construction area must be well demarcated and no construction activities must be allowed outside of this demarcated footprint.</p> <p>18. Areas which are identified by the ECO as being ecologically sensitive and which are adjacent to any construction work are to be suitably demarcated to prevent damage by labour and equipment.</p> <p>19. Only vegetation within the construction area must be removed.</p> <p>20. Vegetation removal must be phased in order to reduce impact of construction.</p> <p>21. The construction site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas.</p>	Construction	Main contractor, ECO & Environmental Officer	4	<p>Bush clearing done in a phased manner, actually came in at the stage of pole planting.</p> <p>The riparian area of the Eland is the sensitive area is being protected.</p>

	<p>22. Strict and regular auditing of the servitude to ensure containment of the construction activities.</p> <p>23. Where the route passes intact vegetation (but does not impact on it), a buffer zone should be established to ensure that construction activities do not extend into these areas.</p> <p>24. Construction areas must be well demarcated and these areas strictly adhered to.</p> <p>25. Soils must be kept free of petrochemical solutions that may be kept on site during construction. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora.</p>				
Utilization of Resources	26. Gathering of firewood or any other natural material onsite or in areas adjacent to the site is prohibited.	Construction	Main contractor, ECO & Environmental Officer	5	No gathering of firewood by the workers observed. Only villagers are gathering firewood.
Exotic vegetation	<p>27. All exotic vegetation must be removed from site.</p> <p>28. Alien vegetation on the site will need to be removed.</p> <p>29. The contractor should be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion.</p> <p>30. The spread of exotic species occurring throughout the site should be controlled.</p>	Construction	Environmental Officer	N/A	Not yet there
Construction schedule	31. Where possible, construction should take place during winter i.e. the dormant stage to minimise impacts on vegetation during the growing season.	Construction	Main contractor, ECO & Environmental Officer	5	Construction taking place in the dry months

Removal of vegetation	32. All vegetation within the footprint of the construction trench must be removed immediately prior to the onset of excavation	Construction	Main contractor, ECO & Environmental Officer	5	Very little vegetation was on the structure positions. The little that was there was removed.
Sensitive area mitigation measures	33. Intensive environmental compliance monitoring must be conducted by an independent party during this construction period	Construction	Main contractor, ECO & Environmental Officer	5	An ECO is conducting monthly monitoring of the project.
	<b>Fauna</b>				
	<p>1. The contractor must ensure that no faunal species are disturbed, trapped, hunted or killed during the construction phase.</p> <p>2. Containment of construction servitudes through identified sensitive areas.</p> <p>3. The steel monopoles that should be fitted with a bird perch at the top of the pole. This will provide additional safe perching space to birds and will draw them away from the dangerous areas on the insulators.</p> <p>4. The earth wire of the line should be fitted with Bird Flight Diverters.</p> <p>5. As a precautionary mitigation measure it is recommended that Eskom and construction contractor as well as an independent environmental control officer should be made aware of the possible presence of certain threatened animal species prior to the commencement of construction activities. In the event that any of the above-mentioned species are discovered relevant conservation authorities should be informed and activities surrounding the site suspended until further investigations have been conducted.</p>	Construction	Main contractor, ECO & Environmental Officer	5	No animals encountered during day time except for the odd hare. Bird perched fitted on the poles Flight divert will be fitted on the earth wire. ECO & Environmental Officer will monitor continuously.



	6. All necessary mitigation measures must be implemented to minimise impacts on the environment.				
	<b>Waste Management</b>				
Construction Rubble	1. Construction rubble shall be disposed of in pre – agreed, demarcated spoil dumps that have been approved by the relevant Municipality.	Construction	Main contractor, ECO & Environmental Officer	5	All construction rubble will go to the Rustenburg Municipal area. There is very little rubble generated by the activity so far.
Litter Management	<p>2. Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site.</p> <p>3. A housekeeping team should be appointed to regularly maintain the litter and rubble situation on the construction site.</p> <p>4. Waste disposal will need to take place in terms of Section 20 of the Environmental Conservation Act (Act No. 73 of 1989).</p> <p>5. If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled. An independent contractor can be appointed to conduct this recycling.</p> <p>6. Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite.</p> <p>7. Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly from the site by the local council.</p> <p>8. All waste must be removed from the site and transported to a landfill site as approved by the relevant Municipality.</p>	Construction	Main contractor, ECO & Environmental Officer	3	<p>Bins placed in all strategic position around the camp site. The field teams have a plastic bag to collect all waste and take it back to the camp site. No waste sorting is practised at source hence not complying for waste recycling. Waste removed from site weekly.</p> <p><b>Recommendation: Have different bins for different waste at the camp site to promote waste sorting at source. And submit waste disposal records to Eco and file copies on site.</b></p>

	9. Waybills providing disposal at each site shall be provided to the ECO's inspection.				
Hazardous Waste	10. All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of offsite at a licensed landfill site. 11. Contaminants to be stored safely to avoid spillage 12. Machinery must be properly maintained to keep oil leaks in check.	Construction	Main contractor, ECO & Environmental Officer	0	<b>No hazardous waste bin on site</b>
Sanitation	13. The Contractor shall install mobile chemical toilets on the site. 14. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed. 15. Ablution facilities shall be within 100m from workplaces but not closer than 50m from any natural water bodies or boreholes. There should be enough toilets available to accommodate the workforce. Male and females must be accommodated separately where possible. 16. Potable water must be provided for all construction staff.	Construction	Main contractor, ECO & Environmental Officer	4	1 chemical toilet is provided for the team. It is strategically placed to cater for two teams. Those who are far they are transported by vehicle to the toilet. Portable water is available for workers at all times
Remedial Actions	17. Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site. 18. Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site. 19. The ECO must determine the precise method of treatment of polluted soil. This could involve the application of soil	Construction	Main contractor, ECO & Environmental Officer	4	No major soil contamination has been observed.

	absorbent materials as well as oil-digestive powders to the contaminated soil.				
	<b>Health and Safety</b>				
Worker Safety	<p>1. Implementation of safety measures, work procedures and first aid must be implemented on site.</p> <p>2. A health and safety plan in terms of the Occupational Health and Safety Act (Act No. 85 of 1993) must be drawn up to ensure worker safety.</p> <p>3. Workers should be thoroughly trained in using potentially dangerous equipment.</p> <p>4. Contractors must ensure that all equipment is maintained in a safe operating condition.</p> <p>5. A safety officer must be appointed.</p> <p>6. A record of health and safety incidents must be kept on site.</p> <p>7. Any health and safety incidents must be reported to the project manager immediately.</p> <p>8. First aid facilities must be available on site at all times.</p> <p>9. Workers have the right to refuse work in unsafe conditions.</p> <p>10. The Contractor shall take all the necessary precautions against the spreading of disease such as measles, etc. especially under livestock.</p> <p>11. A record shall be kept of drugs administered or precautions taken and the time and dates when this was done. This can then be used as evidence in court should any claims be instituted against Eskom or Contractor.</p> <p>12. The contractor must ensure that all construction workers are well educated</p>	Construction	Main contractor, ECO & Environmental Officer	4	<p>A full time Safety Officer is available.</p> <p>Daily tool box talks related to the activities of the day being done.</p> <p>Risk assessment done daily</p> <p>First Aid kit available</p> <p>No incidences reported to date</p>

	<p>about HIV/ AIDS and the risks surrounding this disease.</p> <p>13. Material stockpiles or stacks, such as, pipes must be stable and well secured to avoid collapse and possible injury to site workers.</p>				
Worker facilities	<p>14. Eating areas should be regularly serviced and cleaned to ensure the highest possible standards of hygiene and cleanliness</p> <p>15. Fires are not to be allowed.</p>	Contraction	Main contractor, ECO & Environmental Officer	4	No designated eating area as workers are accommodated at the camp site.
Protective Gear	<p>16. Personal Protective Equipment (PPE) must be made available to all construction staff and must be compulsory. Hard hats and safety shoes must be worn at all times and other PPE worn were necessary i.e. dust masks, ear plugs etc.</p> <p>17. No person is to enter the site without the necessary PPE.</p>	Contraction	Main contractor, ECO & Environmental Officer	5	Workers provided with appropriate PPE and always wear it
Site Safety	<p>18. The construction camp must remain fenced for the entire construction period.</p> <p>19. Potentially hazardous areas such as trenches are to be demarcated and clearly marked</p> <p>20. Adequate warning signs of hazardous working areas.</p> <p>21. Uncovered manholes and excavations must be clearly demarcated.</p> <p>22. Emergency numbers for local police and fire department etc. must be placed in a prominent area.</p> <p>23. Firefighting equipment must be placed in prominent positions across the site where it is easily accessible. This includes fire extinguishers, a fire blanket as well as a water tank.</p>	Construction	Main contractor, ECO & Environmental Officer	3	Construction camp site fenced, gated and manned only at night. No labelled hazardous material storage. No emergency number board outside

	<p>24. Suitable conspicuous warning signs in English and all other applicable languages must be placed at all entrances to the site.</p> <p>25. All speed limits must be adhered to.</p>				
Hazardous Material Storage	<p>26. Staff that will be handling hazardous materials must be trained to do so.</p> <p>27. Any hazardous materials (apart from fuel) must be stored within a lockable store with a sealed floor.</p> <p>28. All storage tanks containing hazardous materials must be placed in bunded containment areas with sealed surfaces. The bund walls must be high enough to contain 110% of the total volume of the stored hazardous material.</p> <p>29. The bund walls for the transformer oil containers must be in place before the installation of these containers.</p> <p>30. The provisions of the Hazardous Chemical Substances Regulations promulgated in terms of the Occupational Health and Safety Act 85 of 1993 and the SABS Code of Practice must be adhered to. This applies to solvents and other chemicals possibly used in the construction time.</p> <p>33. The immediate response must be to contain the spill.</p> <p>34. The source of the spill must be identified, controlled, treated or removed.</p>	Construction	Main contractor, ECO & Environmental Officer	3	<p>No separate containment area of hazardous materials. They are stored in the storage container with materials etc.</p> <p>Fuel tank is in an area with impermeable membrane filled with soil but it is not banded to contain spillage</p> <p><b>Recommendation: Build a separate containment of hazardous material. It must have an impermeable membrane and a container sufficient to contain spillages.</b></p>
Fire Management	<p>35. Firefighting equipment should be present on site at all times as per OHSA.</p> <p>36. All construction staff must be trained in fire hazard control and firefighting techniques.</p>	Construction	Main contractor, ECO & Environmental Officer	4	<p>Fire-fighting equipment available in conspicuous places and it is well labelled.</p> <p>Designated smoking areas marked out at the camp site and at any position on the power line.</p>

	<p>37. All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances.</p> <p>38. No open fires will be allowed on site.</p> <p>39. Smoking may only be conducted in demarcated areas.</p>				Personnel trained in firefighting available
Procedure in the event of a petrochemical spill	31. The individual responsible for or who discovers the petrochemical spill must report the incident to the Project Manager, ECO or Contractor.	Construction	Main contractor, ECO & Environmental Officer	5	The Safety officer is responsible for reporting petrochemical spillage
	<b>Security</b>				
	<p>1. Access to the construction site should be strictly controlled by a security company.</p> <p>2. 24 hour security on-site.</p> <p>3. Unsocial activities such as consumption or illegal selling of alcohol, drug utilisation or selling on site should be prohibited. Any persons found to be engaged in such activities shall receive disciplinary or criminal action taken against them.</p> <p>4. No person shall enter the site unless authorised to do so by the contractor, project manager and ECO</p> <p>5. If any fencing interferes with the construction process, such fencing shall be deviated until construction is completed. The deviation of fences shall be negotiated and agreed with the landowner in writing.</p> <p>6. Construction staff is to make use of the facilities provided for them, as opposed to ad-hoc alternatives (e.g. fires for cooking, the use of surrounding bush as a toilet facility are forbidden).</p> <p>7. Trespassing on private / commercial properties adjoining the site is forbidden.</p> <p>8. Driving under the influence of alcohol is prohibited.</p>	Construction	Main contractor, ECO & Environmental Officer	3	<p>Premises fenced, gated and guarded at night.</p> <p>Female none workers allowed in the camp site compromising workers health and safety.</p> <p>Cooking is by gas stoves.</p>

	<p>9. All employees must undergo the necessary safety training and wear the necessary protective clothing.</p> <p>10. Secure the site in order to reduce the opportunity for criminal activity in the locality of the construction site</p>				
	<b>Social Environment</b>				
	<p>1. All contact with the affected parties shall be courteous at all times. The rights of the affected parties shall be respected at all times.</p> <p>2. A complaints register should be kept on site. Details of complaints should be incorporated into the audits as part of the monitoring process. This register is to be tabled during monthly site meetings</p> <p>3. Where possible unskilled job opportunities should be afforded to local community members.</p> <p>4. Equal opportunities for employment should be created to ensure that the local female population also have access to these opportunities. Females should be encouraged to apply for positions.</p> <p>5. Payment should comply with applicable Labour Law legislation in terms of minimum wages.</p>	Construction	Main contractor, ECO & Environmental Officer	5	A complaint register is on site. One complaint of dust generation by vehicles as the pass through Chaneng village has been lodged and the issue was addressd.
	<b>Cultural and Heritage Artefacts</b>				
	<p>1. Any finds must be reported to the nearest National Monuments office to comply with the National Heritage Resources Act (Act No 25 of 1999)</p> <p>2. Local museums as well as the South African Heritage Resource Agency (SAHRA) should be informed if any</p>	Construction	Main contractor, ECO & Environmental Officer	5	No report of cultural or heritage artefacts have been discovered.

	<p>artefacts are uncovered in the affected area.</p> <p>3. The contractor must ensure that his workforce is aware of the necessity of reporting any possible historical or archaeological find to the ECO so that appropriate action can be taken.</p> <p>4. Any discovered artefacts shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits shall be obtained from the South African Heritage Resources</p>				
<b>Closure and Rehabilitation</b>					
Equipment Removal	<p>1. All structures comprising the construction camp are to be removed from site.</p> <p>2. The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc, and these shall be cleaned-up.</p> <p>3. All hardened surfaces within the construction camp area should be ripped, all imported materials removed, and the area shall be top soiled and regressed.</p>	Construction	Main contractor, ECO & Environmental Officer	N/A	To be implemented in due time
Temporary Services	<p>4. The Contractor must arrange the cancellation of all temporary services.</p> <p>5. A copy of all way bridge certificates from waste disposed are to be presented to the ECO.</p> <p>6. Temporary roads must be closed and access across these, blocked.</p> <p>7. All areas where temporary services were installed are to be rehabilitated to the satisfaction of the ECO.</p>	Construction	Main contractor, ECO & Environmental Officer	N/A	Services are provided by the lodge Roads will be closed



Associated Infrastructure	<p>8. Surfaces are to be checked for waste products from activities such as concreting and cleared in a manner approved by the ECO.</p> <p>9. All surfaces hardened due to construction activities are to be ripped and imported material thereon removed.</p> <p>10. All rubble is to be removed from the site to an approved disposal site as approved by the ECO. Burying of rubble on site is prohibited.</p> <p>11. The site is to be cleared of all litter.</p> <p>12. The Contractor is to check that all watercourses are free from building rubble, spoil materials and waste materials.</p> <p>13. Fences, barriers and demarcations associated with the construction phase are to be removed from the site.</p> <p>14. All residual stockpiles must be removed to spoil or spread on site as directed by the ECO.</p> <p>15. All leftover building materials must be returned to the depot or removed from the site.</p> <p>16. The Contractor must repair any damage that the construction works has caused to neighbouring properties, specifically, but not limited to, damage caused by poor storm water management.</p>	Construction	Main contractor, ECO & Environmental Officer	N/A	To be implemented in due course
<b>WULA LICENCE CONDITIONS</b>					
5 Licence & review Period	The licence is valid for a period of twenty (20) years from date of issue and may be reviewed every five years	Construction	Main contractor, ECO & Environmental Officer	5	Licence still valid
7 Description of a project	The licence authorizes the impeding or diverting and altering of beds, banks , water courses of characteristics of a watercourse as specified on Table 1 of the	Construction	Main contractor, ECO & Environmental Officer	5	Valid

	licence, which entails the construction of power distribution pylons within the bed and banks of the various tributaries of Elands River and its associated tributaries for stryldrift to Ngwedi Distribution power lines				
	<b>General Conditions Appendix I</b>				
14	Any incident that causes or may cause water pollution shall be reported to the Regional Head or his/her designated representative within 24 hours	Construction	Main contractor, ECO & Environmental Officer	5	No incidence so far
	<b>Appendix II: section 21© of the act: impeding or diverting the flow of water in a watercourse; Section 21(i) of the Act: Altering the bed, banks, course or characteristics of a watercourse</b>				
1.3 (pg 12/22)	No activity must take place within the 1:100 year flood line or the delineated riparian habitat, whichever is the greatest, or within 500m radius from the boundary of any wetland unless authorised by this license.	Construction	Main contractor, ECO & Environmental Officer	4	Observed
1.4	The conditions of the authorisation must be brought to the attention of all persons (employees, sub-consultants, contractors etc) associated with the undertaking of these activities and the Licensee must take such measures that are necessary to bind such persons to the conditions of this license.	Construction	Main contractor, ECO & Environmental Officer	5	The Safety Officer and Project Management team well aware. Induction training was provided
1.5	A copy of the water use licence and reports set out under conditions 1.2 of Appendix ii must be on site at all times.	Construction	Main contractor, ECO & Environmental Officer	5	A copy of the WULA is at the site office.
1.6	A suitably qualified person(s), appointed by the Licensee, and approved in writing by the Regional Head must be responsible for ensuring that activities are undertaken in compliance with the specifications as set	Construction	Main contractor, ECO & Environmental Officer	5	An ECO was appointed to monitor compliance for the duration of the construction period.

	out in reports submitted to the Department or the Regional head and the conditions of this licence.				
	<b>PROTECTIVE MEASURES</b>				
<b>3.1</b>	<b>STORM WATER MANAGEMENT</b>				
3.1.1	Storm water management practices must be operated and maintained in a sustainable manner throughout the project and for the water use outlined such as:	Construction	Main contractor, ECO & Environmental Officer	N/A	Aware but has been no need.
3.1.1.1	Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the watercourse(s);	Construction	Main contractor, ECO & Environmental Officer	N/A	Measures in place to manage in case the project goes beyond the dry winter period.
3.1.1.2	Storm water must be diverted from the construction site and must be managed in such a manner to disperse runoff in a controlled manner to prevent the concentration of storm water flow;	Construction	Main contractor, ECO & Environmental Officer	N/A	N/A
3.1.1.3	The velocity of storm water discharges must be attenuated and the banks of the watercourses protected; and	Construction	Main contractor, ECO & Environmental Officer	N/A	
3.1.1.4	Storm water leaving the Licensee's premises must in no any be contaminated by any substance, whether such substances is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises;	Construction	Main contractor, ECO & Environmental Officer	5	No contaminated storm water leaving the construction site
3.1.1.5	Sheet runoff from paved surfaces and access roads need to be curtailed.	Construction	Main contractor, ECO & Environmental Officer	N/A	N/A
<b>3.2</b>	<b>STRUCTURES, PLANT AND MATERIALS</b>				
3.2.1	The height, width & length of structures must be limited to the minimum dimension	Construction	Main contractor, ECO & Environmental Officer	5	Designed as such by the engineers

	necessary to accomplish the intended function.				
3.2.2	The necessary erosion prevention measure must be employed to ensure the sustainability of all structures.	Construction	Main contractor, ECO & Environmental Officer	5	Designed as such by the engineers
3.2.3	Structures must not be damaged by floods exceeding the magnitude of floods occurring on average once in 50years.	Construction	Main contractor, ECO & Environmental Officer	5	Designed as such by the engineers
3.2.4	Structures must be non-erosive, structurally stable and must not induce any flooding or safety hazard.	Construction	Main contractor, ECO & Environmental Officer	5	Designed as such by the engineers
3.2.5	Structures must be inspected regularly for accumulation of debris, blockage, erosion abutments and overflow areas – debris must be removed and damages must be repaired and reinforced immediately.	Construction	Main contractor, ECO & Environmental Officer	5	Designed as such by the engineers
3.2.6	The construction camp, plant and material stockpiles must be located outside the extent of the watercourses and must be recovered and removed within a period of one (1) month after completion of construction phase.	Construction	Main contractor, ECO & Environmental Officer	5	Camp site far from the water catchment area
3.2.7	During the construction and operation phase erosion and siltation measures should be implemented	Construction	Main contractor, ECO & Environmental Officer	5	Construction in the dry period
3.2.8	During construction erosion berms should be installed to prevent gully formation, according to the slope	Construction	Main contractor, ECO & Environmental Officer	5	Construction in the dry period
3.2.9	All areas affected by construction should be rehabilitated upon completion of the construction phase of the development. Areas should be reseeded with indigenous vegetation species as required, and the use of seed nets is recommended to prevent erosion.	Post Construction	Main contractor, ECO & Environmental Officer	N/A	To be implemented during rehabilitation
3.2.10	No construction is allowed within the 1:100 year flood line and/or delineated riparian	Construction	Main contractor, ECO & Environmental Officer	4	No structures planted in the restricted areas except where

	habitat, whichever is the greatest, or within 500m radius from the boundary of any wetland unless authorised in this license.				licenced, that is where crossing the Eland River
3.2.11	The methods and management practices that minimize and avoid problems such as modification and riparian clearance, erosion and severe bank stability must be applied during construction and maintenance of road crossings across the rivers.	Construction	Main contractor, ECO & Environmental Officer	4	Minimal vegetation clearance done
3.2.12	Erosion berms are to be inspected regularly according to a maintenance schedule and the results submitted to the Regional Head every six (6) months. Emergency remediation procedures in the case of a break in the erosion berms must be sent for approval to the Regional Head before construction begins.	Construction	Main contractor, ECO & Environmental Officer	N/A	No erosion berms put up
<b>3.3</b>	<b>WATER QUALITY</b>				
3.3.1	Water sampling must be done monthly using the given parameters in Table 2 (p.15/22) upstream & downstream & results submitted to the Regional Head. Submit such reports bi-annually.	Construction	Main contractor, ECO & Environmental Officer	0	No water sampling being conducted
3.3.2	Monitoring must be undertaken as set in condition 5 of Appendix II	Construction	Main contractor, ECO & Environmental Officer	0	No water sampling being conducted
3.3.3	Where water quality parameters (Table 2) are not met, the Licensee must indicate to the responsible Authority the reason(s) for non-compliance and actions taken to meet compliance.	Construction	Main contractor, ECO & Environmental Officer	0	No water sampling being conducted
3.3.4	Activities that lead to elevated levels of turbidity of any watercourse must be prevented, reduced, or otherwise remediated.	Construction	Main contractor, ECO & Environmental Officer	0	No water sampling being conducted
3.3.5	Construction, operation and maintenance activities must be scheduled to take place	Construction	Main contractor, ECO & Environmental Officer	5	Construction being conducted in the dry season

	during the dry seasons when the flows are lowest where reasonably possible. If this is not possible and if management measures have not been provided for the reports submitted to DWA, the Licensee must submit such to the Regional Head for written approval before these activities commence. Natural in stream hydrology is to be used to determine which months constitute the low flow months				
3.3.6	The ecological state of the water resource must not be lowered by the proposed development.	Construction	Main contractor, ECO & Environmental Officer	5	Activities not affecting water quality
3.3.7	The Licensee must ensure that the quality of water to downstream water users does not decrease to lower than the limits as set out on Table 2 because of the water use activities listed under condition 1.1 Appendix II	Construction	Main contractor, ECO & Environmental Officer	5	Activities not affecting water quality
3.3.8	Pollution and disposal/spillage of any material into the watercourse must be prevented, reduced or otherwise remediate through proper operation, maintenance and protective measures.	Construction	Main contractor, ECO & Environmental Officer	5	The field team carry a waste bin to contain all waste
3.3.9	Dirty water pumped from the trenches and foundations must be released through a filter before being discharged back to the rivers or wetlands	Construction	Main contractor, ECO & Environmental Officer	5	No water pumped out of excavations
3.3.10	Vehicles and other machinery must be serviced well above the 1:100 year flood-line or outer edge of the riparian habitat whichever is the greatest. Oils and other potential pollutants must be disposed of at an appropriate licensed site, with the necessary agreement from the owner of such a site.	Construction	Main contractor, ECO & Environmental Officer	5	Vehicles well services. No leakages observed

3.3.11	Any hazardous substance must be handled according to the relevant legislation relating to transport, storage and use of the substance.	Construction	Main contractor, ECO & Environmental Officer	5	Petrochemical datasheets available in the file
3.3.12	All reagent storage tanks and reaction units must be supplied with a banded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system. The system must be maintained in a state of good repair and standby pumps must be provided.	Construction	Main contractor, ECO & Environmental Officer	3	Fuel storage tank not labelled and banded to contain spillage.
3.3.13	All litter is to be periodically removed and controlled via the use of litter traps at culvert and attenuation dam outlets. Maintenance schedules must be kept and reported on when requested by Responsible Authority	Construction	Main contractor, ECO & Environmental Officer	5	Waste taken to Rustenburg landfill weekly
3.3.14	The licensee must maintain a spills register and deal with spillage incidences in the authorised manner.	Construction	Main contractor, ECO & Environmental Officer	5	No spill incidence observed
3.3.15	Dust suppression must not involve chemicals.	Construction	Main contractor, ECO & Environmental Officer	3	No chemical dust suppression measure being employed
<b>3.4</b>	<b>FLOW</b>				
3.4.1	The licensee must determine flood lines (1:50 and 1:100 year) prior to the construction to ensure risks are adequately managed. Flood lines must be clearly indicated on the site plan(s) and drawings along with all wetland boundaries.	Pre-construction	Environmental Officer	5	Done during WULA application
3.4.2	The activities must be conducted in a manner that does not negatively affect catchment yield, hydrology and hydraulics. The licensee must ensure that the overall magnitude and frequency of flow in the watercourse(s) does not decrease, other	Construction	ECO, Environmental Officer & main Contractor	4	Structures are outside the river and string is done across the river,

	than for natural evaporation losses and authorised attenuation volumes.				
3.4.3	Appropriate design and mitigation measures must be developed to minimise impacts on the natural flow regime of the watercourse i.e. through placement of structures/supports and to minimise turbulent flow in the watercourse.	Construction	ECO, Environmental Officer & main Contractor	4	Structures are outside the river and string is done across the river not affecting water flow,
3.4.4	Structures to be designed in a way to prevent the damming of stream/river water and not impact on the flow of the water, during the construction and the operational phases of all developments.	Construction	ECO, Environmental Officer & main Contractor	4	Structures are outside the river and string is done across the river,
3.4.5	The development may not impede natural drainage lines.	Construction	ECO, Environmental Officer & main Contractor	3	Structures are outside drainage lines except a few
3.4.6	The diversion structures may not restrict river flows by reducing the overall width or obstructing river flow.	Construction	ECO, Environmental Officer & main Contractor	4	No diversion structure is constructed
3.4.7	Place infrastructure below calculated bank full flow scour depths and allow a safety margin.	Construction	ECO, Environmental officer, Main Contractor	4	Structures pegged outside bank full flow scour depths
3.4.8	Bank must be protected against erosion and vegetated to blend into the surrounding banks.	Construction	ECO, Environmental officer, Main Contractor	N/A	Structures outside the banks
3.4.9	Where flow in watercourse is permanent, the trench must be staged across part of the channel to maintain flows. Flows must not be stopped.	Construction	ECO, Environmental officer, Main Contractor	N/A	Flow will not be altered
3.4.10	The flood plain activities may not interfere with the safety of people or property or affect the flow of the natural stream.	Construction	ECO, Environmental officer, Main Contractor	N/A	Flood plains will not be affected
3.4.11	No further incisions or disturbances must occur in the entire length of the Oriel Stream.	N/A	N/A	N/A	N/A
<b>3.5</b>	<b>Riparian and In-stream Habitat (Vegetation and Morphology)</b>				



3.5.1	Activities (including spill clean-up) must start up-stream and proceed in a downstream direction, so that the recovery processes can start immediately, without further disturbances from upstream works.	Construction	ECO, Environmental officer, Main Contractor	5	No spill incidence requiring clean-up
3.5.2	Operation and storage of equipment must not take place within the 1:100 year flood line or delineated riparian habitat, whichever is the greatest unless authorised in this license.	Construction	ECO, Environmental officer, Main Contractor	5	Materials stored at the camp site 10km away
3.5.3	The necessary erosion prevention mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent instream sedimentation.	Construction	ECO, Environmental officer, Main Contractor	5	
3.5.4	The environmental management plans must describe the options to avoid, minimise or compensate for the potential adverse effects and promote the conservation of the instream and Riparian Habitat and also methods for the rehabilitation of the affected areas following the completion of the affecting activity.	Construction	ECO, Environmental officer, Main Contractor	5	EMPr describe such mitigation measures
3.5.5	If avoidance or minimisation is not possible or will not adequately protect the instream and riparian habitat (IRH), compensation for damage to and/or mitigation to conserve the IRH must be done.	Construction	ECO, Environmental officer, Main Contractor	5	Measures to protect the riparian habitat being implemented
3.5.6	Encroachment of additional exotic species and terrestrial species in riparian zones must be discouraged.	Construction	ECO, Environmental officer, Main Contractor	5	No exotic species encroaching the riparian zone
3.5.7	As much indigenous vegetation growth as possible should be promoted within the proposed development area in order to protect soil and to reduce the percentage of the surface area which is paved.	Construction	ECO, Environmental officer, Main Contractor	4	Minimal vegetation clearance done in the riparian zone

3.5.8	Run-off from paved surfaces should be slowed down by the strategic placement of berms.	Construction	ECO, Environmental officer, Main Contractor	N/A	No paved surfaces
3.5.9	Indigenous riparian vegetation including dead trees, outside the limit of disturbance indicated in the site plans must not be removed from the area.	Construction	ECO, Environmental officer, Main Contractor	5	No material removed from riparian zone
3.5.10	The vegetation and surrounding catchment should be managed to prevent erosion and siltation of the watercourse.	Construction	ECO, Environmental officer, Main Contractor	4	Minimal vegetation clearance done
3.5.11	Alien and invasive vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be sustainably eradicated or controlled	Construction	ECO, Environmental officer, Main Contractor	4	Little disturbance will facilitates less invasion by alien and invasive vegetation
3.5.12	Existing vegetation composition must be maintained or improved by maintaining the natural variability in flow fluctuations.	Construction	ECO, Environmental officer, Main Contractor	5	Minimal vegetation clearance done
3.5.13	The indiscriminate use of machinery within the instream and riparian habitat will lead to compaction of soils and vegetation and must therefore be strictly controlled.	Construction	ECO, Environmental officer, Main Contractor	3	Machinery needed for excavation, transportation reaching close to the water course
3.5.14	Soils that have become compacted through the water use activities must be loosened to an appropriate depth to allow seed germination.	Construction	ECO, Environmental officer, Main Contractor	N/A	Any compacted area will be loosened by ripping
3.5.15	Stockpiling of removed soil and sand must be stored outside of the 1:100 flood line or riparian habitat, whichever is the greater to prevent being washed into the river and must be covered to prevent wind and rain erosion.	Construction	ECO, Environmental officer, Main Contractor	3	Only stockpiles for structures close to the Eland River within vicinity, majority are out of riparian zone
3.5.16	Additional disturbances from temporary coffer dams or diverting flows around the work site, vehicle and machinery accessing and crossing material stockpile must be minimised.	N/A	N/A	N/A	No coffer dams. Site office on level ground

3.5.17	Adequate bank stabilisation measures must be implemented. Slopes not to be steeper than 1.3 unless otherwise specified.	N/A	N/A	N/A	Poles planted away from banks
3.5.18	Trenches must be open for minimal length of time and must be backfilled with materials and will not alter flow significantly.	N/A	N/A	N/A	No water diversion and hence no trenches
3.5.19	The direction and alignment of the pipeline must be perpendicular to the direction of the slope or flow across a wetlands. Where this is not feasible, appropriate measures to reduce the risk of preferential flow path development and associated erosion must be put in place.	N/A	N/A	N/A	No pipe line construction
3.5.20	No camp sites or construction sites are to be allowed in the park or riparian areas.	Construction	ECO, Environmental officer, Main Contractor	5	Camp site 10km away
3.5.21	The created floodplain areas must clear for the 1:100 year flood line and the stream widening activities must not increase to such an extent as to result in a loss of park area.	N/A	N/A	N/A	No floodplains created
3.5.22	Gabions, reno mattresses and amorflex structures must allow for permeability to the stream and river bed where the bed habitats must not be destroyed, unless authorised by this license.	N/A	N/A	N/A	No gabbions, reno etc to be put in place
<b>3.6</b>	<b>BIOTA</b>				
3.6.1	The license must take all reasonable steps to allow movement of aquatic species, including migratory species.	Construction	ECO, Environmental officer, Main Contractor	4	Team to work from the banks as much as possible
3.6.2	All reasonable steps must be taken not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.	Construction	ECO, Environmental officer, Main Contractor	4	Team to work from the banks as much as possible

3.6.3	The current level of diversity of biotopes and communities of animals, plants and microorganisms must be maintained.	Construction	ECO, Environmental officer, Main Contractor	4	Team not hunting and fishing
3.6.4	Migration routes of aquatic biota may not be impaired at any stage of the activities.	Construction	ECO, Environmental officer, Main Contractor	4	Water system not being tempered with
<b>4.</b>	<b>REHABILITATION AND MANAGEMENT</b>				
4.1	A comprehensive and appropriate rehabilitation and management program to restore the watercourse/s to environmentally acceptable and sustainable conditions after construction must be submitted to the Regional Head for written approval within (1) month from the date of issuance of this license.	Post-construction	ECO, Environmental officer, Main Contractor	4	Rehabilitation plan available and been conducted as the team progresses
4.2	The licensee must embark on a systematic long-term rehabilitation program to restore the watercourse/s to environmentally acceptable and sustainable conditions after completion of the activities, which must include, but not be limited to the rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem.	Construction & post-construction	ECO, Environmental officer, Main Contractor	4	On-going
4.3	Rehabilitation must be concurrent with construction	Construction & post-construction	ECO, Environmental officer, Main Contractor	4	On-going
4.4	Sufficient topsoil must be stripped and redistributed.	Construction	ECO, Environmental officer, Main Contractor	4	Top soil stripped and stored and will be distributed in various areas during rehabilitation processed
4.5	Compacted and disturbed areas must be shaped to natural forms and to follow original contour. In general cut an fill slopes and other disturbed areas must not exceed 1:3 (v:h) ratio, it must be protected,	Construction & post-construction	ECO, Environmental officer, Main Contractor	4	On-going.

	vegetated, ripped and scarified parallel with the contour.				
4.6	All disturbed areas must be re-vegetated with indigenous plant expert, ensuring that during rehabilitation only indigenous shrubs, trees and grasses are in restoring the biodiversity.	Construction & post-construction	ECO, Environmental officer, Main Contractor	4	The necessity to plant indigenous plants will be confirmed by a botanist
4.7	An active campaign for controlling invasive species must be implemented within the disturbed zones to ensure that it does not become a conduit for the propagation and spread of invasive exotic plants.	Construction & post-construction	ECO, Environmental officer, Main Contractor	4	On-going
4.8	Photos of pre-construction, post-construction and post-rehabilitation must be taken and kept on record.	Construction & post-construction	ECO, Environmental officer, Main Contractor	5	On-going. Photos being taken during monitoring and stored.
4.9	Rehabilitation structures must be inspected regularly for the accumulation of debris, blockages, instabilities and erosion with concomitant remedial and maintenance actions.	Construction & post-construction	ECO, Environmental officer, Main Contractor	4	On-going. No structures constructed.
4.10	Wetland crossing(s) must be visited by a wetland specialist prior to the construction to determine baseline conditions. This should be repeated during and after rehabilitation measures have been implemented to assess the success of the rehabilitation and erosion control measures.	Construction & post-construction	ECO, Environmental officer, Main Contractor	N/A	No wetland crossings on Ngwedi styldrift and Ngwedi Bakubung lines
4.11	The Regional Head must sign a release form indicating that rehabilitation was done satisfactorily according to specifications as per this license.	Post construction	Environmental Officer	N/A	The major rehabilitation work will be closing of excavation and levelling of excavated soil.
<b>5</b>	<b>MONITORING AND REPORTING</b>				
5.1	The Regional Head must be notified in writing one month prior to the	Pre-construction	Environmental Officer	0	No notification done to DWS

	commencement of the licensed activities and again upon completion of the activities.				
5.2	A comprehensive and appropriate environmental (including bio-monitoring) assessment and monitoring programme to determine the impact, change, deterioration and improvement of the aquatic system associated with the activities listed under condition 1.1 as well as compliance to these water use license conditions must be developed and submitted to the Regional Head for written approval within (1) month of the commencement of the activity and must subsequently be implemented as directed. The monitoring programme shall be compared against the REC (Recommended Ecological Class) of a D for the stream on an annual basis.				
5.3	An environmental control officer must be appointed and he/she will be responsible for monitoring of the affected areas.	Pre-construction	Environmental Officer	5	An ECO was appointed for the project
5.4	Six (6) monthly monitoring reports must be submitted to the Regional Head until otherwise agreed in writing with the Regional Head.	N/A	N/A	N/A	A 4 months project
5.5	The audit reports must include but are not limited to:	N/A	N/A	N/A	A 4 months project
5.5.1	Reporting in respect of the monitoring programme referred to in condition 4.2 of Appendix II	N/A	N/A	N/A	
5.5.2	A record of implementation of all mitigation measures and implementation of the watercourse rehabilitation and management plan including a record of corrective actions.	N/A	N/A	N/A	

5.6	The licensee must apply in writing to the Regional Head for alternative monitoring and reporting arrangements for which written approval must be provided.	N/A	N/A	N/A	
5.7	The Licensee must come up with compensatory measures for the damages where mitigation measures have failed to adequately protect the in-stream and riparian habitat or any other characteristics of the watercourse.	N/A	N/A	N/A	
5.8	A qualified and responsible scientist must be retained by the licensee who must give effect to the various license conditions and to ensure compliance thereof pertaining to all activities impeding and/or diverting flow of watercourses as well as alterations to watercourses on the property(ies) as set out in condition 1.1	Construction	ECO, Environmental Officer & Contractor	5	ECO appointed and is monitoring compliance
5.9	The licensee must monitor the stability of the banks and for signs of erosion along the extent of the Elands River and its tributaries on yearly basis and submit these reports to the Delegated Authority upon request	Construction	ECO, Environmental Officer & Contractor	5	ECO monitoring erosion
5.10	The licensee must maintain a REC of at least a D of the entire length of the Elands River and its associated tributaries.	N/A	N/A	N/A	N/A
<b>6.</b>	<b>OTHER WATER USERS</b>				
6.1	The licensee must prevent adverse effect on other water users all complaints must be investigated by a suitable qualified person and if investigations prove that the licensee has impaired the rights of other water users, the licensee must initiate suitable compensative measures.	Construction	ECO, Environmental Officer & Contractor	4	No contamination of water channels and Elands river observed
<b>7.</b>	<b>POLLUTION PREVENTION, INCIDENTS AND MALFUNCTIONS</b>				

7.1	Pollution incidents shall be dealt with in accordance with the Act.	Construction	ECO, EO & Contractor	N/A	Noted
7.2	Any incident that may cause pollution of any water resources shall immediately be reported to the Regional Head.	Construction	ECO, EO & Contractor	N/A	Will be done when it occurs
7.3	If surface and/or groundwater pollution has occurred, or may possibly occur, the licensee must conduct/ appoint specialists to conduct the necessary investigations and implement additional monitoring, pollution prevention and remediation measures to the satisfaction of the Regional Head.	Construction	ECO, EO & Contractor	N/A	No incidence so far
7.4	The licensee shall keep all records relating to the compliance or non-compliance with the conditions of the license in good order. Such records shall be made available to the Regional Head within (14) days of a receipt of a written request by the Department for such records.	Construction	ECO, EO & Contractor	5	All reports filed by contractor, ECO and EO
7.5	The licensee or his/her delegated authority must ensure that no waste is stored close to crossings.	Construction	ECO, EO & Contractor	5	Waste storage area more than 10km from crossing
7.6	The licensee shall keep an incidents report and complaints register, which must be made available to any external auditor or the Department.	Construction	ECO, EO & Contractor	N/A	No incidence to date
<b>8.</b>	<b>BUDGETARY PROVISIONS</b>				
8.1	The licensee must ensure that there is a budget sufficient to complete and maintain the water use and for successful implementation of the rehabilitation programme as set out in this license.	Construction	EO	5	
8.2	The Regional Head may at any stage of the process request proof of budgetary provisions for rehabilitation and closure of project.	Construction	EO	N/A	



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